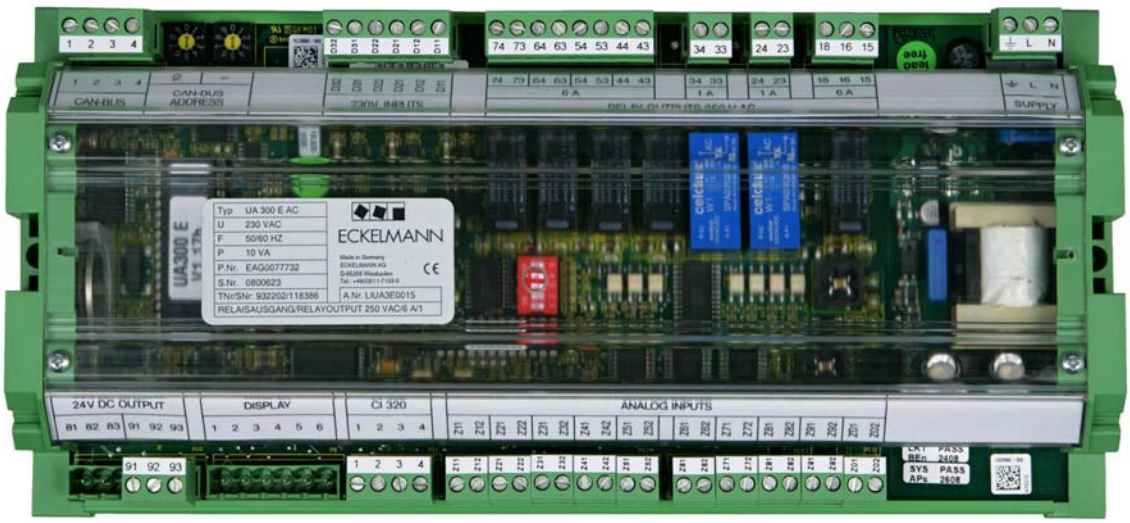
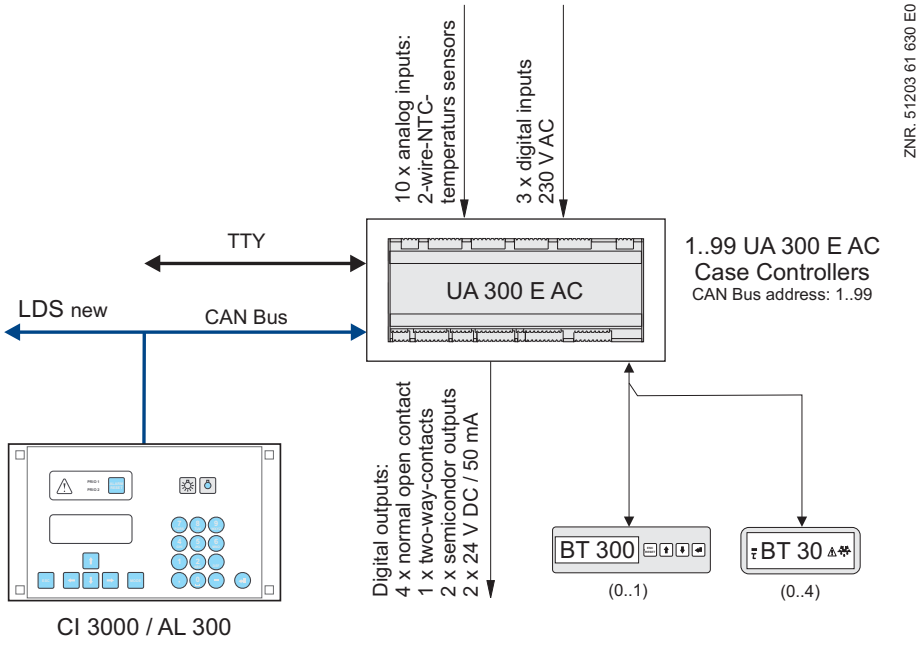
UA 300 E Case Controller V1.30
(for electronic expansion valves)



1 System Design of UA 300 E

1.1 System Design of UA 300 E

The controller is a packaged unit and does not use optional expansion modules. As required, a BT 300x Operator Interface and one to four BT 30 Temperature Displays can be connected. See section Pin and Terminal Assignments of UA 300 E for connections.



UA 300 E A**C** - cap rail mounting

Ports:

CAN bus:	Communication in LDS-System, new version
TTY:	Communication with PC software for EU Archives
Display:	Connection for BT 300x Operator Interface and one to four BT 30 Temperature Displays

Digital inputs/outputs:

3 digital inputs	230 V, floating
2 semiconductor outputs	230 V / 1 A (N.O., to the control of electronic expansion valves)
1 relay output	230 V / 6 A (changeover)
4 relay outputs	230 V / 6 A (N.O.)
2 transistor outputs	24 V DC / 50 mA (for lighting control and frame heater)

Analog inputs/outputs:

10 analog inputs	Connection for two-wire NTC temperature sensors

Real-time clock

Battery-backed, lithium cell

2 Application of UA 300 E

2.1 Types available

For the regulation of refrigerated display cases and cold rooms the UA 300 E is only available in the model UA 300 E AC:

- The controller is developed for integration in the CAN bus of the new LDS System. The letter E in the type designation stands for **electronic expansion valve** and AC stands for ***A**ll in **C**abinet/ DIN rail mounting* (All meaning controller complete with CAN bus and real-time clock, C – in Cabinet - meaning controller installs in refrigerated display case).
- The controller is equipped with battery-backed integral real-time clock and integral memory for EU data recording. The clock continues running in a power line failure.

For the control of refrigerated display cases and cold rooms, the UA 300 E AC controller is to be installed in a casing in the control panel or the UA 300 E AC controller is to be installed in the DIN rail housing on the mounting plate.

The controller must be networked with a VS 3010, VS 3010 BS, FS 3010 (in operation as single-circuit system with pressure-controlled chilled side, no chilled brine) or VS 300 pack controller that supplies suction pressure by CAN bus signal. Stand-alone operation is only possible under the conditions described below.

2.2 Stand-alone operation

The UA 300 E AC can be operated in **stand-alone mode**, i.e. without the controller being connected to the CAN bus. This operating mode is selected by setting the *Corr.off. to* parameter to -- (Menu 6-3). Stand-alone operation affects the following functions of the controller. See the respective sections for further details.

- Required sensors
- Evaporator pumpdown following defrosting (for subsequent temperature control)
- Superheat control
- Controller operation

Stand-alone mode is not suitable for normal operation, only for system commissioning or servicing.

2.3 Controller types

The UA 300 E case controller for refrigeration points equipped with pulse-width modulated on-off expansion valves incorporates the following controller types:

	Controller type	Application
Case controller	UA 121 E	Normal-temperature (NT) refrigeration (multidecks, islands, wallsides, counters) with defrost heater Multidecks without defrost heater
	UA 131 E	Low-temperature (LT) refrigeration (islands, wallsides, verticals, combinations) with defrost heater. Or for display cases supplied by refrigeration system using two-pipe discharge gas defrosting.
	UA 131 E LS	Like UA 131 E, but with advanced fan control
	UA 141 E	Service counters with/without defrost heater
Coldroom controller	UR 141 NE	NT coldrooms with/without defrost heater
	UR 141 TE	LT coldrooms with/without defrost heater and discharge gas defrosting
Subcooler controller	UK 100 E	Subcooler controller with dedicated characteristics for control of refrigerant subcooler

The respective controller type is selected by DIP Switch S3:

Controller type and master/slave mode		DIP Switch S3 (Coding Switch positions 1 to 5)				
		1	2	3	4[1)]	5
Case controller	UA 121 E	ON	OFF	OFF	ON/ OFF	OFF
	UA 131 E	OFF	ON	OFF	ON/ OFF	OFF
	UA 131 E LS	ON	ON	ON	ON/ OFF	ON
	UA 141 E	ON	ON	OFF	ON/ OFF	OFF
Coldroom controller	UR 141 NE	OFF	OFF	ON	ON/ OFF	OFF
	UR 141 TE	ON	OFF	ON	ON/ OFF	OFF
Subcooler controller	UK 100 E	OFF	ON	ON	OFF	OFF

See 4.5 Section Setting controller type and master/slave mode for further details.

Selection of the controller type defines the controller properties and basic controller settings. The UA 300 E can be operated via:

- Host computer by modem connected to CI 3000 Store Computer
- AL 300 Operator Terminal
- CI 3000 Store Computer
- Local operator interface BT 300x connected to controller

2.4 Version update

Replacement of the EPROM may only be carried out by trained personnel or at the manufacterer's works. Improper EPROM replacement can result in damage to the controller and impair-ment of controller functions.

Settings of all setpoints will normally be retained on updating the controller version (plugging in a new EPROM).

Exception: Updating from Version V1.0x to Version V1.10 ff. In this instance, all setpoints are automatically reset to the default settings of the new version when updating (plugging in a new EPROM).

The previous settings can be preserved by saving them to the LDSWin PC software via the CAN bus prior to updating. After changing the EPROM, the saved settings can then be loaded from LDSWin back into the controller (see LDSWin User Guide for further details).

Notice:

3 Function of UA 300 E

The parameters mentioned in this section are described in Section 7 Menu Structure. Changing the default settings for these parameters will not normally be necessary. Parameters that cannot be changed are referred to as fixed parameters in the following description.

3.1 Selecting the sensor type

The UA 300 E case/coldroom controller uses two-wire NTC temperature sensors for control of refrigeration point temperature. All sensors connected to the controller must be of identical type and their parameters are not set separately. The sensor type can be selected by the *Sensor Type* parameter (Menu 6-2-5). The following sensors can be selected:

L243 (K243)	Temperature range -50 to 50°C
	K243 sensors may be used in place of L243. Characteristics of these two sensors are identical.
K277	Temperature range -50 to 50°C
5K3A1	Temperature range 0 to 100°C

All due care must be exercised when installing temperature sensors. Sensor leads need not be shielded when installed exclusively within the refrigerated display case to be controlled and when interference is not to be expected (for example from power wires running parallel to the leads. Otherwise suitable precautions must be taken to protect the sensor leads from external interference.

3.2 Required and optional sensors

Temperature sensors used with the UA 300 E may be either required or optional depending on the set controller type and operating mode. Sensor scan takes place automatically on first start of the controller. The number of sensors scanned can be checked in Menu (6-1) or with the LDSWin software. Required and optional sensors are listed below:

The evaporator input sensor R5.x should be connected for ”t_0 via CAN bus” operating mode. This results in better emergency running characteristics in the event of CAN bus transfer failure.

Single-zone operation

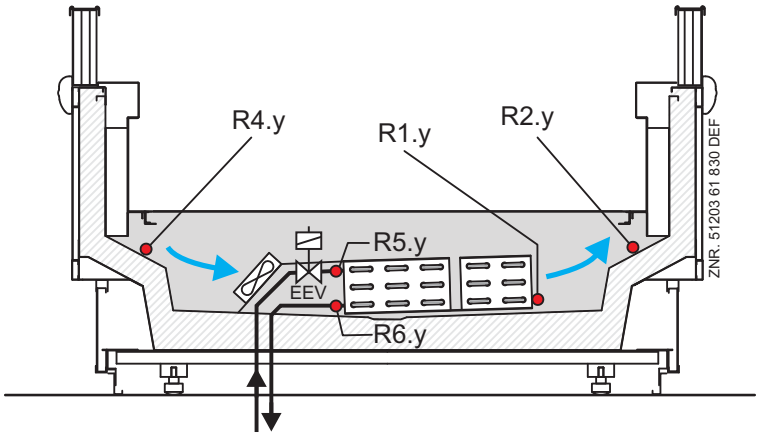
Controller type	Required sensors	Optional sensors
UA 121 E UA 131 E UA 141E	R2.1 R4.1 R1.1 R6.1	R2.2 R4.2 R1.2 R5.1 R5.2 R6.2
UR 141 NE UR 141 TE	R4.1 R1.1 R6.1	R4.2 R1.2 R5.1 R5.2 R6.2
UK 100 E	R4.1 R6.1	R4.2 R1.1 R1.2 R5.1 R5.2 R6.2

Two-zone operation

Controller type	Required sensors	Optional sensors
UA 121 E UA 131 E UA 141E	R2.1 R4.1 R1.1 R6.1 R2.2 R4.2 R1.2 R6.2	R5.1 R5.2
UR 141 NE UR 141 TE	R4.1 R1.1 R6.1 R1.2 R6.2	R4.2 R5.1 R5.2
UK 100 E	R4.1 R4.2 R6.1 R6.2	R1.1 R1.2 R5.1 R5.2

Sensor identification

Legend: Rx.y		
x = Sensor type	1	Defrost sensor 1..2
	2	Supply air sensor
	4	Return air sensor/ room air sensor/ refrigerant temperature sensor (UK 100 E)
	5	Evaporator inlet sensor
	6	Evaporator outlet sensor
y = Case part	1..2	Sensor element zone 1 Sensor element zone 2



Sensor break alarm:

Alarm (Sensor Break) is always generated if required sensors are not connected. If optional sensors are not connected, alarm will only be generated when these sensors are included by sensor scanning. Sensor scan is set on a menu (see Section Menu Structure).

Sensors R5.1 and R5.2 are **optional** when the case controller is operated with a pack controller on the CAN bus.
In stand-alone operation, R5.1 and R5.2 are **required** sensors and must be connected and included by sensor scan to prevent fault alarm.

No actual values are archived on the Store Computer for optional sensors not included by sensor scan.

3.3 Description of controller functions

The sections that follow describes the various functions of the UA 300 E case controller for control of refrigeration points equipped with an electronic expansion valve. The availability of certain controller functions is governed by which controller type is set on DIP Switch S3 (see Section 4.5 Setting Controller Type and Master/Slave Mode).

3.4 Cooling

3.4.1 Temperature control

Temperature is controlled by the opening position of the expansion valve. Control is made separately for each temperature zone by a separate set of controller parameters, temperature and superheat each being controlled by a PID controller.

A decision is made automatically as to whether the refrigeration point temperature controller (partial evaporator charge) or the superheat controller (maximum evaporator charge) is active. Depending on the minimum superheat temperature specified, the evaporator can be operated beyond the critical point of evaporator control (MSS point).

Following defrosting (stand-alone operation only) or controller restart, the evaporator is first pumped down (solenoid valve closes) and refrigerant is then fed in (fixed valve opening of 100%) for a time that can be set by parameter. The two cooling relays are operated at separate times. Operation of the cooling relay is the normally open type. Therefore, cooling will not take place in failure of the pilot energy or total failure of the controller.

Cooling via non-clocked output (controller types UA 131 E, UK 100 E)

With controller types UA 131 E and UK 100 E, cooling can be operated through a static, non-clocked cooling output. The relay is operated as a function of the current valve opening. The general rule is that the output for static cooling is off when the valve opening is zero and is on when the valve opening is greater than zero.

With *controller type UK 100 E* a separate output is provided for each zone. In single-zone operation only the first output is actuated for static cooling and the second output remains continuously off. With *controller type UA 131 E* both zones are operated through a common output. Static cooling is then only off when the valve opening is zero for both zones. This output can be used for example to enable cooling or enable a compressor in operation with the UA 300 E controller.

Duration of pulse width modulation

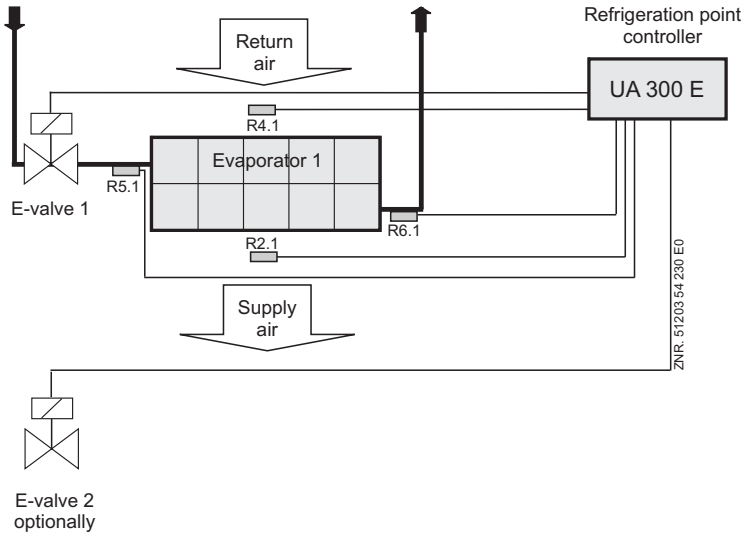
The duration of pulse width modulation can be selected as either 3 or 6 seconds. Setting is made via the *OD 3s interv* parameter (Menu 6-2-6).

On switchover, control is suspended for 6 seconds, after which the valve opening is output for the set duration. Resolution of valve opening is 1% at both settings.

3.4.2 Continuous temperature control by supply and return air temperature

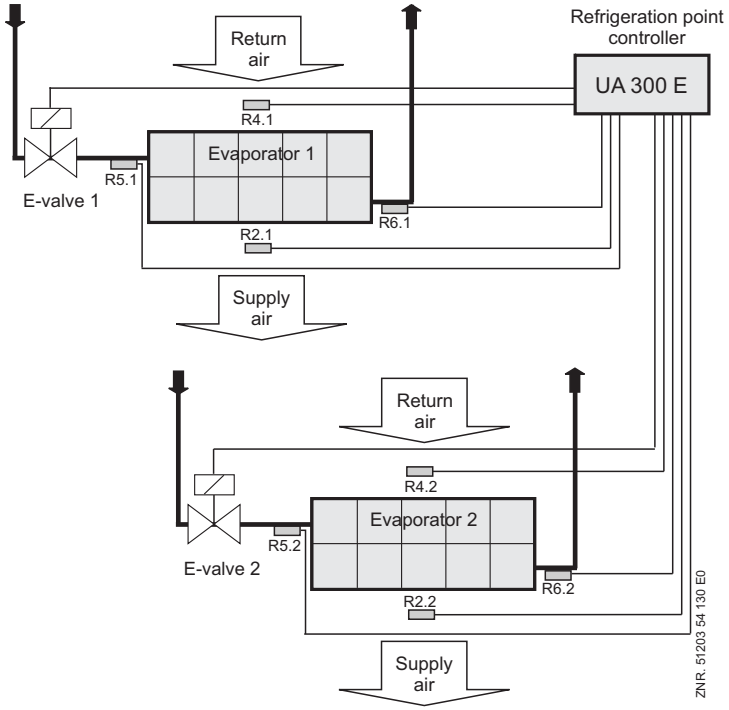
Controler types UA 121 E, UA 131 E, UA 141 E

Control is made by two temperature sensors (supply air or return air sensor of pilot case). Cooling can take place in single-zone or two-zone mode. In single-zone mode, sensors Rx.1 act on both relays 1 and 2 of the expansion valves. The two relays are actuated at separate times (see Section 3.4.10 Two Temperature Zones).



R2.1:	Supply air sensor	(Terminal Z11/12)
R4.1:	Return air sensor	(Terminal Z21/22)
R5.1:	Evaporator inlet sensor	(Terminal Z41/42)
R6.1:	Evaporator outlet sensor	(Terminal Z51/52)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)
Expansion valve 2:	Relay for expansion valve 2	(Terminal 33/34)

In two-zone mode, sensor Rx.1 acts on Relay 1 and Rx.2 acts on Relay 2.



R2.1:	Supply air sensor	(Terminal Z11/12)
R4.1:	Return air sensor	(Terminal Z21/22)
R5.1:	Evaporator inlet sensor	(Terminal Z41/42)
R6.1:	Evaporator outlet sensor	(Terminal Z51/52)
R2.2:	Supply air sensor	(Terminal Z61/62)
R4.2:	Return air sensor	(Terminal Z71/72)
R5.2:	Evaporator inlet sensor	(Terminal Z91/92)
R6.2:	Evaporator outlet sensor	(Terminal Z01/02)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)
Expansion valve 2:	Relay for expansion valve 2	(Terminal 33/34)

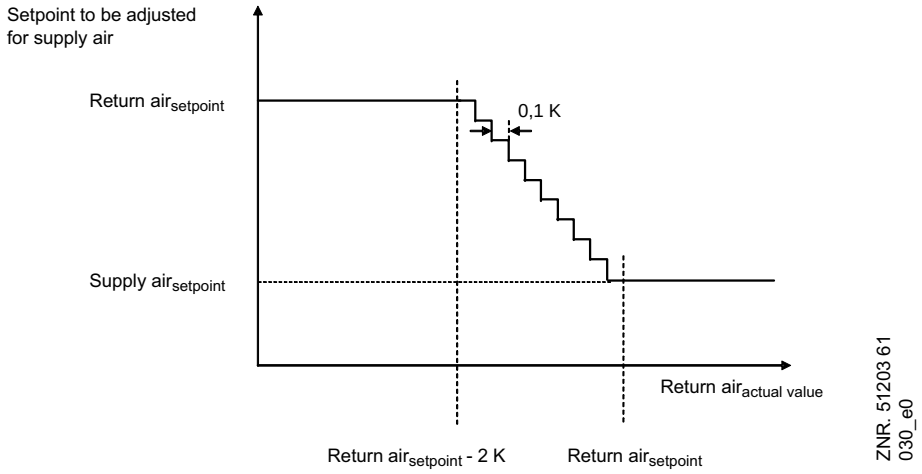
Supply air/return air mode

The supply air setpoint is toggled as a function of return air temperature as follows:

Example 1: Return air_{Actual} < Return $air_{Setpoint}$ - 2K:
Supply air temperature is controlled to return air setpoint.

Example 2: Return $air_{Setpoint}$ - 2K < Return air_{Actual} < Return $air_{Setpoint}$
Setpoint is toggled between supply air and return air setpoint in linear steps (see diagram below).

Example 3: Return air_{Actual} > Return $air_{Setpoint}$:
Supply air is controlled to supply air setpoint.



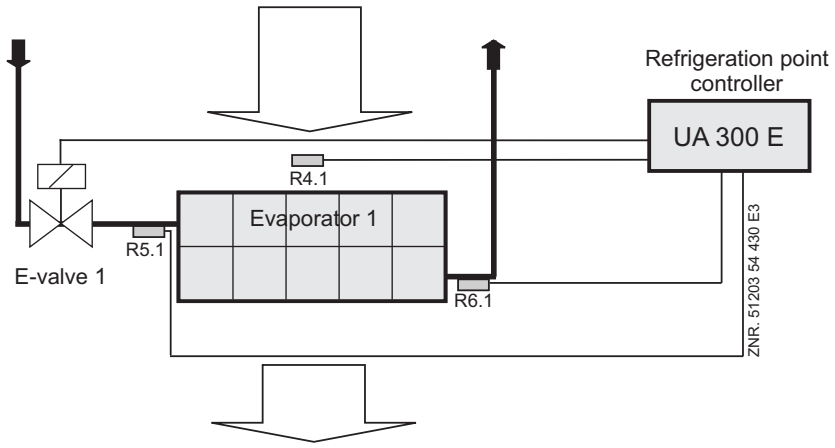
When supply air temperature equals the current setpoint, opening duration of the expansion valves is reduced to the time required to maintain the current state. If only one of the two sensors is fitted (supply air or return air), control is made exclusively by that sensor.

3.4.3 Continuous temperature control by coldroom sensor

Controler types UR 141 TE, UR 141 NE

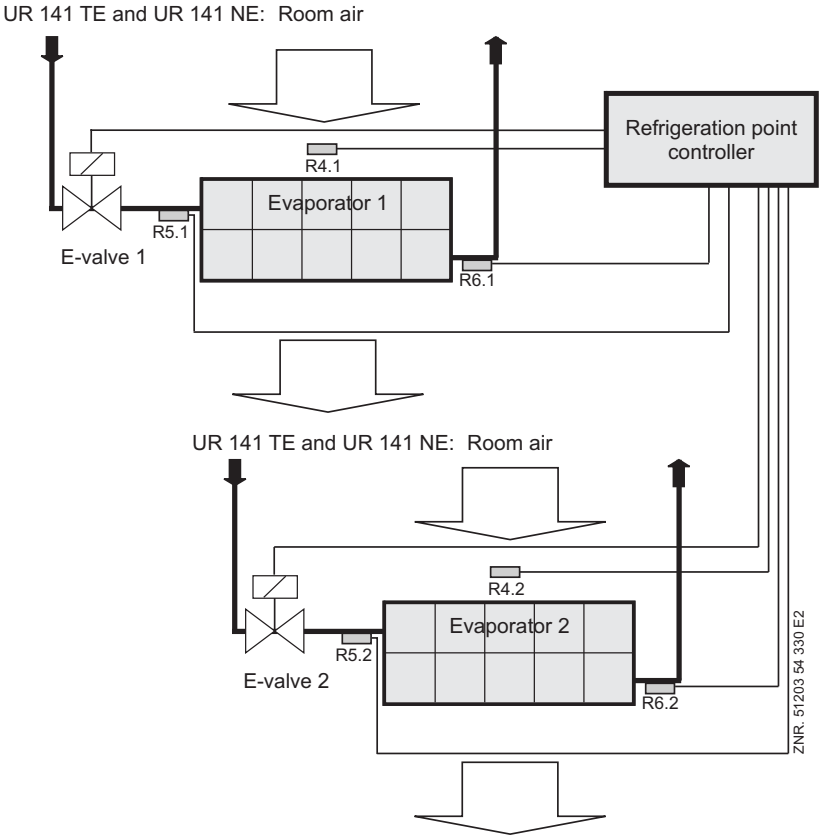
Cooling is controlled according to temperature measured on the coldroom air sensor. When coldroom air temperature equals the current setpoint, opening duration of the expansion valve is reduced to the time required to maintain the current state. Cooling can take place in single-zone mode or two-zone operating mode. In single-zone mode, Rx.1 sensors act on Relay 1.

UR 141 TE and UR 141 NE: Room air



R4.1:	Coldroom air sensor	(Terminal Z21/22)
R5.1:	Evaporator inlet sensor	(Terminal Z41/42)
R6.1:	Evaporator outlet sensor	(Terminal Z51/52)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)

In two-zone mode, Rx.1 sensors act on Relay 1 and Rx.2 on Relay 2.



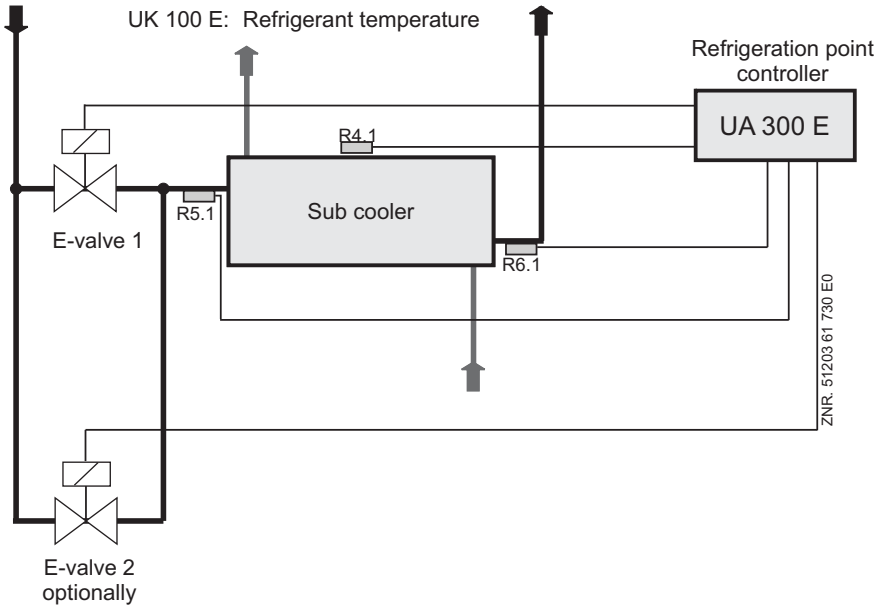
R4.1:	Coldroom air sensor	(Terminal Z21/22)
R5.1:	Evaporator inlet sensor	(Terminal Z41/42)
R6.1:	Evaporator outlet sensor	(Terminal Z51/52)
R4.2:	Coldroom air sensor	(Terminal Z71/72)
R5.2:	Evaporator inlet sensor	(Terminal Z91/92)
R6.2:	Evaporator outlet sensor	(Terminal Z01/02)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)
Expansion valve 2:	Relay for expansion valve 2	(Terminal 33/34)

3.4.4 Continuous temperature control by refrigerant sensor

Controler type UK 100 E

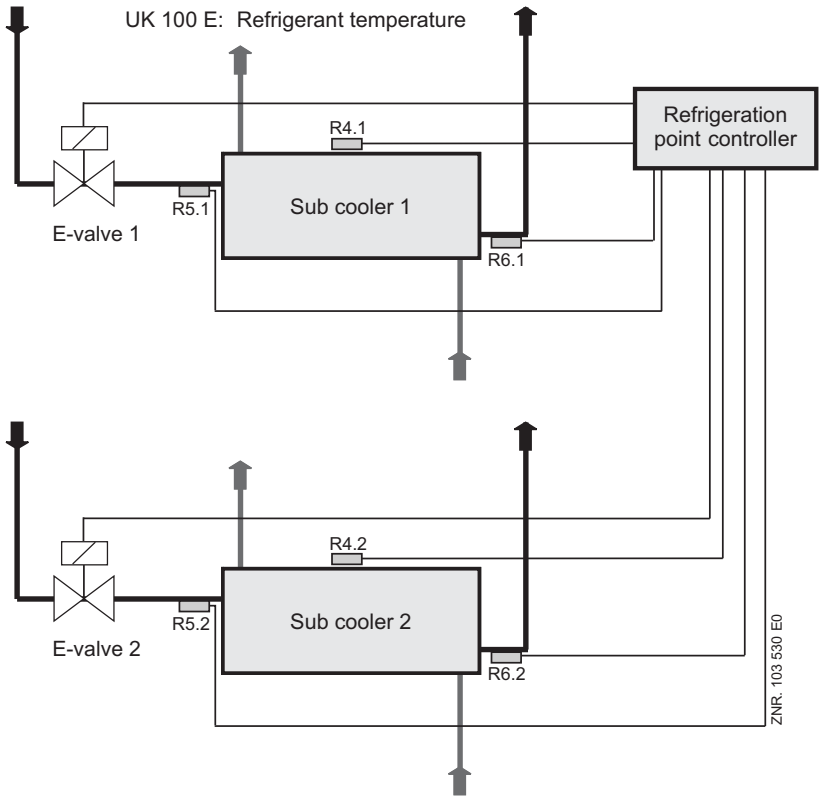
Cooling is controlled as a function of temperature on the refrigerant temperature sensor. When refrigerant temperature equals the current setpoint, opening of the expansion valve is reduced to the duration required to maintain the state obtained.

Cooling can take place in single-zone (tandem mode) or two-zone mode. In single-zone operation (tandem mode) sensors Rx.1 act on Relay 1 and Relay 2.



R4.1:	Refrigerant temperature sensors	(Terminal Z21/22)
R5.1:	Evaporator input sensor	(Terminal Z41/42)
R6.1:	Evaporator output sensor	(Terminal Z51/52)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)
Expansion valve 2:	Relay for expansion valve 2	(Terminal 33/34)

In two-zone mode, Rx.1 sensors act on Relay 1 and Rx.2 on Relay 2.



R4.1:	Refrigerant temperature sensor	(Terminal Z21/22)
R5.1:	Evaporator inlet sensor	(Terminal Z41/42)
R6.1:	Evaporator outlet sensor	(Terminal Z51/52)
R4.2:	Refrigerant temperature sensor	(Terminal Z71/72)
R5.2:	Evaporator inlet sensor	(Terminal Z91/92)
R6.2:	Evaporator outlet sensor	(Terminal Z01/02)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)
Expansion valve 2:	Relay for expansion valve 2	(Terminal 33/34)

3.4.5 On-off control

On-off control can be selected by parameter in place of continuous temperature control and can be set separately for each temperature zone.

Priority of the Check OP alarm should be set to ”0” in on-off controller mode so as to avoid false alarms.

Testing has not yet been completed on operation of superheat control with two temperature sensors R5.x/ R6.x (without transmitting suction pressure from the pack controller via CAN bus) and on-off control. Use of this function must be checked carefully on the system and is entirely at the owner’s/ operator’s risk.

UA 121 E, UA 131 E, UA 141 E:

Control takes place alternatively via two temperature sensors (supply air and return air). The cooling relay cuts out when the defined setpoint (cutout temperature) is obtained on one of the two sensors. Temperature control enables superheat control with the set hysteresis of the sensor that disabled superheat control..

In failure of one sensor or disabling of a setpoint (supply air or return air), control is transferred to the other sensor. In failure of both sensors, emergency mode is activated.

UR 141 TE, UR 141 NE:

Cooling is controlled according to temperature measured on the coldroom air sensor. The cooling relay cuts out when the defined setpoint (cutout temperature) is obtained on the coldroom air sensor. The coldroom controller enables superheat control with the set hysteresis of the sensor that disabled superheat control.

Emergency mode is activated in failure of the coldroom air sensor. In on-off mode of UR 141 NE/UR 141 TE coldroom controllers the fans are switched with temperature control. The fans are started when superheat control is enabled by the temperature controller and stopped when superheat control is disabled.

UK 100 E:

Cooling is controlled according to temperature measured on the refrigerant temperature sensor. The cooling relay cuts out when the defined setpoint (cutout temperature) is obtained on this sensor. Refrigerant temperature control enables superheat control with the hysteresis of the sensor that disabled superheat control. Emergency mode is activated in failure of the coldroom air sensor.

3.4.6 Superheat control

Superheat control works parallel with temperature control. As required, control is made to the defined superheat setpoint. Superheat control works in two modes that can be toggled by a parameter (offset).

Stand-alone mode: Offset = --

Difference between temperature measured at evaporator inlet (R 5.x) and evaporator outlet (R6.x).

Compressor pack mode: Offset

Difference between evaporating temperature measured on compressor pack (transmitted via CAN bus) and at evaporator outlet (R 6.x). An adjustable offset corrects the temperature t_0 measured by the pack controller (suction pressure actual value) by any pressure loss in the suction line and the associated variations between evaporating temperature on the suction pressure side and evaporator side.

Correct transmission of suction pressure via the CAN bus requires the Pack No. to be set on the case controller. When using a VS 3010 BS pack controller, the compressor pack parameter must also be set.

If transmission of evaporating pressure by the pack controller is interrupted, superheat is derived from the temperature difference between R5.x and R6.x. As a supplementary protective function the expansion valve is fully closed if superheat temperature drops below a critical minimum level. Closing of the valve when superheat falls below minimum takes place in three steps within a closing time to be defined based on the last valve opening position.

Reset I-Sum

When the *Reset I-Sum* parameter (Menu 6-2-6) is set to ON, the procedure is as follows:

If the valve opening is set to 0% (final stage of valve closing action) due to superheat dropping below the low level, the I-sum integrated over time (NOT the I-term) is additionally set to zero on the PID controller. This is applicable to both superheat control and temperature control. Distinction also made by control zone.

This is intended to allow the controller to re-learn an I-sum that may have become too large, thus enabling it to adjust to changed ambient conditions.

When the *Reset I-Sum* parameter (Menu 6-2-6) is set to OFF, the integrated I-sum is not changed on drop of superheat below the low level.

Analysis of the pack controller superheat

If the UA 300 E case controller is operated with a VS 3010 pack controller (version ≥ V3.00), then the superheat status is also analysed.

If the superheat of the pack controller is in a non-critical range (dependent on the parameterisation of the pack controller), then the UA 300 E continues controlling **even when** there is a shortfall relative to the minimum value of its own superheat. The UA 300 E only closes the solenoid valve when the pack controller superheat is also too low.

3.4.7 Fixed valve opening position in pumpdown/feed-in phase

There are three events where the controller runs through an initialization cycle, in which a fixed valve opening position is defined:

- After first start and restart / manual shutdown (performed both in superheat control with two temperature sensors and in superheat control by means of t_0 via the CAN bus)
- After defrosting (after completion of drip time and only in superheat control with two temperature sensors and in stand alone operation without suction gas pressure transmission from the pack controller)
- When controller stall is detected (only in superheat control with two temperature sensors and in stand alone operation without suction gas pressure transmission from the pack controller)

In these instances the evaporator is first pumped down for an adjustable time (valve opening 0%) and then refrigerant is fed into the evaporator at a fixed valve opening of 100% also for an adjustable time. This procedure prevents the evaporator input signal from assuming invalid values especially in superheat control with two temperature sensors.

The feed-in phase is interrupted when at least one of the two conditions is met:

- When feed-in duration is completed (safety function).
- When the difference between R6.x and R5.x (corresponding to superheat in control with two temperature sensors) exceeds the superheat setpoint or the temperature measured on evaporator input sensor R5.x drops below return air setpoint + 5K.

Liquid refrigerant can exit the evaporator if the feed-in time for the evaporator to be controlled is set too large. During the set feed-in interval, superheat is not checked for drop below minimum level.

3.4.7.1 Fixed valve opening position for servicing purposes

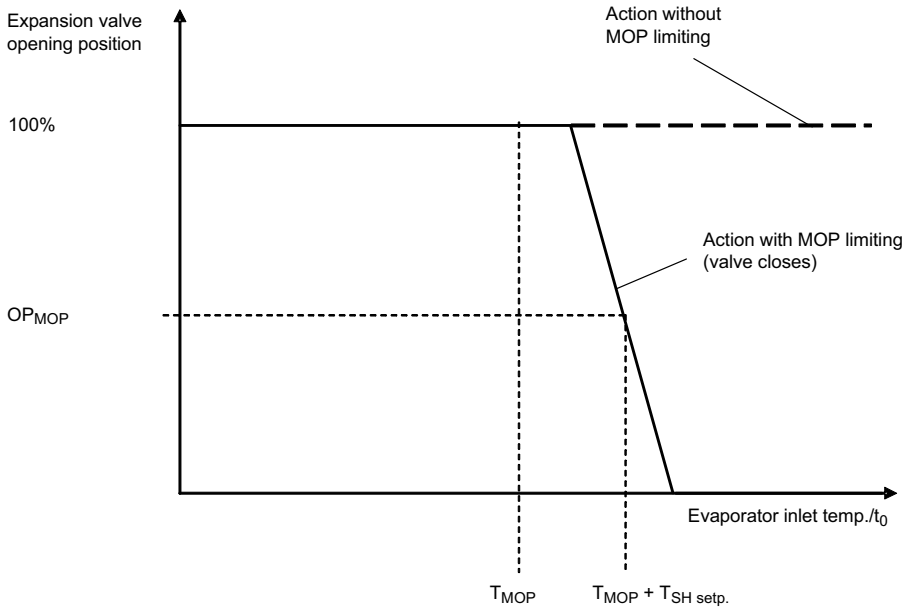
As an alternative to automatically defining valve opening position by the control functions, a fixed valve opening position can be defined for servicing purposes.

In this instance the superheat controller is not active, resulting in risk of overcharging the evaporator!

3.4.8 MOP function

The MOP function operates both in stand alone mode as well as during operation via the CAN bus. The MOP (**m**aximum **o**perating **p**ressure) function reduces opening position of the expansion valve at high evaporating pressure. It the measured evaporator outlet temperature rises to a value greater than the sum of MOP limit and superheat setpoint, the evaporator outlet temperature R6.x will be limited internally by the controller. The evaporator outlet temperature thus can never be greater that the sum of MOP limit and superheat setpoint.

Since opening position of the expansion valve is computed from the difference between t_0 and evaporator outlet temperature, valve opening position is reduced by the superheat controller as t_0 increases. The desired MOP functionality is obtained by the interaction of the maximum-limited temperature sensor R6.x and the rise of t_0.



When evap. outlet temp. >> evap. inlet temp/t_0

T_{MOP}	MOP limit
TSH setp.	Superheat setpoint
OP_{MOP}	Valve opening position (pulse width modulation ration) at MOP point
MOP	Maximum operating pressure

ZNR. 51203 61
130_e0

The expansion valve closes fully not later than when t_0 exceeds the value of the internally computed evaporator outlet temperature (MOP limit + superheat setpoint), as the controller-internal MOP superheat has then dropped to zero. MOP limiting is deactivated during defrosting.

3.4.9 Run time limiting/continuous run monitoring (except controller type UK 100 E)

Continuous running of a refrigerated display case, caused for example by aggravated ambient conditions, has an adverse effect especially in connection with multidecks. It results in icing of the evaporator and diminished air curtain cooling. Run time limiting automatically initiates forced shutdown of cooling for intervals as a means of preventing icing.

The duration of these forced shutdown intervals can be set (menu 6-3). Commencement of forced shutdown is defined at a fixed time. When required, forced shutdown takes place 1.5 hours after commencement of defrosting and at subsequent one-hour intervals.

The following supplementary conditions apply:

If the supply air actual value drops below the supply air setpoint + 1 K in one zone, continuous run monitoring in that zone will be deactivated for one cycle (1.5 or 1 h). Continuous run monitoring can be activated for all controller types. In appropriate circumstances it can also be used to effect regular shutdown of the otherwise continuously controlling expansion valve where required by the display case or refrigerated merchandise.

When forced shutdown is active, shutdown will be terminated before the end of the set duration if temperature rises 4K on the supply air sensor.

3.4.10 Two temperature zones

It is possible in principle for one refrigerated display case to be controlled in single-zone operation (*Temperature Zones* parameter set to 1; one pilot case only) or two refrigerated display cases with two temperature zones (two pilot cases). In operation with two temperature zones, temperature and superheat are controlled separately for each case.

In single-zone operation the second expansion valve is operated at the same opening position as the first valve with a time delay. Only the first five sensors and the setpoints of the first zone are used for control.

In single-zone operation the setpoint for the heating circuit must be set to ”--” on coldroom controllers so as to allow tandem operation.

With two-zone operation it is possible, in addition to conventional termination of defrosting, for both cases to be returned jointly to cooling mode after defrosting. This requires master-slave mode to be activated in two-zone operation (see the corresponding section for further details). Only one evaporator temperature sensor is provided for each evaporator.

One-room-air-sensor operation (controller types UR 141 NE, UR 141 TE)

In two-zone operation, it is possible for the coldroom controller to regulate both zones via one common room air sensor. In this operating mode the room air sensor for the first zone (R4.1) is used for the coldroom temperature regulation of both zones. The superheat regulation of both zones continues to be conducted independently. This operating mode is suitable e.g. for the deployment of two independently regulated evaporators within one coldroom.

In order to activate operation the following **must** apply

- two-zone operation is set (menu 6-1) and

- the coldroom temperature setpoint of the second zone (menu 2-1-1) is set to ”--”.

- The alternative coldroom temperature setpoint of the second zone (e.g. night-time value) has no function in this operating mode.

- If following a defrost, the transition to cooling is to be carried out simultaneously for both zones, then the master-slave mode for this case controller is to be activated.

- The room air sensor for the second zone (R4.2) is **not** used for regulation in this operating mode, however if it is attached then this sensor conducts temperature monitoring.

3.4.11 Heating circuit control

Controler types UR 141 NE and UR 141 TE

As an alternative to the second temperature zone, the temperature can be controlled in coldrooms with a supplementary heating circuit. Heating circuit control is plain on-off control. The heating circuit control relay cuts out when temperature rises to a value equal to the setpoint plus hysteresis. The relay cuts in when temperature drops below the setpoint. The relay with terminals 33/34 is used for heating circuit control.

A second zone must **not** be selected when heating circuit control is used. Only then is it possible to adjust the setpoints.

The setpoint for the heating circuit must be set lower than for cooling. Faulty adjustment of setpoints entails the risk of damage to the system and merchandise!

Note that refrigerant feed and heating can occur simultaneously when the heating circuit setpoint and temperature setpoint are set close together in continuous control mode. The parameters must be set accordingly.

Control of heating circuit and temperature takes place simultaneously. Actuation of heating and cooling at the same time can be prevented by selecting on-off mode for temperature control instead of continuous temperature control. When the heating circuit setpoint is set to -- in single-zone operation (Temperature Zones parameter set to 1), the Cooling 2 relay is operated at the same opening position as Cooling 1 relay (push-pull action).

3.4.12 Emergency operation

In failure of temperature measurement or superheat control, cooling continues at an emergency valve opening position. This emergency valve opening position is computed from the mean valve opening positions of the preceding 24 hours, and has an upper limit that can be adjusted by a parameter.

Parameter for emergency valve opening position:

- The *Max. Emergency Opening Position* parameter (Menu 6-2-6) is used to limit maximum emergency valve opening position.
- The *Max. Emergency Opening Position* parameter also takes effect when a 24-hour value of valve opening position cannot be computed, for example at first start.

Failure of display case and coldroom temperature control:

- In failure of both sensors for display case and coldroom temperature control, control continues at the emergency valve opening position. The superheat controller remains active and can limit minimum emergency valve opening position.

In failure of one of the two sensors, control continues with the remaining sensor and emergency operation is not activated.

Failure of superheat control:

- In failure of superheat control, emergency mode is initiated and the emergency valve opening position is output. The display case controller remains active and can limit minimum emergency valve opening position.

Failure of display case and coldroom temperature control and superheat control:

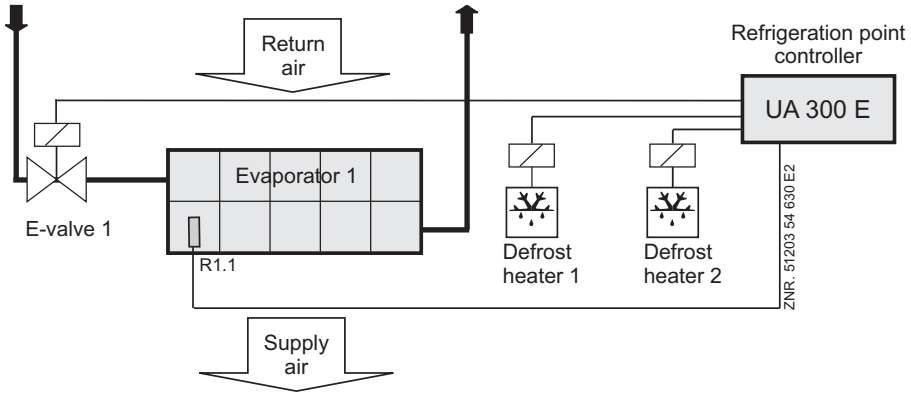
- Emergency valve opening position is output.

3.5 Defrosting

On grounds of fire prevention, during the planning of the installation a device for shutting down the defrost heating in the event of excessive temperature (e.g. ”KLIXON”) must be provided.

Defrosting is used to prevent icing of the evaporators due to normal control action. The evaporator is defrosted by supplementary heating of the evaporator (electric heater) or by the off-cycle method. Temperature control for the refrigeration point is shut down during defrosting. Defrosting differs in single-zone mode and two-zone mode. In single-zone mode, sensors R1.1 and optionally R1.2 (only when connected) act on Relay 1.

Exception: Second defrosting stage with coldroom controllers (see description below).



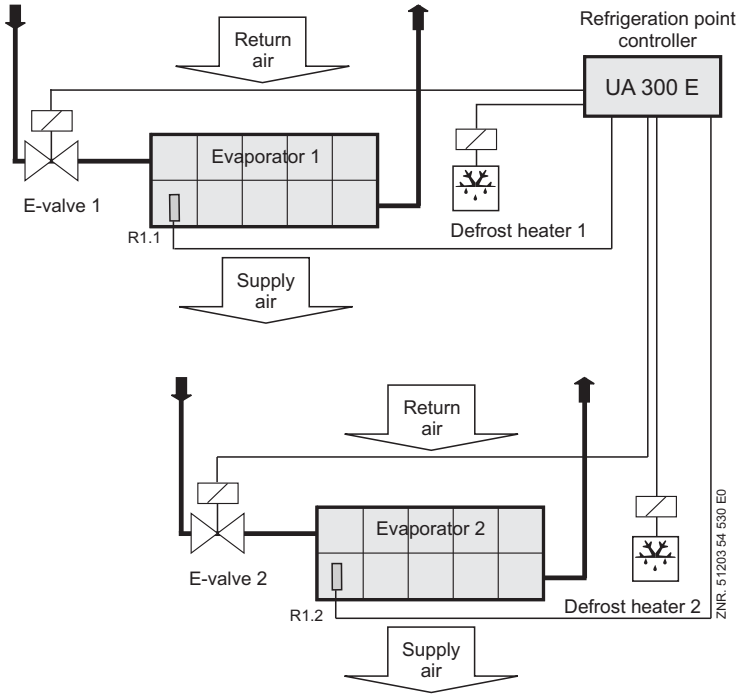
R1.1:	Defrost sensor	(Terminal Z31/Z32)
R1.2:	Optional	(Terminal Z81/Z82)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)
Defrost heater 1:	Relay for defrost heater 1	(Terminal 43/44)

Allocation of sensors to defrost relays

Optional sensors that are not connected are not used to operate the defrost relay.

Controller type	Sensor	Comment
UA 121 E UA 131 E UA 131 E LS UA 141 E	R1.1	Defrost Relay 1
UR 141 NE UR 141 TE UK 100 E	R1.2	Defrost Relay 2

In two-zone mode, sensors R1.1 and R1.2 act on defrosting.



R1.1:	Defrost sensor	(Terminal Z31/Z32)
R1.2:	Defrost sensor	(Terminal Z81/Z82)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)
Expansion valve 2:	Relay for expansion valve 2	(Terminal 33/34)
Defrost heater 1:	Relay for defrost heater 1	(Terminal 43/44)
Defrost heater 2:	Relay for defrost heater 2	(Terminal 53/54)

Allocation of sensors to defrost relays

Optional sensors that are not connected are not used to operate the defrost relay.

Controller type	Sensor	Comment
UA 121 E UA 131 E UA 131 E LS	R1.1	Defrost Relay 1
UA 141 E UR 141 NE UR 141 TE UK 100 E	R1.2	Defrost Relay 2

Start of defrosting

Defrosting can be initiated by four methods:

- By internal clock (except UK 100 E)

Defrosting cannot be started again before the safe defrost time has expired (defrosting parameters) regardless of defrosting having been terminated in the meantime by evaporator temperatures. Defrosting should be timed to take place between 2:00 and 3:00 hours where possible so as to avoid problems of missed or duplicated defrosting when changing to or from daylight saving time.

- By external timer (230 V input)

  Note for external defrost (master/slave mode not active):

  The time for which the defrost signal for external defrosting is applied must be as long as the required maximum defrost duration. Defrosting is terminated as soon as the external request command is halted. During the time the defrost signal is applied, defrosting can always be terminated by the evaporator sensor (on exceeding defrost termination temperature).

  Note for external defrost in master/slave mode:

  The defrost signal must be applied only briefly, as in this instance it serves only to initiate defrosting. The safe defrost time is controlled by the internal parameter *Safe Defrost Time*. The external signal must always be shorter than the set safe defrost time. Cooling is interrupted by the duration of the external defrost signal.

- By command signal via CAN bus (manual actuation, in PC software)

  In every instance, defrosting is not initiated unless the conditions for defrosting are found to be fulfilled. These are:

  Evaporator temperature lower than defrost termination temperature

  Defrost counter set to 1 with demand defrosting

  EEV Sensor Break alarm is not active

- By command from pack controller via CAN bus

  Defrosting (e.g. discharge gas defrosting, brine defrosting) is initiated without checking for conditions.

With controller types UA 121 E, UA 131 E and UR 141 TE defrosting will also be inhibited when the following conditions are all met:
1.) Temperature alarm is active or alarm delay is set to 0 minutes.
2.) Evaporator temperature R1.1 or R1.3 is higher than the defined return air setpoint.

Termination of defrosting

Defrosting can be terminated by three methods:

- By defrost termination temperature being obtained on the respective evaporator sensor regardless of set controller type
- By completion of safe defrost time
- By command signal (manual or pack controller) via CAN bus

Defrosting is always terminated by the safe defrost time when defrost termination temperature is set to --. In this instance, no *Timer-Term. Defrost* alarm is entered in the fault report list.

Suppression of sensor break alarm during defrosting

While defrosting is in progress, temperature sensors and particularly the evaporator sensors may become heated to a temperature above the limits of the case/coldroom controller's temperature detection range. Sensor break alarm is accordingly suppressed for the duration of defrosting so as to avoid signalling of false alarms. (See also Section 8.1)

Demand defrosting (controller type UA 131 E, UR 141 NE, UR 141 TE)

Demand defrosting means that a decision is made, depending on duration of a previous defrosting cycle, whether defrosting is actually initiated or skipped on becoming due. Demand defrosting is activated when the counting rate is set other than to 0 and is deactivated when the counting rate is set to 0.

A defrost counter is set to 6 at the commencement of defrosting and counts down as a function of the set counting rate until temperature on the evaporator sensor of the pilot case is in the range between -3°C and +3°C. If the counting rate is set low, the demand defrost counter will count down faster to 1. This means that **all** defrost cycles are indeed initiated when due. If a higher counting rate is set, more defrost cycles will be **skipped** (maximum 5 cycles).

Waiting time (not with controller type UA 141 E)

A wait between the time cooling is stopped and the defrost heater is started can be set at the initiation of defrosting. This prevents simultaneous operation of the defrost heater while the evaporator is being pumped down.

Drip time (not with controller type UA 141 E)

Start of cooling after defrosting can be delayed by setting a drip time. The drip time does not commence until the last defrost relay has de-energized. This allows defrost water to drip off before cooling restarts. With the UR 141 TE and UR 141 NE controllers the fan remains off until the drip time has expired, after which check is made to determine whether the conditions for starting the fan are met.

Defrosting with two temperature zones

When two zones have been selected for control of cooling, each zone is treated separately for defrosting. Defrost start time is however the same for both zones.

Second defrost stage (controller type UR 141 NE, UR 141 TE)

The two defrost stages function can be used for example if a risk exists of the drip water collecting pan drain freezing over on evaporators equipped with such a pan when single-stage defrosting is used.

In order to activate a second defrost stage the controller parameter *Temperature Zones* must be set to **one** zone (Menu 6-1). This will then display the menu item for a second defrost stage (Menu 2-2-1). Defrosting is initiated by starting the first defrost stage (*Defrost1* relay). Termination of first-stage defrosting is controlled by evaporator sensor R1.1 and termination of second-stage defrosting is controlled by evaporator sensor R1.2.

When evaporator temperature (R1.1) rises above the setpoint for the second defrost stage, the *Defrost2* relay is operated. The defrost termination temperature set for Zone 1 is used.

If the 2nd defrost level is deactivated (parameter 2nd defrost level = ”--”), then both defrost relays are employed. If the evaporator sensors are connected, then R1.1 is assigned to defrost relay 1 and R1.2 to defrost relay 2. Both defrost relays are active at the start of the defrost; the shutdown proceeds via the assigned evaporator sensor or the safe defrost time.

The second defrost stage parameter must not be set with discharge gas defrosting, as the second defrost relay will otherwise not energize as generally desired with discharge gas defrosting.

Stock compartment on service counters (controller type UA 121 E, UA 141 E)

The *Defrost Inverted* relay (contacts 63 and 64, inverted operation) can be used to interrupt cooling for example of the stock compartments. The relay is open when cooling is in progress and closed when defrosting is started:
- which means that the relay contact is open when the controller initiates defrosting
- which means that the relay contact is closed when the controller terminates defrosting.

Interruption of cooling during defrosting extends for the safe defrost time in the case of the stock compartments and therefore can last longer than defrosting in the 1st or 2nd temperature zone. Moreover the relay is not operated until the waiting time has expired.

Manual defrosting (not with UA 131 E in master/slave mode)

Manual defrosting can be initiated (e.g. for servicing purposes) on either the

- AL 300 Operator Terminal or the
- CI 3000 Store Computer

by opening Menu 5 Remote Operation – Select Refrigeration Point (CAN bus address) - 3 Clock - 2 Defrost Timer and selecting ON in the line *Man. Defrost* or on the

- Host Computer (see description of LDSWin software).

When defrosting is initiated (by controller or in LDSWin) and is terminated or skipped by demand defrosting or terminated by defrost sensor, the complete safe defrost time must have expired before manual defrosting can again be initiated.

If manual defrosting is to be initiated again immediately following, the first defrost cycle must previously be terminated by either of the following:

By controller: Menu 5 Remote Operation – Select Refrigeration Point (CAN bus address) - 3 Clock - 2 Defrost Timer, set parameter “Man. Defrost” (Menu 3-2) OFF.

In LDSWin: Click on Terminate Defrosting button.

Manual defrosting can then be restarted immediately.

Automatic initiation of defrosting on first start

Defrosting is initiated automatically at first start with the following controller types:
UA 121 E, UA 131 E, UA 141 E

3.5.1 Discharge gas defrosting (hot gas defrosting)

Discharge gas defrosting involves feeding discharge gas into the evaporator and can be performed with either hot or cold gas. The discharge gas is supplied from a point upstream of the condenser (hot gas defrosting) or from the receiver downstream of the condenser (cold gas defrosting).

Discharge gas defrosting as described herein is D2D two-pipe discharge defrosting, which can be performed only with hot gas. Otherwise there is a risk of the compressors drawing in liquid refrigerant.

Notes on discharge gas defrosting (controller type UA 131 E, UR 141 TE)

These notes apply to two-pipe discharge gas defrosting. The defrost relays are used to control special solenoid valves specific for discharge gas defrosting. In discharge gas defrosting allowance is made for the specific properties of the discharge gas:

- Demand defrost counter ignored on initiation of defrosting
- No internal initiation of defrosting
- No interruption of defrosting in occurrence of temperature alarm
- Discharge gas defrosting requires the system to include a pack controller. Case/coldroom controllers involved in discharge gas defrosting must be assigned to a pack controller through the Pack No. parameter. With VS 3010 BS pack controllers, the *Refrigeration Pack* parameter must also be set on the case/coldroom controller.

Activating discharge gas defrosting with UA 131 E:

To activate discharge gas functionality on the UA 131 E, the Discharge Gas Mode parameter must be set ON on the controller.

Activating discharge gas defrosting with UR 141 TE:

Discharge gas defrosting can be performed at any time with the UR 141 TE and does not need any further parameters to be set.

Termination of discharge gas defrosting with UA 131 E:

Defrosting is terminated by the defrost termination temperature sensors and can be carried out immediately. In contrast to the UA 131 DD (see UA 300), there is no time delay before the start of defrosting.

Termination of discharge gas defrosting with UR 141 TE:

Defrosting is terminated by the defrost termination temperature sensors without delay. If an internal defrost timer is set on controller types suitable for discharge gas defrosting, it will be changed automatically to external defrosting by the pack controller the first time discharge gas defrosting is initiated. This prevents the case controller from automatically initiating defrosting.

At first start with the UA 131 E, defrosting is initiated directly after starting. If the system is not interlocked by appropriate pack controller control leads for initiation of discharge gas defrosting, it is then possible for liquid refrigerant to enter the suction line for example. Therefore, in applications with discharge gas defrosting, always make sure that manual defrosting is disabled when the controller starts and the defrost timer is set to external defrosting. Alternatively or additionally, operation of the positioners specific to discharge gas can be interlocked by the pack controller by means of suitable control leads.

Discharge gas defrosting cannot be used together with the master-slave function. With discharge gas defrosting the operation must be terminated when the CAN bus defrost command ends, whereas with master-slave defrosting the operation always continues until the safe defrost time expires. Alarm will be generated by the controller if such a combination is set.

3.5.2 Master-slave mode for defrosting (except UK 100 E)

With this function it is essential to ensure that simultaneous defrosting and cooling of the synchronized refrigeration points cannot take place due to faulty parameter setting.

This function requires supplementary external wiring (see section 5 Pin and Terminal Assignments).

Description of operation

Master-slave mode is used with refrigerated display cases on which operation of more than two evaporators without additional protective measures can lead to mutual evaporator icing. This problem is avoided by synchronization of defrosting in master-slave mode. All refrigerated display cases are defrosted at the same time and then jointly return to cooling mode. Synchronization is made through the hardware wiring.

This also enables both zones to be caused to return jointly to cooling mode after defrosting with one controller in two-zone operation.

Special features and constraints

All defrost relays are energized simultaneously at the commencement of defrosting. In the course of defrosting the evaporator defrost relays are de-energized separately and only as a function of defrost termination temperature.

Return to cooling mode is not however made until defrosting is completed on all synchronized cases.

All properties of the defrost function such as demand defrosting, defrosting via CAN bus and manual defrosting are preserved on the master case controller.

Configuration

The master-slave function is usable in every controller mode and can be activated by Coding Switch 4 (DIP Switch 3, Coding Switch 4 = ON, see Section 12.4 Installation and Startup). The controller must be restarted (switched off and on again) to make the change become effective. Coding Switch 4 must be activated (ON) on both the master and the slave controller.

The internal defrost timer must be active on one of the case controllers. This controller is termed the master. The other case controller must be configured for external defrost start, automatically making it the slave controller.

It is possible for defrosting on the master (internal defrosting active) to be carried out by a signal transmitted to the (external) defrost input.

The set controller mode and activation of master/slave mode can be checked in the *Type and Version* menu. The following items must definitely be observed for correct operation:

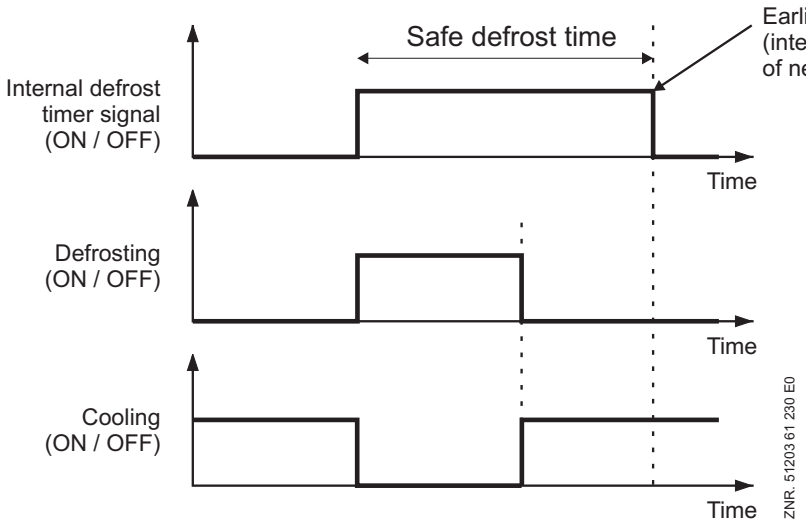
Faulty setting of coding switches and defrost timer (INT/EXT) can result in evaporator icing due to non-synchronized defrosting or failure of defrosting to take place!

If demand defrosting is active on the slave controller, the master might defrost while the slave is still in cooling mode.

Waiting time for start of defrosting must not be set to any other value but 0, as otherwise defrosting on the master and slave will not be synchronized.

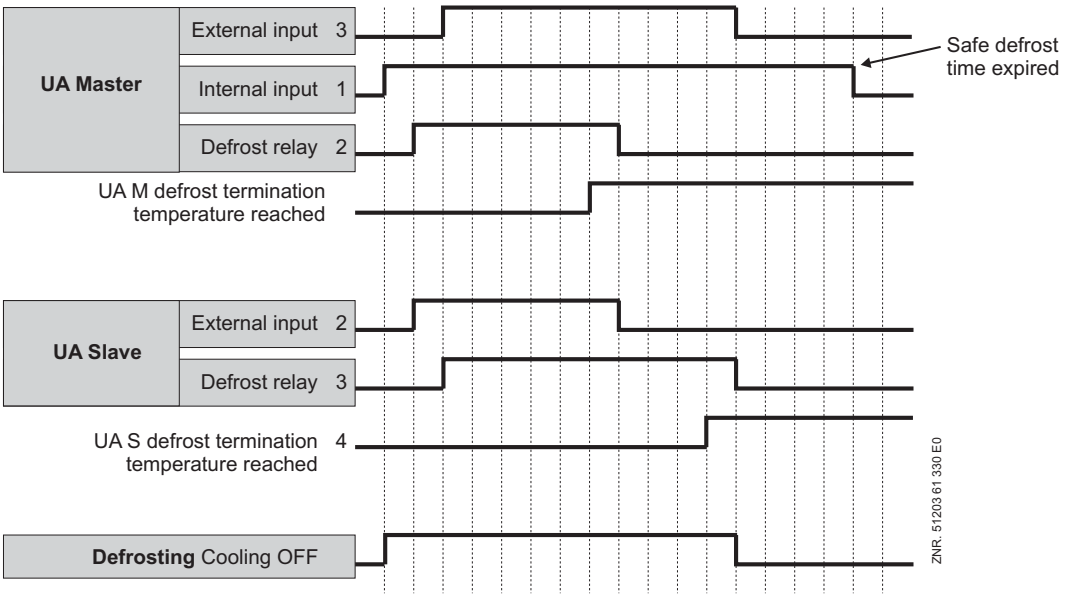
Safe defrost time on the slave must be exactly the same as on the master so that neither of the two case controllers will resume cooling before the other due to expiration of the safe defrost time.

- Operation is possible with one or two temperature zones. Demand defrosting works only on the master case controller. Counting rate for demand defrosting must be set to zero (0) on the slave controller.
- Manual defrosting cannot be initiated on the slave case controller.
- The *No Defrost* alarm refers to master and slave. Demand defrosting on the master can lead to this fault being generated on the slave by error, for example when monitoring time is set too low.
- Any drip time set will not commence until defrosting has been fully completed and cooling resumes.
- After defrosting is started by the internal timer, defrosting cannot be initiated again before the safe defrost time expires, regardless of cooling mode having resumed in the meantime.



Defrosting example

Case controller UA M configured as master. Case controller UA S configured as slave. Synchronized master/ slave defrosting by internal defrost timer:



The numbers indicate logic interdependence of the signals. Note the following for this example:

- The internal defrost signal is applied for the entire safe defrost time. Termination of defrosting is generally governed however by de-energizing of the last defrost relay.

Example: Synchronized termination of defrosting on <u>one</u> controller with two temperature zones

In operation with two temperature zones defrosting is terminated in each zone as a function of the respective defrost termination sensor and cooling is resumed immediately thereafter. If cooling is to be resumed simultaneously in both zones after defrosting, Coding Switch 4 must also be set ON on DIP Switch S3 for the master-slave function. Cooling will then not be resumed until defrosting is terminated in both zones. The defrost heater relay is still operated separately for each zone according to temperature on the defrost termination sensor.

The constraints mentioned above for the master will then apply with internal defrosting and the constraints mentioned above for the slave will apply with external defrosting. In particular with manual and external start of defrosting, the duration of defrosting will not be controlled by the duration of the signal applied but in each instance by the set safe defrost time.

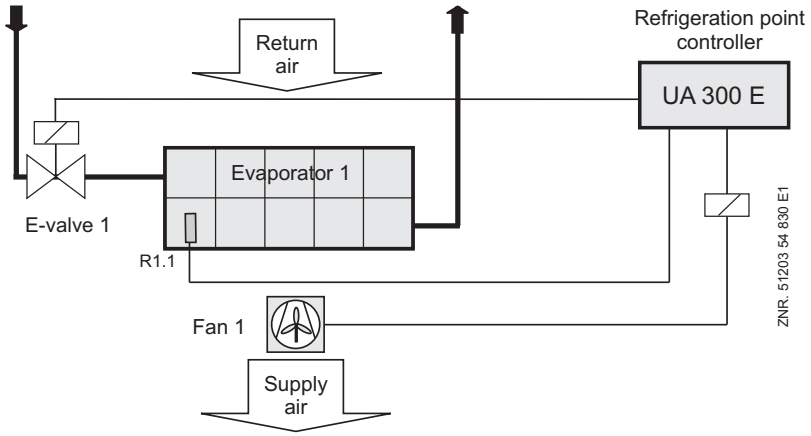
3.6 Fan control with display case controllers

- **Fan control on multidecks (controller type UA 121 E)**

The fan continues running during cooling and defrosting. With external toggling of setpoints from set 1 to set 1 – but not vice versa – the fans stop for an adjustable time. This is necessary to ensure troublefree closing of the night blind (e.g. on Light OFF).
The fan relay is the inverted type,
- when the controller turns on the fan, then the relay contact (73/73) is opened;
- when the controller turns off the fan then the relay contact (73/73) is closed.

- **Fan control (controller type UA 131 E)**

Fan control works with defrost sensors R1.1 and R1.2 and a relay in two-zone mode. In single-zone mode only defrost sensor R1.1 controls the fan relay.



R1.1:	Defrost sensor	(Terminal Z31/Z32)
Expansion valve 1:	Expansion valve 1	(Terminal 23/24)
Fan 1:	Fan control relay	(Terminal 73/74)

When thermal fan start delay is set, the fan does not start for a time after defrosting is terminated so as to prevent warm air being forced into the display case.

Version 1.10:
If the Fan Delay parameter is set to ”--”, the fan will remain continuously off.

From Version 1.11:
If the Fan Delay parameter is set to ”--”, the fan will remain continuously on.

The fan relay is the inverted type,
- when the controller turns on the fan, then the relay contact (73/73) is opened;
- when the controller turns off the fan then the relay contact (73/73) is closed.

Advanced fan control UA 131 E LS (only controller type UA 131)

The advanced functions for the fan control are activated via the DIP switch S3 on the UA 300 circuit board. The terminal assignment, with the exception of the assignment of the 230 V relay outputs, is identical with the terminal assignment of the UA 131 (see chapter 4 Installation and Startup).

The fan relay operates inverted:
- when the controller turns on the fan, then the relay contact (73/73) is opened;
- when the controller turns off the fan then the relay contact (73/73) is closed.

Parameterisation of the advanced fan control

The relevant parameters for the advanced fan control are found in the operator menu of the case controller under menu item 2 setpoints - 6 fan - Zone 1+2 and can be used for the normal setpoint. The next step is to select the required operating mode for the fan control. This is carried out via the *OpMod.* parameter.

The following four parameters for setting the operating modes are available:

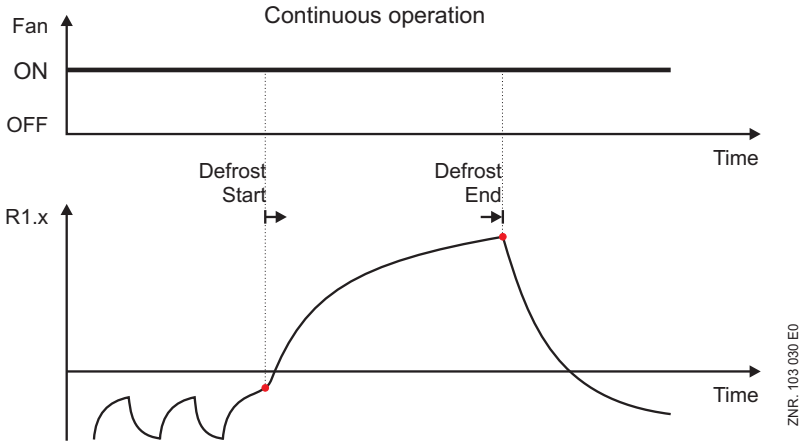
- *CONTINUOUS* (continuous operation)
- *FORERUN* (forerun)
- *OVERRUN* (overrun)
- *DEL.A.DEFR.* (delay after defrosting)

For controlling the fan via the temperature at the evaporator sensors R1.1 und R1.2 the two parameters *Fan Start* and *Fan hightemp.* are used. These parameters are not effective in all operating modes.

Functional characteristics of the 4 operating modes

1. “Fan continuous operation” mode

In this operating mode the fan relay is permanently switched on.



The two parameters *Fan Start* and *Fan hightemp.* are not effective in this operating mode.

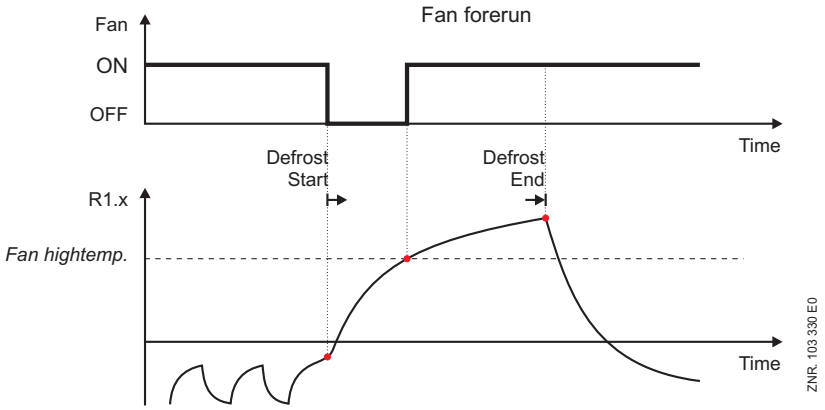
2. ”Fan forerun” operating mode

In this operating mode the fan relay is permanently switched on during cooling.

At the start of a defrosting the fan relay switches off. The fan relay switches on when the parameter *Fan high-temp.* on the evaporator sensor is exceeded. When the defrosting is completed, the fan relay switches back on under all circumstances.

In single-zone operation only the evaporator sensor R1.1 is used for the fan control.

During two-zone operation both the evaporator sensors R1.1 **and** R1.2 are used for the fan control. If the evaporator sensor R1.2 is not attached then the fan relay will only be controlled via R1.1, even during two-zone operation.



During a possible parameterised Drip Time the fan relay doesn’t change its condition. During a possible parameterised Wait Time the parameter *Fan hightemp.* is already evaluated.
The parameter *Fan Start* is not effective in this operating mode.

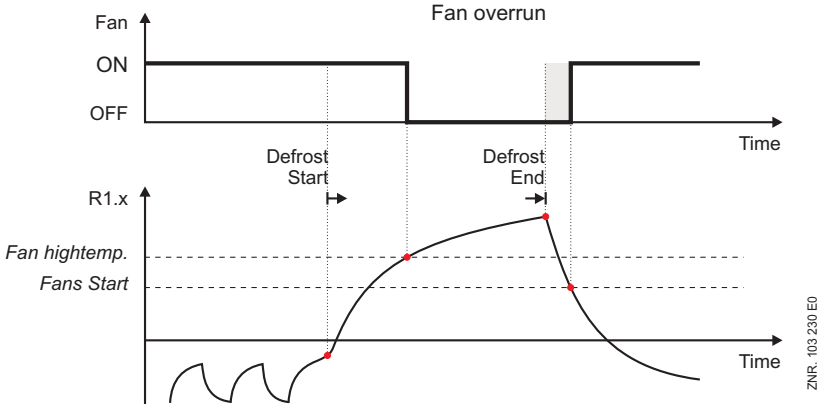
3. “Fan overrun” operating mode

In this operating mode the fan relay is permanently switched on during cooling.

The fan relay initially remains switched on at the start of a defrosting. The fan relay switches off when *Fan high-temp.* parameter is exceeded on the evaporator sensor. Once the defrosting is completed the fan relay switches back on with an undershoot of the *Fan Start* parameter.

In single-zone operation only the evaporator sensor R1.1 is used for the fan control.

During two-zone operation both the evaporator sensors R1.1 **and** R1.2 are used for the fan control. If the evaporator sensor R1.2 is not attached then the fan relay will only be controlled via R1.1, even during two-zone operation.



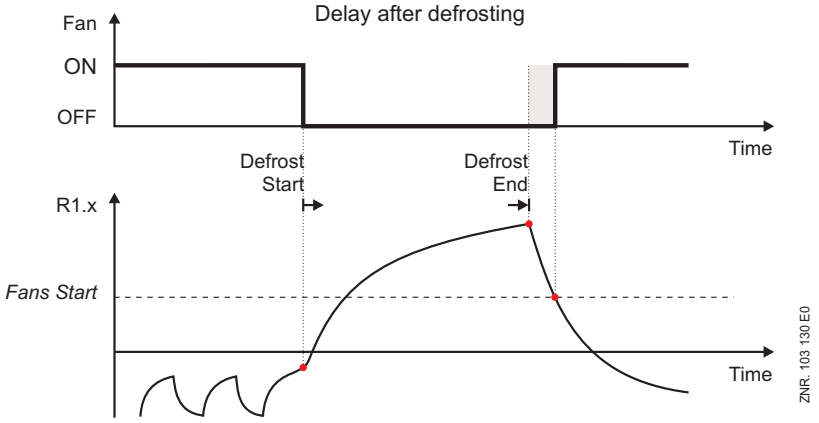
During a possible parameterised Drip Time the fan relay doesn’t change its condition. During a possible parameterised Wait Time the parameter Fan hightemp is already evaluated.

4. “Delay after defrost” mode

In this operating mode the fan relay is permanently switched on during cooling. At the start of a defrosting the fan relay switches off. During the defrosting the fan relay remains switched off. When the defrosting is completed the fan relay on the evaporator switches back on in the event of an undershooting of the *Fan Start* parameter.

During single-zone operation only the evaporator sensor R1.1 is required to undershoot the *Fan Start* value in order for the fan relay to be switched on.

During two-zone operation both the evaporator sensors R1.1 **and** R1.2 must undershoot the *Fan Delay* value in order for the fan relay to be switched back on. If the evaporator sensor R1.2 is not attached then the fan relay will only be controlled via R1.1, even during two-zone operation.



During a possible parameterised Wait Time or Drip Time the fan relay is switched off. The parameter *Fan hightemp.* is not effective in this operating mode.

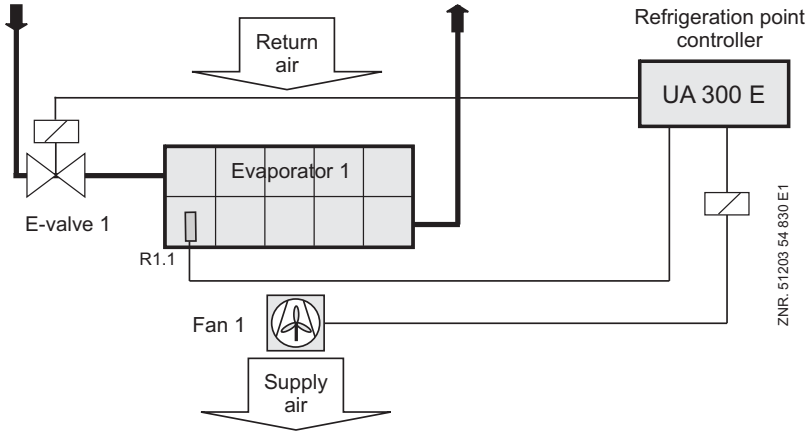
- **Fan control (controller type UA 141 E)**

The UA 300 E does not contain any fan control for this controller type.

3.7 Fan control with coldroom controllers

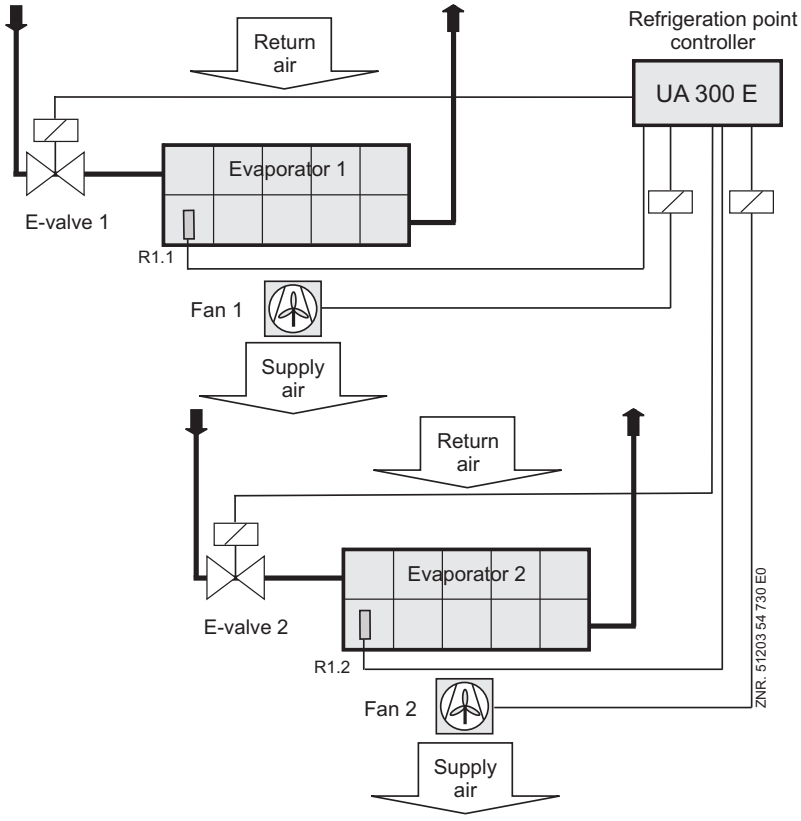
Controller types UR 141 NE, UR 141 TE

Fan control differs in single-zone mode or two-zone mode. In single-zone mode the defrost sensor R1.1 and fan control relay act on one zone.



R1.1:	Defrost sensor	(Terminal Z31/Z32)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)
Fan 1:	Fan control relay	(Terminal 63/64)

In two-zone mode defrost sensors R1.1 and R1.2 and the fan control relays each act separately on one zone.



R1.1:	Defrost sensor	(Terminal Z31/Z32)
R1.2:	Defrost sensor	(Terminal Z81/Z82)
Expansion valve 1:	Relay for expansion valve 1	(Terminal 23/24)
Expansion valve 2:	Relay for expansion valve 2	(Terminal 33/34)
Fan 1:	Fan control relay	(Terminal 63/64)
Fan 2:	Fan control relay	(Terminal 73/74)

Coldroom with defrost heater (controller type UR 141 TE)

The parameters for fan control are:

- Thermal fan delay

  The fan runs during cooling mode and is stopped during defrosting.

  When the Fan Delay parameter is set to ”--” on the UR 141 TE, the fan continues running during defrosting.

On *completion of defrosting*, the following conditions apply to starting the fan:

- If the thermal fan delay is exceeded on the evaporator sensor after defrosting, the fan will initially not start so as not to force heat into the coldroom.
- After defrosting, the conditions for fan starting are checked only after the drip time has expired.

If *on-off control* is activated, the following will additionally apply:

- The fans are operated with room control.
- The fans start when the room controller enables superheat control and stop when superheat control is disabled.

The fan remains continuously on when the Fan Delay parameter is set to --.

If a **waiting time** has been defined, the fans that are running will not be stopped before initiating defrost until the set waiting time has expired. This allows the refrigerant remaining in the evaporator when the solenoid valves are closed to evaporate.

Coldroom without defrost heater (controller type UR 141 NE)

The fan normally continues running during the cooling and defrost cycles. The fan is only stopped in cooling mode when all four of the following conditions are satisfied simultaneously:

- On-off control activated.
- *Thermal Fan Delay* parameter set other than to --.
- Temperature on defrost sensor of Zone x concerned, R1.x, greater than the set *Thermal Fan Delay* parameter. This condition occurs when temperature is too high on the defrost sensor.
- Cooling is stopped by the temperature setpoint plus hysteresis.

The fan remains continuously on when the Fan Delay parameter is set to --.

Heating circuit (controller type UR 141 TE, UR 141 NE in single-zone operation)

The conditions stated above for fan starting after defrosting apply together with following additions:

- Zone 1 fans always starts with the heater relay.
- If no further condition to start the fan is in effect, Zone 1 fan will stop with the heater relay.

3.8 Frame and pane heaters

General

Frame and pane heaters are used to heat window or glass elements on refrigerated display cases and prevent them from fogging due to condensation of moisture in the ambient air. Three operating modes for frame and pane heaters can be selected on the UA 300 E:

- Fixed on time
- On time as function of setpoint (UA 131 E only)
- On time as function of enthalpy

The desired operating mode must first be selected. Additional parameters for the respective mode are described below.

Fixed on time:

The On Time parameter (0-100%) must be set for this mode. The set on time is output by the case controller for the complete duration of operation.

On time as function of setpoint (controller type UA 131 E)

No additional parameters are provided for this mode. The on time is determined by the setpoint defined for the first zone on the controller and is output by the controller.

On time is controlled by the supply air setpoint as follows:

Supply air setpoint > - 32 °C / Heater 75% ON

Supply air setpoint < - 32 °C / Heater 95% ON

Operation of frame heater digital output (UA121E, UA131E, UR141TE, UR141NE)

Operation is inverted. The signal delivered by the digital output is 0 V when the frame heater is ON and 24 V when the frame heater is OFF.

Operation of pane heater relay (UA 141 E)

The relay is closed when the pane heater is ON and is open when the pane heater is OFF.

On time as function of enthalpy

This operating mode requires that a pack controller equipped with a humidity sensor and a room air temperature sensor be installed in the store. From the measurements of these two sensors the case controller determines the optimal heater on time. Two parameters are provided, emergency on time and offset for enthalpy-controlled frame heater.

The value entered for the *Enthalp. Offs.* parameter (Menu 2-5-2) is added to the on time computed by the case controller from the room air humidity and temperature. It is recommended to set this value initially to zero. The value can be adjusted upwards to obtain a higher heating power if problems are encountered, for instance fogging of window or glass elements.

If reception of values for room air humidity and temperature from a pack controller is interrupted, the case controller uses the value entered for emergency on time (0-100%) as the on time.

Notes and constraints for use of enthalpy-controlled heater

A minimum of one pack controller fitted with humidity and room air temperature sensors must be installed in the store. If more than one pack controller is equipped with these sensors, the case controller will select a pack controller at new start or first start and then work only with that pack controller’s values.

It is recommended to install only one pack controller with humidity and room air temperature sensors in one store. These sensors should be located to ensure that the room air humidity and temperature measured are as representative as possible for all refrigeration points in the store.

To ensure troublefree operation, a pack controller must not be equipped with only a room air temperature sensor or only a humidity sensor. Both sensors must always be fitted as a pair on a pack controller.

Failure of pack controller/CAN bus when using enthalpy-controlled heater

The case controller switches automatically to the emergency on time if it does not receive values from a pack controller for a period of 10 minutes.

Timing relay function with service counters (controller type UA 141E)

The timing relay function can be activated via Digital Input 3 (Terminal D31/D32). This requires Input 3 to be set as PANE SWITCH. The on-off switching function is then available.

A brief voltage pulse (supplied for example from an external switch) applied to the 230 V input for the frame heater energizes the corresponding relay of the UA 300 E case controller, which is then de-energized when the set pane heater on time expires. This function is available on the UA 141 E supplementary to *fixed on time* or *on time as function of enthalpy*.

So as to remain compatible with earlier software versions, a fixed on time of 0% is set on the UA 141 E at first start. This means that the pane heater is then controlled exclusively by the timing relay function.

Control interval

The control interval for frame and pane heaters is 10 minutes. An on time of 10% means that the frame heater is ON for 1 minute and OFF for 9 minutes.

Defrosting

The frame heater is switched off during defrosting.

3.9 Automatic on/off

Controller type: UA 141 E only

The counter can be switched on and off by a brief voltage pulse (on-site pushbutton switch) at the 230V counter shutdown input. As with manual shutdown, all controlled functions are switched off. Additionally, electrical loads on the counter that are not controlled, e.g. lighting, fans and frame heaters, can be switched on and off through an external relay at the digital output (terminals 91/92/93).

Counter shutdown can be activated via digital Input 2 (terminals D21 and D22). This requires digital Input 2 to be set as AUTO ACTU. for the switch on/off function to be available.

The controller and connected electrical components still carry live power!

Switch-on:

Up to 7 control times for automatic restarting of the counter can be set on an internal timer. The same 230 V input is usable as an external input for setpoint toggling, in which case the on-off function will not be available. The counter is switched on either by a voltage pulse applied to digital Input 2 or by the control times. The digital output (terminals 91/92/93) is set to 24 V.

Parameters of the internal restart time are displayed and can be adjusted when setpoint toggle is set to "INT" or "---" (see Screen 3-3 in the UA 141 menu structure).

Switch-off:

As with manual shutdown, all controlled functions are switched off by the voltage pulse applied to digital Input 2 (terminals D21 und D22). The digital output (terminals 91/92/93) is set to 0 V.

3.10 Door contact

Controller types UR 141 NE and UR 141 TE

With coldrooms, one or two 230 V inputs can each be allocated as a coldroom door contact. Cooling and the evaporator fan are switched off when the coldroom door is opened.

Door Contact 1 can be activated via Digital Input 3 (terminals D31 and D32). This requires Digital Input 3 to be set as DOOR CONTACT (Menu 6-2-4) for the door contact to be available. Door Contact 2 can be activated via Digital Input 2 (terminal D21/D22). This requires Input 3 to be set as DOOR CONTACT for the door contact to be available.
If the alarm delay is set to 0 minutes then the cooling and the evaporator fan are not switched off and the alarm is immediately discharged.

Conditions for switch-off:

If the high temperature alarm setpoint (on coldroom sensor) is exceeded or if maximum door open time expires, cooling and the evaporator fan will be restarted before the door closes. High coldroom air temperature (high temperature alarm) also inhibits switch-off.

If the controller is operated with two zones and only the first 230 V input (Door Contact 1) is configured for coldroom door monitoring, the door contact switch will stop cooling and the evaporator fan in both zones. The same applies when only the second 230 V input is configured on Door Contact 2.

In single-zone operation the door contacts always act on first zone control. The only exception is when both 230 V inputs are set to door contact function, in which instance Door Contact 1 alone acts on control and Door Contact 2 has no function.

No archiving takes place in the internal archive memory for the second door contact.

3.11 Manual shutdown

All control functions (cooling, defrosting, etc.) are switched off by applying voltage to the 230 V input for manual shutdown.

The controller and connected electrical components still carry live power!

All interfaces and control functions however remain active.

Controller types UA 141 E, UA 141 NE, UR 141 TE

The same 230V input is usable on controller type UA 141 E or UR 141 NK (NT) /TK (LT) as the input for pane heater or door contact, in which case the manual shutdown function will not be available. Manual shutdown can be activated via digital Input 3 (terminals D31 und D32). This requires digital Input 3 to be set as MAN SHUTDOWN (Menu 6-2-4) for the manual shutdown function to be available.

3.12 Emergency power operation

Function (from version V1.28)

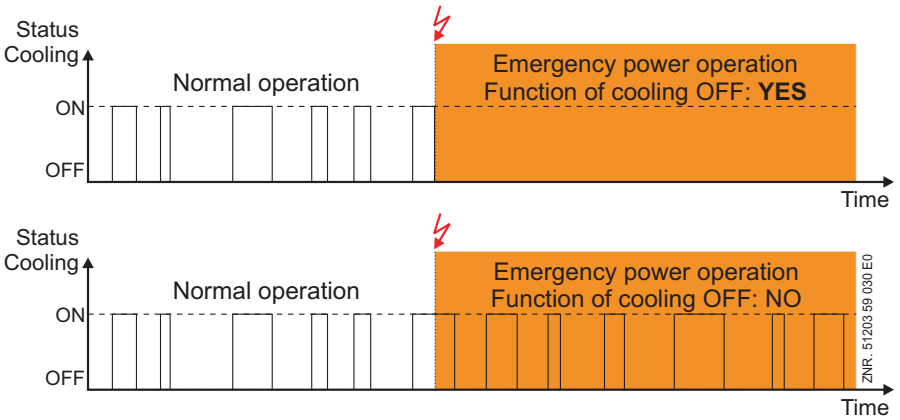
The aim of the emergency power operation is, in the event of an interruption in the power supply, to provide intelligent support for the emergency power supplied via an emergency generating unit. The LDS components are designed to prevent unnecessary power consumption which could endanger the emergency power supply.

If the allocated pack controller detects an interruption in the power supply then this is transmitted to the case controllers via the CAN bus. In combination with the emergency power operation functions, the case controllers can block control functions as required. This serves to reduce the load on the emergency generating unit.

Activation of emergency power operation

The participation of the case controllers in the emergency power operation can be set individually. To do this it is necessary to specify the allocated pack controller via menu item 6-1 on the case controller. This pack controller must support emergency power operation and be parameterised accordingly in order for it to dispatch an emergency power message (see the patch controller handbook).

The behaviour of the case controller for the cooling, the defrosting and the fan under emergency power operation can be set via menu item 6-6 using the parameters *Cool.funct.OFF, Defr.funct.OFF* and *Fan funct. OFF.* If, for example, the case controller is required to switch off the cooling on receiving an emergency power message, then the parameter *Cool.funct.OFF* must be set to Y (Yes). If this parameter is set to N (No), then the case controller continues cooling even during emergency power operation.



The parameters *Defr.funct.OFF* and *Fan funct. OFF* in principle function the same. They determine whether the defrosting or the fan is switched off during emergency power operation. If the controller is conducting a defrost at the start of emergency power operation then the defrost is immediately interrupted. If the defrost command comes during emergency power operation then the command is ignored.

Defrosts that are ignored or interrupted due to emergency power operation are not automatically repeated by the controller. If a defrost interruption occurs due to emergency power operation then the refrigeration capacity of the corresponding refrigeration points must be checked.

3.13 Offset for temperature display BT 30

An offset (parameter Offset, Menu 6-2-2) can be applied to temperature values of the temperature diplay BT 30 as a means of compensating differences between readings on thermometers in the refrigerated display case and on the case controller. This offset has **no** effect on the controlled functions (cooling, defrosting, etc.).

3.14 Setpoint toggle (day / night operation)

Controller setpoints can be enter as both standard and alternative values. Setpoint toggle allows of switching between the standard and alternative set of setpoints. This can be performed by three methods:

- **External:**
  By voltage applied to 230 V- Digital Input 2 (Terminal D21/D22) by a switch or timer.
- **Internal:**
  By setting toggle times on the internal clock.
  (only active when the parameter *Toggle interv.* (menu 3-3) is set to ”--”).
- **Toggle interval:**
  For special applications e.g. in service counters, it is necessary to carry out a regular setpoint toggle. By means of the parameter *Toggle interv.* (menu 3-3) it is possible to conduct this cyclical setpoint toggle every 10 to 60 minutes. The function can be switched off when the parameter is set to ”--”. Furthermore, the parameter is only visible when the parameter *Toggle Setp*. (menu 3-3) is set to *INT*.

  Example: If the parameter *Toggle interv.* is set to 15 minutes, then the controller uses the standard setpoint and the alternative setpoint alternately for 15 minutes respectively.

Internal toggle times for the setpoints are ignored if the parameter *Toggle interv.* is assigned values between 10 and 60 minutes.

UA 121 E:

The fan stops for an adjustable time (night blind run time). The fan restarts when toggling back from the alternative to the standard setpoints.

Night blind run time

As a rule, night blinds are closed on refrigerated multidecks when toggling setpoints. Some cases (new production models) require the fans to be stopped while the blind is being closed to prevent it from being forced out of the case.

UA 141 E, UR 141 TE, UR 141 NE:

Setpoint toggle can be activated via Digital Input 2 (Terminal D21/D22). This requires Input 2 to be set as SETP.TOGGLE. The external setpoint toggle function is then available.

3.15 Light control

The UA 300 V is equipped for activating the case lighting / night blind. Activation is carried out via the 24 V digital output (terminals 81/82). The on/off command is issued by a higher order controller (e.g. store computer CI 3000 / PLC) via the CAN Bus. The parameterisation is carried out on the higher order controller, the case controller doesn’t require parameterisation. The condition of the output is displayed in the menu 1-2 (”Status light ON/OFF”).

The higher order controller must support this function.

3.16 Refrigeration point disabling

The UA 300 E enables refrigeration points to be disabled by the pack controller (e.g. VS 3010) via the CAN bus. Cooling by the UA 300 E is interrupted as long as refrigeration point disabling is active.

3.17 Forced cooling (except UK 100 E)

The UA 300 E enables forced cooling to be initiated by the pack controller (e.g. VS 3010) via the CAN bus. The UA 300 E switches to continuous cooling as long as forced cooling is active.

3.18 Suction pressure shift

Current valve opening positions and case/superheat control status is transmitted by the case controller to the pack controller via the CAN bus to enable suction pressure setpoint shift to be made on the pack controller according to the actual refrigeration load.

Transmission of UA 300 E valve opening positions to the pack controller can be switched on and off by the *VO via CAN* parameter (Menu 6-2-6). (This can only be done in Superuser mode). Thus it is possible for transmission of these positions to be disabled individually on any case controller that is not to be included in suction pressure shift.

The suction pressure setpoint on the pack controller is shifted up or down according to the opening position of the case/coldroom controllers concerned. The action can be defined on the VS 3010 pack controller. Suction pressure setpoint is *not* shifted up when one of the controllers concerned switches to superheat control and when temperature on the room/return air sensor is greater than the room/return air setpoint + 2K. The suction pressure setpoint is accordingly not shifted up only when a display case is at ”warm” temperature and has also switched to superheat control.

3.19 Refrigeration point control

Refrigeration point control mode of the VS 3010 BS/VS 300 pack controller is not intended for use together with the UA 300 E case/coldroom controller. Damage may be sustained by the merchandise or systems if this mode is set on the pack controller.

3.20 Low temperature monitoring t_0

This function initiates monitoring of the t_0 transmitted by the pack controller to check for inappropriately low values and serves, amongst other things, the early detection of instances where the case controller has been allocated to the ”wrong” pack controller (for allocation see menu 6-1).

The controller continually monitors whether the value of the t_0 transmitted by the pack controller are too low. For this purpose the supply air, return air, coldroom or sub cooler setpoint is used. When this setpoint, minus the parameter *Lo Temp* t_0 (menu 6-2-6) for the delay time of one minute is greater than t_0 then the alarm *Check* t_0 is activated. The alarm is deactivated with a hysteresis of 2K. The function can be switched off when the parameter is set to ”--”.

As long as the alarm *Lo Temp to* is effective, the case controller controls the superheat by the temperature sensors R5.x/R6.x and not by the value t_0 received from the pack controller.

The following allocation applies to the setpoint employed for monitoring:

Controller type	Sensor
UA 121 E UA 131 E UA 141 E	R2.1 / R2.2
UR 141 NE UR 141 TE UK 100 E	R4.1 / R4.2

The alarm employed t_0 überprüfen is also used to provide an alarm in the event of the allocated pack controller failing t_0 transmit any t_0 over the CAN bus.

3.21 Limiting the Opening Degree

An upper limit to the opening degree output by the case controller can be set using this function. This opening degree is **never** greater than the maximum value set using the parameter *Maximum OD* (menu 6-2-6).

This value should not be set too low. If the value is too low the case controller may no longer be able to reach the preset temperature setpoint.

3.22 Operating data archiving

3.22.1 Temperature recording

Temperature recording is only intended for systems that are not provided with higher-level temperature recording (e.g. CI 3000 Store Computer). Temperature measurement of the return air/room air sensors in both temperature zones and status of alarm, cooling, defrost, manual shutdown and door are saved to ring buffer memory at intervals of 15 minutes over a period of one year.

This data recording does not satisfy the requirements of EU Regulation 37/2005 on the monitoring of temperatures in the means of transport, warehousing and storage of quick-frozen foodstuffs.

Local temperature recording (UA 300 E)

Temperatures are recorded every 15 minutes in the internal flash memory of the UA 300 E AC.
Recorded data can be displayed by the local BT 300 x Operator Interface under Archive (Menu 5). Data can be read out on a PC connected to the CI 320 port. A TTY converter (optional accessory) is required for PC readout.

Temperature recording on CI 3000 Store Computer (UA 300 E)

The UA 300 E AC records temperature at 15-minute intervals and transmits the data to the CI 3000 Store Computer via the CAN bus.

Actual value archive with 15 second resolution

For purposes of error detection or for the precise analysis of individual refrigeration points during commissioning, it is possible to record a number of actual values at a higher resolution:

- Opening degree 1-2
- Operating status of superheat, operating status for example minimum superheat, MOP Function etc.

This function reduces the available memory in the CI 3000 store computer! Therefore, ensure that it is switched off following the analysis.

If the store computer's memory capacity is exceeded due to improper parameterisation (i.e. activation of this option with too many case controllers) then data loss will follow (under certain conditions even from the EU archives)!

3.22.2 Temperature recording to EU Regulation 37/2005

Temperature recording in compliance with EU Regulation 37/2005 on the monitoring of temperatures in the means of transport, warehousing and storage of quick-frozen foodstuffs requires the additional use of a separate temperature recorder such as the UA 300 L, see documentation for UA 300 L.

3.22.3 Recording of messages and alarms

A maximum number of 25 messages and alarms of the UA 300 E are recorded in a ring buffer with fault report text, date/time of start of alarm and date/time of end of alarm.

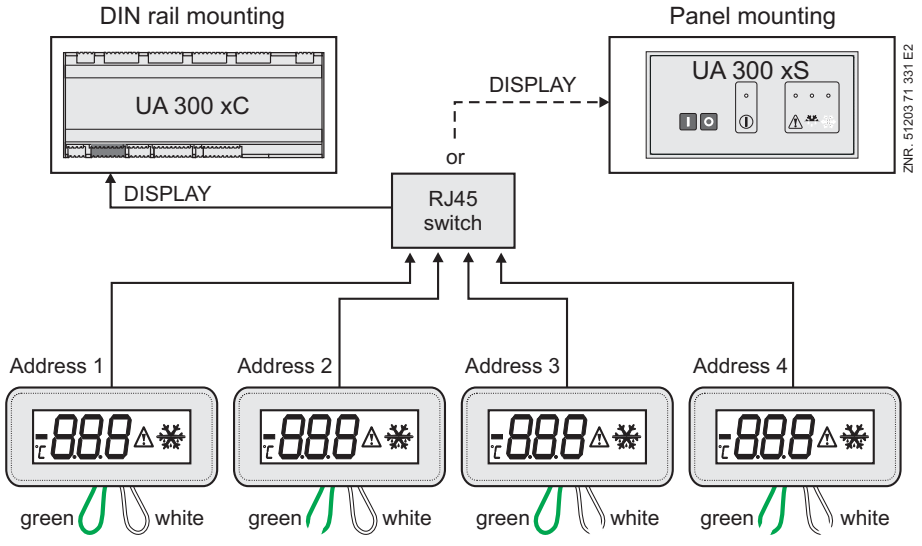
3.22.4 Actual value archiving in store computer with higher accuracy (15 sec)

The *SC Arch. 15s* parameter (Menu 6-2-6) can be used to set higher accuracy of archiving on the Store Computer via the CAN bus. When set, the corresponding case controller responds to the Store Computer's request at 15 sec intervals by additionally transmitting the following actual values:

- Valve opening positions (one in single-zone mode, two in two-zone mode)
- Superheat (one in single-zone mode, two in two-zone mode)
- Corrected t_0
- Selected states

3.23 Connecting BT 30 Temperature Display

One to four BT 30 Temperature Displays can be connected to the UA 300 E (from version ≥ V1.15) case/cold-room controller at terminals 1 to 6 using a RJ45 distributor:



The *Alarm symbol* parameter (Menu 6-2-2) can be used to show or hide indication of alarms by the alarm symbol on the display of the BT 30. In addition to the temperature, the current cooling status is indicated by a symbol. During defrosting, the temperature reading is hidden and a defrost symbol is displayed.

The same applies during any waiting time that may be set. Temperature is re-displayed 15 minutes after defrosting terminates. Drain time has no effect on this delay of 15 minutes. he following temperatures of the UA 300 E case/coldroom controller can be displayed on the BT 30:

Controller type	**Temperature display available on BT 30**			
	Address 1	**Address 2**	**Address 3**	**Address 4**
UA 121 E UA 131 E UA 131 E LS	R4.1	R4.2	R2.1	R2.2
UA 141 E	R2.1	R2.2	R4.1	R4.2
UR 141 NE, UR 141 TE, UK 100 E	R4.1	R4.2	R4.1	R4.2

Before connecting to the UA 300 E case/coldroom controller, all BT 30 Temperature Displays must be addressed by means of the exposed leads (see illustration):

Lead	**Configuration of BT 30**			
	Address 1	**Address 2**	**Address 3**	**Address 4**
Green	Closed	Open	Closed	Open
White	Closed	Closed	Open	Open

See the documentation for the BT 30 Temperature Display for further details and connection notes.

Notice:

4 Installation and Startup of UA 300 E

4.1 Connection and safety notes

- This manual is an integral part of the equipment. It should be kept close to the equipment for ready reference whenever needed.
- For safety reasons, the equipment must not be used for any application other than described in the manual i.e. only for the intended purpose.
- Before using the equipment, always check that its limits are suitable for the intended application.
- Check that the electric power supply is correct for the equipment before connecting it to power.
- If required, a reverse voltage protection must be installed by the customer, e.g. by means of a coding of the plug.
- Specified ambient conditions (e.g. humidity and temperature limits) must be observed and complied with in order to avoid malfunctioning (see Section 9 - Specifications).
- Check correct wiring of the connections before switching on power to the equipment.
- Never operate the equipment without its casing. Before opening the casing the equipment must be switched to zero potential.

Beware of external voltage at the digital inputs and outputs!

- Contact the supplier in any malfunction or in case of doubt.
- Note and observe maximum load on relay contacts (see Section 9 - Specifications).
- Note that all leads running to and from the UA 300 E - especially those of the CAN bus - must be shielded and installed sufficiently clear of other leads carrying live power. Doing so will avoid faulty measurements and will protect the equipment from external interference via the analog inputs.
  Parallel connection of RC elements is recommended for applications in an industrial environment.

For further details please refer to the manual titled Introduction, General Safety and Connection Notes.

1. In the interests of fire prevention, allowance should be made at the time of planning the system for a suitable shutdown device designed to operate in the event of excessive temperature on the defrost heater (high-temperature cutout).

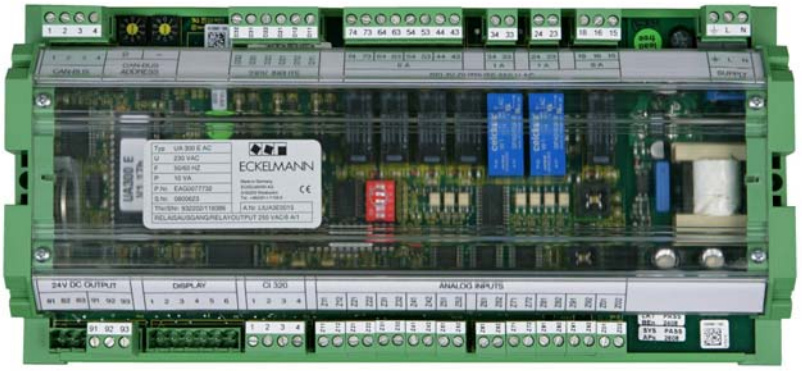
2. Experience shows that transmission of alarms is often not operational (telephone line not yet installed, etc.) at the time of commissioning the system. In such instances it is urgently recommended to monitor the controller with a CI 3000 Store Computer or AL 300 Operator Terminal via the CAN bus and allow transmission of alarms via a mobile telephone system using a GSM modem for example. In stand-alone operation or as an alternative to monitoring by Store Computer/Operator Terminal, an alarm contact provided on the controller can be used to transmit alarms via telephone line.
3. The evaporator input sensor R5.x should be connected for ”t0 via CAN bus” operating mode. This results in better emergency running characteristics in the event of CAN bus transfer failure.
4. For the operation of the UA 300 E pack controllers with the firmware ≥ V2.19 must be used.

4.2 Installation

The UA 300 E case controller is produced in the following type:

- UA 300 E AC (C stands for in Cabinet/DIN rail mounting, meaning designed for cap rail mounting)

4.2.1 Cap rail mounting of UA 300 E AC



The case controller mounts on the cap rail by two clips with screw connection (one each on underside of both ends). Power loss of the controller is approx. 10 VA, which needs to be taken into account when installing the unit. The controller can be taken into use after completing mechanical and electrical installation.

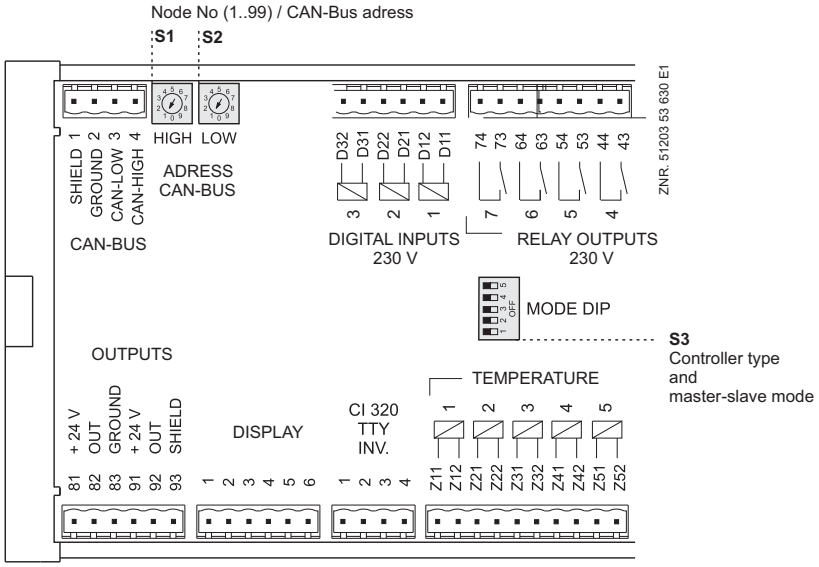
All leads running to and from the UA 300 E - especially those of the CAN bus - must be shielded! No shielding is required on sensor leads when installed exclusively inside the refrigerated display case and when external interference (for example from parallel power wires) is not to be expected (see manual Introduction, General Safety and Connection Instructions). As a general rule, care should be taken to ensure that signal leads and leads carrying a supply voltage are routed through separate cable channels.

Electrical enclosure and dimensions are listed in Section 9 Specifications.

4.3 Basic parameter settings

The basic parameter settings must be made on the hardware and in the software of the UA 300 E controller when commissioning the unit:

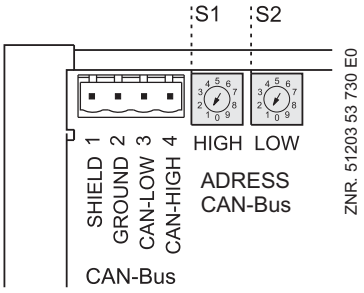
- Set Node No. (Nd.nnn = 1 to 99) and CAN bus address by Decade Switches **S1** and **S2**. On stand-alone controllers these switches are not fitted and the address cannot be set.
- Set controller type on DIP Switch **S3** by Coding Switches 1 to 3
- Set master/slave mode on DIP Switch S3 by Coding Switch 4
- First start (optional loading of default values to configure defined starting state for operation)
- Set basic parameters



4.4 Setting CAN bus address

Node No. (Nd.nnn = 1 to 99) and CAN bus address are set by Decade Switches S1 and S2. A unique Node No. (Nd.nnn = 1 to 99) and CAN bus address must first be set on the two decade switches (S1, S2) of all case controllers installed in refrigerated display cases. The CAN bus address is set by the manufacturer on case controllers installed in the control panel, but can subsequently be changed.

So as to avoid confusion, it is recommended to choose the Item ID of the display case as its CAN bus address. When both decade switches are at zero (giving address 00), the CAN bus is inactive and the controller is not recognized as a CAN bus station. A different CAN bus address must be assigned to each refrigeration point and must be unique within the same system.



Decade switches **S1** and **S2** to set Node No. (Nd.nnn = 1 to 99) and CAN bus address

S1: Tens of Node No./CAN bus address

S2: Units of Node No./CAN bus address

S1 (tens)	S2 (units)	Set Nd.nnn	Function
0	0	00	CAN-Bus interface inactive (disabled)
0	1..9	01..09	Case controller: Node No. and CAN bus address allocated
1..9	0..9	10..99	

Settings made on Decade Switches **S1** and **S2** do not become effective on the UA 300 E until the controller is briefly switched off and back on!

4.5 Setting controller type and master / slave mode

Setting controller type:

Selection can be made among six controller types to define the control action to be performed: controller UA 121 E, UA 131 E, UA 141 E, UR 141 NE, UR 141 TE and UK 100 E. Each controller is identifiable by a six-digit Device No. stored in the EEPROM. The software version is identified by a Version No. (X.XX) stored in the EPROM (Menu 6-2-1).

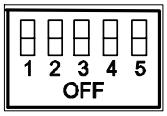
Functions not required by the selected controller type are hidden. When changing the controller type, all parameters are restored to their basic settings. The controller type can be set by Coding Switches 1 to 3 of DIP Switch S3. Only part of the overall functions and parameters contained in the UA 300 E are available when selecting a specific controller type. If the coding switches are set to any combination not included in the following list, the controller type UA 131 E will be selected automatically and alarm is signalled.

Operation of the controller with a non-supported DIP switch setting is not allowed.

Type UA 111 controller is covered by the UA 121 E. Type UA 131 DD controller is covered by the UA 131 E when the *DG Operation* parameter is set to ON.

Setting master/slave mode

Master/slave mode can be set by Coding Switch 4 of DIP Switch **S3**.



Set controller type and master/slave mode		DIP Switch S3 (Coding Switch positions 1 to 5)				
		1	2	3	4[1)]	5
Case controller	UA 121 E	ON	OFF	OFF	ON/ OFF	OFF
	UA 131 E	OFF	ON	OFF	ON/ OFF	OFF
	UA 131 E LS	ON	ON	ON	ON/ OFF	ON
	UA 141 E	ON	ON	OFF	ON/ OFF	OFF
Coldroom controller	UR 141 NE	OFF	OFF	ON	ON/ OFF	OFF
	UR 141 TE	ON	OFF	ON	ON/ OFF	OFF
Subcooler controller	UK 100 E	OFF	ON	ON	OFF	OFF

[1)] Master/slave mode toggle switch
ON = Master/slave mode ON
OFF = Master/slave mode OFF

Settings made on DIP Switch S3 do not become effective on the UA 300 E until the controller is briefly switched off and back on!

4.5.1 First start – Loading basic parameter settings

First start (which replaces all parameters by the the basic parameters) can be performed as follows:

1. Select a different controller type.
2. Briefly switch controller off and back on.
3. Wait about 1 minute for controller to start up.
4. Set the required controller type (first switching off the controller for safety reasons).
5. Again briefly switch the controller off and back on.

First start is also performed after changing the EPROM between controller versions
UA 300 ↔ UA 300 D ↔ UA 300 E ↔ UA 300 L.

EPROM replacement must be carried out only by trained personnel or at the manufacturer's works. Improper replacement of the EPROM can result in damage to the controller and impairment of controller functions.

First start can be invoked by changing position of the DIP switches, turning off power to the controller and then restarting it. After starting, the DIP switches must definitely be restored to the desired controller type and power to the controller again be turned off briefly and then back on!

4.6 Setting basic parameters

The following items 1 to 4 are only necessary for operation via CAN bus. Proceed to item 5 if the controller is to be operated by a local setup unit (BT 300).

The menus shown below are intended as a guide only and may differ for certain controller types. Please see Section Menu Structure for a detailed overview.

1. Unblock entry (only controllers with CAN bus connection can be operated by the CI 3000/AL 300):

   In the Main Menu

   - Choose 9 Parameter Setting - **3 Block**.
   - Press the **ENTER** key **(↵)** to set the **check mark (√)**.
     This unblocks entry, allowing settings to be made.
   - Press the **ESC** key twice to exit the screen and return to the Main Menu.

Entry block is automatically activated if no key is pressed for 10 minutes and when switching on the operator terminal.

2. In the main menu of CI 3000 Store Computer or AL 300 Operator Terminal: Choose 5 Remote Operation.
3. Select case controller:

   In the selection list, select the UA 300 E case controller to be set by its Node No. (Nd.nnn = 1 to 99), either by using the cursor or typing in direct. Press the **ENTER** key **(↵)**. This displays the main menu of the UA 300 E case controller.
4. In the main menu of the UA 300 E case controller:

   First define the pack number and compressor pack:

   6 Configuration – 1 Select Refrigeration Point

   Various parameters can be entered and checked to define the refrigeration point to be controlled by the UA 300 E:

6 Configuration - 1 Refriger. Point	
REFR. PT. POS: XXXXX	
Refr. Pt. Name: XXXXXX	Check name of refrigeration point (can only be edited on Store Computer)
Item ID: XXXXX	Check position of refrigeration point (can only be edited on Store Computer)
Priority: X	Alarm priority 0 to 99 (See notes in Section Alarms)
Refr. Sys. No.: X	No. of compressor pack supplying refrigeration point (1 to 9, important when several compressor packs are used)
Refr. Sys. Type XXX	Zone of compressor pack supplying refrigeration point (Z1/Z2, with VS 3000 BS only)
Temp. Zones X	Division of refrigeration point in one zone mode or two zone mode
No. Sensors XX	Number of sensors. The number of sensors connected is scanned on exiting the parameter by pressing ENTER.

Alarms can be suppressed by setting Alarm Priority to 0. The UA 300 E cannot receive the suction pressure value for control functions before the Pack No. of the associated pack controller has been selected on the case controller.

Make sure that the correct Pack No. is set, as otherwise damage might occur to the system or merchandise. Setting can be checked under Refrigeration Point - 1 Actual Values - 1 Temperature Sensors. The value of t0 VS corr. displayed is the actual value of t0 corrected by the offset for the pack controller specified in the Pack No. field.

5. Press the **ESC** key twice to exit Menu **1 Configuration**.

   Choose 3 Clock - 2 Defrost Timer.

   Enter the relevant parameters in the following screen.

3 Clock - 2 Defrost Timer	
DEFR.TIMER POS: XXXXX	
Defrost Timer XXX	Select defrosting by external or internal defrost timer
Safe Defr Time XXX m	Safe defrost time; defrost duration does not extend beyond this time
Defr. 1 xxxxx hh:mm Defr. 2 xxxxx hh:mm ... Defr. 14 xxxxx hh:mm	Enter defrost times
Manual Defrost XXX	Manual defrosting ON/OFF

6. Press the **ESC** key to exit Menu **2 Defrost Timer**.
7. Choose Menu **3 Setpoint Toggle**:

   Enter the relevant parameters in the following screen.

3 Clock - 3 Setpoint Toggle	
TOGGLE POS: XXXXX	
Status XXX	Only shown when setpoint toggle is set to INT or EXT
Toggle Setp. XXX	Select INT, EXT, ---: Internal, external, deactivated setpoint toggle INT: Internal EXT: External ---: Setpoint toggle deactivated
Blind On Time X s	Enter night blind run time for refrigerated multidecks
Alt ON: xxxxx hh:mm AltOFF: xxxxx hh:mm Alt ON: xxxxx hh:mm AltOFF: xxxxx hh:mm	Enter time for setpoint toggle (Only shown when setpoint toggle is set to INT)

8. Press the ESC key twice to exit Menu **3 Setpoint Toggle.**

9. Choose Menu 6 Configuration - 2 Controller

6 Configuration - 2 Controller	
CONTROLLER POS: XXXXX	
1 Type and Version	Type, serial number and master-slave (ON/OFF)
2 Temp. Display	Matching of displayed temperature
3 Alarm Delay	Enter alarm time delay
4 230V Inputs	230 V inputs
5 Sensor Type	Select temperature sensor type (L243, K277 or 5K3A1)

10. Choose Menu **3 Alarm Delay**.

6 Configuration - 2 Controller - 3 Alarm Delay	
ALARMDELAY POS: XXXXX	
Sensor Fault XX m	Alarm delay on sensor break
High/Low Temp. XX m	Alarm delay on high or low temperature
No Defrost XX h	Alarm is generated if defrosting does not take place within the set time
Selfholding X	NO: Automatic reset of non-transient alarms YES: Alarms must be reset manually

11. Press the **ESC** key twice to exit the menu.
12. Choose Menu 6 Configuration – 3 Cooling.

6 Configuration - 3 Cooling	
COOLING POS: XXXXX	
corr.off to XX K	Correction offset applied to actual value of t_0 received from pack controller via CAN bus. This enables pressure losses in the refrigerant line to be compensated. If this value is set to --, control is made by the case controller via the temperature sensors at the evaporator inlet and outlet (stand-alone mode).
Cont Cool Mon. XX m	Continuous run monitoring
HG operation XX m	Must be set for UA 131 E to ensure correct operation of D2D defrosting. With this operating mode the defrost timer should be set to EXT.
Fan delay X °C	Only for coldroom controller UR141 NE and UR 141 TE: Maximum temperature on defrost sensor at which fan is started with time delay (e.g. after defrosting)

13. Choose Menu 2 Setpoints - 1 Cooling - Zone 1 / Zone 2 / Zone 1A / Zone 2A.

2 Setpoints - 1 Cooling - Zone 1 - Zone 2 - Zone 1A - Zone 2A	
COOLING 1 POS: XXXXX	
...	
Superheat XXX K	Superheat setpoint for superheat controller
min. SH XX K	If superheat drops below minimum level, controller closes the respective expansion valve and sets the I-sum (NOT I-part) to zero when the *Reset I-Sum* parameter is set to ON.
two pos.ctrl XXX	Temperature control is no longer continuous but on-off. Used for enabling/disabling superheat control (TEV emulation).
MOP-point XXX °C	A value other than -- must be set if the MOP function is desired. When t_0 exceeds this value, the valve opening position is reduced as t_0 rises.

14. Press the **ESC** key repeatedly to return to the main menu of the CI 3000 Store Computer or AL 300 Operator Terminal.
15. In the main menu of the CI 3000 Store Computer/ AL 300 Operator Terminal, choose **7 Monitoring - 3 Configuration**.

7 Monitoring - 3 Configuration	
CONFIGURAT POS: XXXXX	Enter Node No.: Select the UA 300 E to be set by its Node No. (Nd.nnn = 1 to 99) or CAN bus address using the cursor or by typing in direct.
Station name	Enter CAN bus station name
Position XXXXX	Enter position of station in store
Priority X	Enter the required priority

16. Press the ESC key to exit the menu. This completes basic parameter setting on the UA 300 E case controller.

4.7 Maintenance and battery replacement

The case controller contains a backup battery of Type CR 2450 N, 3V Lithium. The case controller must be removed from the system to change the battery. During this time, control and monitoring of the refrigeration point are disabled.

If the controller is connected via the CAN bus to a higher-level controller, it will no longer be on the CAN bus. In addition to the precautions directly concerning the refrigeration point, consideration must be given to the effects on higher-level controllers on the CAN bus.

When changing the battery, the safety rules contained in the section Safety and Connection Notes must be observed. All connectors may only be connected and disconnected when power is off. Circuit boards may only be exchanged when power is off. Always take hold of circuit boards at the edges.

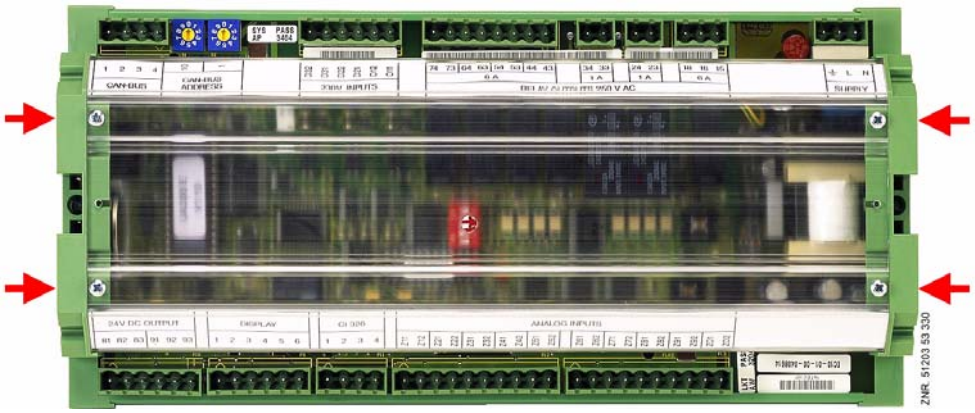
ESD (Electrostatic Discharge) regulations must be observed; see Section Safety and Connection Notes!

When controller is connected via CAN bus: Removal of the case controller from the CAN bus generates fault alarm on the higher-level controller (CI 3000 Store Computer). Make sure the alarm is cancelled in due time or the Service Center is advised in advance.

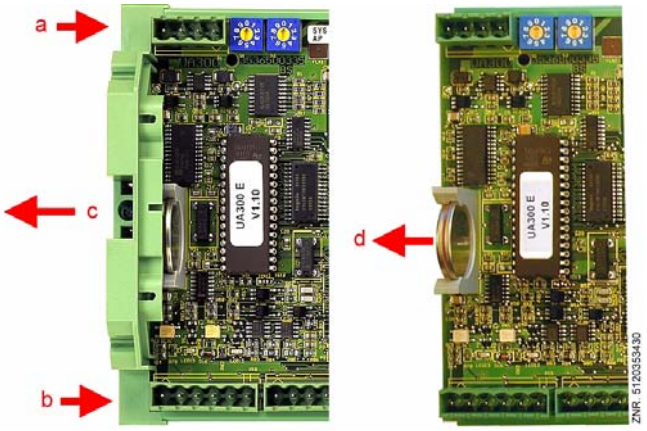
1. Disconnect the case controller or refrigeration point from power. Cancel alarm on Store Computer.
2. Remove connector, remove controller from its support if necessary.

Some connectors may carry 230 V AC power. Connectors should be marked before disconnecting.

3. Undo the four screws on the front panel and remove the plastic cover by pulling up.



4. Undo two screws (a and b) on the lefthand side of the plastic casing.



5. Pull left end of casing (c) away to left.
6. Pull battery up out of its holder (d) and dispose of it in regulation manner.

Do **not** grip the new battery with metal pliers, as this may cause it to be destroyed by short circuiting:
- Wipe with a clean and dry cloth.
- Do **not** touch the contact surfaces on the edges.

7. Grip the new battery with a cloth and press it into place in its holder.
8. Re-assemble in the reverse order. Re-connect all connectors.
9. Turn on power to the refrigeration point, which will then resume working.
10. **Controller in CAN bus system:** The controller is automatically re-detected via the CAN bus with no change of configuration on the Store Computer (check as necessary on Store Computer or Alarm Terminal). Date, time and automatic daylight saving time change are set automatically by central time synchronization.
11. **Controller without CAN bus:** Date, time and automatic daylight saving change time must be entered for data archiving (EU Archive).

Notice:

5 Pin and Terminal Assignments of UA 300 E

Digital inputs 230 V AC

Controller Type	Digital input	Digital input	Digital input
Terminal No.	**D11/D12**	**D21/D22**	**D31/D32**
Case controller UA 121 E UA 131 E UA 131 E LS	Defrosting	Setpoint toggle	Manual shutdown
Case controller UA 141 E	Defrosting	Setpoint toggle/ Shutdown switch	Manual shutdown/ Pane switch
Coldroom controller UR 141 NE UR 141 TE	Defrosting	Setpoint toggle/ Coldroom door 2	Manual shutdown/ Coldroom door 1
Subcooler controller UK 100 E	Defrosting	Setpoint toggle	Manual shutdown

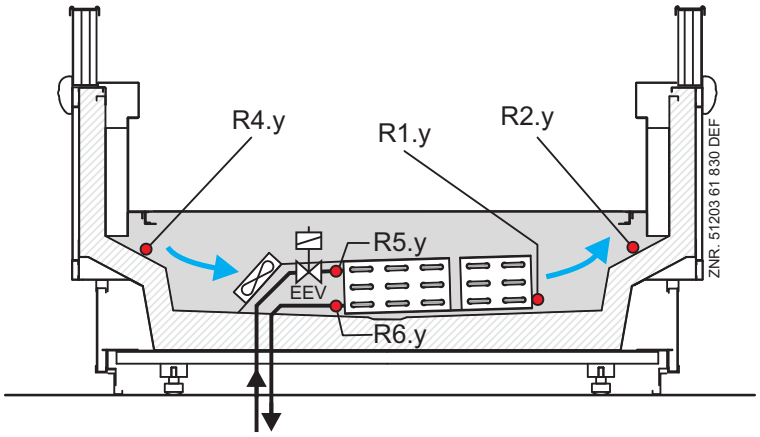
Analog inputs of temperature sensors

	Temperature zone 1					Temperature zone 2				
Controller Type	**Sensor 1**	**Sensor 2**	**Sensor 3**	**Sensor 4**	**Sensor 5**	**Sensor 6**	**Sensor 7**	**Sensor 8**	**Sensor 9**	**Sensor 10**
Terminal No.	**Z11/Z12**	**Z21/Z22**	**Z31/Z32**	**Z41/Z42**	**Z51/Z52**	**Z61/Z62**	**Z71/Z72**	**Z81/Z82**	**Z91/Z92**	**Z01/02**
Case controller UA 121 E UA 131 E UA 131 E LS UA 141 E	R2.1	R4.1	R1.1	R5.1	R6.1	R2.2	R4.2	R1.2	R5.2	R6.2
Coldroom controller UR 141 NE UR 141 TE	--	R4.1	R1.1	R5.1	R6.1	--	R4.2	R1.2	R5.2	R6.2
Subcooler controller UK 100 E	--	R4.1	R1.1	R5.1	R6.1	--	R4.2	R1.2	R5.2	R6.2

The case controller analog inputs are **only** approved for the connection of temperature sensors as named in chapter 3.1. Connecting a supply voltage to the analog inputs will lead to the destruction of the case controller!

Sensor identification

Legend: Rx.y		
x = Sensor type	1	Defrost sensor 1..2
	2	Supply air sensor
	4	Return air sensor/ room air sensor/ refrigerant temperature sensor (UK 100 E)
	5	Evaporator inlet sensor
	6	Evaporator outlet sensor
y = Case part	1..2	Sensor element zone 1 Sensor element zone 2



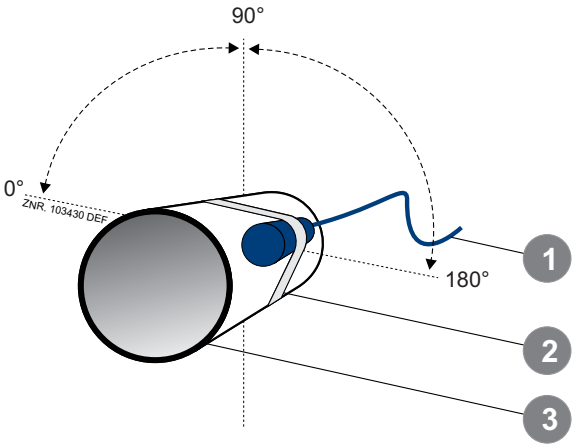
All leads running to and from the UA 300 E - especially those of theCAN bus - must be shielded! Sensor leads need not be shielded when installed exclusively within the refrigerated display case to be controlled and when interference is not to be expected (for example from power wires running parallel to the leads. Otherwise suitable precautions must be taken to protect the sensor leads from external interference (see manual Introduction, General Safety and Connection Instructions). As a general rule, care should be taken to ensure that signal leads and leads carrying a supply voltage are routed through separate cable channels.

Instructions on sensor positioning

As a general rule, when positioning the sensor the recommendations of the respective case or evaporator manufacturer are to be followed.

The evaporator input or output sensor (1) should be attached to the upper surface of the pipe (3) with a metal pipe clip (2). Care is to be taken that there is a good temperature change response and that the sensor is insulated following attachment.

The ideal position of the sensor is between 0 and 180°:



1: Temperature sensor
2: Metal pipe clip
3: Injection pipe / suction pipe

As a general rule, plastic cable straps should not be used as they loosen over time leading to false temperature measurements with a negative effect on the superheat regulation.

Digital outputs 24 V DC

Controller Type	Digital Output 1	Digital Output 2
Terminal No.	**81, 82, 83**	**91, 92, 93**
UA 121 E UA 131 E UA 131 LS UR 141 NE UR 141 TE	Lighting control (Terminal 81/82)	Frame heater (Terminal 91/92)
UA 141 E	--	Relay for load control on shutdown
UK 100 E	--	--

Relay outputs 230 V AC

Controller Type	Relay 1	Relay 2	Relay 3	Relay 4	Relay 5	Relay 6	Relay 7
Terminal No.	**15, 16, 18**	**23, 24**	**33, 34**	**43, 44**	**53, 54**	**63, 64**	**73, 74**
UA 121 E	Alarm	Cooling 1 (EEV)	Cooling 2 (EEV)	Defrosting 1	Defrosting 2	Defrosting 1 in-verted	Fan
UA 131 E	Alarm	Cooling 1 (EEV)	Cooling 2 (EEV)	Defrosting 1	Defrosting 2	Cooling 1+2 (solenoid valve)	Fan
UA 131 E LS	Alarm	Cooling 1 (EEV)	Cooling 2 (EEV)	Defrosting 1	Defrosting 2	Cooling 1+2 (solenoid valve)	Fan
UA 141 E	Alarm	Cooling 1 (EEV)	Cooling 2 (EEV)	Defrosting 1	Defrosting 2	Defrosting 1 in-verted	Pane heater
UR 141 NE	Alarm	Cooling 1 (EEV)	Cooling 2 (EEV) / Hea-ting circuit	Defrosting 1	Defrosting 2	Fan 1	Fan 2
UR 141 TE	Alarm	Cooling 1 (EEV)	Cooling 2 (EEV) / Hea-ting circuit	Defrosting 1	Defrosting 2	Fan 1	Fan 2
UK 100 E	Alarm	Cooling 1 (EEV)	Cooling 2 (EEV)	Defrosting 1	Defrosting 2	Cooling 1 (solenoid valve)	Cooling 2 (solenoid valve)

On grounds of fire prevention, during the planning of the installation a device for shutting down the defrost heating in the event of excessive temperature (e.g. ”KLIXON”) must be provided.

5.1 Operation of relay control

The table shows operation of the digital outputs for the separate controller types.

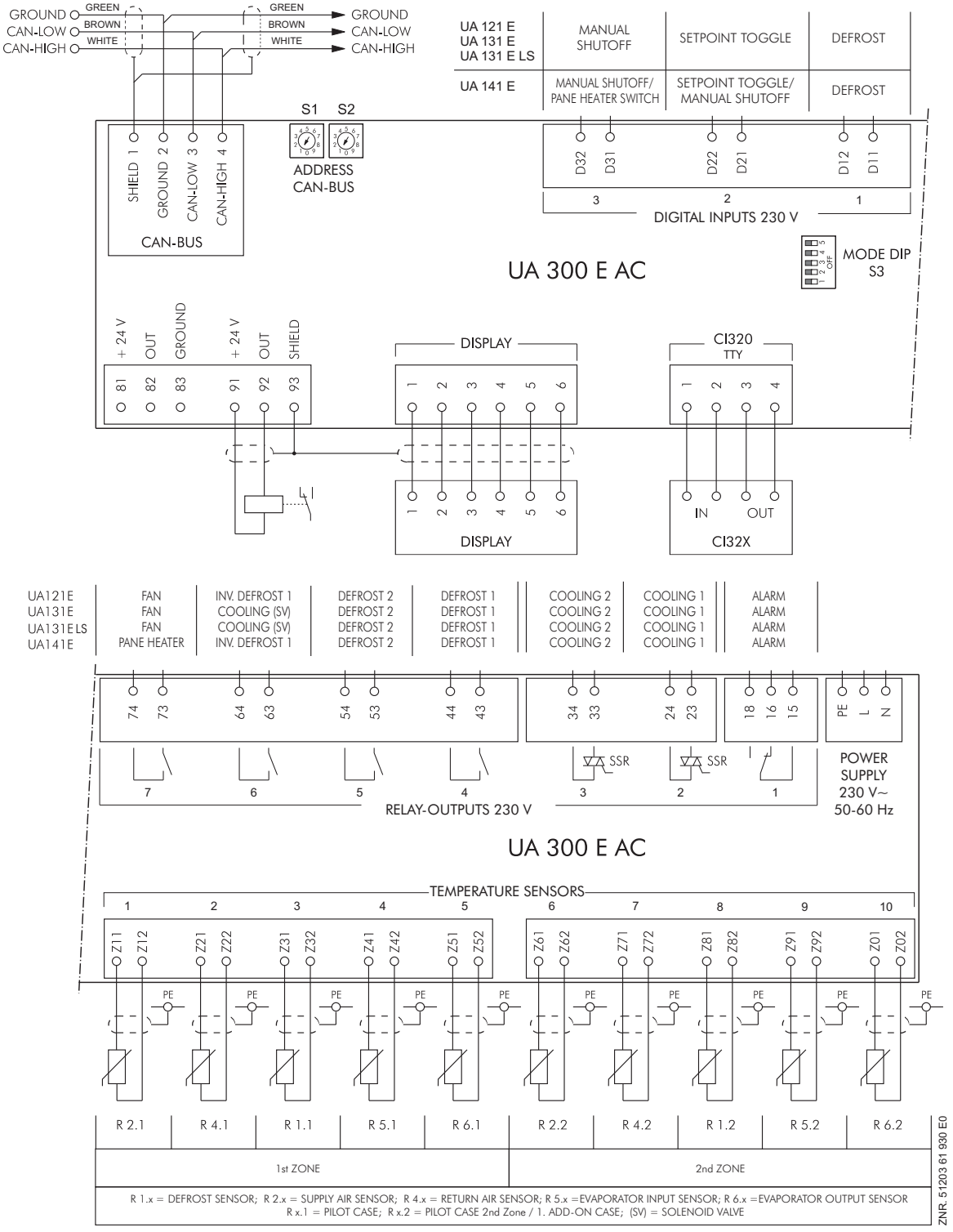
Controller Type	Cooling	Defrosting	Fan	Alarm	Frame/ pane heater	Shutdown relays	Static cooling
UA 121 E	Positive	Positive	Inverted	Inverted	Inverted	--	--
UA 131 E	Positive	Positive	Inverted	Inverted	Inverted	--	Positive
UA 131 E LS	Positive	Positive	Inverted	Inverted	Inverted	--	Positive
UA 141 E	Positive	Positive	--	Inverted	Positive (73/74)	Positive	--
UR 141 NE	Positive	Positive	Positive	Inverted	Inverted	--	--
UR 141 TE	Positive	Positive	Positive	Inverted	Inverted	--	--
UK 100 E	Positive	Positive	Positive	Inverted	--	--	Positive

Positive means that operation of the relay is not inverted:
The relay is energized when the controller activates the function output (e.g. Cooling = ON).
(This means that the contact of a normally open relay is closed.)
The relay is not energized when the controller deactivates the function output (e.g. Cooling = OFF).
(This means that the contact of a normally open relay is open.)

Inverted means that operation of the relay is inverted:
The relay is not energized when the controller activates the function output (e.g. Alarm = ON).
(This means that the contact of a normally open relay is open.)
The relay is energized when the controller deactivates the function output (e.g. Alarm = OFF).
(This means that the contact of a normally open relay is closed.)

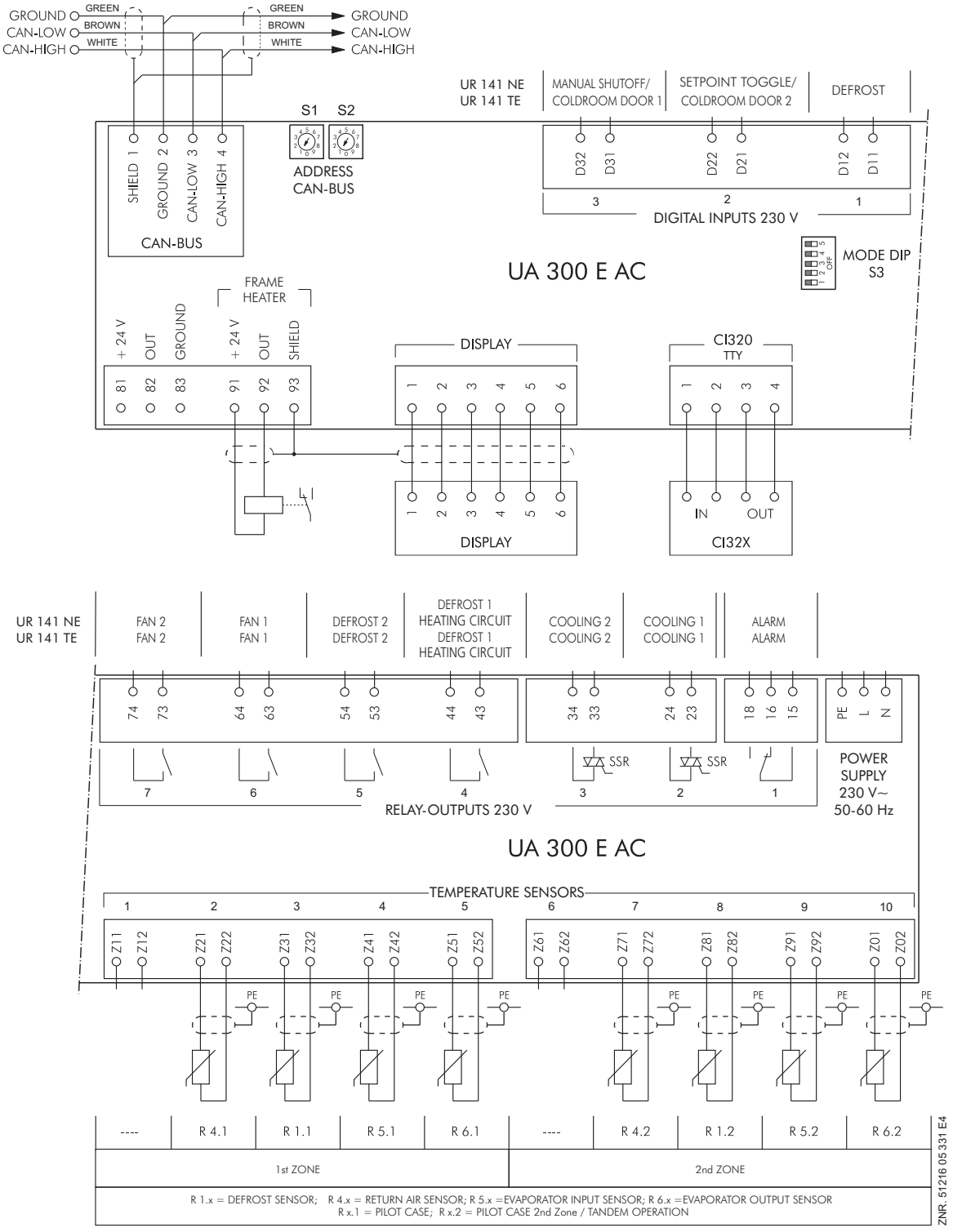
5.2 UA 300 E as display case controller

Controller types UA 121 E, UA 131 E, UA 131 E LS, UA 141 E



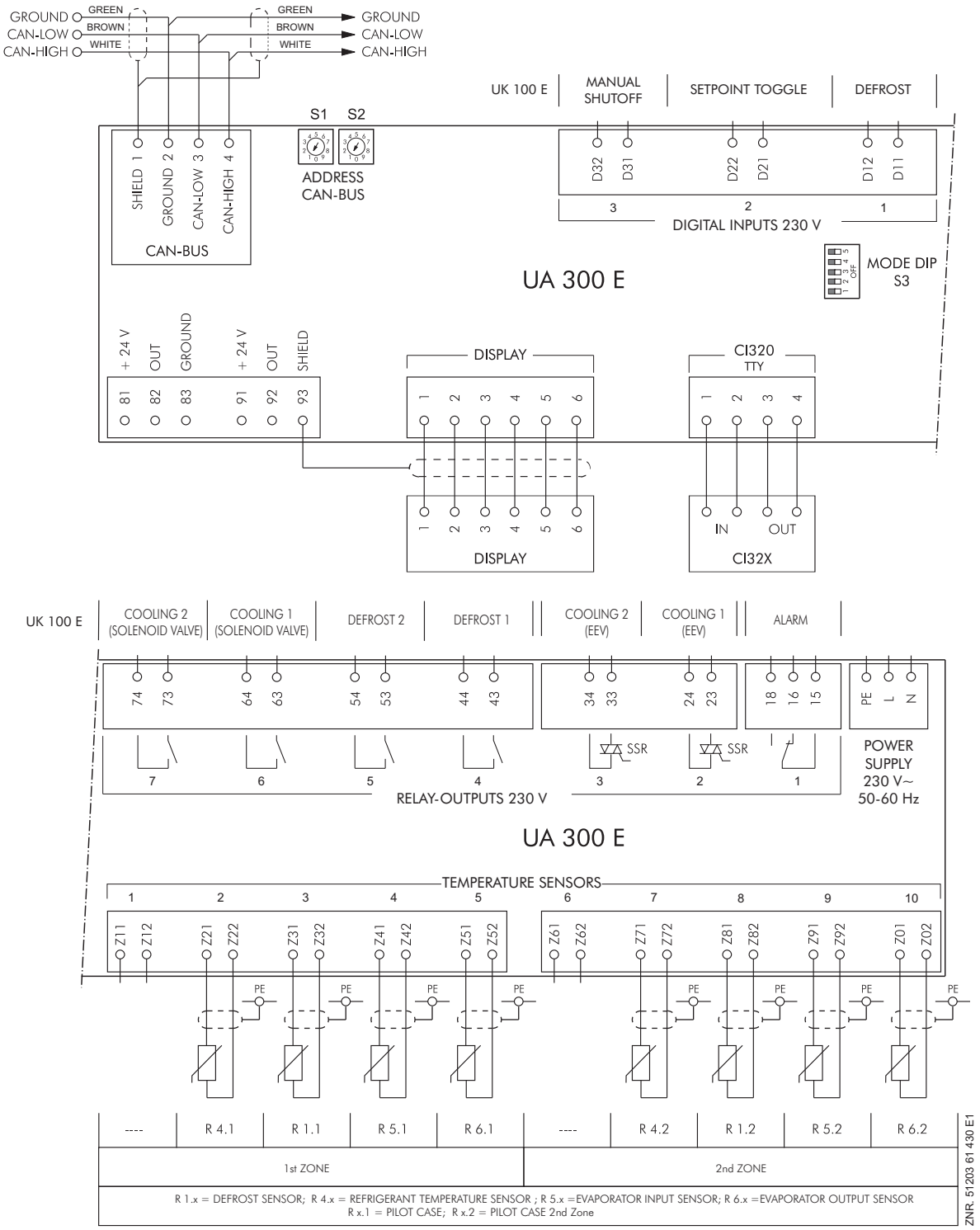
5.3 UA 300 E as coldroom controller

Controller types UR 141 NE and UR 141 TE



5.4 UA 300 E as subcooler controller

Controller type UK 100 E

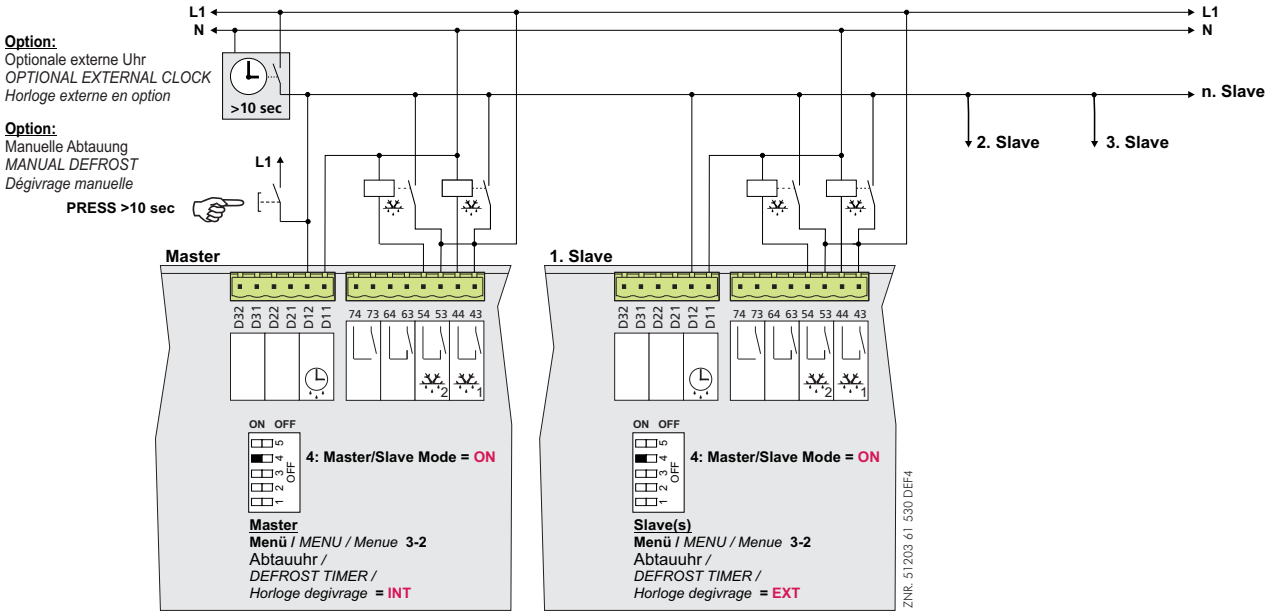


5.5 Wiring of master-slave function for defrosting

For synchronization the auxiliary contactors of the defrost relays of the master controller are connected in parallel and then conducted as a 230 V signal to the external defrost input of the slave. The auxiliary contactors of the slave controller are also connected in parallel and conducted back as a 230 V level to the external defrost input of the master. This enables the software to determine whether defrosting is still taking place in both case controllers.

See Section Function of UA 300 E for a description of the master-slave function and operating details.

Basic diagram for wiring between one master and **one** or **more** slave case/coldroom controllers:



Defrosting is terminated by the software not later than when the set safe defrost time expires. The external clock must be wired as a passing contact as it only provides the start signal for the defrosting. The shutdown is entirely managed by the participating controllers according to their safe defrost time.

When wiring master and slave case/coldroom controllers, make sure that power supply is made with only **one** phase (e.g. only through L1, see illustration)!

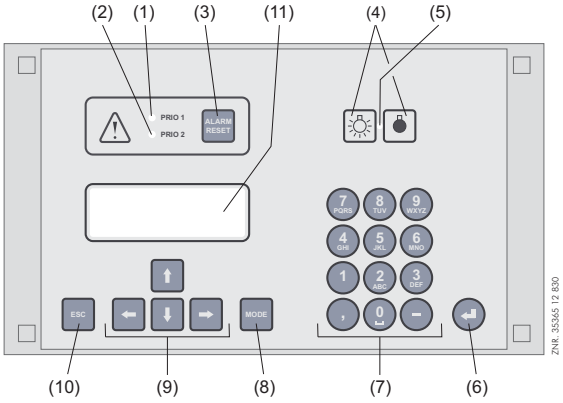
Notice:

6 Operation of UA 300 E

No provision is made for operation on the controller itself. However, several interfaces are available for local operation (BT 300x operator interface) or remote operation via CAN bus (AL 300 Operator terminal, CI 3000 Store computer). Operation of the case controller via the TTY interface is not available.

6.1 Operation with setup unit (AL 300 or CI 3000)

Operation is the same whether using the CI 3000 Store Computer or the AL 300 Operator Terminal. The operator interface and the functions are the same on both devices.



(1) Priority 1 alarm indicator light

(2) Priority 2 alarm indicator light

(3) Alarm reset key

Press once to cancel audible alarm

Press twice to cancel all alarms no longer active

(4) External lighting on/off switch

(5) Lighting on/off switch indicator light

(6) ENTER key

(7) Alphanumeric keypad

(8) MODE key; CAPS SHIFT function for text entry

(9) Cursor keys

(10) ESC key

(11) Display (4 lines of 20 characters)

6.2 Menus and screens

Differentiation is made between menus and screens for operation of the controller.

Numbering of menus and screens:

Each menu in the menu tree can be opened by entering a specific number and each operating screen in a menu can be opened by selecting it in the menu. This is achieved by distinct marking by numbers and letters in the menu tree. Numbers 1, 2, etc. identify the menu and the letters a, b, etc. identify the order of the screens in the menu.

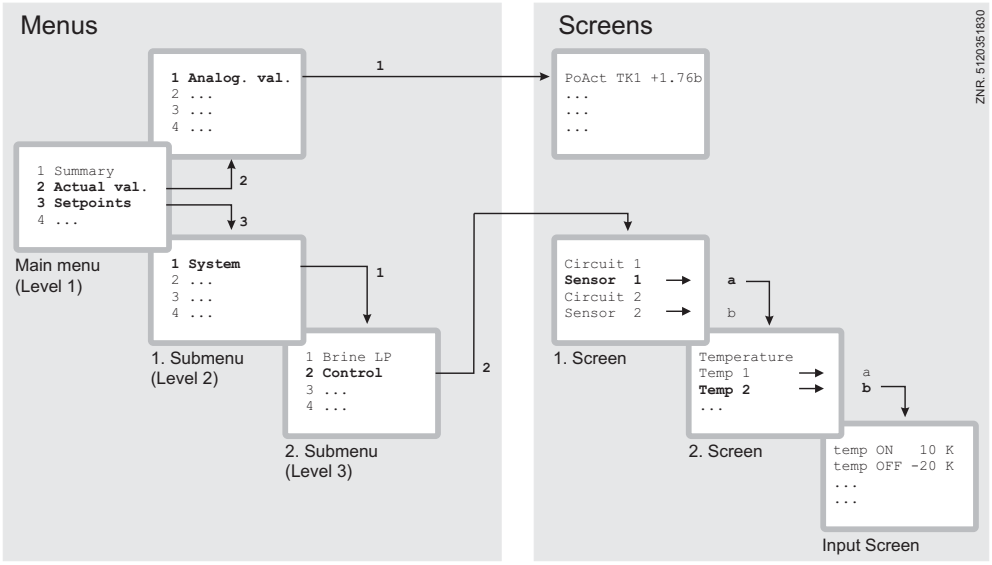
Example of screen numbering:

2 - 1 means that the screen can be opened from the menu tree by entering the numbers 2 - 1. This may be a display screen or operating screen.

Example of operating screen numbering:

3 - 1 - 2 - a - b means that the higher-level screen can be opened from the menu tree by entering the numbers 3 - 1 - 2. The letter or letters following indicate that one or more additional operating screens or selection lists can be opened in the screen by selecting them (→). The letters show their order in the screen.

Each operating screen of the UA 300 E can be opened by entering its respective number.



Menus

A menu contains a list of up to nine items for selection. Each item selected may contain separate submenus or operating screens.

Selecting menu items

Each line of the selection list displayed contains a number from 1 to 9 and 0 and the name of the corresponding item. The separate items can be selected directly by pressing the appropriate numeric key 1 to 9, or 0 for item 10.

If the menu lists more than three items, the cursor keys can be used to scroll through the menu and view the remaining items.

A menu item can be selected by pressing the respective numeric key regardless of whether the item itself is visible on the display.

Operating screens

An operating screen shows values for output and/or input. There may be more values for output and/or input than fit into the display at one time. The cursor keys can be used to scroll through these additional values. The screen may also contain more than one page, in which case the pages can be viewed one at a time.

Arrows appear on the right of the display to indicate whether you can scroll or page through a menu or screen.

Scrolling

Use the cursor keys (↑) and (↓) to:

- Scroll line by line, for example when selecting a variable in a line from a list of predefined variables.
- Scroll block by block to view values that extend beyond the capacity of the display.

Paging

The cursor keys (←) and (→) can be used to page through screens containing more than one page. If a menu contains more than three submenus, the remaining items can be viewed by scrolling with the cursor keys (↑) and (↓). It is possible to page within the operating screens as follows using the following key combinations:

MODE + 9 three lines upwards, i.e.
MODE + 3 three lines downwards

Cancelling entry block

Before any values can be entered, the entry block must be deactivated as follows:

- In the Main Menu choose item 9 Parameter Setting.
- Then choose item 3 Block.
- Press **ENTER** (↵) to set the check mark (√). When the check mark is set, entry block is deactivated, allowing settings to be entered.
- Press **ESC** to exit the screen.

Blocking is activated automatically if no key is pressed for 10 minutes and when the operator terminal is switched on.

Superuser mode (granting Superuser rights):

Superuser mode is reserved exclusively for use by service personnel!

- In the Main Menu choose item 9 Parameter Setting.
- In this menu choose item 3 Block.
- Enter the current date in reverse order (not shown on display).
- Press the **ENTER** key to confirm (↵), causing ”S” to be shown on the screen.
- Press the **ESC** key to exit the screen.

Example:

The current date is *April 17, 2035*, which in order of day-month-year is 17.04.35. In this instance the entry required to grant Superuser rights is *534071*.

Unblocking from the main menu unblocks entry for all components of the CAN bus system. If you have moved to the operator interface of a bus station but have omitted to deactivate entry block, simultaneously press the **MODE** and decimal (↵) keys to unblock entry for the particular controller. Entry block is reactivated on exiting the operator interface for the controller.

Activating service mode

Service mode is reserved exclusively for use by service personnel!

Service mode enables the service technician to suppress the remote alarm function of the CI 3000 Store Computer for a limited time while carrying out maintenance of repair work.

- In the Main Menu, choose 9 Parameter Setting..
- From this menu item choose 3 Block.
- Simultaneously press the **MODE** and **ENTER** (↵) keys to open the screen for suppressing remote alarm and enter the time required for service work (1 to 255 min.).
- This activates service mode for the specified time.

Any alarms (Priority 1 and 2) still active when the set service mode time expires cause the audible signalling devices and alarm relays to be actuated and are forwarded by automatic fault report transmission.

Service mode can be reset/cancelled by entering a time of 0 min.

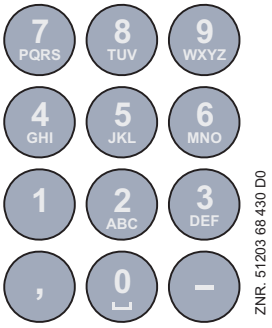
Entering values and text

Use the cursor keys (↑) and (↓) to select the line wanted and press the **ENTER** key (↵). The cursor jumps to the entry field. The cursor keys (↑) and (↓) or numeric keys can then be used to enter or change values. Keep the cursor key (↑) or (↓) depressed to change values in fast mode.

Entering text

Text can also be entered by the alphanumeric keypad. Repeatedly press the numeric keys to generate letters. Press the ENTER key (↵) to confirm the entered value or text.

Key	Letters / Special characters
0	äöüß0 space
1	1
2	abc2
3	def3
4	ghi4
5	jkl5
6	mno6
7	pqrs7
8	tuv8
9	wxyz9
-	. _ -
,	Insert space



Alphanumeric key assignments

Press the **MODE** key to shift between upper and lower case letters.

Deleting text entry

Simultaneously press the **MODE** and minus (**-**) keys to delete a complete line of text. Press the **MODE** and decimal (**.**) keys to delete one character.

Cancelling an entry

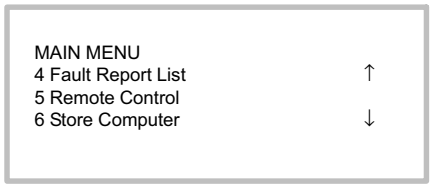
Press the ESC key to cancel an entry at any time. The entry will not be applied.

Exiting menus and screens

Press the ESC key to exit the menu or screen you are in at any time. This returns you to the next higher menu. All menus and screens are closed automatically if no key is pressed for 10 minutes. The display then jumps to the Main Menu or to the Alarm menu if any fault report is currently active.

6.3 Remote operation/parameter setting of case controller

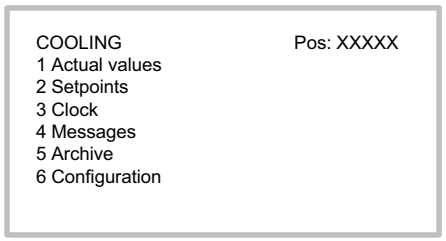
The LCD display contains 4 lines of 20 characters. If a menu or screen contains more than 4 lines, the cursor keys can be used to scroll through the remaining lines.



Entry block must first be deactivated before parameters can be set.

In the Main Menu of the AL 300 Operator Terminal or CI 3000 Store Computer, open submenu *5 Remote Operation*. This displays the following screen:

The case controller required can be selected using the cursor keys (↑) (↓) or by entering its Node No. *nnn* (CAN bus address) with the numeric keys. Press the ENTER key to open the case controller selected. This displays the following UA 300 E Main Menu:



6.4 Entering refrigeration point parameters

Name of refrigeration point

- In the Main Menu choose item 7 Monitoring.
- In the Monitoring menu choose item 3 Configuration.
- Select the case controller to be named by scrolling with the cursor keys or entering the CAN bus address (and confirming with ENTER), then confirm by pressing the ENTER key. The flashing cursor moves from the first line to the second.
- The cursor keys (↑) and (↓) can be used to move the flashing cursor to Line 2, 3 or 4.
- Press the ENTER key to place the cursor at the beginning of the entry field.
- Then enter the name, position and priority (0, 1 or 2) of the refrigeration point and confirm by pressing the ENTER key.

Priority can also be configured from the Main Menu by choosing item 5 Remote Operation (selected case controller), 6 Configuration, 1 Refrigeration Point, Priority.

For actual configuration of the refrigeration point, ”dial up” the case via remote operation:

- In the Main Menu choose item 5 Remote Operation.
- Select the case controller to be configured by scrolling with the cursor keys or entering the CAN bus address (and confirming with ENTER), then confirm by pressing the ENTER key.
- This displays the Refrigeration Point menu showing position of the selected case controller. You should first choose item 6 Configuration, as this narrows down the selection of functionalities. See also Section 12.4 Installation and Startup for basic setting of the controller.

6.5 Operation with BT 300x Operator interface

When using the UA 300 E in stand-alone mode, the case controller can only be operated with the BT 300x Operator interface. A BT 300x can be connected to a separate interface (display). The operating options are largely the same as those provided in the Remote Operation menu of the Operator Terminal.

Constraints result from the use of a smaller display and a smaller number of keys. Naming of the refrigeration point is only possible with controllers of type UA 300 D and UA 300 L. If no key is pressed, the display of the local set-up unit will show case operating status and return air temperature.

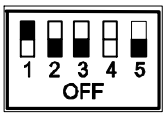
Differences between the displayed value and the thermometer reading can be compensated by entering an offset for this value. Press the ENTER key (↵) to change from the status display to the operating menus. A jumper is fitted beside the keypad ribbon cable inside the unit. Removing or shifting this jumper results in the unit no longer being usable to make settings.

A local set-up unit can also be used to operate case controllers in a CAN bus system. This is however less convenient than using the AL 300 Operator Terminal, the CI 3000 Store Computer or the software LDSWin.

Notice:

7 Menu structure UA 300 E

7.1 Controller Type UA 121 E - Menu Tree



1: ON
2: OFF
3: OFF
4: ON/OFF = Master-/Slave-Mode ON/OFF
5: OFF

Level 1	Level 2	Level 3	Screen No.	Screen Name
Main Menu			0	REFR. PT.
Actual Values			1	ACT VALUES
	Temperature Sensors		1-1	TEMPERATUR
	Cooling Zone 1		1-2	COOLING 1
	Defrost Zone 1		1-3	DEFROST 1
	--			
	Alarm		1-5	ALARM
	Frame Heater		1-6	MODE
	Cooling Zone 2		1-7	COOLING 2
	Defrost Zone 2		1-8	DEFROST 2
Setpoints			2	SETPOINTS
	Cooling		2-1	COOLING
		Zone 1	2-1-1	COOLING 1
		Zone 2	2-1-2	COOLING 2
		Zone 1T Toggle	2-1-3	COOLING 1A
		Zone 2T Toggle	2-1-4	COOLING 2A
	Defrost		2-2	DEFROST
		Zone 1	2-2-1	DEFROST 1
		Zone 2	2-2-2	DEFROST 2
		Zone 1T Toggle	2-2-3	DEFROST 1A
		Zone 2T Toggle	2-2-4	DEFROST 2A

	Alarm		2-4	ALARM
		Zone 1	2-4-1	ALARM 1
		Zone 2	2-4-2	ALARM 2
		Zone 1T Toggle	2-4-3	ALARM 1A
		Zone 2T Toggle	2-4-4	ALARM 2A

Level 1	Level 2	Level 3	Screen No.	Screen Name
Setpoints	Frame Heater		2-5	FRAME HTR
		Frame Mode	2-5-1	MODE
		Frame Setpoints	2-5-2	SETPOINTS
		Toggle Mode	2-5-3	MODE ALT
		Setpoint Toggle	2-5-4	TOG. SETP.
Clock			3	Clock
	Current Time		3-1	CLOCK
	Defrost Timer		3-2	DEFR.TIMER
	Setpoint Toggle		3-3	TOGGLE
Messages			4	MESSAGES
	View Messages		4-1	MESSAGES
	Cancel Messages		4-2	MESSAGES
	Delete Messages		4-3	MESSAGES
Archive			5	ARCHIVE
Configuration			6	CONFIGURAT
	Refrigeration Point		6-1	REFR. PT.
	Controller		6-2	CONTROLLER
		Type and Version	6-2-1	VERSION
		Temperature Display	6-2-2	DISPLAY
		Alarm Delay	6-2-3	ALARMDELAY
		230V Inputs	6-2-4	230V INPUT
		Sensor Type	6-2-5	SENSORS
		EEV Controller Zone 1	6-2-6	EEV ZONE 1
		EEV Controller Zone 2	6-2-7	EEV ZONE 2
	Cooling		6-3	COOLING
	Language		6-4	LANGUAGE
	Alarm Priorities		6-5	ALARMPRIOS
	Em.Powersupply		6-6	EM.POW.SUP

7.1.1 Screen 0 Main Menu

REFR. PT. POS: XXXXX	
1 Actual Values	Move to screen 1
2 Setpoints	Move to screen 2
3 Clock	Move to screen 3
4 Messages	Move to screen 4
5 Archive	Move to screen 5
6 Configuration	Move to screen 6

7.1.2 Screen 1 Actual Values

ACT VALUES POS: XXXXX	
1 Temp. Sensor	Move to screen 1-1
2 Cooling Zone 1	Move to screen 1-2
3 Defrost Zone 1	Move to screen 1-3
4	Not used with this controller type
5 Alarm	Move to screen 1-5
6 Frame Heater	Move to screen 1-6
7 Cooling Zone 2	Move to screen 1-7: Menu item is shown only whenn two-zone operation is set (Screen 6-1).
8 Defrost Zone 2	Move to screen 1-8: Menu item is shown only whenn two-zone operation is set (Screen 6-1).

- Screen 1-1 Temp. Sensor

TEMPERATUR XXXXX		
Temp. R2.1	XXX °C	Displays current supply air temperature Input Z11/Z12
Temp. R4.1	XXX °C	Displays current return air temperature Input Z21/Z22
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R5.1	XXX °C	Displays current evaporator inlet temperature Input Z41/Z42
Temp. R6.1	XXX °C	Displays current evaporator outlet temperature Input Z51/Z52
Temp. R2.2	XXX °C	Displays current supply air temperature Input Z61/Z62
Temp. R4.2	XXX °C	Displays current return air temperature Input Z71/Z72
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Temp. R5.2	XXX °C	Displays current evaporator inlet temperature Input Z91/Z92
Temp. R6.2	XXX °C	Displays current evaporator outlet temperature Input Z01/Z02
to VS corr.	XXX °C	Displays current corrected suction pressure temperature on VS pack controller (assigned by Pack No.)

- Screen 1-2 Cooling Zone 1

COOLING 1 XXXXX		
Cooling	XXX	Displays currentr OFF/ON status of cooling
op.deg. Z 1	XX %	Displays current valve opening position Zone 1
OD med. 24h	XX %	Displays mean valve opening position Zone 1 for past day
Temp. R2.1	XXX °C	Displays current supply air temperature Input Z11/Z12
Setpoint R2.1	XXX °C	Displays supply air temperature setpoint for comparison
Hystersis R2.1	XXX K	Displays supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)
Temp. R4.1	XXX °C	Displays current return air temperature Input Z21/Z22
Setpoint R4.1	XXX °C	Displays return air temperature setpoint for comparison
Hystersis R4.1	XXX K	Displays return air temperature hysteresis setpoint; shown only when of-off control is set (Screen 2-1-1)
SH Z 1	XXX °C	Displays current superheat temperature Zone 1
sup air ctrl	XXX	Displays current OFF/ON status of supply or return air control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode
Status light	XXX	Status lighting control (ON/OFF)

- Screen 1-3 Defrost Zone 1

DEFROST 1	XXXXX	
Defrost	XXX	Displays current OFF/ON status of defrosting
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82; shown only when single-zone operation is set (Screen 6-1)
Def. End. Tmp.	XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time	XX m	Displays waiting time setpoint
Drip Time	XX m	Displays drip time setpoint
Last Defrst	XX hh:mm	Displays time (day, time of day) of last defrost cycle started

- Screen 1-4 Not used with this controller type.

- Screen 1-5 Alarm

ALARM	XXXXX	
Alarm Relay	XXX	Displays current OFF/ON status of alarm output Terminal 15/16/18
Hi Temp Setp.1	XX °C	Displays high temperature setpoint Zone 1
Lo Temp Setp.1	XX K	Displays low temperature setpoint Zone 1
Hi Temp Setp.2	XX °C	Displays high temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)
Lo Temp Setp.2	XX K	Displays low temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)

- Screen 1-6 Frame Heater

MODE	XXXXX	
Frame Heater	XXX	Displays current OFF/ON status of frame heater output Terminal 91/92/93
Run Time	XXX %	Displays current frame heater on time
Humidity	XXX %	Displays current room air humidity (transmitted via CAN bus from VS pack controller with fitted humidity sensor)
Room temp.	XX °C	Displays current room air temperature (transmitted via CAN bus from VS pack controller with fitted room air temperature sensor)

- Screen 1-7 Cooling Zone 2

COOLING 2 XXXXX	
Cooling XXX	Displays current OFF/ON status of cooling
op.deg. Z 2 XX %	Displays current valve opening position Zone 2
OD med. 24h XX %	Displays mean valve opening position 2 for past day
Temp. R2.2 XXX °C	Displays current supply air temperature Input Z61/Z62
Setpoint R2.2 XXX °C	Displays supply air temperature setpoint for comparison
Hystersis R2.2 XXX K	Displays supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)
Temp. R4.2 XXX °C	Displays current return air temperature Input Z71/Z72
Setpoint R4.2 XXX °C	Displays return air temperature setpoint for comparison
Hystersis R4.2 XXX K	Displays return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)
SH Z 2 XXX °C	Displays current superheat temperature Zone 2
sup air ctrl XXX	Displays current OFF/ON status of supply or return air control
MOP op. XXX	Displays OFF/ON setpoint of MOP mode

- Screen 1-8 Defrost Zone 2

DEFROST 2 XXXXX	
Defrost XXX	Displays current OFF/ON status of defrosting
Temp. R1.2 XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Def. End. Tmp. XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time XX m	Displays waiting time setpoint
Drip Time XX m	Displays drip time setpoint
Last Defrst XX hh:mm	Displays time (day, time of day) of last defrost cycle started

7.1.3 Screen 2 Setpoints

SETPOINTS POS: XXXXX	
1 Cooling	Move to screen 2-1; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-1-1
2 Defrost	Move to screen 2-2; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-2-1
3	Not used with this controller type
4 Alarm	Move to screen 2-4; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-4-1
5 Frame Heater	Move to screen 2-5

- Screen 2-1 Cooling

COOLING POS: XXXXX	
1 Zone 1	Move to screen 2-1-1
2 Zone 2	Move to screen 2-1-2
3 Zone 1T Toggle	Move to screen 2-1-3; not shown when setpoint toggle is deactivated (Screen 3-3)
3 Zone 2T Toggle	Move to screen 2-1-4; shown only when two-zone operation is set and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-1-1 Zone 1

COOLING 1 POS: XXXXX			Entry	Default
Setpoint R2.1	XXX °C	Supply air temperature setpoint	--, -10..20	-2 °C
Hystersis R2.1	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	4 K
Setpoint R4.1	XXX °C	Return air temperature setpoint	--, -10..20	4 °C
Hystersis R4.1	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	2 K
Superheat	XXX K	Superheat setpoint Zone 1	0..20	6 K
Min. SH	XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 1. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-2 Zone 2

COOLING 2 POS: XXXXX			Entry	Default
Setpoint R2.2	XXX °C	Supply air temperature setpoint	--, -10..20	-2 °C
Hystersis R2.2	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	4 K
Setpoint R4.2	XXX °C	Return air temperature setpoint	--, -10..20	4 °C
Hystersis R4.2	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	2 K
Superheat	XXX K	Superheat setpoint Zone 2	0..20	6 K
Min. SH	XX K	Minimun superheat setpoint, below which cooling relay switches off Zone 2. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-3 Zone 1T Toggle

COOLING 1A POS: XXXXX			Entry	Default
Setpoint R2.1	XXX °C	Supply air temperature setpoint	--, -10..20	0 °C
Hystersis R2.1	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	4 K
Setpoint R4.1	XXX °C	Return air temperature setpoint	--, -10..20	4 °C
Hystersis R4.1	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	2 K

- Screen 2-1-4 Zone 2T Toggle

COOLING 2A POS: XXXXX			Entry	Default
Setpoint R2.2	XXX °C	Supply air temperature setpoint	--, -10..20	0 °C
Hystersis R2.2	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	4 K
Setpoint R4.2	XXX °C	Return air temperature setpoint	--, -10..20	4 °C
Hystersis R4.2	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	2 K

- Screen 2-2 Defrost

DEFROST POS: XXXXX	
1 Zone 1	Move to screen 2-2-1
2 Zone 2	Move to screen 2-2-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-2-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-2-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-2-1 Zone 1

DEFROST 1 POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	8 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-2 Zone 2

DEFROST 2 POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	8 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-3 Zone 1T Toggle

DEFROST 1A POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	5 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-4 Zone 2T Toggle

DEFROST 2A POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	5 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-3 Not used with this controller type.

- Screen 2-4 Alarm

ALARM POS: XXXXX	
1 Zone 1	Move to screen 2-4-1
2 Zone 2	Move to screen 2-4-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-4-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-4-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-4-1 Zone 1

ALARM 1 POS: XXXXX			Entry	Default
High Temp Setp	XX °C	High temperature setpoint at which *High Temperature* alarm is generated	0..30	8 °C
Low Temp Setp.	XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-4-2 Zone 2

ALARM 2 POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	0..30	8 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-4-3 Zone 1T Toggle

ALARM 1A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	0..30	8 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-4-4 Zone 2T Toggle

ALARM 2A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	0..30	8 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-5 Frame Heater

FRAME HTR POS: XXXXX	
1 Mode frm htr	Move to screen 2-5-1
2 Setpoint frm htr	Move to screen 2-5-2
3 Mode altern.	Move to screen 2-5-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Setpoint altern.	Move to screen 2-5-4;not shown when setpoint toggle is deactivated (Screen 3-3)

- Screen 2-5-1 Frame Mode

Selection is made according to entry. Checkmark shows current setting.

MODE POS: XXXXX		Entry	Default
Fixed run time √		↵	√
Enthalpy-ctrl rtm		↵	

- Screen 2-5-2 Frame Setpoints

SETPOINTS POS: XXXXX		Entry	Default
Mod: xxxxxxxxxxxx	Displays set frame mode (Screen 2-5-1)		fixed run time
Run Time XXX %	Fixed on time, shown only when mode set to Fixed OT (Screen 2-5-1)	--, 0..100	100 %
emerg.run time XXX %	On time in loss of humidity or room air temperature (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-1)	--, 0..100	100 %
enthalp. offs. XXX %	Offset for on time when enthalpy control is activated (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-1)	-50..50	0 %

- Screen 2-5-3 Toggle Mode

MODE ALT. POS: XXXXX		Entry	Default
Fixed run time √		↵	√
Enthalpy-ctrl rtm		↵	

- Screen 2-5-4 Setpoint Toggle

TOG. SETP. POS: XXXXX		Entry	Default
Mod: xxxxxxxxxxxx	Displays set frame mode (Screen 2-5-3)		fixed run time
Run Time XXX %	Fixed on time, shown only when mode set to Fixed OT (Screen 2-5-3)	--, 0..100	100 %
emerg.run time XXX %	On time in loss of humidity or room air temperature (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-3)	--, 0..100	100 %
enthalp. offs. XXX %	Offset for on time when enthalpy control is activated (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-3)	-50..50	0 %

7.1.4 Screen 3 Clock

CLOCK POS: XXXXX	
1 Current Time	Move to screen 3-1
2 Defrost Timer	Move to screen 3-2
3 Toggle Setpoints	Move to screen 3-3

- Screen 3-1 Current Time

Time is defined by time master (CI 3000, AL 300) when CAN bus is connected. Any entry made will then be overwritten by the defined value.

CLOCK POS: XXXXX		Entry	Default
Date: XX dd.mm.yy	Display and entry of current weekday, date	dd.mm.yy	
Time: hh.mm	Display and entry of current time	hh.mm	
Daylight Saving X	Display and entry of automatic daylight saving time change (Y/N)	↑, ↓, (N/Y)	Y

- Screen 3-2 Defrost Timer

DEFR.TIMER POS: XXXXX		Entry	Default
Defrost Timer XXX	Defrost initiation via Input D11/12 (EXT) or internal (INT)	↑, ↓, (EXT, INT)	INT
Safe Defr Time XXX m	Safe defrost time, i.e. max. allowed duration of defrosting (internal defrost only)	0..120	60 min
Manual Defrost XXX	Status (OFF/ON) of auxiliary manual defrost *)	↑, ↓, (OFF/ON)	OFF
Defr. 1 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 01:00
Defr. 2 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 07:00
Defr. 3 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 13:00
Defr. 4 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 19:30
...			
Defr. 14 xxxxx hh:mm			

*) Parameter is automatically set to ON at first start for the duration of the safe defrost time.

- Screen 3-3 Toggle Setpoints

TOGGLE POS: XXXXX		Entry	Default
Status XXX	Status (OFF/ON) of setpoint toggle for alternative set of setpoints (setpoint set toggle)		
Toggle Setp. XXX	Setpoint toggle via Input D21/22 (EXT), internal (INT) or deactivated (--)	↑, ↓, (EXT, INT, --)	EXT
Blind On Time X s	Time for shutdown fan and cooling after toggling to alternative set of setpoints with external setpoint toggle (Screen 3-3)	0..250	50 sec
Toggle interv. X m	The interval for the cyclical toggling between standard and alternative setpoint data records; only appears when the internal setpoint toggling is activated (menu 3-3).	--, 10..60	-- min
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Lu-Di 21:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Lu-Di 05:00
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Di 05:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Di 21:00
...	A total of 7 different ON, OFF toggle times can be entered. Toggle time will only be obeyed when a **matched pair** of ON and OFF time is set.		

7.1.5 Screen 4 Messages

MESSAGES POS: XXXXX	
1 View	Move to screen 4-1 View Messages
2 Acknowledge	Messages in log are cancelled, press ESC to exit after cancel is confirmed
3 Delete	Move to screen 4-3

- Screen 4-1 View Messages

MESSAGES POS: XXXXX	
Error text 1:	Fault message Fault 1
dd.mm.yy hh:mm ON	Start of Fault 1
dd.mm.yy hh:mm OFF	End of Fault 1 (only when Fault 1 has ended)
...	
Error text n:	Fault message Fault n
dd.mm.yy hh:mm ON	Start of Fault n
dd.mm.yy hh:mm OFF	End of Fault n (only when Fault n has ended)

- Screen 4-2 Cancel Messages

This diplays the *Alarms Cancelled!* message.

- Screen 4-3 Delete Messages

MESSAGES POS: XXXXX		Entry
Delete ! Are you sure ? NO: ESC YES: ↵	Safety prompt for deleting messages; press ESC to exit after confirming or cancelling delete	↵, ESC

7.1.6 Screen 5 Archive

ARCHIVE POS: XXXXX	
dd.mm.yy hh:mm	Time of archiving Data RecordTime of archiving Data Record 1
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status and temperature of Zone 2, see note *); shown only when two-zone operation is set (Screen 6-1)
...	
dd.mm.yy hh:mm	Time of archiving Data Record n
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status and temperature of Zone 2, see note *); shown only when two-zone operation is set (Screen 6-1)

*) Status abcdef covers following states of refrigeration point. The entry at this position is - when a state is not active.

	Single-zone operation	Two-zone operation
a	O = Operation	O = Operation
b	R = Refrigeration/ Cooling	R = Refrigeration/ Cooling
c	D = Defrost	R = Refrigeration/ Cooling
d	G = Gate/ Door (coldroom controller only)	D = Defrost
e	A = Alarm	G = Gate/ Door (coldroom controller only)
f		A = Alarm

7.1.7 Screen 6 Configuration

CONFIGURAT POS: XXXXX	
1 Refriger. Point	Move to screen 6-1
2 Controller	Move to screen 6-2
3 Cooling	Move to screen 6-3
4 Language	Move to screen 6-4
5 Alarm priorities	Move to screen 6-5
6 Em.Powersupply	Move to screen 6-6

- Screen 6-1 Refrigeration Point

REFR. PT. POS: XXXXX		Entry	Default
Refr. Pt. Name:	Text only		
xxxxxxxxxxxxxx	Free text entry describing refrigeration point (see note at end of table)		Case Controller
Item ID: XXXXX	Free text entry shown after Position (POS:) in screens (see note at end of table)		UA300
Priority: XX	Priority of alarms in failure of refrigeration point or when setting global controller priority (Screen 6-5)	↑, ↓, or numbers (0..99)	1
Refr. Sys. No.: XX	Pack No. of pack controller assigned to case controller. The UA 300 E cannot receive the suction pressure value for control functions before the Pack No. of the associated pack controller has been selected on the case controller	↑, ↓, or numbers (--, 1..9)	--
Refr. Sys. Type XXX	Allocation to compressor pack. Parameter only required for linking to VS 3010 BS with several zones. Deactivate this parameter (---) when using pack controllers of other type.	↑, ↓, or numbers (---, Z1, Z2)	---
Temp. Zones X	Number of temperature zones. Single-zone operation Two-zone operation	↑, ↓, or numbers (1, 2)	2
No. Sensors XX	Displays number of temperature sensors connected. After pressing ↵, sensor scan is performed and number of sensors is redefined.	↵	

It must be ensured that the correct pack number has been selected, i.e. the correct Refr. Sys. type has been set, otherwise this can result in damage to the installation or goods. Furthermore, the parameter *Corr.off* t_0 (menu 6-3) must not be set to ”--” if the t_0 from the pack controller is to be used for regulating.

A meaningful name that describes the refrigeration point in more detail should be entered, e.g. Cheese Counter 2 and CC2. Entry is made in the screens on Store Computer or Alarm Terminal. Direct entry cannot be made in the UA 300 E screens displayed on the operator terminal. Entry cannot be made either on the hand setup unit.

- Screen 6-2 Controller

CONTROLLER POS: XXXXX	
1 Type and Version	Move to screen 6-2-1
2 Temp. Display	Move to screen 6-2-2
3 Alarm Delay	Move to screen 6-2-3
4 230V Inputs	Move to screen 6-2-4
5 Sensor Type	Move to screen 6-2-5
6 eev ctrlr zone1	Move to screen 6-2-6; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)
7 eev ctrlr zone2	Move to screen 6-2-7; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)

- Screen 6-2-1 Type and Version

VERSION	POS: XXXXX		Entry	Default
Ctrlr. Type	XXXXXXX	Set on DIP Switch S3		UA121E
Software Ver.:	XXXX	Software version of case controller (EPROM)		
Serial No.:	XXXXXX	Device No. of case controller (from EEPROM)		
Master/Sl. Mode	XXX	Synchronized defrosting in master/slave mode	↑, ↓, (OFF/ON)	OFF

- Screen 6-2-2 Temperature Display

DISPLAY	POS: XXXXX		Entry	Default
Offset	XX K	Offset for temperature display	-10..10	0 K
Alarmsymbol	X	Display alarm symbol on BT 30 Temperature Display	↑, ↓, (Y/N)	N

- Screen 6-2-3 Alarm Delay

ALARMDELAY	POS: XXXXX		Entry	Default
Sensor Fault	XX m	Sensor break alarm delay	0..30	15 min
High/Low Temp.	XX m	High/low temperature alarm delay	0..120	60 min
No Defrost	XX h	No defrost alarm delay	--, 2..168	24 h
Selfholding	X	Alarm latching with manual alarm cancelling (YES) or automatic cancelling on send (NO)	↑, ↓, (Y/N)	N

- Screen 6-2-4 230V Inputs

Only trained personnel should be allowed to change inputs, as chenges can affect other functions.

230V INPUT	POS: XXXXX		Default
Entry1: XXXXXXXXXX		Function of Input 1 D11/D12	DEFR.TIMER
Entry2: XXXXXXXXXX		Function of Input 2 D21/D22	TOGGLE SETP.
Entry3: XXXXXXXXXX		Function of Input 3 D31/D32	MANUAL OFF.

- Screen 6-2-5 Sensor Type

Selection is made according to entry. Checkmark shows current setting

SENSORS POS: XXXXX		Entry	Default
L243 √	Temperature range -50 °C .. 50 °C	↵	√
K277	Temperature range -50 °C .. 50 °C	↵	
5K3A1	Temperature range 0 °C .. 100 °C	↵	

- Screen 6-2-6 EEV Controller Zone 1

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 1 POS: XXXXX		Entry	Default
Pc Z 1: XX.XX	Temperature control Zone 1, P-part	0..99.99	7.00
Ic Z 1: XX.XX	Temperature control Zone 1, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 1: XX.XX	Temperature control Zone 1, D-part	0..99.99	5.00
offs OD cab. XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %
Psh Z 1: XX.XX	Superheat control Zone 1, P-part	0..99.99	5.00
Ish Z 1: XX.XX	Superheat control Zone 1, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 1: XX.XX	Superheat control Zone 1, D-part	0..99.99	5.00
offs OD SH XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD XX %	Maximum valve opening position	0..50	20 %
delay min SH XX s	Delay on drop of superheat below set minimum	9..600	9 sec
setuptime XX.X m	Setup time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be less than the current "*inject.time*" parameter, otherwise the smallest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	2.0 min
inject.time XX.X m	Injection time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be greater than the current "*setuptime*" parameter, otherwise the largest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	1.0 min
OD over CAN XXX	Transmit valve opening position via CAN bus	↑, ↓, (OFF/ON)	ON
15s Archiv X	Set archiving interval on Store Computer to 15 sec	↑, ↓, (Y/N)	N

EEV ZONE 1 POS: XXXXX		Entry	Default
OD 3s interv XXX	Select interval for output of opening position. OFF = 6s ON = 3s Control is suspended for 6 seconds when toggling.	↑, ↓, (OFF/ON)	OFF
Reset I-Sum XXX	Reset I-sum (to zero) if superheat drops below set minimum for longer than time set by ”delay min SH” parameter. OFF = I-sum not reset to zero ON = I-sum is reset to zero	↑, ↓, (OFF/ON)	ON
edit op.deg. XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 1 XXX %	Current valve opening position Zone 1; can be edited when manual entry is activated	0..100	Default by controller
Maximum OD xxx %	Sets an upper limit to the opening degree output by the case controller	20..100	100%
Lo Temp to xxK	Monitoring of the t_0 transmitted by the pack controller for unsuitably low values	10..60, --	28K
to VS corr. XXX °C	Displays current corrected suction pressure temperature on pack controller (assigned by Pack No.)		

- Screen 6-2-7 EEV Controller Zone 2

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 2 POS: XXXXX			Entry	Default
Pc Z 2:	XX.XX	Temperature control Zone 2, P-part	0..99.99	7.00
Ic Z 2:	XX.XX	Temperature control Zone 2, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 2:	XX.XX	Temperature control Zone 2, D-part	0..99.99	5.00
offs OD cab.	XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %
Psh Z 2:	XX.XX	Superheat control Zone 2, P-part	0..99.99	5.00
Ish Z 2:	XX.XX	Superheat control Zone 2, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 2:	XX.XX	Superheat control Zone 2, D-part	0..99.99	5.00
offs OD SH	XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD	XX %	Maximum valve opening position	0..50	20 %
delay min SH	XX s	Delay on drop of superheat below set minimum	9..600	9 sec
edit op.deg.	XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 2	XXX %	Current valve opening position Zone 2; can be edited when manual entry is activated	0..100	Default ctrlr.

- Screen 6-3 Cooling

COOLING POS: XXXXX			Entry	Default
corr.off to	XX K	Correction offset for pressure loss in suction line **IMPORTANT:** in stand alone operation must be set to "--"!	--, 0..20	2 K
Cont Cool Mon.	XX m	Continuous run monitoring	--, 0..15	---

- Screen 6-4 Language

LANGUAGE POS: XXXXX				
Deutsch	D	√	↵	√
English	GB		↵	
Francais	F		↵	
Finnish	FIN		↵	
Cesky	CZ		↵	

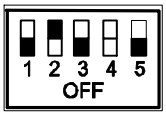
- Screen 6-5 Alarm Priorities

ALARMPRIOS POS: XXXXX		Entry	Default
Prio.Refrig. Pt. X	Global setting of alarm priority via refrigeration point priority (Screen 6-1) (Y)	↑, ↓, (Y/N)	Y
Priority: XX	Displays refrigeration point priority (Screen 6-1); only shown when refrigeration point priority is set to Y		
Following parameters are only shown when refrigeration point priority is set to N. Meaning of vaild entries for alarm priority is as follows: *- = Event ignored* *0 = Message (entered only in message log)* *1 = Priority 1 alarm* *..* *99 = Priority 99 alarm*			
Low Temp.	Temperature below lo alarm limit. Priority applies to alarms Low Temp. Zone 1, *Low Temp. Zone 2*	-, 0..99	1
High Temp.	Temperature above high alarm limit. Priority applies to alarms *High Temp. Zone 1, High Temp. Zone 2*	-, 0..99	1
Sensor Fault	Temperature sensor failure	-, 0..99	1
No Defrost	No defrost within alarm delay time. Priority applies to *No Defrost* alarm	-, 0..99	1
Timer-Term. Defrost	Defrosting terminated by safe defrost time	-, 0..99	0
Power Failure	Start following power failure	-, 0..99	0
First Start	Controller startup (basic settings are loaded!)	-, 0..99	1
Manual Shutoff	Manual switch Input D31/D32 set OFF	-, 0..99	0
Hardware Fault	Internal hardware defect. Priority applies to alarms *EEPROM Defective, RTC Defective, Flash Memory Defective*	-, 0..99	1
Setpoint Change	Message generated when changing setpoints	0..99	0
Refrig.Pt.Dis.	Cooling interrupted by VS pack controller cia CAN bus	-, 0..99	0
Battery Voltage	Battery low	-, 0..99	0
Check t0	t_0 not received via CAN bus. Priority applies to alarms *No t0 Zone 1, No t0 Zone 2*	-, 0..99	1
Sensor Fault eev	EEV Control sensor failure. Priority applies to alarms *Sensor Break EEV Z1, Sensor Break EEV Z2*	-, 0..99	1
eev ctrl block	EEV control stalled. Priority applies to alarms *EEV Stall Detect Z1, EEV Stall Detect Z2*	-, 0..99	0
wrong ctrlr type	Configuration error: Invalid controller type set on DIP Switch S3. Priority applies to *Wrong Controller Type* alarm	-, 0..99	1
emerg.cut-out SH	Superheat drop below minimum level for duration of delay time	-, 0..99	0
OD manual	Valve opening position defined by manual entry. Priority applies to alarms *VO Manual Zone 1, VO Manual Zone 2*	-, 0..99	0
config:M/S w HG	Configuration error: Simultaneous setting of parameters for master-slave mode and discharge gas defrosting	-, 0..99	1
Check OD	Alarm due to implausible opening position	-, 0..99	1

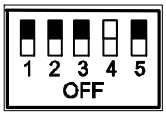
- Maske 6-6 Em.Powersupply (Emergency Power supply)

EM.POW.SUP POS: XXXXX		Entry	Default
Cool.funct.OFF xxx	Functionality of the cooling switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Defr.funct.OFF xxx	Functionality of the defrosting switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Fan funct. OFF xxx	Functionality of the fan switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N

7.2 Controller Type UA 131 E - Menu tree



1: OFF
2: ON
3: OFF
4: ON/OFF = Master-/Slave-Mode ON/OFF
5: OFF



1: ON
2: ON
3: ON
4: ON/OFF = Master-/Slave-Mode ON/OFF
5: ON = with advanced fan control: UA 131 E LS

Level 1	Level 2	Level 3	Screen No.	Screen Name
Main Menu			0	REFR. PT.
Actual Values			1	ACT VALUES
	Temperature Sensors		1-1	TEMPERATUR
	Cooling Zone 1		1-2	COOLING 1
	Defrost Zone 1		1-3	DEFROST 1
	Fan		1-4	FANS
	Alarm		1-5	ALARM
	Frame Heater		1-6	MODE
	Cooling Zone 2		1-7	COOLING 2
	Defrost Zone 2		1-8	DEFROST 2
Setpoints			2	SETPOINTS
	Cooling		2-1	COOLING
		Zone 1	2-1-1	COOLING 1
		Zone 2	2-1-2	COOLING 2
		Zone 1T Toggle	2-1-3	COOLING 1A
		Zone 2T Toggle	2-1-4	COOLING 2A
	Defrost		2-2	DEFROST
		Zone 1	2-2-1	DEFROST 1
		Zone 2	2-2-2	DEFROST 2
		Zone 1T Toggle	2-2-3	DEFROST 1A
		Zone 2T Toggle	2-2-4	DEFROST 2A

	Alarm		2-4	ALARM
		Zone 1	2-4-1	ALARM 1
		Zone 2	2-4-2	ALARM 2
		Zone 1T Toggle	2-4-3	ALARM 1A
		Zone 2T Toggle	2-4-4	ALARM 2A

Level 1	Level 2	Level 3	Screen No.	Screen Name
Setpoints	Frame Heater		2-5	FRAME HTR
		Frame Mode	2-5-1	MODE
		Frame Setpoints	2-5-2	SETPOINTS
		Toggle Mode	2-5-3	MODE ALT
		Setpoint Toggle	2-5-4	TOG. SETP.
	Fans		2-6	FANS
		Zone 1 + 2	2-6-1	FANS
		Zone 1 + 2 Toggle *	2-6-2	FANS A
Clock			3	Clock
	Current Time		3-1	CLOCK
	Defrost Timer		3-2	DEFR.TIMER
	Setpoint Toggle		3-3	TOGGLE
Messages			4	MESSAGES
	View Messages		4-1	MESSAGES
	Cancel Messages		4-2	MESSAGES
	Delete Messages		4-3	MESSAGES
Archive			5	ARCHIVE
Configuration			6	CONFIGURAT
	Refrigeration Point		6-1	REFR. PT.
	Controller		6-2	CONTROLLER
		Type and Version	6-2-1	VERSION
		Temperature Display	6-2-2	DISPLAY
		Alarm Delay	6-2-3	ALARMDELAY
		230V Inputs	6-2-4	230V INPUT
		Sensor Type	6-2-5	SENSORS
		EEV Controller Zone 1	6-2-6	EEV ZONE 1
		EEV Controller Zone 2	6-2-7	EEV ZONE 2
	Cooling		6-3	COOLING
	Language		6-4	LANGUAGE
	Alarm Priorities		6-5	ALARMPRIOS
	Em.Powersupply		6-6	EM.POW.SUP

* Visible: Controller configured as UA 131 E
Not visible: Controller configured as UA 131 E LS

7.2.1 Screen 0 Main Menu

REFR. PT. POS: XXXXX	
1 Actual Values	Move to screen 1
2 Setpoints	Move to screen 2
3 Clock	Move to screen 3
4 Messages	Move to screen 4
5 Archive	Move to screen 5
6 Configuration	Move to screen 6

7.2.2 Screen 1 Actual Values

ACT VALUES POS: XXXXX	
1 Temp. Sensor	Move to screen 1-1
2 Cooling Zone 1	Move to screen 1-2
3 Defrost Zone 1	Move to screen 1-3
4 Evap. fans	Move to screen 1-4
5 Alarm	Move to screen 1-5
6 Frame Heater	Move to screen 1-6
7 Cooling Zone 2	Move to screen 1-7: Menu item is shown only when two-zone operation is set (Screen 6-1).
8 Defrost Zone 2	Move to screen 1-8: Menu item is shown only when two-zone operation is set (Screen 6-1).

- Screen 1-1 Temp. Sensor

TEMPERATUR XXXXX		
Temp. R2.1	XXX °C	Displays current supply air temperature Input Z11/Z12
Temp. R4.1	XXX °C	Displays current return air temperature Input Z21/Z22
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R5.1	XXX °C	Displays current evaporator inlet temperature Input Z41/Z42
Temp. R6.1	XXX °C	Displays current evaporator outlet temperature Input Z51/Z52
Temp. R2.2	XXX °C	Displays current supply air temperature Input Z61/Z62
Temp. R4.2	XXX °C	Displays current return air temperature Input Z71/Z72
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Temp. R5.2	XXX °C	Displays current evaporator inlet temperature Input Z91/Z92
Temp. R6.2	XXX °C	Displays current evaporator outlet temperature Input Z01/Z02
to VS corr.	XXX °C	Displays current corrected suction pressure temperature on VS pack controller (assigned by Pack No.)

- Screen 1-2 Cooling Zone 1

COOLING 1	XXXXX	
Cooling	XXX	Displays current OFF/ON status of cooling
op.deg. Z 1	XX %	Displays current valve opening position Zone 1
OD med. 24h	XX %	Displays mean valve opening position Zone 1 for past day
Temp. R2.1	XXX °C	Displays current supply air temperature Input Z11/Z12
Setpoint R2.1	XXX °C	Display supply air temperature setpoint for comparison
Hystersis R2.1	XXX K	Displays supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)
Temp. R4.1	XXX °C	Displays current return air temperature Input Z21/Z22
Setpoint R4.1	XXX °C	Displays return air temperature setpoint for comparison
Hystersis R4.1	XXX K	Cisplays return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)
SH Z 1	XXX °C	Displays current superheat temperature Zone 1
sup air ctrl	XXX	Displays current OFF/ON status of supply or return air control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode
Status light	XXX	Status lighting control (ON/OFF)

- Screen 1-3 Defrost Zone 1

DEFROST 1	XXXXX	
Counting Rate	X	Displays setpoint for time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down
Defrost Counter	X	Displays count for number of defrost cycles to be skipped
Defr. Relay 1	XXX	Displays current OFF/ON status of Defrost Relay 1
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Defr. Relay 2	XXX	Displays current OFF/ON status of Defrost Relay 2; shown only when single-zone operation is set (Screen 6-1)
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82; shown only when single-zone operation is set (Screen 6-1)
Def. End. Tmp.	XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time	XX m	Displays waiting time setpoint
Drip Time	XX m	Displays drip time setpoint
Last Defrst	XX hh:mm	Displays time (day, time of day) of last defrost cycle started

- Screen 1-4 Fan

FANS 1	XXXXX	
Fans	XXX	Displays current fan status
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Fans Start	XXX °C	Displays fan start temperature setpoint

- Screen 1-5 Alarm

ALARM	XXXXX	
Alarm Relay	XXX	Displays current OFF/ON status of alarm output Terminal 15/16/18
Hi Temp Setp.1	XX °C	Displays high temperature setpoint Zone 1
Lo Temp Setp.1	XX K	Displays low temperature setpoint Zone 1
Hi Temp Setp.2	XX °C	Displays high temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)
Lo Temp Setp.2	XX K	Displays low temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)

- Screen 1-6 Frame Heater

MODE	XXXXX	
Frame Heater	XXX	Displays current OFF/ON status of frame heater output Terminal 91/92/93
Run Time	XXX %	Displays current frame heater on time
Humidity	XXX %	Displays current room air humidity (transmitted via CAN bus from VS pack controller with fitted humidity sensor)
Room temp.	XX °C	Displays current room air temperature (tranmitted via CAN bus from VS pack controller with fitted room air temperature sensor)

- Screen 1-7 Cooling Zone 2

COOLING 2	XXXXX	
Cooling	XXX	Displays current OFF/ON status of cooling
op.deg. Z 2	XX %	Displays current valve opening position Zone 2
OD med. 24h	XX %	Displays mean valve opening position Zone 2 for past day
Temp. R2.2	XXX °C	Displays current supply air temperature Input Z61/Z62
Setpoint R2.2	XXX °C	Displays supply air temperature setpoint for comparison
Hystersis R2.2	XXX K	Displays supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)
Temp. R4.2	XXX °C	Displays current return air temperature Input Z71/Z72
Setpoint R4.2	XXX °C	Displays return air temperature setpoint for comparison
Hystersis R4.2	XXX K	Displays return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)
SH Z 2	XXX °C	Displays current superheat temperature Zone 2
sup air ctrl	XXX	Displays current OFF/ON status of supply or return air control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode

- Screen 1-8 Defrost Zone 2

DEFROST 2 XXXXX	
Counting Rate X	Displays setpoint for time during which evaporator defrost termination temperaure may be within band around 0°C before defrost counter counts down
Defrost Counter X	Displays count for number of defrost cycles to be skipped
Defr. Relay 2 XXX	Displays current OFF/ON status of Defrost Relay 2
Temp. R1.2 XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Def. End. Tmp. XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time XX m	Displays waiting time setpoint
Drip Time XX m	Displays drip time setpoint
Last Defrst XX hh:mm	Displays time (day, time of day) of last defrost cycle started

7.2.3 Screen 2 Setpoints

SETPOINTS POS: XXXXX	
1 Cooling	Move to screen 2-1; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) und setpoint toggle is deactivated (Screen 3-3), Continue to 2-1-1
2 Defrost	Move to screen 2-2; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) und setpoint toggle is deactivated (Screen 3-3), Continue to 2-2-1
3	Not used with this controller type
4 Alarm	Move to screen 2-4; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) und setpoint toggle is deactivated (Screen 3-3), Continue to 2-4-1
5 Frame Heater	Move to screen 2-5
6 Fans	Move to screen 2-6

- Screen 2-1 Cooling

COOLING POS: XXXXX	
1 Zone 1	Move to screen 2-1-1
2 Zone 2	Move to screen 2-1-2
3 Zone 1T Toggle	Move to screen 2-1-3; not shown when setpoint toggle is deactivated (Screen 3-3)
3 Zone 2T Toggle	Move to screen 2-1-4; shown only when two-zone operation is set and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-1-1 Zone 1

COOLING 1 POS: XXXXX			Entry	Default
Setpoint R2.1	XXX °C	Supply air temperature setpoint	--, -40..20	-32 °C
Hystersis R2.1	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	2 K
Setpoint R4.1	XXX °C	Return air temperature setpoint	--, -30..20	-20 °C
Hystersis R4.1	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	2 K
Superheat	XXX K	Superheat setpoint Zone 1	0..20	6 K
Min. SH	XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 1. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-2 Zone 2

COOLING 2 POS: XXXXX			Entry	Default
Setpoint R2.2	XXX °C	Supply air temperature setpoint	--, -40..20	-32 °C
Hystersis R2.2	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	2 K
Setpoint R4.2	XXX °C	Return air temperature setpoint	--, -30..20	-20 °C
Hystersis R4.2	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	2 K
Superheat	XXX K	Superheat setpoint Zone 2	0..20	6 K
Min. SH	XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 2. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-3 Zone 1T Toggle

COOLING 1A POS: XXXXX			Entry	Default
Setpoint R2.1	XXX °C	Supply air temperature setpoint	--, -40..20	-32 °C
Hystersis R2.1	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	2 K
Setpoint R4.1	XXX °C	Return air temperature setpoint	--, -30..20	-22 °C
Hystersis R4.1	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	2 K

- Screen 2-1-4 Zone 2T Toggle

COOLING 2A POS: XXXXX			Entry	Default
Setpoint R2.2	XXX °C	Supply air temperature setpoint	--, -40..20	-32 °C
Hystersis R2.2	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	2 K
Setpoint R4.2	XXX °C	Return air temperature setpoint	--, -30..20	-22 °C
Hystersis R4.2	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	2 K

- Screen 2-2 Defrost

DEFROST POS: XXXXX	
1 Zone 1	Move to screen 2-2-1
2 Zone 2	Move to screen 2-2-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-2-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-2-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-2-1 Zone 1

DEFROST 1 POS: XXXXX			Entry	Default
Counting Rate	X	Setpoint of time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down	0..15	3
Defrost Counter	X	Setpoint of count for number of defrost cycles to be skipped. By pressing the ↵ key the value can be set to 1 until it is automatically reset to the basic settings.	↵	6
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	10 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	3 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	5 min

- Screen 2-2-2 Zone 2

DEFROST 2 POS: XXXXX			Entry	Default
Counting Rate	X	Setpoint of time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down	0..15	3
Defrost Counter	X	Setpoint of count for number of defrost cycles to be skipped. By pressing the ↵ key the value can be set to 1 until it is automatically reset to the basic settings.	↵	6
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	10 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	3 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	5 min

- Screen 2-2-3 Zone 1T Toggle

DEFROST 1A POS: XXXXX			Entry	Default
Counting Rate	X	Setpoint of time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down	0..15	3
Defrost Counter	X	Setpoint of count for number of defrost cycles to be skipped. By pressing the ↵ key the value can be set to 1 until it is automatically reset to the basic settings.	↵	6
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	10 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	3 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	5 min

- Screen 2-2-4 Zone 2T Toggle

DEFROST 2A POS: XXXXX			Entry	Default
Counting Rate	X	Setpoint of time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down	0..15	3
Defrost Counter	X	Setpoint of count for number of defrost cycles to be skipped. By pressing the ↵ key the value can be set to 1 until it is automatically reset to the basic settings.	↵	6
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	10 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	3 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	5 min

- Screen 2-3 Not used with this controller type.

- Screen 2-4 Alarm

ALARM POS: XXXXX	
1 Zone 1	Move to screen 2-4-1
2 Zone 2	Move to screen 2-4-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-4-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-4-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-4-1 Zone 1

ALARM 1 POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-20..30	-12 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-4-2 Zone 2

ALARM 2 POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-20..30	-12 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-4-3 Zone 1T Toggle

ALARM 1A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-20..30	-14 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-4-4 Zone 2T Toggle

ALARM 2A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-20..30	-14 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-5 Frame Heater

FRAME HTR POS: XXXXX	
1 Mode frm htr	Move to screen 2-5-1
2 Setpoint frm htr	Move to screen 2-5-2
3 Mode altern.	Move to screen 2-5-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Setpoint altern.	Move to screen 2-5-4; not shown when setpoint toggle is deactivated (Screen 3-3)

- Screen 2-5-1 Frame Mode

Selection is made according to entry. Checkmark shows current setting.

MODE POS: XXXXX		Entry	Default
Fixed run time		↵	
Enthalpy-ctrl rtm		↵	
set point-ctrl rtm √		↵	√

- Screen 2-5-2 Frame Setpoints

SETPOINTS POS: XXXXX		Entry	Default
Mod: xxxxxxxxxxxx	Displays set frame mode (Screen 2-5-1)		set point-ctrl runtime
Run Time XXX %	Fixed on time, shown only when mode set to Fixed OT (Screen 2-5-1)	--, 0..100	100 %
emerg.run time XXX %	On time in loss of huimidity or room air temperature (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-1)	--, 0..100	100 %
enthalp. offs. XXX %	Offset for on time when enthalpy control is activated (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-1)	-50..50	0 %

- Screen 2-5-3 Toggle Mode

Selection is made according to entry. Checkmark show current setting.

MODE ALT. POS: XXXXX		Entry	Default
Fixed run time		↵	
Enthalpy-ctrl rtm		↵	
set point-ctrl rtm √		↵	√

- Screen 2-5-4 Setpoint Toggle

TOG. SETP. POS: XXXXX		Entry	Default
Mod: xxxxxxxxxxxx	Displays set frame mode (Screen 2-5-3)		Sollwertab-häng. ED
Run Time XXX %	Fixed on time, shown only when mode set to Fixed OT (Screen 2-5-3)	--, 0..100	100 %
emerg.run time XXX %	On time in loss of huimidity or room air temperature (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-3)	--, 0..100	100 %
enthalp. offs. XXX %	Offset for on time when enthalpy control is activated (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-3)	-50..50	0 %

- Screen 2-6 Fans

Controller type UA 131 E: with fan control

Screens 2-6 / 2-6-1 / 2-6-2 are only show when the case controller is configured to UA 131 with fan control (further details in the chapter Installation and Startup):

FANS POS: XXXXX	
1 Zone 1+2	Move to screen 2-6-1
2 Zone 1+2 Altern.	Move to screen 2-6-2; shown only when setpoint toggle is activated (Screen 3-3)

- Screen 2-6-1 Zone 1+2

FANS POS: XXXXX		Entry	Default
Fans Start XXX °C	Fan start temperature setpoint	--, -20..20	-- °C

- Screen 2-6-2 Zone 1+2 Toggle

FANS A POS: XXXXX		Entry	Default
Fans Start XXX °C	Fan start temperature setpoint	--, -20..20	-- °C

Controller type UA 131 E LS: with **advanced** fan control

Screen 2-6 only shown when the case controller is configured to UA 131 LS with **advanced** fan control (further details in the chapter Installation and Startup):

FANS POS: XXXXX	
1 Zone 1+2	Move to screen 2-6-1

- Menü 2-6-1 Zone 1+2

FANS POS: XXXXX		Entry	Default
Op.mode: XXXXXXXXXXXX	Possible operating modes: Continuous operation, Forerun, Overrun	CONTINU-OUS FORERUN OVERRUN DEL.A.DEFR.	CONTINU-OUS
Fans Start	Continuous operation mode: not relevant Forerun mode: not relevant Overrun mode: Fan on by undershoot of temperature at evaporator sensor Delay after defrost mode: Fan on by undershoot of temperature at evaporator sensor	--, -20..20	-- °C
Fan hightemp.	Continuous operation mode: not relevant Forerun mode: fan on when temperature at evaporator sensor exceeded Overrun mode: fan off when temperature at evaporator sensor exceeded Delay after defrost mode: not relevant	-30..30	5 °C

7.2.4 Screen 3 Clock

CLOCK POS: XXXXX	
1 Current Time	Move to screen 3-1
2 Defrost Timer	Move to screen 3-2
3 Toggle Setpoints	Move to screen 3-3

- Screen 3-1 Current Time

Time is defined by time master (CI 3000, AL 300) when CAN bus is connected. Any entry made will then be overwritten by the defined value.

CLOCK POS: XXXXX		Entry	Default
Date: XX dd.mm.yy	Display and entry of current weekday, date	dd.mm.yy	
Time: hh.mm	Display and entry of current time	hh.mm	
Daylight Saving X	Display and entry of automatic daylight saving time change (Y/N)	↑, ↓, (N/Y)	Y

- Screen 3-2 Defrost Timer

DEFR.TIMER POS: XXXXX		Entry	Default
Defrost Timer XXX	Defrost initiation via Input D11/12 (EXT) oder internal (INT)	↑, ↓, (EXT, INT)	INT
Safe Defr Time XXX m	Safe defrost time, i.e. max. allowed duration of defrosting (internal defrost only)	0..120	60 min
Manual Defrost XXX	Status (OFF/ON) of auxiliary manual defrost *)	↑, ↓, (OFF/ON)	OFF
Defr. 1 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 20:15
...			
Defr. 14 xxxxx hh:mm			

*) Parameter is automatically set to ON at first start for the duration of the safe defrost time.

- Screen 3-3 Setpoint Toggle

TOGGLE POS: XXXXX		Entry	Default
Status XXX	Setpoint toggle for alternative set of setpoints (setpoint set toggle)		
Toggle Setp. XXX	Setpoint toggle via Input D21/22 (EXT), internal (INT) or deactivated (--)	↑, ↓, (EXT, INT, --)	EXT
Blind On Time X s	Time for shutdown fan and cooling after toggling to alternative set of setpoints with external setpoint toggle (Screen 3-3)	0..250	0 sec
Toggle interv. X m	The interval for the cyclical toggling between standard and alternative setpoint data records; only appears when the internal setpoint toggling is activated (menu 3-3).	--, 10..60	-- min
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 21:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 05:00
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Su 05:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Su 21:00
...	A total of 7 different ON, OFF toggle times can be entered. Toggle time will only be obeyed when a ***matched pair*** of ON and OFF time is set.		

7.2.5 Screen 4 Messages

MESSAGES POS: XXXXX	
1 View	Move to screen 4-1 View Messages
2 Acknowledge	Messages in log are cancelled, press ESC to exit after cancel is confirmed
3 Delete	Move to screen 4-3

- Screen 4-1 View Messages

MESSAGES POS: XXXXX	
Error text 1:	Fault message Fault 1
dd.mm.yy hh:mm ON	Start of Fault 1
dd.mm.yy hh:mm OFF	End of Fault 1 (only when Fault 1 has ended)
...	
Error text n:	Fault message Fault n
dd.mm.yy hh:mm ON	Start of Fault n
dd.mm.yy hh:mm OFF	End of Fault n (only when Fault n has ended)

- Screen 4-2 Cancel Messages

This displays the *Alarms Cancelled!* message.

- Screen 4-3 Delete Messages

MESSAGES POS: XXXXX		Entry
Delete ! Are you sure ? No: ESC YES: ↵	Safety prompt for deleting messages; press ESC to exit after confirming or cancelling delete	↵, ESC

7.2.6 Screen 5 Archive

ARCHIVE POS: XXXXX	
dd.mm.yy hh:mm	Time of archiving Data Record 1
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, see note *); shown only when two-zone operation is set (Screen 6-1)
...	
dd.mm.yy hh:mm	Time of archiving Data Record n
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, see note *); shown only when two-zone operation is set (Screen 6-1)

*) Status abcdef covers following states of refrigeration point. The entry at this position is - when a state is not active

	Single-zone operation	Two-zone operation
a	O = Operation	O = Operation
b	R = Refrigeration/ Cooling	R = Refrigeration/ Cooling
c	D = Defrost	R = Refrigeration/ Cooling
d	G = Gate/ Door (coldroom controller only)	D = Defrost
e	A = Alarm	G = Gate/ Door (coldroom controller only)
f		A = Alarm

7.2.7 Screen 6 Configuration

CONFIGURAT POS: XXXXX	
1 Refriger. Point	Move to screen 6-1
2 Controller	Move to screen 6-2
3 Cooling	Move to screen 6-3
4 Language	Move to screen 6-4
5 Alarm priorities	Move to screen 6-5
6 Em.Powersupply	Move to screen 6-6

- Screen 6-1 Refrigeration Point

REFR. PT. POS: XXXXX		Entry	Default
Refr. Pt. Name:	Text only		
xxxxxxxxxxxxxxx	Free text entry describing refrigeration point (see note at end of table)		Case Controller
Item ID: XXXXX	Free text enty shown after Position (POS:) in screens (see note at end of table)		UA300
Priority: XX	Priority of alarms in failure of refrigeration point or when setting global controller priority (Screen 6-5)	↑, ↓, or numbers (0..99)	1
Refr. Sys. No.: XX	Pack No. of pack controller assigned to case controller. The UA 300 E cannot receive the suction pressure value for control functions before the Pack No. of the associated pack controller has been selected on the case controller	↑, ↓, or numbers (--, 1..9)	--
Refr. Sys. Type XXX	Allocation to compressor pack. Parameter only required for linking to VS 3010 BS with several zones. Deactivate this parameter (---) when using pack controllers of other type.	↑, ↓, or numbers (---, Z1, Z2)	---

Temp. Zones X	Number of temperature zones. Single-zone operation Two-zone operation	↑, ↓, or numbers (1, 2)	2
No. Sensors XX	Displays number of temperature sensors connected. After pressing ↵, sensor scan is performed and number of sensors is redefined.	↵	

It must be ensured that the correct pack number has been selected, i.e. the correct Refr. Sys. type has been set, otherwise this can result in damage to the installation or goods. Furthermore, the parameter *Corr.off* t_0 (menu 6-3) must not be set to "--" if the t_0 from the pack controller is to be used for regulating.

A meaningful name that describes the refrigeration point in more detail should be entered, e.g. Cheese Counter 2 and CC2. Entry is made in the screens on Store Computer or Alarm Terminal. Direct entry cannot be made in the UA 300 E Screens displayed on the operator terminal. Entry cannot be made either on the hand setup unit.

- Screen 6-2 Controller

CONTROLLER POS: XXXXX	
1 Type and Version	Move to screen 6-2-1
2 Temp. Display	Move to screen 6-2-2
3 Alarm Delay	Move to screen 6-2-3
4 230V Inputs	Move to screen 6-2-4
5 Sensor Type	Move to screen 6-2-5
6 eev ctrlr zone1	Move to screen 6-2-6; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)
7 eev ctrlr zone2	Move to screen 6-2-7; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)

- Screen 6-2-1 Type and Version

VERSION POS: XXXXX		Entry	Default
Ctrlr. Type XXXXXXX	Set on DIP Switch S3		UA131E
Software Ver.: XXXX	Software version of case controller (EPROM)		
Serial No.: XXXXXX	Device No. of Case Controllers (from EEPROM)		
Master/Sl. Mode XXX	Synchronized defrosting in master/slave mode	↑, ↓, (OFF/ON)	OFF

- Screen 6-2-2 Temperature Display

DISPLAY POS: XXXXX		Entry	Default
Offset XX K	Offset for temperature display	-10..10	0 K
Alarmsymbol XX	Show alarm symbol on BT 30 Temperature Display	↑, ↓, (OFF/ON)	N

- Screen 6-2-3 Alarm Delay

ALARMDELAY POS: XXXXX			Entry	Default
Sensor Fault	XX m	Sensor break alarm delay	0..30	15 min
High/Low Temp.	XX m	High/low temperature alarm delay	0..120	60 min
No Defrost	XX h	No defrost alarm delay	--, 2..168	50 h
Selfholding	X	Alarm latching with manual alarm cancelling (YES) or automatic cancelling on send (NO)	↑, ↓, (Y/N)	N

- Screen 6-2-4 230 V Inputs

Only trained personnel should be allowed to change inputs, as changes can affect other functions.

230V INPUT POS: XXXXX		Default
Entry1: XXXXXXXXXX	Function of Input 1 D11/D12	DEFR.TIMER
Entry2: XXXXXXXXXX	Function of Input 2 D21/D22	TOGGLE SETP.
Entry3: XXXXXXXXXX	Function of Input 3 D31/D32	MANUAL OFF

- Screen 6-2-5 Sensor Type

Selection is made according to entry. Checkmark shows current setting.

SENSORS POS: XXXXX			Entry	Default
L243	√	Temperature range -50 °C .. 50 °C	↵	√
K277		Temperature range -50 °C .. 50 °C	↵	
5K3A1		Temperature range 0 °C .. 100 °C	↵	

- Screen 6-2-6EEV Controller Zone 1

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 1 POS: XXXXX			Entry	Default
Pc Z 1:	XX.XX	Temperature control Zone 1, P-part	0..99.99	7.00
Ic Z 1:	XX.XX	Temperature control Zone 1, I-part If parameter Ic is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 1:	XX.XX	Temperature control Zone 1, D-part	0..99.99	5.00
offs OD cab.	XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %
Psh Z 1:	XX.XX	Superheat control Zone 1, P-part	0..99.99	5.00
Ish Z 1:	XX.XX	Superheat control Zone 1, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 1:	XX.XX	Superheat control Zone 1, D-part	0..99.99	5.00
offs OD SH	XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD	XX %	Maximum emergency valve opening position	0..50	20 %
delay min SH	XX s	Delay on drop of superheat below set minimum	9..600	9 sec
setuptime	XX.X m	Setup time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be less than the current "*inject.time*" parameter, otherwise the smallest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	2.0 min
inject.time	XX.X m	Injection time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be greater than the current "*setuptime*" parameter, otherwise the largest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	1.0 min
OD over CAN	XXX	Transmit valve opening position via CAN bus	↑, ↓, (OFF/ON)	ON
15s Archiv	X	Set archiving interval on Store Computer to 15 sec	↑, ↓, (Y/N)	N
OD 3s interv	XXX	Select interval for output of opening position. OFF = 6s ON = 3s Control is suspended for 6 seconds when toggling.	↑, ↓, (OFF/ON)	OFF
Reset I-Sum	XXX	Reset I-sum (to zero) if superheat drops below set minimum for longer than time set by "delay min SH" parameter. OFF = I-sum not reset to zero ON = I-sum is reset to zero	↑, ↓, (OFF/ON)	ON
edit op.deg.	XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF

EEV ZONE 1 POS: XXXXX		Entry	Default
op.deg. Z 1 XXX %	Current valve opening position Zone 1; can be edited when manual entry is activated	0..100	Default by controller
Maximum OD xxx %	Sets an upper limit to the opening degree output by the case controller	20..100	100%
Lo Temp to xxK	Monitoring of the t_0 transmitted by the pack controller for unsuitably low values	10..60, --	28K
to VS corr. XXX °C	Displays current corrected suction pressure temperature on pack controller (assigned by Pack No.)		

- Screen 6-2-7 EEV Controller Zone 2

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV Zone 2 POS: XXXXX		Entry	Default
Pc Z 2: XX.XX	Temperature control Zone 2, P-part	0..99.99	7.00
Ic Z 2: XX.XX	Temperature control Zone 2, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 2: XX.XX	Temperature control Zone 2, D-part	0..99.99	5.00
offs OD cab. XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %
Psh Z 2: XX.XX	Superheat control Zone 2, P-part	0..99.99	5.00
Ish Z 2: XX.XX	Superheat control Zone 2, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 2: XX.XX	Superheat control Zone 2, D-part	0..99.99	5.00
offs OD SH XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD XX %	Maximum valve opening position	0..50	20 %
delay min SH XX s	Delay on drop of superheat below set minimum	9..600	9 sec
edit op.deg. XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 2 XXX %	Current valve opening position Zone 2; can be edited when manual entry is activated	0..100	Default ctrlr.

- Screen 6-3 Cooling

COOLING POS: XXXXX		Entry	Default
corr.off to XX K	Correction offset for pressure loss in suction line **IMPORTANT:** in stand alone operation must be set to "--"!	--, 0..20	2 K
Cont Cool Mon. XX m	Continuous run monitoring	--, 0..15	0 min
HG operation XXX	Discharge gas mode	↑, ↓, (OFF/ON)	OFF

- Screen 6-4 Language

Selection is made according to entry. Checkmark shows current setting.

LANGUAGE POS: XXXXX			Entry	Default
Deutsch D √			↵	√
English GB			↵	
Francais F			↵	
Finnish FIN			↵	
Cesky CZ			↵	

- Screen 6-5 Alarm Priorities

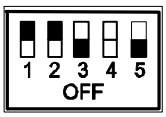
ALARMPRIOS POS: XXXXX		Entry	Default
Prio.Refrig. Pt. X	Global setting of alarm priority via refrigeration point priority (Screen 6-1) (Y)	↑, ↓, (Y/N)	Y
Priority: XX	Displays refrigeration point priority (Screen 6-1); only shown when refrigeration point priority is set to Y		
Following parameters are only shown when refrigeration point priority is set to N. Meaning of valid entries for alarm priority is as follows:: *- = Event ignored* *0 = Message (enterd only in message log)* *1 = Priority 1 alarm* *..* *99 = Priority 99 alarm*			
Low Temp.	Temperature below low alarm limit. Priority applies to alarms *Low Temp. Zone 1, Low Temp. Zone 2*	-, 0..99	1
High Temp.	Temperature above high alarm limit. Priority applies to alarms *High Temp. Zone 1, High Temp. Zone 2*	-, 0..99	1
Sensor Fault	Temperature sensor failure	-, 0..99	1
No Defrost	No defrost within alarm delay time. Priority applies to *No Defrost* alarm	-, 0..99	1
Timer-Term. Defrost	Defrosting terminated by safe defrost time	-, 0..99	0
Power Failure	Start following power failure	-, 0..99	0
First Start	Controller Startup (basic settings are loaded!)	-, 0..99	1
Manual Shutoff	Manual switch Input D31/D32 set OFF	-, 0..99	0
Hardware Fault	Internal hardware defect. Priority applies to alarms *EEPROM Defective, RTC Defective, Flash Memory Defective*	-, 0..99	1
Setpoint Change	Message generated when changing setpoints	0..99	0
Refrig.Pt.Dis.	Cooling interrupted by VS pack controller via CAN bus	-, 0..99	0
Battery Voltage	Battery low	-, 0..99	0
Check to	t_0 not received via CAN bus. Priority applies to alarms *No t0 Zone 1, No t0 Zone 2*	-, 0..99	1
Sensor Fault eev	EEV Control sensor failure. Priority applies to alarms *Sensor Break EEV Z1, Sensor Break EEV Z2*	-, 0..99	1
eev ctrl block	EEV control stalled. Priority applies to alarms *EEV Stall Detect Z1, EEV Stall Detect Z2*	-, 0..99	0

ALARMPRIOS POS: XXXXX		Entry	Default
wrong ctrlr type	Configuration error: Invalid controller type set on DIP Switch S3. Priority applies to *Wrong Controller Type* alarm	-, 0..99	1
emerg.cut-out SH	Superheat drop below minimum level for duration of delay time	-, 0..99	0
OD manual	Valve opening position defined by manual entry. Priority applies to alarms *VO Manual Zone 1, VO Manual Zone 2*	-, 0..99	0
config:M/S w HG	Configuration error: Simultanesous setting of parameters for master-slave mode and discharge gas defrosting	-, 0..99	1
Check OD	Alarm due to implausible opening position	-, 0..99	1

- Maske 6-6 Em.Powersupply (Emergency Power supply)

EM.POW.SUP POS: XXXXX		Entry	Default
Cool.funct.OFF xxx	Functionality of the cooling switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Defr.funct.OFF xxx	Functionality of the defrosting switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Fan funct. OFF xxx	Functionality of the fan switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N

7.3 Controller Type UA 141 E - Menu tree



1: ON
2: ON
3: OFF
4: ON/OFF = Master-/Slave-Mode ON/OFF
5: OFF

Level 1	Level 2	Level 3	Screen No.	Screen Name
Main Menu			0	REFR. PT.
Actual Values			1	ACT VALUES
	Temperatue Sensors		1-1	TEMPERATUR
	Cooling Zone 1		1-2	COOLING 1
	Defrost Zone 1		1-3	DEFROST 1
	--			
	Alarm		1-5	ALARM
	Pane Heater		1-6	PANE HTR
	Cooling Zone 2		1-7	COOLING 2
	Defrost Zone 2		1-8	DEFROST 2
Setpoints			2	SETPOINTS
	Cooling		2-1	COOLING
		Zone 1	2-1-1	COOLING 1
		Zone 2	2-1-2	COOLING 2
		Zone 1T Toggle	2-1-3	COOLING 1A
		Zone 2T Toggle	2-1-4	COOLING 2A
	Defrost		2-2	DEFROST
		Zone 1	2-2-1	DEFROST 1
		Zone 2	2-2-2	DEFROST 2
		Zone 1T Toggle	2-2-3	DEFROST 1A
		Zone 2T Toggle	2-2-4	DEFROST 2A

	Alarm		2-4	ALARM
		Zone 1	2-4-1	ALARM 1
		Zone 2	2-4-2	ALARM 2
		Zone 1T Toggle	2-4-3	ALARM 1A
		Zone 2T Toggle	2-4-4	ALARM 2A

	Pane Heater		2-6	PANE HTR
		Pane Mode	2-6-1	PANE HTR
		Pane Setpoints	2-6-2	SETPOINTS
Clock			3	Clock

Level 1	Level 2	Level 3	Screen No.	Screen Name
Clock	Current Time		3-1	CLOCK
	Defrost Timer		3-2	DEFR.TIMER
	Setpoint Toggle		3-3	TOGGLE
	Automatic Start		3-4	Automatic ON
Messages			4	MESSAGES
	View Messages		4-1	MESSAGES
	Cancel Messages		4-2	MESSAGES
	Delete Messages		4-3	MESSAGES
Archive			5	ARCHIVE
Configuration			6	CONFIGURAT
	Refrigeration Point		6-1	REFR. PT.
	Controller		6-2	CONTROLLER
		Type and Version	6-2-1	VERSION
		Temperature Display	6-2-2	DISPLAY
		Alarm Delay	6-2-3	ALARMDELAY
		230V Inputs	6-2-4	230V INPUT
		Sensor Type	6-2-5	SENSORS
		EEV Controller Zone 1	6-2-6	EEV ZONE 1
		EEV Controller Zone 2	6-2-7	EEV ZONE 2
	Cooling		6-3	COOLING
	Language		6-4	LANGUAGE
	Alarm Priorities		6-5	ALARMPRIOS
	Em.Powersupply		6-6	EM.POW.SUP

7.3.1 Screen 0 Main Menu

REFR. PT. POS: XXXXX	
1 Actual Values	Move to screen 1
2 Setpoints	Move to screen 2
3 Clock	Move to screen 3
4 Messages	Move to screen 4
5 Archive	Move to screen 5
6 Configuration	Move to screen 6

7.3.2 Screen 1 Actual Values

ACT VALUES POS: XXXXX	
1 Temp. Sensor	Move to screen 1-1
2 Cooling Zone 1	Move to screen 1-2
3 Defrost Zone 1	Move to screen 1-3
4	Not used with this controller type
5 Alarm	Move to screen 1-5
6 Pane Heater	Move to screen 1-6
7 Cooling Zone 2	Move to screen 1-7: Menu item is shown only when two-zone operation is set (Screen 6-1).
8 Defrost Zone 2	Move to screen 1-8: Menu item is shown only when two-zone operation is set (Screen 6-1).

- Screen 1-1 Temperature Sensors

TEMPERATUR XXXXX		
Temp. R2.1	XXX °C	Displays current supply air temperature Input Z11/Z12
Temp. R4.1	XXX °C	Displays current return air temperature Input Z21/Z22
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R5.1	XXX °C	Displays current evaporator inlet temperature Input Z41/Z42
Temp. R6.1	XXX °C	Displays current evaporator outlet temperature Input Z51/Z52
Temp. R2.2	XXX °C	Displays current supply air temperature Input Z61/Z62
Temp. R4.2	XXX °C	Displays current return air temperature Input Z71/Z72
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Temp. R5.2	XXX °C	Displays current evaporator inlet temperature Input Z91/Z92
Temp. R6.2	XXX °C	Displays current evaporator outlet temperature Input Z01/Z02
to VS corr.	XXX °C	Displays current corrected suction pressure temperature on VS pack controller (assigned by Pack No.)

- Screen 1-2 Cooling Zone 1

COOLING 1	XXXXX	
Cooling	XXX	Displays current OFF/ON status of cooling
op.deg. Z 1	XX %	Displays current valve opening position Zone 1
OD med. 24h	XX %	Displays mean valve opening position Zone 1 for past day
Temp. R2.1	XXX °C	Displays current supply air temperature Input Z11/Z12
Setpoint R2.1	XXX °C	Displays supply air temperature setpoint for comparison
Hystersis R2.1	XXX K	Displays supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)
Temp. R4.1	XXX °C	Displays current return air temperature Input Z21/Z22
Setpoint R4.1	XXX °C	Displays return air temperature setpoint for comparison
Hystersis R4.1	XXX K	Displays return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)
SH Z 1	XXX °C	Displays current superheat temperature Zone 1
sup air ctrl	XXX	Displays current OFF/ON status of supply or return air control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode
Status light	XXX	Status lighting control (ON/OFF)

- Screen 1-3 Defrost Zone 1

DEFROST 1	XXXXX	
Defrost	XXX	Displays current OFF/ON status of defrosting
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82; shown only when single-zone operation is set (Screen 6-1)
Def. End. Tmp.	XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time	XX m	Displays waiting time setpoint
Drip Time	XX m	Displays drip time setpoint
Last Defrst	XX hh:mm	Displays time (day, time of day) of last defrost cycle started

- Screen 1-4 Not used with this controller type.

- Screen 1-5 Alarm

ALARM	XXXXX	
Alarm Relay	XXX	Displays current OFF/ON status of alarm output Terminal 15/16/18
Hi Temp Setp.1	XX °C	Displays high temperature setpoint Zone 1
Lo Temp Setp.1	XX K	Displays low temperature setpoint Zone 1
Hi Temp Setp.2	XX °C	Displays high temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)
Lo Temp Setp.2	XX K	Displays low temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)

- Screen 1-6 Pane Heater

PANE HTR	XXXXX	
Pane Heater	XXX	Displays current OFF/ON status of pane heater output Terminal 73/74
Run Time	XXX %	Displays current current pane heat on time
Humidity	XXX %	Displays current room air humidity (transmitted via CAN bus from VS pack controller with fitted humidity sensor)
Room temp.	XX °C	Displays current room air temperature (transmitted via CAN bus from VS pack controller with fitted room air temperature sensor)

- Screen 1-7 Cooling Zone 2

COOLING 2	XXXXX	
Cooling	XXX	Displays current OFF/ONB status of cooling
op.deg. Z 2	XX %	Displays current valve opening position Zone 2
OD med. 24h	XX %	Displays mean valve opening position Zone 2 for past day
Temp. R2.2	XXX °C	Displays current supply air temperature Input Z61/Z62
Setpoint R2.2	XXX °C	Displays supply air temperature setpoint for comparison
Hystersis R2.2	XXX K	Displays supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)
Temp. R4.2	XXX °C	Displays current return air temperature Input Z71/Z72
Setpoint R4.2	XXX °C	Displays return air temperature setpoint for comparison
Hystersis R4.2	XXX K	Displays return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)
SH Z 2	XXX °C	Displays current superheat temperature Zone 2
sup air ctrl	XXX	Displays current OFF/ON status of supply or return air control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode

- Screen 1-8 Defrost Zone 2

DEFROST 2	XXXXX	
Defrost	XXX	Displays current OFF/ON status of defrosting
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Def. End. Tmp.	XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time	XX m	Displays waiting time setpoint
Drip Time	XX m	Displays drip time setpoint
Last Defrst	XX hh:mm	Display time (day, time of day) of last defrost cycle started

7.3.3 Screen 2 Setpoints

SETPOINTS POS: XXXXX	
1 Cooling	Move to screen 2-1; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-1-1
2 Defrost	Move to screen 2-2; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-2-1
3	Not used with this controller type
4 Alarm	Move to screen 2-4; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-4-1
5	Not used with this controller type
6 Pane Heater	Move to screen 2-6

- Screen 2-1 Cooling

COOLING POS: XXXXX	
1 Zone 1	Move to screen 2-1-1
2 Zone 2	Move to screen 2-1-2
3 Zone 1T Toggle	Move to screen 2-1-3; not shown when setpoint toggle is deactivated (Screen 3-3)
3 Zone 2T Toggle	Move to screen 2-1-4; shown only when two-zone operation is set and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-1-1 Zone 1

COOLING 1 POS: XXXXX			Entry	Default
Setpoint R2.1	XXX °C	Supply air temperature setpoint	--, -20..20	-4 °C
Hystersis R2.1	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	4 K
Setpoint R4.1	XXX °C	Return air temperature setpoint	--, -15..20	2 °C
Hystersis R4.1	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	2 K
Superheat	XXX K	Superheat setpoint Zone 1	0..20	6 K
Min. SH	XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 1. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off control (ON) and contnuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-2 Zone 2

COOLING 2 POS: XXXXX			Entry	Default
Setpoint R2.2	XXX °C	Supply air temperature setpoint	--, -20..20	4 °C
Hystersis R2.2	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	4 K
Setpoint R4.2	XXX °C	Return air temperature setpoint	--, -15..20	2 °C
Hystersis R4.2	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	2 K
Superheat	XXX K	Superheat setpoint Zone 2	0..20	6 K
Min. SH	XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 2. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off controll (ON) and contnuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-3 Zone 1T Toggle

COOLING 1A POS: XXXXX			Entry	Default
Setpoint R2.1	XXX °C	Supply air temperature setpoint	--, -20..20	-2 °C
Hystersis R2.1	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	4 K
Setpoint R4.1	XXX °C	Return air temperature setpoint	--, -15..20	2 °C
Hystersis R4.1	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	2 K

- Screen 2-1-4 Zone 2T Toggle

COOLING 2A POS: XXXXX			Entry	Default
Setpoint R2.2	XXX °C	Supply air temperature setpoint	--, -20..20	-2 °C
Hystersis R2.2	X K	Supply air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	4 K
Setpoint R4.2	XXX °C	Return air temperature setpoint	--, -15..20	2 °C
Hystersis R4.2	X K	Return air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	2 K

- Screen 2-2 Defrost

DEFROST POS: XXXXX	
1 Zone 1	Move to screen 2-2-1
2 Zone 2	Move to screen 2-2-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-2-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-2-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-2-1 Zone 1

DEFROST 1 POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	8 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-2 Zone 2

DEFROST 2 POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	8 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-3 Zone 1T Toggle

DEFROST 1A POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	5 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-4 Zone 2T Toggle

DEFROST 2A POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 5..20	5 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-3 Not used with this controller type.

- Screen 2-4 Alarm

ALARM POS: XXXXX	
1 Zone 1	Move to screen 2-4-1
2 Zone 2	Move to screen 2-4-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-4-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-4-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-4-1 Zone 1

ALARM 1 POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-10..30	6 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-4-2 Zone 2

ALARM 2 POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-10..30	6 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-4-3 Zone 1T Toggle

ALARM 1A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-10..30	6 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-4-4 Zone 2T Toggle

ALARM 2A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-10..30	6 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	4 K

- Screen 2-5 Not used with this controller type.

- Screen 2-6 Pane Heater

PANE HTR POS: XXXXX	
1 Mode pane	Move to screen 2-6-1
2 Setpoint Pane	Move to screen 2-6-2

- Screen 2-6-1 Pane Mode

Selection is made according to entry. Checkmark shows current setting.

PANE HTR POS: XXXXX		Entry	Default
Fixed run time √		↵	√
Enthalpy-ctrl rtm		↵	

- Screen 2-6-2 Pane Setpoints

SETPOINTS POS: XXXXX		Entry	Default
Mod: xxxxxxxxxxxx	Displays set pane mode (Screen 2-6-1)		fixed run time
Pane On Time XX m	Pane heater on time. When making entry, make sure that the corresponding digital input D31/D32 is set to PANE SWITCH (Screen 6-2-4)	0..120	60 min
Run Time XXX %	Fixed on time, shown only when mode set to Fixed OT (Screen 2-6-1)	--, 0..100	0 %
emerg.run time XXX %	On time in loss of humidity or room air temperature (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-6-1)	--, 0..100	0 %
enthalp. offs. XXX %	Offset for on time when enthalpy control is activated (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-6-1)	-50..50	0 %

7.3.4 Screen 3 Clock

CLOCK POS: XXXXX	
1 Current Time	Move to screen 3-1
2 Defrost Timer	Move to screen 3-2
3 Toggle Setpoints	Move to screen 3-3
4 Automatic ON	Move to screen 3-4

- Screen 3-1 Current Time

Time is defined by time master (CI 3000, AL 300) when CAN bus is connected. Any entry made will then be overwritten by the defined value.

CLOCK POS: XXXXX		Entry	Default
Date: XX dd.mm.yy	Display and entry of current weekday, date	dd.mm.yy	
Time: hh.mm	Display and entry of current time	hh.mm	
Daylight Saving X	display and entry of automatic daylight saving time change (Y/N)	↑, ↓, (N/Y)	Y

- Screen 3-2 Defrost Timer

DEFR.TIMER POS: XXXXX		Eingabe	Default
Defrost Timer XXX	Defrost initiation via Input D11/12 (EXT) oder internal (INT)	↑, ↓, (EXT, INT)	INT
Safe Defr Time XXX m	Safe defrost time, i.e. max. allowed duration of defrosting (internal defrost only)	0..180	150 min
Manual Defrost XXX	Status (OFF/ON) of auxiliary manual defrost *)	↑, ↓, (OFF/ON)	OFF
Defr. 1 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 03:00
...			
Defr. 14 xxxxx hh:mm			

*) Parameter is automatically set to ON at first start for the duration of the safe defrost time.

- Screen 3-3 Toggle Setpoints

TOGGLE POS: XXXXX		Entry	Default
Status XXX	Setpoint toggle for alternative set of setpoints (setpoint set toggle)		
Toggle Setp. XXX	Setpoint toggle via Input D21/22 (EXT), internal (INT) or deactivated (--)	↑, ↓, (EXT, INT, --)	EXT
Toggle interv. X m	The interval for the cyclical toggling between standard and alternative setpoint data records; only appears when the internal setpoint toggling is activated (menu 3-3).	--, 10..60	-- min
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 21:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 05:00
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Su 05:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Su 21:00
...	A total of 7 different ON, OFF toggle times can be entered. Toggle time will only be obeyed when an ***matched pair*** of ON and OFF time is set.		

- Screen 3-4 Automatic Start

AUTO ON POS: XXXXX		Entry	Default
ON 1 XXXXX hh:mm	Defrost start time for internal defrost; weekday, time of day. When making entry, make sure that the corresponding digital input D21/D22 is set to AUTO SWITCH (Screen 6-2-4)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo 06:00
...			
ON 7 XXXXX hh:mm			--

7.3.5 Screen 4 Messages

MESSAGES POS: XXXXX	
1 View	Move to screen 4-1 View Messages
2 Acknowledge	Messages in log are cancelled, press ESC to exit after cancel is confirmed
3 Delete	Move to screen 4-3

- Screen 4-1 View Messages

MESSAGES POS: XXXXX	
Error text 1:	Fault message Fault 1
dd.mm.yy hh:mm ON	Start of Fault 1
dd.mm.yy hh:mm OFF	End of Fault 1 (only when Fault 1 has ended)
...	
Error text n:	Fault message Fault n
dd.mm.yy hh:mm ON	Start of Fault n
dd.mm.yy hh:mm OFF	End of Fault n (only when Fault n has ended)

- Screen 4-2 Cancel Messages

The displays the *Alarms Cancelled!* message.

- Screen 4-3 Delete Messages

MESSAGES POS: XXXXX		Entry
Delete ! Are you sure ? No: ESC YES: ↵	Safety prompt for deleting messages; press ESC to exit after confirming or cancelling delete	↵, ESC

7.3.6 Screen 5 Archive

ARCHIVE POS: XXXXX	
dd.mm.yy hh:mm	Time of archiving Data Record 1
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, se note *); shown only when two-zone operation is set (Screen 6-1)
...	
dd.mm.yy hh:mm	Time of archiving Data Record n
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, seenote *); shown only when two-zone operation is set (Screen 6-1)

*) Status abcdef covers following stes of refrigeration point. The entry at this position is - when a state is not active.

	Single-zone operation	Two-zone operation
a	O = Operation	O = Operation
b	R = Refrigeration/ Cooling	R = Refrigeration/ Cooling
c	D = Defrost	R = Refrigeration/ Cooling
d	G = Gate/ Door (coldroom controller only)	D = Defrost
e	A = Alarm	G = Gate/ Door (coldroom controller only)
f		A = Alarm

7.3.7 Screen 6 Configuration

CONFIGURAT POS: XXXXX	
1 Refriger. Point	Move to screen 6-1
2 Controller	Move to screen 6-2
3 Cooling	Move to screen 6-3
4 Language	Move to screen 6-4
5 Alarm priorities	Move to screen 6-5
6 Em.Powersupply	Move to screen 6-6

- Screen 6-1 Refrigeration Point

REFR. PT. POS: XXXXX		Entry	Default
Refr. Pt. Name:	Text only		
xxxxxxxxxxxxxx	Free text entry describing refrigeration point (see note at end of table)		Case Controller
Item ID: XXXXX	Free text entry shown after Position (POS:) in screens (see note at end of table)		UA300
Priority: XX	Priority of alarms in failure of refrigeration point or when setting global controller priority (Screen 6-5)	↑, ↓, or numbers (0..99)	1
Refr. Sys. No.: XX	Pack No. of pack controller assigned to case controller. The UA 300 E cannot receive the suction pressure value for control functions before the Pack No. of the associated pack controller has been selected on the case controller.	↑, ↓, or numbers (--, 1..9)	--
Refr. Sys. Type XXX	Allocation to compressor pack. Parameter only required for linking to VS 3010 BS with several zones. Deactivate this parameter (---) when using pack controllers of other type.	↑, ↓, or numbers (---, Z1, Z2)	---
Temp. Zones X	Number of temperature zones. Single-zone operation (tandem mode) Two-zone operation	↑, ↓, or numbers (1, 2)	2
No. Sensors XX	Displays number of temperature sensors connected. After pressing ↵, sensor scan is performed and number of sensors is redefined.	↵	

It must be ensured that the correct pack number has been selected, i.e. the correct Refr. Sys. type has been set, otherwise this can result in damage to the installation or goods. Furthermore, the parameter *Corr.off* t_0 (menu 6-3) must not be set to "--" if the t_0 from the pack controller is to be used for regulating.

A meaningful name that describes the refrigeration point in more detail should be entered, e.g. Cheese Counter 2 and CC2. Entry is made in the screens on Store Computer or Alarm Terminal. Direct entry cannot be made in the UA 300 E screens displayed on the operator terminal. Entry cannot be made either on the hand setup unit.

- Screen 6-2 Controller

CONTROLLER POS: XXXXX	
1 Type and Version	Move to screen 6-2-1
2 Temp. Display	Move to screen 6-2-2
3 Alarm Delay	Move to screen 6-2-3
4 230V Inputs	Move to screen 6-2-4
5 Sensor Type	Move to screen 6-2-5
6 eev ctrlr zone1	Move to screen 6-2-6; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)
7 eev ctrlr zone2	Move to screen 6-2-7; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)

- Screen 6-2-1 Type and Version

VERSION POS: XXXXX		Entry	Default
Ctrlr. Type XXXXXXX	Set on DIP Switch S3		UA141E
Software Ver.: XXXX	Software version of case controller (EPROM)		
Serial No.: XXXXXX	Device No. of case controller (from EEPROM)		
Master/Sl. Mode XXX	Synchronized defrosting in master/slave mode	↑, ↓, (OFF/ON)	OFF

- Screen 6-2-2 Temperature Display

DISPLAY POS: XXXXX		Entry	Default
Offset XX K	Offset for temperature display	-10..10	0 K
Alarmsymbol XX	Show alarm symbol on BT 30 Temperature Display	↑, ↓, (OFF/ON)	N

- Screen 6-2-3 Alarm Delay

ALARMDELAY POS: XXXXX		Entry	Default
Sensor Fault XX m	Sensor break alarm delay	0..30	15 min
High/Low Temp. XX m	High/low temperature alarm delay	0..120	90 min
No Defrost XX h	No defrost alarm delay	--, 2..168	50 h
Selfholding X	Alarm latching with manual alarm cancelling (YES) or automatic cancelling on send (NO)	↑, ↓, (Y/N)	N

- Screen 6-2-4 230V Inputs

Only trained personnel should be allowed to change inputs, as changes can affect other functions.

230V INPUT POS: XXXXX		Entry	Default
Entry1: XXXXXXXXXX	Function of Input 1 D11/D12		DEFR.TIMER
Entry2: XXXXXXXXXX	Function of Input 2 D21/D22	TOGGLE SETP. or AUTO SWITCH	TOGGLE SETP.
Entry3: XXXXXXXXXX	Function of Input 3 D31/D32	MANUAL OFF or PANE HTR SW	PANE HTR SW

- Screen 6-2-5 Sensor Type

Selection is made according to entry. Checkmark shows current setting.

SENSORS POS: XXXXX			Entry	Default
L243	√	Temperature range -50 °C .. 50 °C	↵	√
K277		Temperature range -50 °C .. 50 °C	↵	
5K3A1		Temperature range 0 °C .. 100 °C	↵	

- Screen 6-2-6 EEV Controller Zone 1

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 1 POS: XXXXX			Entry	Default
Pc Z 1:	XX.XX	Temperature control Zone 1, P-part	0..99.99	7.00
Ic Z 1:	XX.XX	Temperature control Zone 1, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 1:	XX.XX	Temperature control Zone 1, D-part	0..99.99	5.00
offs OD cab.	XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %
Psh Z 1:	XX.XX	Superheat control Zone 1, P-part	0..99.99	5.00
Ish Z 1:	XX.XX	Superheat control Zone 1, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 1:	XX.XX	Superheat control Zone 1, D-part	0..99.99	5.00
offs OD SH	XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD	XX %	Maximum emergency valve opening position	0..50	20 %
delay min SH	XX s	Delay on drop of superheat below set minimum	9..600	9 sec
setuptime	XX.X m	Setup time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be less than the current "*inject.time*" parameter, otherwise the smallest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	2.0 min
inject.time	XX.X m	Injection time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be greater than the current "*setuptime*" parameter, otherwise the largest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	1.0 min
OD over CAN	XXX	Transmit valve opening position via CAN bus	↑, ↓, (OFF/ON)	ON

EEV ZONE 1 POS: XXXXX		Entry	Default
15s Archiv X	Set archiving interval on Store Computer to 15 sec	↑, ↓, (Y/N)	N
OD 3s interv XXX	Select interval for output of opening position. OFF = 6s ON = 3s Control is suspended for 6 seconds when toggling.	↑, ↓, (OFF/ON)	OFF
Reset I-Sum XXX	Reset I-sum (to zero) if superheat drops below set minimum for longer than time set by ”delay min SH” parameter. OFF = I-sum not reset to zero ON = I-sum is reset to zero	↑, ↓, (OFF/ON)	ON
edit op.deg. XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 1 XXX %	Current valve opening position Zone 1; can be edited when manual entry is activated	0..100	Default by controller
Maximum OD xxx %	Sets an upper limit to the opening degree output by the case controller	20..100	100%
Lo Temp to xxK	Monitoring of the t_0 transmitted by the pack controller for unsuitably low values	10..60, --	28K
to VS corr. XXX °C	Displays current corrected suction pressure temperature on pack controller (assigned by Pack No.)		

- Screen 6-2-7 EEV Controller Zone 2

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 2 POS: XXXXX			Entry	Default
Pc Z 2:	XX.XX	Temperature control Zone 2, P-part	0..99.99	7.00
Ic Z 2:	XX.XX	Temperature control Zone 2, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 2:	XX.XX	Temperature control Zone 2, D-part	0..99.99	5.00
offs OD cab.	XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %
Psh Z 2:	XX.XX	Superheat control Zone 2, P-part	0..99.99	5.00
Ish Z 2:	XX.XX	Superheat control Zone 2, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 2:	XX.XX	Superheat control Zone 2, D-part	0..99.99	5.00
offs OD SH	XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD	XX %	Maximum valve opening position	0..50	20 %
delay min SH	XX s	Delay on drop of superheat below set minimum	9..600	9 sec
edit op.deg.	XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 2	XXX %	Current valve opening position Zone 2; can be edited when manual entry is activated.	0..100	Default ctrlr.

- Screen 6-3 Cooling

COOLING POS: XXXXX			Entry	Default
corr.off to	XX K	Correction offset for pressure loss in suction line **IMPORTANT:** in stand alone operation must be set to "--"!	--, 0..20	2 K
Cont Cool Mon.	XX m	Continuous run monitoring	--, 0..15	--

- Screen 6-4 Language

Selection is made according to entry. Checkmark shows current setting.

LANGUAGE POS: XXXXX				
Deutsch	D	√		↵	√
English	GB			↵	
Francais	F			↵	
Finnish	FIN			↵	
Cesky	CZ			↵	

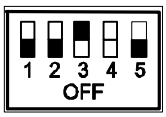
- Screen 6-5 Alarm Priorities

ALARMPRIOS POS: XXXXX		Entry	Default
Prio.Refrig. Pt. X	Global setting of alarm priority via refrigeration point priority (Screen 6-1) (Y)	↑, ↓, (Y/N)	Y
Priority: XX	Displays refrigeration point priority (Screen 6-1); only shown when refrigeration point priority is st to Y		
Following parameters are only shown when refrigeration point priority is set to N. Meaning of valid entries for alarm priority is as follows: *- = Event ignored* *0 = Message (enterd only in message log)* *1 = Priority 1 alarm* *..* *99 = Priority 99 alarm*			
Low Temp.	Temperature below low alarm limit. Priority applies to alarms *Low Temp. Zone 1, Low Temp. Zone 2*	-, 0..99	1
High Temp.	Temperature above high alarm limit. Priority applies to alarms *High Temp. Zone 1, High Temp. Zone 2*	-, 0..99	1
Sensor Fault	Temperature sensor failure	-, 0..99	1
No Defrost	No defrost within alarm delay time. Priority applies to *No Defrost* alarm	-, 0..99	1
Timer-Term. Defrost	Defrosting terminated by safe defrost time	-, 0..99	0
Power Failure	Start following power failure	-, 0..99	0
First Start	Controller Startup (basic settings are loaded!)	-, 0..99	1
Manual Shutoff	Manual switch Input D31/D32 set OFF	-, 0..99	0
Hardware Fault	Internal hardware defect. Priority applies to alarms *EEPROM Defective, RTC Defective, Flash Memory Defective*	-, 0..99	1
Setpoint Change	Message generated when changing setpoints	0..99	0
Refrig.Pt.Dis.	Cooling interrupted by VS pack controller via CAN bus	-, 0..99	0
Battery Voltage	Battery low	-, 0..99	0
Check t0	t_0 not received via CAN bus. Priority applies to alarms *No t0 Zone 1, No t0 Zone 2*	-, 0..99	1
Sensor Fault eev	EEV Control sensor failure. Priority applies to alarms *Sensor Break EEV Z1, Sensor Break EEV Z2*	-, 0..99	1
eev ctrl block	EEV control stalled. Priority applies to alarms *EEV Stall Detect Z1, EEV Stall Detect Z2*	-, 0..99	0
wrong ctrlr type	Configuration error: Invalid controller type set on DIP Switch S3. Priority applies to *Wrong Controller Type* alarm	-, 0..99	1
emerg.cut-out SH	Superheat drop below minimum level for duration of delay time	-, 0..99	0
OD manual	Valve opening position defined by manual entry. Priority applies to alarms *VO Manual Zone 1, VO Manual Zone 2*	-, 0..99	0
config:M/S w HG	Configuration error: Simultaneous setting of parameters for master-slave mode and discharge gas defrosting	-, 0..99	1
Check OD	Alarm due to implausible opening position	-, 0..99	1

- Maske 6-6 Em.Powersupply (Emergency Power supply)

EM.POW.SUP POS: XXXXX			Entry	Default
Cool.funct.OFF	xxx	Functionality of the cooling switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Defr.funct.OFF	xxx	Functionality of the defrosting switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Fan funct. OFF	xxx	Functionality of the fan switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N

7.4 Controller Type UR 141 NE - Menu tree



1: OFF
2: OFF
3: ON
4: ON/OFF = Master-/Slave-Mode ON/OFF
5: OFF

Level 1	Level 2	Level 3	Screen No.	Screen Name
Main Menu			0	REFR. PT.
Actual Values			1	ACT VALUES
	Temperature Sensors		1-1	TEMPERATUR
	Cooling Zone 1		1-2	COOLING 1
	Defrost Zone 1		1-3	DEFROST 1
	Fan Zone 1		1-4	FANS 1
	Alarm		1-5	ALARM
	Frame Heater		1-6	MODE
	Cooling Zone 2		1-7	COOLING 2
	Defrost Zone 2		1-8	DEFROST 2
	Fan Zone 2		1-9	FANS 2
Setpoints			2	SETPOINTS
	Cooling		2-1	COOLING
		Zone 1	2-1-1	COOLING 1
		Zone 2	2-1-2	COOLING 2
		Zone 1T Toggle	2-1-3	COOLING 1A
		Zone 2T Toggle	2-1-4	COOLING 2A
	Defrost		2-2	DEFROST
		Zone 1	2-2-1	DEFROST 1
		Zone 2	2-2-2	DEFROST 2
		Zone 1T Toggle	2-2-3	DEFROST 1A
		Zone 2T Toggle	2-2-4	DEFROST 2A
	Fan		2-3	FANS
		Zone 1	2-3-1	FANS 1
		Zone 2	2-3-2	FANS 2
		Zone 1T Toggle	2-3-3	FANS 1A
		Zone 2T Toggle	2-3-4	FANS 2A
	Alarm		2-4	ALARM
		Zone 1	2-4-1	ALARM 1
		Zone 2	2-4-2	ALARM 2
		Zone 1T Toggle	2-4-3	ALARM 1A
		Zone 2T Toggle	2-4-4	ALARM 2A

Level 1	Level 2	Level 3	Screen No.	Screen Name
Setpoints	Frame Heater		2-5	FRAME HTR
		Frame Mode	2-5-1	MODE
		Frame Setpoints	2-5-2	SETPOINTS
		Toggle Mode	2-5-3	MODE ALT
		Setpoint Toggle	2-5-4	TOG. SETP.
Clock			3	Clock
	Current Time		3-1	CLOCK
	Defrost Timer		3-2	DEFR.TIMER
	Setpoint Toggle		3-3	TOGGLE
Messages			4	MESSAGES
	View Messages		4-1	MESSAGES
	Cancel Messages		4-2	MESSAGES
	Delete Messages		4-3	MESSAGES
Archive			5	ARCHIVE
Configuration			6	CONFIGURAT
	Refrigeration Point		6-1	REFR. PT.
	Controller		6-2	CONTROLLER
		Type and Version	6-2-1	VERSION
		Temperature Display	6-2-2	DISPLAY
		Alarm Delay	6-2-3	ALARMDELAY
		230V Inputs	6-2-4	230V INPUT
		Sensor Type	6-2-5	SENSORS
		EEV Controller Zone 1	6-2-6	EEV ZONE 1
		EEV Controller Zone 2	6-2-7	EEV ZONE 2
	Cooling		6-3	COOLING
	Language		6-4	LANGUAGE
	Alarm Priorities		6-5	ALARMPRIOS
	Em.Powersupply		6-6	EM.POW.SUP

7.4.1 Screen 0 Main Menu

REFR. PT. POS: XXXXX	
1 Actual Values	Move to screen 1
2 Setpoints	Move to screen 2
3 Clock	Move to screen 3
4 Messages	Move to screen 4
5 Archive	Move to screen 5
6 Configuration	Move to screen 6

7.4.2 Screen 1 Actual Values

ACT VALUES POS: XXXXX	
1 Temp. Sensor	Move to screen 1-1
2 Cooling Zone 1	Move to screen 1-2
3 Defrost Zone 1	Move to screen 1-3
4 Fans Zone1	Move to screen 1-4
5 Alarm	Move to screen 1-5
6 Frame Heater	Move to screen 1-6
7 Cooling Zone 2	Move to screen 1-7: Menu item is shown only when two-zone operation is set (Screen 6-1).
8 Defrost Zone 2	Move to screen 1-8: Menu item is shown only when two-zone operation is set (Screen 6-1).
9 Fans Zone2	Move to screen 1-9: Menu item is shown only when two-zone operation is set (Screen 6-1).

- Screen 1-1 Temperature Sensors

TEMPERATUR XXXXX		
Temp. R4.1	XXX °C	Displays current room air temperature Input Z21/Z22
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R5.1	XXX °C	Displays current evaporator inlet temperature Input Z41/Z42
Temp. R6.1	XXX °C	Displays current evaporator outlet temperature Input Z51/Z52
Temp. R4.2	XXX °C	Displays current room air temperature Input Z71/Z72
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Temp. R5.2	XXX °C	Displays current evaporator inlet temperature Input Z91/Z92
Temp. R6.2	XXX °C	Displays current evaporator outlet temperature Input Z01/Z02
to VS corr.	XXX °C	Displays current corrected suction pressure temperature on VS pack controller (assigned by Pack No.)

- Screen 1-2 Cooling Zone 1

COOLING 1	XXXXX	
Cooling	XXX	Displays current OFF/ON status of cooling
op.deg. Z 1	XX %	Displays current valve opening position Zone 1
OD med. 24h	XX %	displays mean valve opening position Zone 1 for past day
Temp. R4.1	XXX °C	Displays current room air temperature Input Z21/Z22
Setpoint R4.1	XXX °C	Displays room air temperature setpoint for comparison
Hystersis R4.1	XXX K	Displays room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)
SH Z 1	XXX °C	Displays current superheat temperature Zone 1
Heatg. Circuit	XXX	Displays current status of heating circuit control; shown only when single-zone operation is set (Screen 6-1)
Ht. Cir. Setp.	XXX °C	Displays heating circuit control setpoint; shown only when single-zone operation is set (Screen 6-1)
Ht. Cir. Hyst.	XX K	Displays heating circuit control hysteresis; shown only when single-zone operation is set (Screen 6-1)
sup air ctrl	XXX	Displays current OFF/ON status of supply or room air control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode
Status light	XXX	Status lighting control (ON/OFF)

- Screen 1-3 Defrost Zone 1

DEFROST 1	XXXXX	
Defrost	XXX	Displays current OFF/ON status of defrosting
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82; shown only when single-zone operation is set (Screen 6-1)
Def. End. Tmp.	XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time	XX m	Displays waiting time setpoint
Drip Time	XX m	Displays drip time setpoint
2.Defrst Level	XXX °C	Displays 2nd defrost stage setpoint; shown only when single-zone operation is set (Screen 6-1)
Last Defrst	XX hh:mm	Displays time (day, time of day) of last defrost cycle started

- Screen 1-4 Fan Zone 1

FANS 1	XXXXX	
Fans	XXX	Displays current fan status
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Fan Delay	XXX °C	Displays fan start temperature setpoint

- Screen 1-5 Alarm

ALARM	XXXXX	
Alarm Relay	XXX	Displays current OFF/ON status of alarm output Terminal 15/16/18
Hi Temp Setp.1	XX °C	Displays high temperature setpoint Zone 1
Lo Temp Setp.1	XX K	Displays low temperature setpoint Zone 1
Hi Temp Setp.2	XX °C	Displays high temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)
Lo Temp Setp.2	XX K	Displays low temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)
Coldroom Door 1	XXX	Displays current OFF/ON status of coldroom door input Terminal D31/D32
Coldroom Door 2	XXX	Displays current OFF/ON status of coldroom door input Terminal D21/D22

- Screen 1-6 Frame Heater

MODE	XXXXX	
Frame Heater	XXX	Displays current OFF/ON status of frame heater output Terminal 91/92/93
Run Time	XXX %	Displays current frame heater on time
Hunidity	XXX %	Displays current room air humidity (transmitted via CAN bus from VS pack controller with fitted humidity sensor)
Room temp.	XX °C	Displays current room air temperature (transmitted via CAN bus from VS pack controller with fitted room air temperature sensor)

- Screen 1-7 Cooling Zone 2

COOLING 2	XXXXX	
Cooling	XXX	Displays current OFF/ON status of cooling
op.deg. Z 2	XX %	Displays current valve opening position Zone 2
OD med. 24h	XX %	Displays mean valve opening position Zone 2 for past day
Temp. R4.2	XXX °C	Displays current room air temperature Input Z71/Z72
Setpoint R4.2	XXX °C	Displays room air temperature setpoint for comparison
Hystersis R4.2	XXX K	Displays room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)
SH Z 2	XXX °C	Displays current superheat temperature Zone 2
sup air ctrl	XXX	Displays current OFF/ON status of supply or room air control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode

- Screen 1-8 Defrost Zone 2

DEFROST 2 XXXXX	
Defrost XXX	Displays currentOFF/ON status of defrosting
Temp. R1.2 XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Def. End. Tmp. XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time XX m	Displays waiting time setpoint
Drip Time XX m	Displays drip time setpoint
Last Defrst XX hh:mm	Displays time (day, time of day) of last defrost cycle started

- Screen 1-9 Fan Zone 2

FANS 2 XXXXX	
Fans XXX	Displays current fan status
Temp. R1.2 XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Fan Delay XXX °C	Displays fan start temperature setpoint

7.4.3 Screen 2 Setpoints

SETPOINTS POS: XXXXX	
1 Cooling	Move to screen 2-1; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-1-1
2 Defrost	Move to screen 2-2; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-2-1
3 Fans	Move to screen 2-3; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-3-1
4 Alarm	Move to screen 2-4; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-4-1
5 Frame Heater	Move to screen 2-5

- Screen 2-1 Cooling

COOLING POS: XXXXX	
1 Zone 1	Move to screen 2-1-1
2 Zone 2	Move to screen 2-1-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-1-3; not shown when setpoint toggle is deactivated (Screen 3-3)
3 Zone 2T Toggle	Move to screen 2-1-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-1-1 Zone 1

COOLING 1 POS: XXXXX		Entry	Default
Setpoint R4.1 XXX °C	Room air temperature setpoint	--, -10..30	5 °C
Hystersis R4.1 X K	Room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	2 K
Ht. Cir. Setp.	Heating circuit control setpoint; shown only when single-zone is set (Screen 6-1)	--, -10..30	5 °C
Ht. Cir. Hyst.	Heating circuit control hysteresis setpoint;; shown only when single-zone is set (Screen 6-1)	1..8	2 K
Superheat XXX K	Superheat setpoint Zone 1	0..20	6 K
Min. SH XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 1. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-2 Zone 2

COOLING 2 POS: XXXXX		Entry	Default
Setpoint R4.2 XXX °C	Room air temperature setpoint	--, -10..30	5 °C
Hystersis R4.2 X K	Room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	2 K
Superheat XXX K	Superheat setpoint Zone 2	0..20	6 K
Min. SH XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 2. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-3 Zone 1T Toggle

COOLING 1A POS: XXXXX		Entry	Default
Setpoint R4.1 XXX °C	Room air temperature setpoint	--, -10..30	3 °C
Hystersis R4.1 X K	Room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..8	1 K
Ht. Cir. Setp.	Heating circuit control setpoint; shown only when single-zone operation is set (Screen 6-1)	--, -10..30	3 °C
Ht. Cir. Hyst.	Heating circuit control hysteresis setpoint; shown only when single-zone operation is set (Screen 6-1)	1..8	1 K

- Screen 2-1-4 Zone 2T Toggle

COOLING 2A POS: XXXXX			Entry	Default
Setpoint R4.2	XXX °C	Room air temperature setpoint	--, -10..30	3 °C
Hystersis R4.2	X K	Room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..8	1 K

- Screen 2-2 Defrost

DEFROST POS: XXXXX	
1 Zone 1	Move to screen 2-2-1
2 Zone 2	Move to screen 2-2-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-2-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-2-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-2-1 Zone 1

DEFROST 1 POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 0..30	5 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min
2.Defrst Level	XXX °C	2nd defrost stage setpoint; shown only when single-zone operation is set (Screen 6-1)	--, -20..30	--

- Screen 2-2-2 Zone 2

DEFROST 2 POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 0..30	5 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-3 Zone 1T Toggle

DEFROST 1A POS: XXXXX			Entry	Default
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 0..30	5 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min
2.Defrst Level	XXX °C	2nd defrost stage setpoint; shown only when single-zone operation is set (Screen 6-1)	--, -20..30	--

- Screen 2-2-4 Zone 2T Toggle

DEFROST 2A POS: XXXXX		Entry	Default
Def. End. Tmp. XX °C	Defrost termination temperature setpoint	--, 0..30	5 °C
Wait Time XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-3 Fan

FANS POS: XXXXX	
1 Zone 1	Move to screen 2-3-1
2 Zone 2	Move to screen 2-3-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-3-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-3-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-3-1 Zone 1

FANS 1 POS: XXXXX		Entry	Default
Fan Delay XXX °C	Fan start temperature setpoint	--, -20..20	-- °C

- Screen 2-3-2 Zone 2

FANS 2 POS: XXXXX		Entry	Default
Fan Delay XXX °C	Fan start temperature setpoint	--, -20..20	-- °C

- Screen 2-3-3 Zone 1T Toggle

FANS 1A POS: XXXXX		Entry	Default
Fans Delay XXX °C	Fan start temperature setpoint	--, -20..20	-- °C

- Screen 2-3-4 Zone 2T Toggle

FANS 2A POS: XXXXX		Entry	Default
Fans Delay XXX °C	Fan start temperature setpoint	--, -20..20	-- °C

- Screen 2-4 Alarm

ALARM POS: XXXXX	
1 Zone 1	Move to screen 2-4-1
2 Zone 2	Move to screen 2-4-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-4-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-4-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-4-1 Zone 1

ALARM 1 POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Tempeature* alarm is generated	0..30	10 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	2 K

- Screen 2-4-2 Zone 2

ALARM 2 POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Tempeature* alarm is generated	0..30	10 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	2 K

- Screen 2-4-3 Zone 1T Toggle

ALARM 1A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Tempeature* alarm is generated	0..30	8 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	2 K

- Screen 2-4-4 Zone 2T Toggle

ALARM 2A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Tempeature* alarm is generated	0..30	8 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..6	2 K

- Screen 2-5 Frame Heater

FRAME HTR POS: XXXXX	
1 Mode frm htr	Move to screen 2-5-1
2 Setpoint frm htr	Move to screen 2-5-2
3 Mode altern.	Move to screen 2-5-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Setpoint altern.	Move to screen 2-5-4; not shown when setpoint toggle is deactivated (Screen 3-3)

- Screen 2-5-1 Frame Mode

Selection is made according to entry. Checkmark shows current setting.

MODE POS: XXXXX		Entry	Default
Fixed run time √		↵	√
Enthalpy-ctrl rtm		↵	

- Screen 2-5-2 Frame Setpoints

SETPOINTS POS: XXXXX		Entry	Default
Mod: xxxxxxxxxxxx	Displays set pane mode (Screen 2-5-1)		fixed run time
Run Time XXX %	Fixed on time, shown only when mode set to Fixed OT (Screen 2-5-1)	--, 0..100	100 %
emerg.run time XXX %	On time in loss of humidity or room air temperature (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-1)	--, 0..100	100 %
enthalp. offs. XXX %	Offset for on time when enthalpy control is activated (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-1)	-50..50	0 %

- Screen 2-5-3 Toggle Mode

Selection is made according to entry. Checkmark shows current setting.

MODE ALT. POS: XXXXX		Entry	Default
Fixed run time √		↵	√
Enthalpy-ctrl rtm		↵	

- Screen 2-5-4 Setpoint Toggle

TOG. SETP. POS: XXXXX		Entry	Default
Mod: xxxxxxxxxxxx	Displays set pane mode (Screen 2-5-3)		fixed run time
Run Time XXX %	Fixed on time, shown only when mode set to Fixed OT (Screen 2-5-3)	--, 0..100	100 %
emerg.run time XXX %	On time in loss of humidity or room air temperature (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-3)	--, 0..100	100 %
enthalp. offs. XXX %	Offset for on time when enthalpy control is activated (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-3)	-50..50	0 %

7.4.4 Screen 3 Clock

CLOCK POS: XXXXX	
1 Current Time	Move to screen 3-1
2 Defrost Timer	Move to screen 3-2
3 Toggle Setpoints	Move to screen 3-3

- Screen 3-1 Current Time

Time is defined by time master (CI 3000, AL 300) when CAN bus is connected. Any entry made will then be overwritten by the defined value.

CLOCK POS: XXXXX		Entry	Default
Date: XX dd.mm.yy	Display and entry of current weekday, date	dd.mm.yy	
Time: hh.mm	Display and entry of current time	hh.mm	
Daylight Saving X	Display and entry of automatic daylight saving time change (Y/N)	↑, ↓, (N/Y)	Y

- Screen 3-2 Defrost Timer

DEFR.TIMER POS: XXXXX		Entry	Default
Defrost Timer XXX	Defrost initiation via Input D11/12 (EXT) oder internal (INT)	↑, ↓, (EXT, INT)	INT
Safe Defr Time XXX m	Safe defrost time, i.e. max. allowed duration of defrosting (internal defrost only); shown only when internal defrost is activated (Screen 3-2)	0..120	90 min
Manual Defrost XXX	Status (OFF/ON) of auxiliary manual defrost *)	↑, ↓ (OFF/ON)	OFF
Defr. 1 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 01:00
Defr. 2 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 06:00
Defr. 3 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 13:00
Defr. 4 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 21:00
...			
Defr. 14 xxxxx hh:mm			

*) Parameter is **NOT** automatically set to ON at first start.

- Screen 3-3 Toggle Setpoints

TOGGLE POS: XXXXX		Entry	Default
Status XXX	Setpoint toggle for alternative set of setpoints (setpoint set toggle)		
Toggle Setp. XXX	Setpoint toggle via Input D21/D22 (EXT), internal (INT) or deactivated (--). When entering EXT, make sure that the corresponding digital input D21/D22 is set to SETP. TOGGLE (Screen 6-2-4)	↑, ↓, (EXT, INT, --)	EXT
Toggle interv. X m	The interval for the cyclical toggling between standard and alternative setpoint data records; only appears when the internal setpoint toggling is activated (menu 3-3).	--, 10..60	-- min
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 21:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 05:00
Alt ON: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Su 05:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Su 21:00
...	A total of 7 different ON, OFF toggle times can be entered. Toggle time will only be obeyed when a **matched pair** of ON and OFF time is set.		

- Screen 3-4 Automatic Start

AUTO ON POS: XXXXX		Entry	Default
ON 1 XXXXX hh:mm	Defrost start time for internal defrost; weekday, time of day. When making entry, make sure that the corresponding digital input D21/D22 is set to AUTO SWITCH (Screen 6-2-4)	↑, ↓, (Mo-Su) or numbers (hh:mm)	--
...			
ON 7 XXXXX hh:mm			--

7.4.5 Screen 4 Messages

MESSAGES POS: XXXXX	
1 View	Move to screen 4-1 View Messages
2 Acknowledge	Messages in log are cancelled, press ESC to exit after cancel is confirmed
3 Delete	Move to screen 4-3

- Screen 4-1 View Messages

MESSAGES POS: XXXXX	
Error text 1:	Fault message Fault 1
dd.mm.yy hh:mm ON	Start of Fault 1
dd.mm.yy hh:mm OFF	End of Fault 1 (only when Fault 1 has ended)
...	
Error text n:	Fault message Fault n
dd.mm.yy hh:mm ON	Start of Fault n
dd.mm.yy hh:mm OFF	End of Fault n (only when Fault n has ended)

- Screen 4-2 Cancel Messages

This displays the *Alarms Cancelled!* message.

- Screen 4-3 Delete Messages

MESSAGES POS: XXXXX		Entry
Delete ! Are you sure ? No: ESC YES: ↵	Safety prompt for deleting messages; press ESC to exit after confirming or cancelling deleite	↵, ESC

7.4.6 Screen 5 Archive

ARCHIVE POS: XXXXX	
dd.mm.yy hh:mm	Time of archiving Data Record 1
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, see note *); shown only when two-zone operation is set (Screen 6-1)
...	
dd.mm.yy hh:mm	Time of archiving Data Record n
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, see note *); shown only when two-zone operation is set (Screen 6-1)

*) Status abcdef covers following states of refrigeration point. The entry at this position is - when a state is not active.

	Single-zone operation	Two-zone operation
a	O = Operation	O = Operation
b	R = Refrigeration/ Cooling	R = Refrigeration/ Cooling
c	D = Defrost	R = Refrigeration/ Cooling
d	G = Gate/ Door (coldroom controller only)	D = Defrost
e	A = Alarm	G = Gate/ Door (coldroom controller only)
f		A = Alarm

7.4.7 Screen 6 Configuration

CONFIGURAT POS: XXXXX	
1 Refriger. Point	Move to screen 6-1
2 Controller	Move to screen 6-2
3 Cooling	Move to screen 6-3
4 Language	Move to screen 6-4
5 Alarm priorities	Move to screen 6-5
6 Em.Powersupply	Move to screen 6-6

- Screen 6-1 Refrigeration Point

REFR. PT. POS: XXXXX		Entry	Default
Refr. Pt. Name:	Text only		
xxxxxxxxxxxxxx	Free text entry describing refrigeration point (see note at end of table)		Case Controller
Item ID: XXXXX	Free text entry shown after Position (POS:) in screens (see note at end of table)		UA300
Priority: XX	Priorityx of alarms in failure of refrigeration point or when setting global controller priority (Screen 6-5)	↑, ↓, or numbers (0..99)	1
Refr. Sys. No.: XX	Pack No. of pack controller assigned to case controller. The UA 300 E cannot receive the suction pressure value for control functions before the Pack No. of the associated pack controller has been selected on the case controller	↑, ↓, or numbers (--, 1..9)	--
Refr. Sys. Type XXX	Allocation to compressor pack. Parameter only required for linking to VS 3010 BS with several zones. Deactivate this parameter (---) when using pack controllers of other type.	↑, ↓, or numbers (---, Z1, Z2)	---
Temp. Zones X	Number of temperature zones Single-zone operation (tandem mode) Two-zone operation	↑, ↓, or numbers (1, 2)	2
No. Sensors XX	Displays number of temperature sensors connected. After pressing ↵, sensor scan is performed and number of sensors is redefined.	↵	

It must be ensured that the correct pack number has been selected, i.e. the correct Refr. Sys. type has been set, otherwise this can result in damage to the installation or goods. Furthermore, the parameter *Corr.off* t_0 (menu 6-3) must not be set to ”--” if the t_0 from the pack controller is to be used for regulating.

A meaningful name that describes the refrigeration point in more detail should be entered, e.g. Cheese Counter 2 and CC2. Entry is made in the screens on Store Computer or Alarm Terminal. Direct entry cannot be made in the UA 300 E screens displayed on the operator terminal. Entry cannot be made either on the hand setup unit.

- Screen 6-2 Controller

CONTROLLER POS: XXXXX	
1 Type and Version	Move to screen 6-2-1
2 Temp. Display	Move to screen 6-2-2
3 Alarm Delay	Move to screen 6-2-3
4 230V Inputs	Move to screen 6-2-4
5 Sensor Type	Move to screen 6-2-5
6 eev ctrlr zone1	Move to screen 6-2-6; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)
7 eev ctrlr zone2	Move to screen 6-2-7; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)

- Screen 6-2-1 Type and Version

VERSION POS: XXXXX			Entry	Default
Ctrlr. Type	XXXXXXX	Set on DIP Switch S3		UR141NE
Software Ver.:	XXXX	Software version of case controller (EPROM)		
Serial No.:	XXXXXX	Device No. of case controller (from EEPROM)		
Master/Sl. Mode	XXX	Synchronized defrosting in master/slave mode	↑, ↓, (OFF/ON)	OFF

- Screen 6-2-2 Temperature Display

DISPLAY POS: XXXXX			Entry	Default
Offset	XX K	Offset for temperature display	-10..10	0 K
Alarmsymbol	XX	Show alarm symbol on BT 30 Temperature Display	↑, ↓, (OFF/ON)	N

- Screen 6-2-3 Alarm Delay

ALARMDELAY POS: XXXXX			Entry	Default
Sensor Fault	XX m	Sensor break alarm delay	0..30	15 min
High/Low Temp.	XX m	High/low temperature alarm delay	0..150	90 min
Door Open	XX m	Alarm time delay for open coldroom door (also acts on automatic starting of cooling and fan). This alarm is active only when the corresponding digital input D21/D22 or D31/D32 is set to DOOR CONTACT (Screen 6-2-4)	0..60	60 min
No Defrost	XX h	No defrost alarm delay	--, 2..168	30 h
Selfholding	X	Alarm latching with manual alarm cancelling (YES) or automatic cancelling on send (NO)	↑, ↓, (Y/N)	N

- Screen 6-2-4 230V Inputs

Only trained personnel should be allowed to change inputs, as changes can affect other functions.

230V INPUT POS: XXXXX		Entry	Default
Entry1: XXXXXXXXXX	Function of Input 1 D11/D12		DEFR.TIMER
Entry2: XXXXXXXXXX	Function of Input 2 D21/D22	DOOR CON-TACT	TOGGLE SETP.
Entry3: XXXXXXXXXX	Function of Input 3 D31/D32	DOOR CON-TACT	DOOR CON-TACT

- Screen 6-2-5 Sensor Type

Selection is made according to entry. Checkmark shows current setting.

SENSORS POS: XXXXX		Entry	Default
L243 √	Temperature range -50 °C .. 50 °C	↵	√
K277	Temperature range -50 °C .. 50 °C	↵	
5K3A1	Temperature range 0 °C .. 100 °C	↵	

- Screen 6-2-6 eev ctrlr zone 1

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 1 POS: XXXXX		Entry	Default
Pc Z 1: XX.XX	Temperature control Zone 1, P-part	0..99.99	7.00
Ic Z 1: XX.XX	Temperature control Zone 1, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 1: XX.XX	Temperature control Zone 1, D-part	0..99.99	5.00
offs OD cab. XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %
Psh Z 1: XX.XX	Superheat control Zone 1, P-part	0..99.99	5.00
Ish Z 1: XX.XX	Superheat control Zone 1, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 1: XX.XX	Superheat control Zone 1, D-part	0..99.99	5.00
offs OD SH XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD XX %	Maximum emergency valve opening position	0..50	20 %
delay min SH XX s	Delay on drop of superheat below set minimum	9..600	9 sec

EEV ZONE 1 POS: XXXXX			Entry	Default
setuptime	XX.X m	Setup time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be less than the current "*inject.time*" parameter, otherwise the smallest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	2.0 min
inject.time	XX.X m	Injection time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be greater than the current "*setuptime*" parameter, otherwise the largest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	1.0 min
OD over CAN	XXX	Transmit valve opening position via CAN bus	↑, ↓, (OFF/ON)	ON
15s Archiv	X	Set archiving interval on Store Computer to 15 sec	↑, ↓, (Y/N)	N
OD 3s interv	XXX	Select interval for output of opening position. OFF = 6s ON = 3s Control is suspended for 6 seconds when toggling.	↑, ↓, (OFF/ON)	OFF
Reset I-Sum	XXX	Reset I-sum (to zero) if superheat drops below set minimum for longer than time set by "delay min SH" parameter. OFF = I-sum not reset to zero ON = I-sum is reset to zero	↑, ↓, (OFF/ON)	ON
edit op.deg.	XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 1	XXX %	Current valve opening position Zone 1; can be edited when manual entry is activated	0..100	Default by controller
Maximum OD	xxx %	Sets an upper limit to the opening degree output by the case controller	20..100	100%
Lo Temp to	xxK	Monitoring of the t_0 transmitted by the pack controller for unsuitably low values	10..60, --	28K
to VS corr.	XXX °C	Displays current corrected suction pressure temperature on pack controller (assigned by Pack No.)		

- Screen 6-2-7 EEV Controller Zone 2

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 2 POS: XXXXX			Entry	Default
Pc Z 2:	XX.XX	Temperature control Zone 2, P-part	0..99.99	7.00
Ic Z 2:	XX.XX	Temperature control Zone 2, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 2:	XX.XX	Temperature control Zone 2, D-part	0..99.99	5.00
offs OD cab.	XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %

EEV ZONE 2 POS: XXXXX			Entry	Default
Psh Z 2:	XX.XX	Superheat control Zone 2, P-part	0..99.99	5.00
Ish Z 2:	XX.XX	Superheat control Zone 2, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 2:	XX.XX	Superheat control Zone 2, D-part	0..99.99	5.00
offs OD SH	XX %	percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD	XX %	Maximum valve opening position	0..50	20 %
delay min SH	XX s	Delay on drop of superheat below set minimum	9..600	9 sec
edit op.deg.	XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 2	XXX %	Current valve opening position Zone 2; can be edited when manual entry is activated	0..100	Default ctrlr.

- Screen 6-3 Cooling

COOLING POS: XXXXX			Entry	Default
corr.off to	XX K	Correction offset for pressure loss in suction line **IMPORTANT:** in stand alone operation must be set to "--"!	--, 0..20	2 K
Cont Cool Mon.	XX m	Continuous run monitoring	--, 0..15	0 min

- Screen 6-4 Language

Selection is made according to entry. Checkmark shows current setting.

LANGUAGE POS: XXXXX			Entry	Default
Deutsch	D √		↵	√
English	GB		↵	
Francais	F		↵	
Finnish	FIN		↵	
Cesky	CZ		↵	

- Screen 6-5 Alarm Priorities

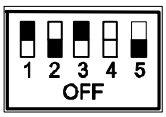
ALARMPRIOS POS: XXXXX			Entry	Default
Prio.Refrig. Pt.	X	Global setting of alarm priority via refrigeration point priority (Screen 6-1) (Y)	↑, ↓, (Y/N)	Y
Priority:	XX	Displays refrigeration point priority (Screen 6-1); only shown when refrigeration point priority is set to Y		
Following parameters are only shwon when refrigeration point priority is set toN. Meaning of vaild entries for alarm priority is as follows: *- = Event ignored* *0 = Message (enterd only in message log)* *1 = Priority 1 alarm* *..* *99 = Priority 99 alarm*				
Low Temp.		Temperature below low alarm limit. Priority applies to alarms *Low Temp. Zone 1, Low Temp. Zone 2*	-, 0..99	1
High Temp.		Temperature above high alarm limit. Priority applies to alarms *High Temp. Zone 1, High Temp. Zone 2*	-, 0..99	1
Sensor Fault		Temperature sensor failure	-, 0..99	1
Door Open		Coldroom door open longer than time delay; priority applies to *Coldroom Door Open* alarm	-, 0..99	1
No Defrost		No defrost within alarm delay time. Priority applies to *No Defrost* alarm	-, 0..99	1
Timer-Term. Defrost		Defrosting terminated by safe defrost time	-, 0..99	0
Power Failure		Start following power failure	-, 0..99	0
First Start		Controller Startup (basic settings are loaded!)	-, 0..99	1
Manual Shutoff		Manual switch Input D31/D32 set OFF	-, 0..99	0

ALARMPRIOS POS: XXXXX		Entry	Default
Hardware Fault	Internal hardware defect. Priority applies to alarms *EEPROM Defective, RTC Defective, Flash Memory Defective*	-, 0..99	1
Setpoint Change	Message generated when changing setpoints	0..99	0
Refrig.Pt.Dis.	Cooling interrupted by VS pack controller via CAN bus	-, 0..99	0
Battery Voltage	Battery low	-, 0..99	0
Check t0	t_0 via CAN bus. Priority applies to alarms *No t0 Zone 1, No t0 Zone 2*	-, 0..99	1
Sensor Fault eev	EEV Control sensor failure. Priority applies to alarms *Sensor Break EEV Z1, Sensor Break EEV Z2*	-, 0..99	1
eev ctrl block	EEV control stalled. Priority applies to alarms *EEV Stall Detect Z1, EEV Stall Detect Z2*	-, 0..99	0
wrong ctrlr type	Configuration error: Invalid controller type set on DIP Switch S3. Priority applies to *Wrong Controller Type* alarm	-, 0..99	1
emerg.cut-out SH	Superheat drop below minimum level for duration of delay time	-, 0..99	0
OD manual	Valve opening position defined by manual entry. Priority applies to alarms *VO Manual Zone 1, VO Manual Zone 2*	-, 0..99	0
config:M/S w HG	Configuration error: Simultaneous setting of parameters for master-slave and discharge gas defrosting	-, 0..99	1
Check OD	Alarm due to implausible opening position	-, 0..99	1

- Maske 6-6 Em.Powersupply (Emergency Power supply)

EM.POW.SUP POS: XXXXX		Entry	Default
Cool.funct.OFF xxx	Functionality of the cooling switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Defr.funct.OFF xxx	Functionality of the defrosting switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Fan funct. OFF xxx	Functionality of the fan switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N

7.5 Controller Type UR 141 TE - Menu tree



1: ON
2: OFF
3: ON
4: ON/OFF = Master-/Slave-Mode ON/OFF
5: OFF

Level 1	Level 2	Level 3	Screen No.	Screen Name
Main Menu			0	REFR. PT.
Actual Values			1	ACT VALUES
	Temperature Sensors		1-1	TEMPERATUR
	Cooling Zone 1		1-2	COOLING 1
	Defrost Zone 1		1-3	DEFROST 1
	Fan Zone 1		1-4	FANS 1
	Alarm		1-5	ALARM
	Frame Heater		1-6	MODE
	Cooling Zone 2		1-7	COOLING 2
	Defrost Zone 2		1-8	DEFROST 2
	Fan Zone 2		1-9	FANS 2
Setpoints			2	SETPOINTS
	Cooling		2-1	COOLING
		Zone 1	2-1-1	COOLING 1
		Zone 2	2-1-2	COOLING 2
		Zone 1T Toggle	2-1-3	COOLING 1A
		Zone 2T Toggle	2-1-4	COOLING 2A
	Defrost		2-2	DEFROST
		Zone 1	2-2-1	DEFROST 1
		Zone 2	2-2-2	DEFROST 2
		Zone 1T Toggle	2-2-3	DEFROST 1A
		Zone 2T Toggle	2-2-4	DEFROST 2A
	Fan		2-3	FANS
		Zone 1	2-3-1	FANS 1
		Zone 2	2-3-2	FANS 2
		Zone 1T Toggle	2-3-3	FANS 1A
		Zone 2T Toggle	2-3-4	FANS 2A
	Alarm		2-4	ALARM
		Zone 1	2-4-1	ALARM 1
		Zone 2	2-4-2	ALARM 2
		Zone 1T Toggle	2-4-3	ALARM 1A
		Zone 2T Toggle	2-4-4	ALARM 2A

Level 1	Level 2	Level 3	Screen No.	Screen Name
Setpoints	Frame Heater		2-5	FRAME HTR
		Frame Mode	2-5-1	MODE
		Frame Setpoints	2-5-2	SETPOINTS
		Toggle Mode	2-5-3	MODE ALT
		Setpoint Toggle	2-5-4	TOG. SETP.
Clock			3	Clock
	Current Time		3-1	CLOCK
	Defrost Timer		3-2	DEFR.TIMER
	Setpoint Toggle		3-3	TOGGLE
Messages			4	MESSAGES
	View Messages		4-1	MESSAGES
	Cancel Messages		4-2	MESSAGES
	Delete Messages		4-3	MESSAGES
Archive			5	ARCHIVE
Configuration			6	CONFIGURAT
	Refrigeration Point		6-1	REFR. PT.
	Controller		6-2	CONTROLLER
		Type and Version	6-2-1	VERSION
		Temperature Display	6-2-2	DISPLAY
		Alarm Delay	6-2-3	ALARMDELAY
		230V Inputs	6-2-4	230V INPUT
		Sensor Type	6-2-5	SENSORS
		EEV Controller Zone 1	6-2-6	EEV ZONE 1
		EEV Controller Zone 2	6-2-7	EEV ZONE 2
	Cooling		6-3	COOLING
	Language		6-4	LANGUAGE
	Alarm Priorities		6-5	ALARMPRIOS
	Em.Powersupply		6-6	EM.POW.SUP

7.5.1 Screen 0 Main Menu

REFR. PT. POS: XXXXX	
1 Actual Values	Move to screen 1
2 Setpoints	Move to screen 2
3 Clock	Move to screen 3
4 Messages	Move to screen 4
5 Archive	Move to screen 5
6 Configuration	Move to screen 6

7.5.2 Screen 1 Actual Values

ACT VALUES POS: XXXXX	
1 Temp. Sensor	Move to screen 1-1
2 Cooling Zone 1	Move to screen 1-2
3 Defrost Zone 1	Move to screen 1-3
4 Fans Zone 1	Move to screen 1-4
5 Alarm	Move to screen 1-5
6 Frame Heater	Move to screen 1-6
7 Cooling Zone 2	Move to screen 1-7: Menu item is shown only when two-zone operation is set (Screen 6-1).
8 Defrost Zone 2	Move to screen 1-8: Menu item is shown only when two-zone operation is set (Screen 6-1).
9 Fans Zone2	Move to screen 1-9: Menu is shown only when two-zone operation is set (Screen 6-1).

- Screen 1-1 Temperature Sensors

TEMPERATUR XXXXX		
Temp. R4.1	XXX °C	Displays current room air temperature Input Z21/Z22
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R5.1	XXX °C	Displays current evaporator inlet temperature Input Z41/Z42
Temp. R6.1	XXX °C	Displays current evaporator outlet temperature Input Z51/Z52
Temp. R4.2	XXX °C	Displays current room air temperature Input Z71/Z72
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Temp. R5.2	XXX °C	Displays current evaporator inlet temperature Input Z91/Z92
Temp. R6.2	XXX °C	Displays current evaporator outlet temperature Input Z01/Z02
to VS corr.	XXX °C	Displays current corrected suction pressure temperature on VS pack controller (assigned by Pack No.)

- Screen 1-2 Cooling Zone 1

COOLING 1	XXXXX	
Cooling	XXX	Displays currentOFF/ON status of cooling
op.deg. Z 1	XX %	Displays current valve opening position Zone 1
OD med. 24h	XX %	Displays mean valve opening position Zone 1 for past day
Temp. R4.1	XXX °C	Displays current room air temperature Input Z21/Z22
Setpoint R4.1	XXX °C	Displays room air temperature setpoint for comparison
Hystersis R4.1	XXX K	Displays room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)
SH Z 1	XXX °C	Displays current superheat temperature Zone 1
Heatg. Circuit	XXX	Displays current status of heating circuit control; shown only when single-zone operation is set (Screen 6-1)
Ht. Cir. Setp.	XXX °C	Displays heating circuit control setpoint; shown only when single-zone operation is set (Screen 6-1)
Ht. Cir. Hyst.	XX K	Displays heating cirucit control hysteresis; shown only when single-zone operation is set (Screen 6-1)
sup air ctrl	XXX	Displays current OFF/ON status of supply or room air control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode
Status light	XXX	Status lighting control (ON/OFF)

- Screen 1-3 Defrost Zone 1

DEFROST 1	XXXXX	
Counting Rate	X	Displays setpoint for time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down
Defrost Counter	X	Displays count for number of defrost cycles to be skipped
Defrost	XXX	Displays current OFF/ON status of Defrost Relay 1
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82; shown only when single-zone operation is set (Screen 6-1)
Def. End. Tmp.	XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time	XX m	Displays waiting time setpoint
Drip Time	XX m	Displays drip time setpoint
2.Defrst Level	XXX °C	Displays 2nd defrost stage setpoint; shown only when single-zone operation is set (Screen 6-1)
Last Defrst	XX hh:mm	Displays time (day, time of day) of last defrost cycle started

- Screen 1-4 Fan Zone1

FANS 1	XXXXX	
Fans	XXX	Displays current fan status
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Fans Delay	XXX °C	displays fan start temperature setpoint

- Screen 1-5 Alarm

ALARM	XXXXX	
Alarm Relay	XXX	Displays current OFF/ON status of alarm output Terminal 15/16/18
Hi Temp Setp.1	XX °C	Displays high temperature setpoint Zone 1
Lo Temp Setp.1	XX K	Displays low temperature setpoint Zone 1
Hi Temp Setp.2	XX °C	Displays high temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)
Lo Temp Setp.2	XX K	Displays low temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)
Coldroom Door 1	XXX	Displays current OFF/ON status of coldroom door input Terminal D31/D32
Coldroom Door 2	XXX	Displays current OFF/ON status of coldroom door input Terminal D21/D22

- Screen 1-6 Frame Heater

MODE	XXXXX	
Frame Heater	XXX	Displays current OFF/ON status of frame heater output Terminal 91/92/93
Run Time	XXX %	Displays current frame heater on time
Humidity	XXX %	Displays current room air humidity (transmitted via CAN bus from VS pack controller with fitted humidity sensor)
Room temp.	XX °C	Displays current room air temperature (transmitted via CAN bus from VS pack controller with fitted room air temperature sensor)

- Screen 1-7 Cooling Zone 2

COOLING 2	XXXXX	
Cooling	XXX	Displays current OFF/ON status of cooling
op.deg. Z 2	XX %	Displays current valve opening position Zone 2
OD med. 24h	XX %	Displays mean valve opening position Zone 2 for past day
Temp. R4.2	XXX °C	Displays current room air temperature Input Z71/Z72
Setpoint R4.2	XXX °C	Displays room air temperature setpoint for comparison
Hystersis R4.2	XXX K	Displays room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)
SH Z 2	XXX °C	Displays current superheat temperature Zone 2
sup air ctrl	XXX	Displays current OFF/ON status of supply or room air control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode

- Screen 1-8 Defrost Zone 2

DEFROST 2	XXXXX	
Counting Rate	X	Displays setpoint for time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down
Defrost Counter	X	Displays count for number of defrost cycles to be skipped
Defrost	XXX	Displays current OFF/ON status of Defrost Relay 2
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Def. End. Tmp.	XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time	XX m	Displays waiting time setpoint
Drip Time	XX m	Displays drip time setpoint
Last Defrst	XX hh:mm	Displays time (day, time of day) of last defrost cycle started

- Screen 1-9 Fan Zone2

FANS 2	XXXXX	
Fans	XXX	Displays current fan status
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Fan Delay	XXX °C	Displays fan start temperature setpoint

7.5.3 Screen 2 Setpoints

SETPOINTS POS: XXXXX	
1 Cooling	Move to screen 2-1; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-1-1
2 Defrost	Move to screen 2-2; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-2-1
3 Fans	Move to screen 2-3; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-3-1
4 Alarm	Move to screen 2-4; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-4-1
5 Frame Heater	Move to screen 2-5

- Screen 2-1 Cooling

COOLING POS: XXXXX	
1 Zone 1	Move to screen 2-1-1
2 Zone 2	Move to screen 2-1-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-1-3; not shown when setpoint toggle is deactivated (Screen 3-3)
3 Zone 2T Toggle	Move to screen 2-1-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-1-1 Zone 1

COOLING 1 POS: XXXXX			Entry	Default
Setpoint R4.1	XXX °C	Room air temperature setpoint	--, -45..40	-20 °C
Hystersis R4.1	X K	Room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..10	2 K
Ht. Cir. Setp.		Heating circuit control setpoint; shown only when single-zone operation is set (Screen 6-1)	--, -45..40	-20 °C
Ht. Cir. Hyst.		Heating circuit control hysteresis setpoint; shown only when single-zone operation is set (Screen 6-1)	1..10	2 K
Superheat	XXX K	Superheat setpoint Zone 1	0..20	6 K
Min. SH	XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 1. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-2 Zone 2

COOLING 2 POS: XXXXX			Entry	Default
Setpoint R4.2	XXX °C	Room air temperature setpoint	--, -45..40	-20 °C
Hystersis R4.2	X K	Room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..10	2 K
Superheat	XXX K	Superheat setpoint Zone 2	0..20	6 K
Min. SH	XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 2. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-3 Zone 1T Toggle

COOLING 1A POS: XXXXX			Entry	Default
Setpoint R4.1	XXX °C	Room air temperature setpoint	--, -45..40	-24 °C
Hystersis R4.1	X K	Room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..10	2 K
Ht. Cir. Setp.		Heating circuit control setpoint; shown only when single-zone operation is set (Screen 6-1)	--, -45..40	-24 °C
Ht. Cir. Hyst.		Heating circuit control hysteresis setpoint; shown only when single-zone operation is set (Screen 6-1)	1..10	2 K

- Screen 2-1-4 Zone 2T Toggle

COOLING 2A POS: XXXXX			Entry	Default
Setpoint R4.2	XXX °C	Room air temperature setpoint	--, -45..40	-24 °C
Hystersis R4.2	X K	Room air temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..10	2 K

- Screen 2-2 Defrost

DEFROST POS: XXXXX	
1 Zone 1	Move to screen 2-2-1
2 Zone 2	Move to screen 2-2-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-2-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-2-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-2-1 Zone 1

DEFROST 1 POS: XXXXX			Entry	Default
Counting Rate	X	Setpoint of time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down	0..15	0
Defrost Counter	X	Setpoint of count for number of defrost cycles to be skipped. By pressing the ↵ key the value can be set to 1 until it is automatically reset to the basic settings.	↵	1
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 0..30	10 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	3 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	5 min
2.Defrst Level	XXX °C	2nd defrost stage setpoint; shown only when single-zone operation is set (Screen 6-1)	--, -20..30	--

- Screen 2-2-2 Zone 2

DEFROST 2 POS: XXXXX			Entry	Default
Counting Rate	X	Setpoint of time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down	0..15	0
Defrost Counter	X	Setpoint of count for number of defrost cycles to be skipped. By pressing the ↵ key the value can be set to 1 until it is automatically reset to the basic settings.	↵	1
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 0..30	10 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	3 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	5 min

- Screen 2-2-3 Zone 1T Toggle

DEFROST 1A POS: XXXXX			Entry	Default
Counting Rate	X	Setpoint of time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down	0..15	0
Defrost Counter	X	Setpoint of count for number of defrost cycles to be skipped. By pressing the ↵ key the value can be set to 1 until it is automatically reset to the basic settings.	↵	1
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 0..30	10 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	3 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	5 min
2.Defrst Level	XXX °C	2nd defrost stage setpoint; shown only when single-zone operation is set (Screen 6-1)	--, -20..30	--

- Screen 2-2-4 Zone 2T Toggle

DEFROST 2A POS: XXXXX			Entry	Default
Counting Rate	X	Setpoint of time during which evaporator defrost termination temperature may be within band around 0°C before defrost counter counts down	0..15	0
Defrost Counter	X	Setpoint of count for number of defrost cycles to be skipped. By pressing the ↵ key the value can be set to 1 until it is automatically reset to the basic settings.	↵	1
Def. End. Tmp.	XX °C	Defrost termination temperature setpoint	--, 0..30	10 °C
Wait Time	XX m	Waiting time setpoint between cooling and defrost	0..15	3 min
Drip Time	X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	5 min

- Screen 2-3 Fan

FANS POS: XXXXX	
1 Zone 1	Move to screen 2-3-1
2 Zone 2	Move to screen 2-3-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-3-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-3-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-3-1 Zone 1

FANS 1 POS: XXXXX			Entry	Default
Fan Delay	XXX °C	Fan start temperature setpoint	--, -20..20	0 °C

- Screen 2-3-2 Zone 2

FANS 2 POS: XXXXX			Entry	Default
Fan Delay	XXX °C	Fan start temperature setpoint	--, -20..20	0 °C

- Screen 2-3-3 Zone 1T Toggle

FANS 1A POS: XXXXX			Entry	Default
Fan Delay	XXX °C	Fan start temperature setpoint	--, -20..20	0 °C

- Screen 2-3-4 Zone 2T Toggle

FANS 2A POS: XXXXX			Entry	Default
Fan Delay	XXX °C	Fan start temperature setpoint	--, -20..20	0 °C

- Screen 2-4 Alarm

ALARM POS: XXXXX	
1 Zone 1	Move to screen 2-4-1
2 Zone 2	Move to screen 2-4-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-4-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-4-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-4-1 Zone 1

ALARM 1 POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-35..50	-12 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..10	2 K

- Screen 2-4-2 Zone 2

ALARM 2 POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-35..50	-12 °C
Low Temp Setp. XX K	Sollwert Temperatur (Differenz unter dem Sollwert der Temperaturregelung), bei dem der Alarm *Untertemperatur* ausgelöst wird	--, 0..10	2 K

- Screen 2-4-3 Zone 1T Toggle

ALARM 1A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-35..50	-12 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..10	2 K

- Screen 2-4-4 Zone 2T Toggle

ALARM 2A POS: XXXXX		Entry	Default
High Temp Setp XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-35..50	-12 °C
Low Temp Setp. XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..10	2 K

- Screen 2-5 Frame Heater

FRAME HTR POS: XXXXX	
1 Mode frm htr	Move to screen 2-5-1
2 Setpoint frm htr	Move to screen 2-5-2
3 Mode altern.	Move to screen 2-5-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Setpoint altern.	Move to screen 2-5-4; not shown when setpoint toggle is deactivated (Screen 3-3)

- Screen 2-5-1 Mode frm htr

Selection is made according to entry. Checkmark shows current setting.

MODE POS: XXXXX		Entry	Default
Fixed run time √		↵	√
Enthalpy-ctrl rtm		↵	

- Screen 2-5-2 Frame Setpoints

SETPOINTS POS: XXXXX		Entry	Default
Mod: xxxxxxxxxxxx	Displays set pane mode (Screen 2-5-1)		fixed run time
Run Time XXX %	Fixed on time; shown only when mod is set to Fixed OT (Screen 2-5-1)	--, 0..100	100 %
emerg.run time XXX %	On time in loss of humidity or room air temperature (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-1)	--, 0..100	100 %
enthalp. offs. XXX %	Offset for on time when enthalpy control is activated (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-1)	-50..50	0 %

- Screen 2-5-3 Toggle Mode

Selection is made according to entry. Checkmark shows current setting.

MODE ALT. POS: XXXXX		Entry	Default
Fixed run time √		↵	√
Enthalpy-ctrl rtm		↵	

- Screen 2-5-4 Setpoint Toggle

TOG. SETP. POS: XXXXX		Entry	Default
Mod: xxxxxxxxxxx	Displays set pane mode (Screen 2-5-3)		fixed run time
Run Time XXX %	Fixed on time; shown only when mod is set to Fixed OT (Screen 2-5-3)	--, 0..100	100 %
emerg.run time XXX %	On time in loss of humidity or room air temperature (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-3)	--, 0..100	100 %
enthalp. offs. XXX %	Offset for on time when enthalpy control is activated (via CAN bus); shown only when mode set to Enthalpy Control (Screen 2-5-3)	-50..50	0 %

7.5.4 Screen 3 Clock

CLOCK POS: XXXXX	
1 Current Time	Move to screen 3-1
2 Defrost Timer	Move to screen 3-2
3 Toggle Setpoints	Move to screen 3-3

- Screen 3-1 Current Time

Time is defined by time master (CI 3000, AL 300) when CAN bus is connected. Any entry made will then be overwritten by the defined value.

CLOCK POS: XXXXX		Entry	Default
Date: XX dd.mm.yy	Display and entry of current weekday, date	dd.mm.yy	
Time: hh.mm	Display and entry of current time	hh.mm	
Daylight Saving X	Display and entry of automatic daylight saving time change (Y/N)	↑, ↓, (N/Y)	Y

- Screen 3-2 Defrost Timer

DEFR.TIMER POS: XXXXX		Entry	Default
Defrost Timer XXX	Defrost initiation via Input D11/12 (EXT) oder internal (INT)	↑, ↓, (EXT, INT)	EXT
Safe Defr Time XXX m	Safe defrost time, i.e. max. allowed duration of defrosting (internal defrost only); shown only when internal defrost is activated (Screen 3-2)	0..120	60 min
Manual Defrost XXX	Status (OFF/ON) of auxiliary manual defrost *)	↑, ↓, (OFF/ON)	OFF
Defr. 1 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 07:00
Defr. 2 xxxxx hh:mm	Defrost start time for internal defrost; weekday, time of day; shown only when internal defrost is activated (Screen 3-2)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 19:00
...			
Defr. 14 xxxxx hh:mm			

*) Parameter is NOT automatically set to ON at first start

- Screen 3-3 Toggle Setpoints

TOGGLE POS: XXXXX		Entry	Default
Status XXX	Setpoint toggle for alternative set of setpoints (setpoint set toggle)		
Toggle Setp. XXX	Setpoint toggle via Input D21/D22 (EXT), internal (INT) or deactivated (--). When entering EXT, make sure that the corresponding digital input D21/D22 is set to SETP. TOGGLE (Screen 6-2-4)	↑, ↓, (EXT, INT, --)	EXT
Toggle interv. X m	The interval for the cyclical toggling between standard and alternative setpoint data records; only appears when the internal setpoint toggling is activated (menu 3-3).	--, 10..60	-- min
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 21:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)		Mo-Su 05:00
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Su 05:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)		Su 21:00
...	A total of 7 different ON, OFF toggle times can be entered. Toggle time will only be obeyed when a ***matched pair*** of ON and OFF time is set.		

7.5.5 Screen 4 Messages

MESSAGES POS: XXXXX	
1 View	Move to screen 4-1 View Messages
2 Acknowledge	Messaages in log are cancelled, press ESC to exit after cancel is confirmed
3 Delete	Move to screen 4-3

- Screen 4-1 View Messages

MESSAGES POS: XXXXX	
Error text 1:	Fault message Fault 1
dd.mm.yy hh:mm ON	Start of Fault 1
dd.mm.yy hh:mm OFF	End of Fault 1 (only when Fault 1 has ended)
...	
Error text n:	Fault message Fault n
dd.mm.yy hh:mm ON	Start of Fault n
dd.mm.yy hh:mm OFF	End of Fault n (only when Fault n has ended)

- Screen 4-2 Cancel Messages

This displays the *Alarms Cancelled!* message.

- Screen 4-3 Delete Messages

MESSAGES POS: XXXXX		Entry
Delete ! Are you sure ? No: ESC YES: ↵	Safety prompt for deleting messages; press ESC to exit after confirming or cancelling delete	↵, ESC

7.5.6 Screen 5 Archive

ARCHIVE POS: XXXXX	
dd.mm.yy hh:mm	Time of archiving Data Record 1
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, s. Anmerkung *); shown only when two-zone operation is set (Screen 6-1)
...	
dd.mm.yy hh:mm	Time of archiving Data Record n
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, s. Anmerkung *); shown only when two-zone operation is set (Screen 6-1)

*) Status abcdef covers follwing states of refrigeration point. The entry at this position is - when a state is not active.

	Single-zone operation	Two-zone operation
a	O = Operation	O = Operation
b	R = Refrigeration/ Cooling	R = Refrigeration/ Cooling
c	D = Defrost	R = Refrigeration/ Cooling
d	G = Gate/ Door (coldroom controller only)	D = Defrost
e	A = Alarm	G = Gate/ Door (coldroom controller only)
f		A = Alarm

7.5.7 Screen 6 Configuration

CONFIGURAT POS: XXXXX	
1 Refriger. Point	Move to screen 6-1
2 Controller	Move to screen 6-2
3 Cooling	Move to screen 6-3
4 Language	Move to screen 6-4
5 Alarm priorities	Move to screen 6-5
6 Em.Powersupply	Move to screen 6-6

- Screen 6-1 Refrigeration Point

REFR. PT. POS: XXXXX		Entry	Default
Refr. Pt. Name:	Text only		
xxxxxxxxxxxxxxx	Free text entry describing refrigeration point (see note at end of table)		Case Controller
Item ID: XXXXX	Free text entry shown after Position (POS:) in screens (see note at end of table)		UA300
Priority: XX	Priority of alarms in failure of refrigeration point or when setting global controller priority (Screen 6-5)	↑, ↓, or numbers (0..99)	1
Refr. Sys. No.: XX	Pack No. of pack controller assigned to case controller. The UA 300 E cannot receive the suction pressure value for control functions before the Pack No. of the associated pack controller has been selected on the case controller	↑, ↓, or numbers (--, 1..9)	--
Refr. Sys. Type XXX	Allocation to compressor pack. Parameter only required for linking to VS 3010 BS with several zones. Deactivate this parameter (---) when using pack controllers of other type.	↑, ↓, or numbers (---, Z1, Z2)	Z2

Temp. Zones X	Number of temperature zones. Single-zone operation Two-zone operation	↑, ↓, or numbers (1, 2)	2
No. Sensors XX	Displays number of temperature sensors connected. After pressing ↵, sensor scan is performed and number of sensors is redefined.	↵	

It must be ensured that the correct pack number has been selected, i.e. the correct Refr. Sys. type has been set, otherwise this can result in damage to the installation or goods. Furthermore, the parameter *Corr.off* t_0 (menu 6-3) must not be set to "--" if the t_0 from the pack controller is to be used for regulating.

A meaninful name that describes the refrigeration point in more detail should be entered, e.g. Cheese Counter 2 and CC2. Entry is made in the screens on Store Computer or Alarm Terminal. Direct entry cannot be made in the UA 300 E screens displayed on the operator terminal. Entry cannot be made either on the hand setup unit.

- Screen 6-2 Controller

CONTROLLER POS: XXXXX	
1 Type and Version	Move to screen 6-2-1
2 Temp. Display	Move to screen 6-2-2
3 Alarm Delay	Move to screen 6-2-3
4 230V Inputs	Move to screen 6-2-4
5 Sensor Type	Move to screen 6-2-5
6 eev ctrlr zone1	Move to screen 6-2-6; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)
7 eev ctrlr zone2	Move to screen 6-2-7; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)

- Screen 6-2-1 Type and Version

VERSION POS: XXXXX			Entry	Default
Ctrlr. Type	XXXXXXX	Set on DIP Switch S3		UR141TE
Software Ver.:	XXXX	Software version of case controller (EPROM)		
Serial No.:	XXXXXX	Device No. of case controller (from EEPROM)		
Master/Sl. Mode	XXX	Synchronisierte Abtauung im Master-/Slave-Modus	↑, ↓, (OFF/ON)	OFF

- Screen 6-2-2 Temperature Display

DISPLAY POS: XXXXX			Entry	Default
Offset	XX K	Offset for temperature display	-10..10	0 K
Alarmsymbol	XX	Show alarm symbol on BT 30 Temperature Display	↑, ↓, (OFF/ON)	N

- Screen 6-2-3 Alarm Delay

ALARMDELAY POS: XXXXX			Entry	Default
Sensor Fault	XX m	Sensor break alarm delay	0..30	15 min
High/Low Temp.	XX m	High/low temperature alarm delay	0..150	90 min
Door Open	XX m	Alarm time delay for open coldroom door (also acts on automatic starting of cooling and fan). This alarm is active only when the corresponding digital input D21/D22 or D31/D32 is set to DOOR CONTACT (Screen 6-2-4)	0..60	60 min
No Defrost	XX h	No defrost alarm delay	--, 2..168	30 h
Selfholding	N	Alarm latching with manual alarm cancelling (YES) or automatic cancelling on send (NO)	↑, ↓, (Y/N)	N

- Screen 6-2-4 230V Inputs

Only trained personnel should be allowed to change inputs, as changes can affect other functions.

230V INPUT POS: XXXXX			Entry	Default
Entry1: XXXXXXXXXX		Function of Input 1 D11/D12		DEFR.TIMER
Entry2: XXXXXXXXXX		Function of Input 2 D21/D22	TOGGLE SETP. or DOOR CONTACT	TOGGLE SETP.
Entry3: XXXXXXXXXX		Function of Input 3 D31/D32	MANUAL OFF or DOOR CONTACT	DOOR CONTACT

- Screen 6-2-5 Sensor Type

Selection is made according to entry. Checkmark shows current setting.

SENSORS POS: XXXXX			Entry	Default
L243	√	Temperature range -50 °C .. 50 °C	↵	√
K277		Temperature range -50 °C .. 50 °C	↵	
5K3A1		Temperature range 0 °C .. 100 °C	↵	

- Screen 6-2-6 EEV Controller Zone 1

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 1 POS: XXXXX			Entry	Default
Pc Z 1:	XX.XX	Temperature control Zone 1, P-part	0..99.99	7.00
Ic Z 1:	XX.XX	Temperature control Zone 1, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 1:	XX.XX	Temperature control Zone 1, D-part	0..99.99	5.00
offs OD cab.	XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %
Psh Z 1:	XX.XX	Superheat control Zone 1, P-part	0..99.99	5.00
Ish Z 1:	XX.XX	Superheat control Zone 1, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 1:	XX.XX	Superheat control Zone 1, D-part	0..99.99	5.00
offs OD SH	XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD	XX %	Maximum emergency valve opening position	0..50	20 %
delay min SH	XX s	Delay on drop of superheat below set minimum	9..600	9 sec
setuptime	XX.X m	Setup time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be less than the current "*inject.time*" parameter, otherwise the smallest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	2.0 min
inject.time	XX.X m	Injection time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be greater than the current "*setuptime*" parameter, otherwise the largest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	1.0 min
OD over CAN	XXX	Transmit valve opening position via CAN bus	↑, ↓, (OFF/ON)	ON
15s Archiv	X	Set archiving interval on Store Computer to 15 sec	↑, ↓, (Y/N)	N
OD 3s interv	XXX	Select interval for output of opening position. OFF = 6s ON = 3s Control is suspended for 6 seconds when toggling.	↑, ↓, (OFF/ON)	OFF
Reset I-Sum	XXX	Reset I-sum (to zero) if superheat drops below set minimum for longer than time set by "delay min SH" parameter. OFF = I-sum not reset to zero ON = I-sum is reset to zero	↑, ↓, (OFF/ON)	ON
edit op.deg.	XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF

EEV ZONE 1 POS: XXXXX		Entry	Default
op.deg. Z 1 XXX %	Current valve opening position Zone 1; can be edited when manual entry is activated	0..100	Default by controller
Maximum OD xxx %	Sets an upper limit to the opening degree output by the case controller	20..100	100%
Lo Temp to xxK	Monitoring of the t_0 transmitted by the pack controller for unsuitably low values	10..60, --	28K
to VS corr. XXX °C	Displays current corrected suction pressure temperature on pack controller (assigned by Pack No.)		

- Screen 6-2-7 EEV Controller Zone 2

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 2 POS: XXXXX		Entry	Default
Pc Z 2: XX.XX	Temperature control Zone 2, P-part	0..99.99	7.00
Ic Z 2: XX.XX	Temperature control Zone 2, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 2: XX.XX	Temperature control Zone 2, D-part	0..99.99	5.00
offs OD cab. XX %	Percentage valve opening position offset for temperature control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	30 %
Psh Z 2: XX.XX	Superheat control Zone 2, P-part	0..99.99	5.00
Ish Z 2: XX.XX	Superheat control Zone 2, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 2: XX.XX	Superheat control Zone 2, D-part	0..99.99	5.00
offs OD SH XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD XX %	Maximum valve opening position	0..50	20 %
delay min SH XX s	Delay on drop of superheat below set minimum	9..600	9 sec
edit op.deg. XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 2 XXX %	Current valve opening position Zone 2; can be edited when manual entry is activated	0..100	Default ctrlr.

- Screen 6-3 Cooling

COOLING POS: XXXXX		Entry	Default
corr.off to XX K	Correction offset for pressure loss in suction line **IMPORTANT:** in stand alone operation must be set to "--"!	--, 0..20	2 K
Cont Cool Mon. XX m	Continuous run monitoring	--, 0..15	0 min

- Screen 6-4 Language

Selection is made according to entry. Checkmark shows current setting.

LANGUAGE POS: XXXXX			Entry	Default
Deutsch	D √		↵	√
English	GB		↵	
Francais	F		↵	
Finnish	FIN		↵	
Cesky	CZ		↵	

- Screen 6-5 Alarm priorities

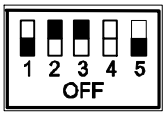
ALARMPRIOS POS: XXXXX		Entry	Default
Prio.Refrig. Pt. X	Global setting of alarm priority via refrigaration point priority (Screen 6-1) (Y)	↑, ↓, (Y/N)	Y
Priority: XX	Displays refrigeration point priority (Screen 6-1); only shown when refrigeration point priority is set to Y		
Following parameters are only shown when refrigeration point priority is set to N. Meaning of valid entries for alarm priority is as follows: *- = Event ignored* *0 = Message (enterd only in message log)* *1 = Priority 1 alarm* *..* *99 = Priority 99 alarm*			
Low Temp.	Temperature below low alarm limit. Priority applies to alarms *Low Temp. Zone 1, Low Temp. Zone 2*	-, 0..99	1
High Temp.	Temperature above high alarm limit. Priority applies to alarms *High Temp. Zone 1, High Temp. Zone 2*	-, 0..99	1
Sensor Fault	Temperature sensor failure	-, 0..99	1
Door Open	Coldroom door open longer than time delay; pririty applies to *Coldroom Door Open* alarm	-, 0..99	1
No Defrost	No defrost within alarm delay time. Priority applies to *No Defrost* alarm	-, 0..99	0
Timer-Term. Defrost	Defrosting terminated by safe defrost time	-, 0..99	0
Power Failure	Start following power failure	-, 0..99	0
First Start	Controller Startup (basic settings are loaded!)	-, 0..99	1
Manual Shutoff	Manual switch Input D31/D32 set OFF	-, 0..99	0
Hardware Fault	Internal hardware defect. Priority applies to alarms *EEPROM Defective, RTC Defective, Flash Memory Defective*	-, 0..99	1
Setpoint Change	Message generated when changing setpoints	0..99	0
Refrig.Pt.Dis.	Cooling interrupted by VS pack controller via CAN bus	-, 0..99	0
Battery Voltage	Battery low	-, 0..99	0
Check t0	t_0 not received via CAN bus. Priority applies to alarms *No t0 Zone 1, No t0 Zone 2*	-, 0..99	1
Sensor Fault eev	EEV Control sensor failure. Priority applies to alarms *Sensor Break EEV Z1, Sensor Break EEV Z2*	-, 0..99	1

ALARMPRIOS POS: XXXXX		Entry	Default
eev ctrl block	EEV control stalled. Priority applies to alarms *EEV Stall Detect Z1, EEV Stall Detect Z2*	-, 0..99	0
wrong ctrlr type	Configuration error: Invalid controller type set on DIP Switch S3. Priority applies to *Wrong Controller Type* alarm	-, 0..99	1
emerg.cut-out SH	Superheat drop below minimum level for duration of delay time	-, 0..99	0
OD manual	Valve opening position defined by manual entry. Priority applies to alarms *VO Manual Zone 1, VO Manual Zone 2*	-, 0..99	0
config:M/S w HG	Configuration error: Simultaneous setting of parameters for master-slave mode and discharge gas defrosting	-, 0..99	1
Check OD	Alarm due to implausible opening position	-, 0..99	1

- Maske 6-6 Em.Powersupply (Emergency Power supply)

EM.POW.SUP POS: XXXXX		Entry	Default
Cool.funct.OFF xxx	Functionality of the cooling switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Defr.funct.OFF xxx	Functionality of the defrosting switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Fan funct. OFF xxx	Functionality of the fan switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N

7.6 Controller Type UK 100 E - Menu tree



1: OFF
2: ON
3: ON
4: ON/OFF = Master-/Slave-Mode ON/OFF
5: OFF

Level 1	Level 2	Level 3	Screen No.	Screen Name
Main Menu			0	REFR. PT.
Actual Values			1	ACT VALUES
	Temperature Sensors		1-1	TEMPERATUR
	Cooling Zone 1		1-2	COOLING 1
	Defrost Zone 1		1-3	DEFROST 1
	Alarm		1-5	ALARM
	Cooling Zone 2		1-7	COOLING 2
	Defrost Zone 2		1-8	DEFROST 2
Setpoints			2	SETPOINTS
	Cooling		2-1	COOLING
		Zone 1	2-1-1	COOLING 1
		Zone 2	2-1-2	COOLING 2
		Zone 1T Toggle	2-1-3	COOLING 1A
		Zone 2T Toggle	2-1-4	COOLING 2A
	Defrost		2-2	DEFROST
		Zone 1	2-2-1	DEFROST 1
		Zone 2	2-2-2	DEFROST 2
		Zone 1T Toggle	2-2-3	DEFROST 1A
		Zone 2T Toggle	2-2-4	DEFROST 2A
	Alarm		2-4	ALARM
		Zone 1	2-4-1	ALARM 1
		Zone 2	2-4-2	ALARM 2
		Zone 1T Toggle	2-4-3	ALARM 1A
		Zone 2T Toggle	2-4-4	ALARM 2A
Clock			3	Clock
	Current Time		3-1	CLOCK
	Defrost Timer		3-2	DEFR.TIMER
	Setpoint Toggle		3-3	TOGGLE

Level 1	Level 2	Level 3	Screen No.	Screen Name
Messages			4	MESSAGES
	View Messages		4-1	MESSAGES
	Cancel Messages		4-2	MESSAGES
	Delete Messages		4-3	MESSAGES
Archive			5	ARCHIVE
Configuration			6	CONFIGURAT
	Refrigeration Point		6-1	REFR. PT.
	Controller		6-2	CONTROLLER
		Type and Version	6-2-1	VERSION
		Temperature Display	6-2-2	DISPLAY
		Alarm Delay	6-2-3	ALARMDELAY
		230V Inputs	6-2-4	230V INPUT
		Sensor Type	6-2-5	SENSORS
		EEV Controller Zone 1	6-2-6	EEV ZONE 1
		EEV Controller Zone 2	6-2-7	EEV ZONE 2
	Cooling		6-3	COOLING
	Language		6-4	LANGUAGE
	Alarm Priorities		6-5	ALARMPRIOS
	Em.Powersupply		6-6	EM.POW.SUP

7.6.1 Screen 0 Main Menu

REFR. PT. POS: XXXXX	
1 Actual Values	Move to screen 1
2 Setpoints	Move to screen 2
3 Clock	Move to screen 3
4 Messages	Move to screen 4
5 Archive	Move to screen 5
6 Configuration	Move to screen 6

7.6.2 Screen 1 Actual Values

ACT VALUES POS: XXXXX	
1 Temp. Sensor	Move to screen 1-1
2 Cooling Zone 1	Move to screen 1-2
3 Defrost Zone 1	Move to screen 1-3
4	
5 Alarm	Move to screen 1-5
6	
7 Cooling Zone 2	Move to screen 1-7: Menu item is shown only when two-zone operation is set (Screen 6-1).
8 Defrost Zone 2	Move to screen 1-8: Menu item is shown only when two-zone operation is set (Screen 6-1).

- Screen 1-1 Temperature Sensors

TEMPERATUR	XXXXX	
Temp. R4.1	XXX °C	Displays current refrigerant temperature Input Z21/Z22
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R5.1	XXX °C	Displays current evaporator inlet temperature Input Z41/Z42
Temp. R6.1	XXX °C	Displays current evaporator outlet temperature Input Z51/Z52
Temp. R4.2	XXX °C	Displays current refrigerant temperature Input Z71/Z72
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Temp. R5.2	XXX °C	Displays current evaporator inlet temperature Input Z91/Z92
Temp. R6.2	XXX °C	Displays current evaporator outlet temperature Input Z01/Z02
to VS corr.	XXX °C	Displays current corrected suction pressure temperature on VS pack controller (assigned by Pack No.)

- Screen 1-2 Cooling Zone 1

COOLING 1	XXXXX	
Cooling	XXX	Displays current OFF/ON status of cooling
op.deg. Z 1	XX %	Displays current valve opening position Zone 1
OD med. 24h	XX %	Displays mean valve opening position Zone 1 for past day
Temp. R4.1	XXX °C	Displays current refrigerant temperature Input Z21/Z22
Setpoint R4.1	XXX °C	Displays refrigerant temperature setpoint for comparison
Hystersis R4.1	XXX K	Displays refrigerant temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)
SH Z 1	XXX °C	Displays current superheat temperature Zone 1
sup air ctrl	XXX	Displays current OFF/ON status of supply or refrigerant control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode
Status light	XXX	Status lighting control (ON/OFF)

- Screen 1-3 Defrost Zone 1

DEFROST 1	XXXXX	
Defrost	XXX	Displays current OFF/ON status of Defrost Relay 1
Temp. R1.1	XXX °C	Displays current evaporator defrost termination temperature Input Z31/Z32
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82; shown only when single-zone operation is set (Screen 6-1)
Def. End. Tmp.	XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time	XX m	Displays waiting time setpoint
Drip Time	XX m	Displays drip time setpoint
Last Defrst	XX hh:mm	Displays time (day, time of day) of last defrost cycle started

- Screen 1-4 Not used with this controller type.

- Screen 1-5 Alarm

ALARM	XXXXX	
Alarm Relay	XXX	Displays current OFF/ON status of alarm output Terminal 15/16/18
Hi Temp Setp.1	XX °C	Displays high temperature setpoint Zone 1
Lo Temp Setp.1	XX K	Displays low temperature setpoint Zone 1
Hi Temp Setp.2	XX °C	Displays high temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)
Lo Temp Setp.2	XX K	Displays low temperature setpoint Zone 2; shown only when two-zone operation is set (Screen 6-1)

- Screen 1-6 Not used with this controller type.

- Screen 1-7 Cooling Zone 2

COOLING 2	XXXXX	
Cooling	XXX	Displays current OFF/ON status of cooling
op.deg. Z 2	XX %	Displays current valve opening position Zone 2
OD med. 24h	XX %	Displays mean valve opening position Zone 2 for past day
Temp. R4.2	XXX °C	Displays current refrigerant temperature Input Z71/Z72
Setpoint R4.2	XXX °C	Displays refrigerant temperature setpoint for comparison
Hystersis R4.2	XXX K	Displays refrigerant temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)
SH Z 2	XXX °C	Displays current superheat temperature Zone 2
sup air ctrl	XXX	Displays current OFF/ON status of supply or refrigerant control
MOP op.	XXX	Displays OFF/ON setpoint of MOP mode

- Screen 1-8 Defrost Zone 2

DEFROST 2	XXXXX	
Defrost	XXX	Displays current OFF/ON status of Defrost Relay 2
Temp. R1.2	XXX °C	Displays current evaporator defrost termination temperature Input Z81/Z82
Def. End. Tmp.	XXX °C	Displays defrost termination temperature setpoint for comparison
Wait Time	XX m	Displays waiting time setpoint
Drip Time	XX m	Displays drip time setpoint
Last Defrst	XX hh:mm	Displays time (day, time of day) of last defrost cycle started

7.6.3 Screen 2 Setpoints

SETPOINTS POS: XXXXX	
1 Cooling	Move to screen 2-1; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-1-1
2 Defrost	Move to screen 2-2; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-2-1
3	
4 Alarm	Move to screen 2-4; **Special case:** When one-zone (tandem) operation is set (Screen 6-1) and setpoint toggle is deactivated (Screen 3-3), Continue to 2-4-1

- Screen 2-1 Cooling

COOLING POS: XXXXX	
1 Zone 1	Move to screen 2-1-1
2 Zone 2	Move to screen 2-1-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-1-3; not shown when setpoint toggle is deactivated (Screen 3-3)
3 Zone 2T Toggle	Move to screen 2-1-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-1-1 Zone 1

COOLING 1 POS: XXXXX			Entry	Default
Setpoint R4.1	XXX °C	Refrigerant temperature setpoint	--, -45..40	5 °C
Hystersis R4.1	X K	Refrigerant temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..10	2 K
Superheat	XXX K	Superheat setpoint Zone 1	0..20	8 K
Min. SH	XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 1. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-2 Zone 2

COOLING 2 POS: XXXXX			Entry	Default
Setpoint R4.2	XXX °C	Refrigerant temperature setpoint	--, -45..40	5 °C
Hystersis R4.2	X K	Refrigerant temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..10	2 K
Superheat	XXX K	Superheat setpoint Zone 2	0..20	8 K
Min. SH	XX K	Minimum superheat setpoint, below which cooling relay switches off in Zone 2. I-sum (not I-part) is set to zero when the *Reset I-Sum* parameter is set to ON.	0..10	2 K
Two pos.ctrl	XXX	Switch between on-off control (ON) and continuous control (OFF)	↑, ↓ (OFF/ON)	OFF
MOP-point	XXX °C	Starting setpoint for MOP mode	--, -50..50	-- °C

- Screen 2-1-3 Zone 1T Toggle

COOLING 1A POS: XXXXX			Entry	Default
Setpoint R4.1	XXX °C	Refrigerant temperature setpoint	--, -45..40	5 °C
Hystersis R4.1	X K	Refrigerant temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-1)	1..10	2 K

- Screen 2-1-4 Zone 2T Toggle

COOLING 2A POS: XXXXX			Entry	Default
Setpoint R4.2	XXX °C	Refrigerant temperature setpoint	--, -45..40	5 °C
Hystersis R4.2	X K	Refrigerant temperature hysteresis setpoint; shown only when on-off control is set (Screen 2-1-2)	1..10	2 K

- Screen 2-2 Defrost

DEFROST POS: XXXXX	
1 Zone 1	Move to screen 2-2-1
2 Zone 2	Move to screen 2-2-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-2-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-2-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-2-1 Zone 1

DEFROST 1 POS: XXXXX		Entry	Default
Def. End. Tmp. XX °C	Defrost termination temperature setpoint	--, 0..30	-- °C
Wait Time XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-2 Zone 2

DEFROST 2 POS: XXXXX		Entry	Default
Def. End. Tmp. XX °C	Defrost termination temperature setpoint	--, 0..30	-- °C
Wait Time XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-3 Zone 1T Toggle

DEFROST 1A POS: XXXXX		Entry	Default
Def. End. Tmp. XX °C	Defrost termination temperature setpoint	--, 0..30	-- °C
Wait Time XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-2-4 Zone 2T Toggle

DEFROST 2A POS: XXXXX		Entry	Default
Def. End. Tmp. XX °C	Defrost termination temperature setpoint	--, 0..30	-- °C
Wait Time XX m	Waiting time setpoint between cooling and defrost	0..15	0 min
Drip Time X m	Waiting time (drip time) setpoint between defrost and cooling	0..15	0 min

- Screen 2-3 Not used with this controller type.

- Screen 2-4 Alarm

ALARM POS: XXXXX	
1 Zone 1	Move to screen 2-4-1
2 Zone 2	Move to screen 2-4-2; shown only when two-zone operation is set (Screen 6-1)
3 Zone 1T Toggle	Move to screen 2-4-3; not shown when setpoint toggle is deactivated (Screen 3-3)
4 Zone 2T Toggle	Move to screen 2-4-4; shown only when two-zone operation is set (Screen 6-1) and when setpoint toggle is not deactivated (Screen 3-3)

- Screen 2-4-1 Zone 1

ALARM 1 POS: XXXXX			Entry	Default
High Temp Setp	XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-35..45	45 °C
Low Temp Setp.	XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..10	-- K

- Screen 2-4-2 Zone 2

ALARM 2 POS: XXXXX			Entry	Default
High Temp Setp	XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-35..45	45 °C
Low Temp Setp.	XX K	Sollwert Temperatur (Differenz unter dem Sollwert der Temperaturregelung), bei dem der Alarm *Untertemperatur* ausgelöst wird	--, 0..10	-- K

- Screen 2-4-3 Zone 1T Toggle

ALARM 1A POS: XXXXX			Entry	Default
High Temp Setp	XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-35..45	45 °C
Low Temp Setp.	XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..10	-- K

- Screen 2-4-4 Zone 2T Toggle

ALARM 2A POS: XXXXX			Entry	Default
High Temp Setp	XX °C	High temperature setpoint at which *High Temperature* alarm is generated	-35..45	45 °C
Low Temp Setp.	XX K	Temperature setpoint (difference below temperature control setpoint) at which *Low Temperature* alarm is generated	--, 0..10	-- K

7.6.4 Screen 3 Clock

CLOCK POS: XXXXX	
1 Current Time	Move to screen 3-1
2 Defrost Timer	Move to screen 3-2
3 Toggle Setpoints	Move to screen 3-3

- Screen 3-1 Current Time

Time is defined by time master (CI 3000, AL 300) when CAN bus is connected. Any entry made will then be overwritten by the defined value.

CLOCK POS: XXXXX		Entry	Default
Date: XX dd.mm.yy	Display and entry of current weekday, date	dd.mm.yy	
Time: hh.mm	Display and entry of current time	hh.mm	
Daylight Saving X	Display and entry of automatic daylight saving time change (Y/N)	↑, ↓, (N/Y)	Y

- Screen 3-2 Defrost Timer

DEFR.TIMER POS: XXXXX		Entry	Default
Defrost Timer XXX	Defrost initiation via Input D11/12 (EXT) oder internal (INT)	↑, ↓, (EXT, INT)	EXT
Safe Defr Time XXX m	Safe defrost time, i.e. max. allowed duration of defrosting (internal defrost only); shown only when internal defrost is activated (Screen 3-2)	0..120	60 min
Manual Defrost XXX	Status (OFF/ON) of auxiliary manual defrost *)	↑, ↓, (OFF/ON)	OFF

*) Parameter is **NOT** automatically set to ON at first start

- Screen 3-3 Toggle Setpoints

TOGGLE POS: XXXXX		Entry	Default
Status XXX	Setpoint toggle for alternative set of setpoints (setpoint set toggle)		
Toggle Setp. XXX	Setpoint toggle via Input D21/D22 (EXT), internal (INT) or deactivated (--). When entering EXT, make sure that the corresponding digital input D21/D22 is set to SETP. TOGGLE (Screen 6-2-4)	↑, ↓, (EXT, INT, --)	EXT
Toggle interv. X m	The interval for the cyclical toggling between standard and alternative setpoint data records; only appears when the internal setpoint toggling is activated (menu 3-3).	--, 10..60	-- min
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Mo-Su 21:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)		Mo-Su 05:00
Alt ON: xxxxx hh:mm	Start time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)	↑, ↓, (Mo-Su) or numbers (hh:mm)	Su 05:00
AltOFF: xxxxx hh:mm	End time for toggle to alternative set of setpoints, weekday from-to DD-DD, time hh:mm; shown only when internal setpoint toggle is activated (Screen 3-3)		Su 21:00
...	A total of 7 different ON, OFF toggle times can be entered. Toggle time will only be obeyed when a ***matched pair*** of ON and OFF time is set.		

7.6.5 Screen 4 Messages

MESSAGES POS: XXXXX	
1 View	Move to screen 4-1 View Messages
2 Acknowledge	Messaages in log are cancelled, press ESC to exit after cancel is confirmed
3 Delete	Move to screen 4-3

- Screen 4-1 View Messages

MESSAGES POS: XXXXX	
Error text 1:	Fault message Fault 1
dd.mm.yy hh:mm ON	Start of Fault 1
dd.mm.yy hh:mm OFF	End of Fault 1 (only when Fault 1 has ended)
...	
Error text n:	Fault message Fault n
dd.mm.yy hh:mm ON	Start of Fault n
dd.mm.yy hh:mm OFF	End of Fault n (only when Fault n has ended)

- Screen 4-2 Cancel Messages

This displays the *Alarms Cancelled!* message.

- Screen 4-3 Delete Messages

MESSAGES POS: XXXXX		Entry
Delete ! Are you sure ? No: ESC YES: ↵	Safety prompt for deleting messages; press ESC to exit after confirming or cancelling delete	↵, ESC

7.6.6 Screen 5 Archive

ARCHIVE POS: XXXXX	
dd.mm.yy hh:mm	Time of archiving Data Record 1
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, s. Anmerkung *); shown only when two-zone operation is set (Screen 6-1)
...	
dd.mm.yy hh:mm	Time of archiving Data Record n
Zone 1: abcdef x °C	Status and temperature of Zone 1, see note *)
Zone 2: abcdef x °C	Status und Temperatur von Zone 2, s. Anmerkung *); shown only when two-zone operation is set (Screen 6-1)

*) Status abcdef covers follwing states of refrigeration point. The entry at this position is - when a state is not active.

	Single-zone operation	Two-zone operation
a	O = Operation	O = Operation
b	R = Refrigeration/ Cooling	R = Refrigeration/ Cooling
c	D = Defrost	R = Refrigeration/ Cooling
d	G = Gate/ Door (coldroom controller only)	D = Defrost
e	A = Alarm	G = Gate/ Door (coldroom controller only)
f		A = Alarm

7.6.7 Screen 6 Configuration

CONFIGURAT POS: XXXXX	
1 Refriger. Point	Move to screen 6-1
2 Controller	Move to screen 6-2
3 Cooling	Move to screen 6-3
4 Language	Move to screen 6-4
5 Alarm priorities	Move to screen 6-5
6 Em.Powersupply	Move to screen 6-6

- Screen 6-1 Refrigeration Point

REFR. PT. POS: XXXXX		Entry	Default
Refr. Pt. Name:	Text only		
xxxxxxxxxxxxxx	Free text entry describing refrigeration point (see note at end of table)		Case Controller
Item ID: XXXXX	Free text entry shown after Position (POS:) in screens (see note at end of table)		UA300
Priority: XX	Priority of alarms in failure of refrigeration point or when setting global controller priority (Screen 6-5)	↑, ↓, or numbers (0..99)	1
Refr. Sys. No.: XX	Pack No. of pack controller assigned to case controller. The UA 300 E cannot receive the suction pressure value for control functions before the Pack No. of the associated pack controller has been selected on the case controller	↑, ↓, or numbers (--, 1..9)	--
Refr. Sys. Type XXX	Allocation to compressor pack. Parameter only required for linking to VS 3010 BS with several zones. Deactivate this parameter (---) when using pack controllers of other type.	↑, ↓, or numbers (---, Z1, Z2)	Z2

Temp. Zones X	Number of temperature zones. Single-zone operation (tandem mode) Two-zone operation	↑, ↓, or numbers (1, 2)	2
No. Sensors XX	Displays number of temperature sensors connected. After pressing ↵, sensor scan is performed and number of sensors is redefined.	↵	

It must be ensured that the correct pack number has been selected, i.e. the correct Refr. Sys. type has been set, otherwise this can result in damage to the installation or goods. Furthermore, the parameter *Corr.off* t_0 (menu 6-3) must not be set to "--" if the t_0 from the pack controller is to be used for regulating.

A meaninful name that describes the refrigeration point in more detail should be entered, e.g. Cheese Counter 2 and CC2. Entry is made in the screens on Store Computer or Alarm Terminal. Direct entry cannot be made in the UA 300 E screens displayed on the operator terminal. Entry cannot be made either on the hand setup unit.

- Screen 6-2 Controller

CONTROLLER POS: XXXXX	
1 Type and Version	Move to screen 6-2-1
2 Temp. Display	Move to screen 6-2-2
3 Alarm Delay	Move to screen 6-2-3
4 230V Inputs	Move to screen 6-2-4
5 Sensor Type	Move to screen 6-2-5
6 eev ctrlr zone1	Move to screen 6-2-6; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)
7 eev ctrlr zone2	Move to screen 6-2-7; shown only when Superuser mode is activated on Store Computer (see Section 12.6 Operation of UA 300 E)

- Screen 6-2-1 Type and Version

VERSION POS: XXXXX		Default
Ctrlr. Type XXXXXXX	Set on DIP Switch S3	UK100E
Software Ver.: XXXX	Software version of case controller (EPROM)	
Serial No.: XXXXXX	Device No. of case controller (from EEPROM)	

- Screen 6-2-2 Temperature Display

DISPLAY POS: XXXXX		Entry	Default
Offset XX K	Offset for temperature display	-10..10	0 K
Alarmsymbol XX	Show alarm symbol on BT 30 Temperature Display	↑, ↓, (OFF/ON)	N

- Screen 6-2-3 Alarm Delay

ALARMDELAY POS: XXXXX			Entry	Default
Sensor Fault	XX m	Sensor break alarm delay	0..30	15 min
High/Low Temp.	XX m	High/low temperature alarm delay	0..150	90 min
No Defrost	XX h	No defrost alarm delay	--, 2..168	--- h
Selfholding	N	Alarm latching with manual alarm cancelling (YES) or automatic cancelling on send (NO)	↑, ↓, (Y/N)	N

- Screen 6-2-4 230V Inputs

Only trained personnel should be allowed to change inputs, as changes can affect other functions.

230V INPUT POS: XXXXX		Entry	Default
Entry1: XXXXXXXXXX	Function of Input 1 D11/D12		DEFR.TIMER
Entry2: XXXXXXXXXX	Function of Input 2 D21/D22	TOGGLE SETP.	TOGGLE SETP.
Entry3: XXXXXXXXXX	Function of Input 3 D31/D32	MANUAL OFF	MANUAL OFF

- Screen 6-2-5 Sensor Type

Selection is made according to entry. Checkmark shows current setting.

SENSORS POS: XXXXX			Entry	Default
L243	√	Temperature range -50 °C .. 50 °C	↵	√
K277		Temperature range -50 °C .. 50 °C	↵	
5K3A1		Temperature range 0 °C .. 100 °C	↵	

- Screen 6-2-6 EEV Controller Zone 1

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 1 POS: XXXXX			Entry	Default
Pc Z 1:	XX.XX	Refrigeration temperature control Zone 1, P-part	0..99.99	4.00
Ic Z 1:	XX.XX	Refrigerant temperature control Zone 1, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 1:	XX.XX	Refrigerant temperature control Zone 1, D-part	0..99.99	5.00
offs OD cab.	XX %	Percentage valve opening position offset for refrigerant temperature control. If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
Psh Z 1:	XX.XX	Superheat control Zone 1, P-part	0..99.99	5.00
Ish Z 1:	XX.XX	Superheat control Zone 1, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10

EEV ZONE 1 POS: XXXXX			Entry	Default
Dsh Z 1:	XX.XX	Superheat control Zone 1, D-part	0..99.99	5.00
offs OD SH	XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD	XX %	Maximum emergency valve opening position	0..50	10 %
delay min SH	XX s	Delay on drop of superheat below set minimum	9..600	9 sec
setuptime	XX.X m	Setup time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be less than the current "*inject.time*" parameter, otherwise the smallest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	1.0 min
inject.time	XX.X m	Injection time following the switching on of the controller or following a defrost or in the event of a blockade of the regulation. The value entered must not be greater than the current "*setuptime*" parameter, otherwise the largest valid value will be used. Further details about "Fixed valve opening position in pumpdown/feed-in phase" see chapter 3.4.7.	0..100.0	0.5 min
OD over CAN	XXX	Transmit valve opening position via CAN bus	↑, ↓, (OFF/ON)	ON
15s Archiv	X	Set archiving interval on Store Computer to 15 sec	↑, ↓, (Y/N)	N
OD 3s interv	XXX	Select interval for output of opening position. OFF = 6s ON = 3s Control is suspended for 6 seconds when toggling.	↑, ↓, (OFF/ON)	OFF
Reset I-Sum	XXX	Reset I-sum (to zero) if superheat drops below set minimum for longer than time set by "delay min SH" parameter. OFF = I-sum not reset to zero ON = I-sum is reset to zero	↑, ↓, (OFF/ON)	ON
edit op.deg.	XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 1	XXX %	Current valve opening position Zone 1; can be edited when manual entry is activated	0..100	Default by controller
Maximum OD	xxx %	Sets an upper limit to the opening degree output by the case controller	20..100	100%
Lo Temp to	xxK	Monitoring of the t0 transmitted by the pack controller for unsuitably low values	10..60, --	28K
to VS corr.	XXX °C	Displays current corrected suction pressure temperature on pack controller (assigned by Pack No.)		

- Screen 6-2-7 EEV Controller Zone 2

This screen is only displayed when Superuser mode is activated. See Section Operation of UA 300 E.

EEV ZONE 2 POS: XXXXX			Entry	Default
Pc Z 2:	XX.XX	Refrigerant temperature control Zone 2, P-part	0..99.99	4.00
Ic Z 2:	XX.XX	Refrigerant temperature control Zone 2, I-part If parameter I_c is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.30
Dc Z 2:	XX.XX	Refrigerant temperature control Zone 2, D-part	0..99.99	5.00
offs OD cab.	XX %	Percentage valve opening position offset for refrigerant temperature control. If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
Psh Z 2:	XX.XX	Superheat control Zone 2, P-part	0..99.99	5.00
Ish Z 2:	XX.XX	Superheat control Zone 2, I-part If parameter I_{sh} is reduced, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..99.99	0.10
Dsh Z 2:	XX.XX	Superheat control Zone 2, D-part	0..99.99	5.00
offs OD SH	XX %	Percentage valve opening position offset for superheat control If offset is changed, internal learned value (sum of I-part) is deleted and re-learned in due course.	0..100	10 %
emerg.c-o OD	XX %	Maximum valve opening position	0..50	10 %
delay min SH	XX s	Delay on drop of superheat below set minimum	9..600	9 sec
edit op.deg.	XXX	Manual entry of valve opening position	↑, ↓, (OFF/ON)	OFF
op.deg. Z 2	XXX %	Current valve opening position Zone 2; can be edited when manual entry is activated	0..100	Default ctrlr.

- Screen 6-3 Cooling

COOLING POS: XXXXX			Entry	Default
corr.off to	XX K	Correction offset for pressure loss in suction line **IMPORTANT:** in stand alone operation must be set to "--"!	--, 0..20	1 K

- Screen 6-4 Language

Selection is made according to entry. Checkmark shows current setting.

LANGUAGE POS: XXXXX				
Deutsch	D	√		↵	√
English	GB			↵	
Francais	F			↵	
Finnish	FIN			↵	
Cesky	CZ			↵	

- Screen 6-5 Alarm priorities

ALARMPRIOS POS: XXXXX		Entry	Default
Prio.Refrig. Pt. X	Global setting of alarm priority via refrigaration point priority (Screen 6-1) (Y)	↑, ↓, (Y/N)	Y
Priority: XX	Displays refrigeration point priority (Screen 6-1); only shown when refrigeration point priority is set to Y		
Following parameters are only shown when refrigeration point priority is set to N. Meaning of valid entries for alarm priority is as follows: *- = Event ignored* *0 = Message (enterd only in message log)* *1 = Priority 1 alarm* *..* *99 = Priority 99 alarm*			
Low Temp.	Temperature below low alarm limit. Priority applies to alarms *Low Temp. Zone 1, Low Temp. Zone 2*	-, 0..99	1
High Temp.	Temperature above high alarm limit. Priority applies to alarms *High Temp. Zone 1, High Temp. Zone 2*	-, 0..99	1
Sensor Fault	Temperature sensor failure	-, 0..99	1
Door Open	Coldroom door open longer than time delay; pririty applies to *Coldroom Door Open* alarm	-, 0..99	1
No Defrost	No defrost within alarm delay time. Priority applies to *No Defrost* alarm	-, 0..99	0
Timer-Term. Defrost	Defrosting terminated by safe defrost time	-, 0..99	0
Power Failure	Start following power failure	-, 0..99	0
First Start	Controller Startup (basic settings are loaded!)	-, 0..99	1
Manual Shutoff	Manual switch Input D31/D32 set OFF	-, 0..99	0
Hardware Fault	Internal hardware defect. Priority applies to alarms *EEPROM Defective, RTC Defective, Flash Memory Defective*	-, 0..99	1
Setpoint Change	Message generated when changing setpoints	0..99	0
Refrig.Pt.Dis.	Cooling interrupted by VS pack controller via CAN bus	-, 0..99	0
Battery Voltage	Battery low	-, 0..99	0
Check t0	t_0 not received via CAN bus. Priority applies to alarms *No t0 Zone 1, No t0 Zone 2*	-, 0..99	1
Sensor Fault eev	EEV Control sensor failure. Priority applies to alarms *Sensor Break EEV Z1, Sensor Break EEV Z2*	-, 0..99	1
eev ctrl block	EEV control stalled. Priority applies to alarms *EEV Stall Detect Z1, EEV Stall Detect Z2*	-, 0..99	0
wrong ctrlr type	Configuration error: Invalid controller type set on DIP Switch S3. Priority applies to *Wrong Controller Type* alarm	-, 0..99	1
emerg.cut-out SH	Superheat drop below minimum level for duration of delay time	-, 0..99	0
OD manual	Valve opening position defined by manual entry. Priority applies to alarms *VO Manual Zone 1, VO Manual Zone 2*	-, 0..99	0

ALARMPRIOS POS: XXXXX		Entry	Default
config:M/S w HG	Configuration error: Simultaneous setting of parameters for master-slave mode and discharge gas defrosting	-, 0..99	1
Check OD	Alarm due to implausible opening position	-, 0..99	1

- Maske 6-6 Em.Powersupply (Emergency Power supply)

EM.POW.SUP POS: XXXXX		Entry	Default
Cool.funct.OFF xxx	Functionality of the cooling switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Defr.funct.OFF xxx	Functionality of the defrosting switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N
Fan funct. OFF xxx	Functionality of the fan switched off during emergency power supply? (Y/N)	↑, ↓, (Y/N)	N

Notice:

8 Alarms and Messages of UA 300 E

The following table lists all fault reports that may be generated and their possible cause. Each fault is assigned a priority that can be set in the *Alarm Priorities* screen (Menu 6-5).

No.	Message	Cause	Correction
Hardware faults			
4	EEPROM Fault	Module for storage of configuration defective or configuration data in EEPROM not plausible.	Save parameters in LDSWin, where necessary initiate first start and reload parameters from LDSWin. If fault recurs, replace module.
6	Flash Fault	Flash memory defective.	Please contact Service Organization -Replace device
8	RTC Fault	Real-time clock defective.	Please contact Service Organization -Replace device
10	Battery Voltage	Battery to back up real-time clock and working memory is dead.	Replace battery (see Section 4 - Installation and Startup)
Messages			
50	First Start	Controller performed restart after power outage	--
51	Power Failure	Controller performed first start (basic settings loaded / sensor scan performed).	Check 230 V power supply.
120	Low Temp. Zone 1	Temperature below lower limit on monitored control sensors of Zone 1.	Check parameter setting, sensors, system
121	Low Temp. Zone 2	Temperature below lower limit on monitored control sensors of Zone 2.	Check parameter setting, sensors, system
122	High Temp Zone 1	Temperature above upper limit on monitored control sensors of Zone 1.	Check parameter setting, sensors, system
123	High Temp Zone 2	Temperature above upper limit on monitored control sensors of Zone 2.	Check parameter setting, sensors, system
124	Door open	Coldroom door 1 open beyond alarm interval 1; coldroom controllers only.	Close door, check door switch or connecting cable
125	No Defrost	Defrosting not performed within alarm interval.	Check parameter settings: Defrost timer internal/external, defrost times, alarm delay time.
126	Timer-Term. Defrost	Defrosting terminated by safe defrost time. Heater defective, contactor defective, evaporator iced.  Defrosting may be terminated by the safe defrost time one controllers designed for off-cycle defrosting. As a result, these controllers may regularly report the fault without it actually existing.	Check parameter settings: Low defrost termination temperature. Check evaporator for icing. Check location of defrost sensor. Set defrost termination temperature to "--".
127	Manual Shutoff	*Manual Shutdown* digital input actuated.	--

No.	Message	Cause	Correction
Messages			
128	Sensor Fault	Sensor disconnected, short-circuited or corrupted by external interference. Temperature on sensor outside set measuring range. Monitoring is performed on required or optional sensors recognized by controller as result of sensor scan.	Check connecting cable. Check cable shielding. Replace sensor(s) concerned.
131	Controle DO	Control state obtained at which valve opening position is no longer plausible.	Check refrigeration point/controller for: - Electrical connection of cooling relay - Correct mechanical closing and opening of liquid solenoid valve. Where necessary, check control sensors for wiring fault.
138	Check to: Zone1	Suction pressure data not received by case controller from VS pack controller	Check Pack No. of case controller. Check setting of Corr.off. to parameter. Check CAN bus. See also section 3.20 Low temperature monitoring.
138	Check to: Zone2		
139	sens.fault eev Z1	Break on sensors required for EEV control.	Replace defective sensors.
139	sens.fault eev Z2		
140	eev ctrl block Z1	*Stall Detect* has occurred 3 times in succession and not corrected internally by controller.	Check correct position of control sensor. This fault report may occur when operating superheat control with two temperature sensors without t_0 via CAN bus although the fault does not exist. Alarm can then be removed by setting priority to 0.
140	eev ctrl block Z2		
141	wrong ctrlr type	Controller type set on DIP switch is not supported.	Change controller type (see section 4. Setting Controller Type)
142	emerg.cutout SH Z1	Expansion valve closes due to temperature below emergency superheating level longer than set delay.	Check correct location of superheat control sensor.
142	emerg.cutout SH Z2		
143	DO manual zone 1	Control function deactivated. Opening position defined manually.	--
143	DO manual zone 2		
144	Config.: M/S w HG	Master/slave mode and discharge gas defrosting started simultaneously.	Check configuration. In master/slave mode, defrost relays are cut out only by temperature or safe defrost time. By contrast, in discharge gas defrosting the relays are also cut out when defrost command from pack controller via CAN is absent. These two conditions are irreconcilable.
189	Refrig. Pt. Disabl.	Refrigeration point enabling disabled.	--
240	Setpoint Change	Setpoint changed.	--

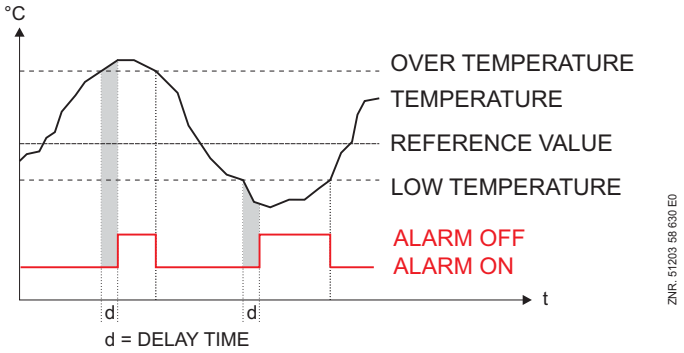
8.1 Alarms

Coldroom door open alarm (controller type UR 141 NE, UR 141 TE)

Alarm is generated if the coldroom door remains open for an adjustable time.

High or low temperature alarm

Alarm is generated due to high or low temperature if the set alarm temperature is obtained on a supply air or return air sensor and the set time delay has expired.



The high temperature setpoint is entered in °C while the low temperature setpoint is entered as the difference to the cooling setpoint in K. High and low temperature setpoints can be set separately for each temperature zone. The time delay is common to all.

With controller type UA 141 E the return air coolers are monitored only for the supply air low temperature setpoint. With all other controller types no differentiation is made between sensor type for alarm.

This alarm is deactivated during defrosting. Any time delay that has expired in the meantime is reset at the start of defrosting and recommences at zero on completion of defrosting.

No defrost alarm

Alarm is generated if defrosting does not take place within an adjustable time. No alarm is generated if defrosting is suppressed due to high temperature or by demand defrosting.

So as to avoid false alarm, the time delay for **No Defrost** alarm should not be set too short (**No Defrost** parameter in Menu 6-2-3). When the maximum interval between two set defrost times is 48 hours, for example (Menu 3-2), the **No Defrost** alarm time delay must be set at least one hour longer, i.e. to 49 hours.

Low superheat alarm

Alarm is generated if superheat falls below the set lower limit for longer than 10 minutes after closing is completed.

Sensor break alarm

Alarm is generated after the set time delay if the controller detects sensor break or short circuit.

Sensor break alarm is always generated in the case of sensors required for control functions. Sensor break is only alarmed on optional sensors when these sensors are not removed from monitoring by sensor scan (Menu 6-1).

Suppression of sensor break alarm during defrosting

While defrosting is in progress, temperature sensors and particularly the evaporator sensors may become heated to a temperature above the limits of the case/coldroom controller's temperature detection range. Sensor break alarm is accordingly suppressed for the duration of defrosting so as to avoid signalling of false alarms. The following conditions apply:

- Sensor break alarm effective prior to defrosting is NOT suppressed.
- Sensor break alarm takes place with the set delay during any drain time that may be defined.
- Sensor break occurring during defrosting and persisting beyond termination of defrosting is alarmed when the set delay expires.
- Sensor break alarm suppression is effective with all types of defrost (internal, external, discharge gas, manual and master/slave defrosting).
  With internal and manual defrosting, sensor break alarm is suppressed for the complete safe defrost time regardless of defrosting terminating before that.

In the most unfavorable instance, sensor break alarm is merely postponed. The longest possible delay would be (2 * $T_{Sensor\ break\ delay}$) + $T_{Defrost}$

If the delay time for the sensor failure alarm is set to zero minutes there is no alarm suppression and the alarm is generated immediately following detection of the sensor failure.
This setting is **not** recommended for the continuous operation of the controller!

No required sensor alarm

Sensor Break EEV Z1/2 alarm is generated if the controller detects that sensors required for control are not connected (evaporator outlet sensor; evaporator inlet sensor when t_0 is not received from VS pack controller; return air and supply air sensor simultaneously). This alarm is generated at the set controller priority without time delay. The alarm also prevents initiation of defrosting.

Stall detect alarm

EEV control stalled. This alarm is generated when the *Stall Detect* state occurs over a period of 3 restart repeats x 10 minutes = 30 minutes. Alarm is generated with Prio 0.

Implausible opening position alarm

Check OP alarm is generated in occurrence of either of the following conditions:

- Superheating drops below the minimum level for 30 minutes and defrosting is not due.
- 100% valve opening position is maintained for 30 minutes while temperature on sensor R5.x is greater than the return air setpoint. No alarm takes place if sensor R5.x is not connected, regardless of 100% opening position being maintained longer than 30 minutes.

Check OP alarm can be configured. Default setting is Priority 1.

Priority of this alarm should be set to ”0” in on-off control mode so as to avoid false alarms.

Hardware alarm

Alarm is generated without time delay if the controller detects a hardware problem. Malfunction of following components is detected:

- Temperature measurement
- t_0 not received (alarmed with Prio 0 if control can continue at least with R5.x, otherwise with priority of controller)
- General fault
- Loss of setpoint (memory problem)
- Time/date
- First start

Priority for transmission of alarm depends on the controller priority and type of alarm.

Individual setting of priority

Version 1.10 and later of the UA 300 E allows of setting separate priority for most alarms. This permits specific signalling of alarm destinations and matching of alarms to individual requirements. Controller priority is used when the *Case Controller Prio* parameter is set to *YES* (Menu 6-5). It is also used at all times for alarming controller failure by the Store Computer.

The range of priority settings is 0 to 99, which means that it is now possible to distinguish among as many as 99 alarm destinations. The separate alarms (except refrigeration point priority and setpoint change) can also be set to ”--” so as to remove them entirely from the alarm system.

Individual priorities can be set after setting the *Refrigeration Point Priority* parameter to *NO*. When set to *YES*, alarm priorities are assigned at the refrigeration point priority according to the previous scheme. This simplifies configuration for standard applications.

Alarms are assigned as follows when applying global priority:

Global priority alarms	Priority 0 alarms
Low temperature	No defrost (UR 141 TE and UK 100 E only)
High temperature	Timer-terminated defrosting
Sensor break	Power failure
Coldroom door open (coldroom controllers only)	Manual shutdown
No defrost (all except UR 141 TE, UK 100 E)	Setpoint changed
First start	Refrigeration point disabled
EEPROM defective	Low battery power
RTC defective	Stall detect
Flash defective	Ermergency close
t_0 not received	Manual valve opening position
EEV sensor break	
Wrong controller type	
Hot gas with master/slave set Check opening position	

Special condition: With controllers of type UR 141 TE and UK 100 E, the priority for *No Defrost* alarm is set to zero while the setting is equal to the global controller priority for all other controller types.

If an alarm of controller priority greater than 0 is active and this priority is set to 0 before the alarm is tagged as sent, the controller will be unable to reset the alarm on the Store Computer. It is therefore recommended to restart the controller after changing alarm priority to 0 or to make sure that alarms are not active at the time they are changed.

When using the case controller with CI 3000 Store Computers without extended assignment of priority, the priorities may only be assigned between 0 and 2 or as -- (see CI 3000 Store Computer User Guide for assigning priority). Alarm action of the Store Computer (especially with regard to assigning priorities to alarm destinations) is not defined if parameters are set incorrectly. This applies also to refrigeration point priority.

Alarm signalling routes

When an alarm state is detected, it is transmitted by the UA 300 E case controller by the following routes:

- Alarm relay (floating changeover contact)
- BT 300x local set-up unit connected to display interface
- CAN bus (LDS System)

Termination of alarm

The conditions for terminating an alarm may be selected from either of two basic methods:

- Automatic reset of all alarms after the cause of fault is corrected
- Manual reset of all alarms after the cause of fault is corrected

Manual reset can be performed as follows:

- Via the CAN bus interface.
- Via a BT 300x local set-up unit connected to the display interface.
- Via the manual shutdown input (230 V input). This can also be done while the alarm is still active.
- By shutting down the controller. This can also be done while the alarm is still active.

8.2 Messages

States constituting abnormal working conditions but not an alarm state are reported via the interfaces and entered in the fault report list.

Examples of such messages:

- Power failure
- Setpoint change
- Manual shutdown
- Termination of defrosting by safe defrost time
- Failure of evaporating pressure measurement (detected and signalled by VS 3010 pack controller via CAN bus)
- Reporting of manual adjustment of valve opening position (in Superuser mode only). If the user switches to manual definition of valve opening position, control is interrupted and a warning message (Prio 0) is entered in the fault report list.

8.3 Transient alarms and messages

Transient alarms are alarms for one-time events and are not tagged with a send time stamp. As a result, transient alarms are not automatically cancelled after the alarm event and always need to be cancelled manually. This applies regardless of the setting made for *Selfhold* (Menu 6-2-3).

The following are transient alarms:

- Time termination of defrosting
- Setpoint change
- Power failure
- First start

8.4 Fault report list

A maximum of 25 alarms and messages with *Receive* and *Send* date and time are stored in a ring buffer. When the memory is full, each new entry received overwrites the oldest entry.

Notice:

9 Specifications of UA 300 E

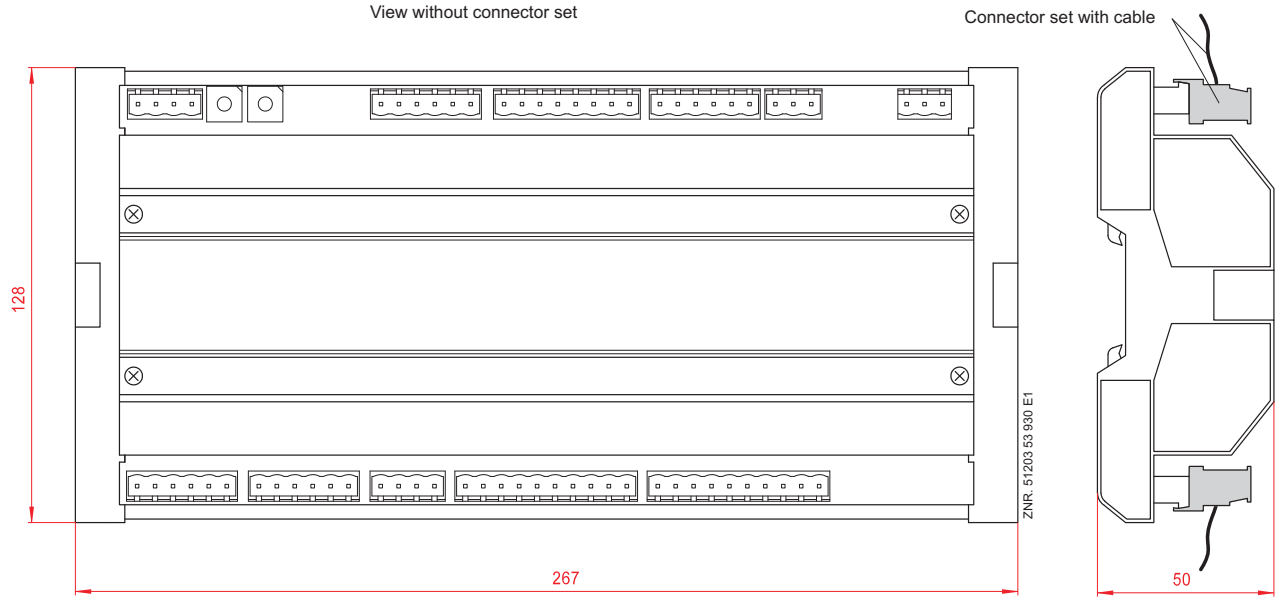
9.1 Electrical data

	UA 300 E
Power supply	U_{Nom} = 230 V AC, 200 V AC - 265 V AC, 50/60 Hz (+/- 3 Hz)
Rated power	10 VA
Leakage current over PE	Max. 1 mA
Outputs	**Relay**: 5 x 250 V AC, 6 A (4 N.O., 1 C.O.) floating Transverse voltage between outputs max. 400 V AC **Semiconductor relay, N.O.**: 2 x 250 V AC, 1 A, Requires external 1.25 A very fast acting (FF) fuse, rated voltage 250 V AC, with << 10.4 A^2s and trip time < 10 ms at 8.0 A (e.g., SIBA No. 70 001 40)
Transistor outputs	2 x 24 V DC pulldown, Switching transistor with internal current limiting to 50 mA for lighting control
Digital inputs	3 x 230 V AC floating, Transverse voltage between outputs max. 400 V AC
Analog inputs	10 temperature sensors, two-wire type for sensor types L243 / K243, K277, 5K3A1 (No shielding is required on sensor leads when installed exclusively inside the refrigerated display case and when external interference (for example from parallel power wires) is not to be expected)
Fieldbus port	CAN bus, floating
Data ports	BT 300x Operator terminal and up to 4 BT 30 Temperature displays TTY
Archive memory	EU Archive, 1 year
Monitoring function	Watchdog
Realtime clock	Battery-backed, Lithium cell (shelf life 10 years), type CR 2450N, 3V lithium Accuracy: typically 12 min/yr at 25 °C
Temperature range	Transport: -20 °C ... +80 °C / Operation: 0 °C ... +50 °C
Temperature change	Transport: max. 20 K/h / Operation: max. 10 K/h
Relative humidity (non-condensing)	Transport: 8 % ... 80 % / Operation: 20 % ... 80 %
Shock to DIN EN 60068-2-27	Transport and operation: 30 g
Vibration 10 - 150 Hz to DIN EN 60068-2-6	Transport and operation: 2 g
Atmospheric pressure	Transport: 660 hPa ... 1060 hPa / Operation: 860 hPa ... 1060 hPa
Weight	ca. 750 g
Enclosure	IP20
CE conformity	Conforming to EC Directives 73/23/EEC (Low-Voltage Directive) 89/336/EEC (EMC Directive)

9.2 Mechanical data

DIN rail mounting of UA 300 E AC

C stands for *”In Cabinet”*, meaning DIN rail mounting.



10 Order numbers and accessories of UA 300 E

10.1 Controller of the UA 300 E family

Type	Description	Order number
UA 300 E AC	For 2 Electronic Expansion Valves, int. archive, for DIN rail mounting (with CAN bus, real time clock, internal archive)	LIUA3E0015

10.2 Components for UA 300 E

Component	Description		Order number
Temperature sensors (NTC)	L243 (Standard)	3,0 m	KGLZTEMP56
		5,8 m	KGLZTEMP58
	5K3A1	8,5 m	KGLZ5K3A1
	K243	Block sensor (older version)	KGLZL243
BT 300 x Operator Interface and Temperature display	BT 300 M	Operator Interface handheld operating terminal for customer service with 2,8 m connecting cable	LIBDTUA052
	BT 300 S	Operator Interface for panel mounting	LIBT300S51
	BT 300 C	For cabinets and serve over counters	LIBDTUA051
	BT 300 U	Integrated operating terminal	LIBT300U51
BT 30 Temperature display	Temperature display with 7 m connecting cable (RJ45)		BT30LC0002
	RJ45 splitter for the connection of up to four BT 30 on an UA 300 E AC		KGLVERT001
EPROM	EPROM with current firmware		PRUA3E0001
Connector set	Connector set for UA 300 E AC		STVSETUA05
TTY adapter	At the moment not supported		---

Notice: