2 USER INTERFACE

2.1 Introductory comments
The device has the following operating states:
- "on" (power is connected and the device is on; the regulators may be switched on)
- "standby" (power is connected but software sets the device to off: the regulators are switched off; the option of manually switching on/off is therefore not available depending on parameter u2).

While in "standby" mode, the display is off and the regulators are turned off (the display is off and the regulators are turned off).

2.2 Manual switching on/off of the device
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3 for 4 s.

It is also possible to switch the device on/off using the multifunction input.

2.3 The display
- ensure the keyboard is not blocked and that no procedures are running
- press Pb1 for 2 s.

Pressing Pb1 for 2 s will display a list of available labels.

2.4 Displaying the cabinet temperature
- ensure the keyboard is not blocked and that no procedures are running
- press Pb1 for 2 s: the display will show the first available label
- press Pb1 or Pb2 to select "Pb1".

Pressing Pb1 for 2 s will display the first available label.

2.5 Displaying the evaporator temperature
- ensure the keyboard is not blocked and that no procedures are running
- press Pb1 for 2 s: the display will show the first available label
- press Pb2 or Pb3 to select "Pb2".

Pressing Pb2 for 2 s will display the second available label.

2.6 Manual activation of defrosting
- ensure the keyboard is not blocked and that no procedures are running
- press Pb2 or Pb3.

If the defrosting alarm is enabled, pressing Pb2 or Pb3 will activate defrosting.

3 SETTINGS

3.1 Setting the date and time (clock)
- ensure the keyboard is not blocked and that no procedures are running
- press Pb1 for 2 s: the display will show the first available label
- press Pb2 or Pb3 to select "Pb2".

Pressing Pb2 for 2 s will display the second available label.

3.2 Setting the operational setpoint
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the operational setpoint.

3.3 Setting the alarm levels
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm levels.

3.4 Setting the auxiliary output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the auxiliary output.

3.5 Setting the paused output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the paused output.

3.6 Setting the function output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the function output.

3.7 Setting the alarm output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm output.

3.8 Setting the modBUS communication
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the modBUS communication settings.

3.9 Setting the alarm form
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm form settings.

3.10 Setting the alarm time
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm time settings.

3.11 Setting the alarm duration
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm duration settings.

3.12 Setting the alarm level
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm level settings.

3.13 Setting the auxiliary output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the auxiliary output settings.

3.14 Setting the paused output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the paused output settings.

3.15 Setting the function output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the function output settings.

3.16 Setting the alarm output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm output settings.

3.17 Setting the modBUS communication
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the modBUS communication settings.

3.18 Setting the alarm form
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm form settings.

3.19 Setting the alarm time
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm time settings.

3.20 Setting the alarm duration
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm duration settings.

3.21 Setting the alarm level
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm level settings.

3.22 Setting the auxiliary output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the auxiliary output settings.

3.23 Setting the paused output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the paused output settings.

3.24 Setting the function output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the function output settings.

3.25 Setting the alarm output
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm output settings.

3.26 Setting the modBUS communication
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the modBUS communication settings.

3.27 Setting the alarm form
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm form settings.

3.28 Setting the alarm time
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm time settings.

3.29 Setting the alarm duration
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm duration settings.

3.30 Setting the alarm level
- ensure the keyboard is not blocked and that no procedures are running
- press Pb3.

Pressing Pb3 will display the alarm level settings.
3.2 Setting the operational setpoint
- ensure the keyboard is not blocked and that no procedures are running
- press [HACCP] LED or do not operate the keypad for 15 s
- within 15 s also see parameters r1, r2 and r3
- press [HACCP] LED or do not operate the keypad for 15 s
- It is also possible to set the operational setpoint by means of parameter SP.

3.3 Setting the configuration parameters
To access the procedure
- ensure no procedures are running
- press [HACCP] LED or [for 4 s: the display will show 'PA']
- press [HACCP] LED or [for 4 s: the display will show 'SP']
- to select a parameter:
  - press [HACCP] LED or
  - or press [HACCP] LED or
  - press [HACCP] LED or [for 15 s to set '19'
- To select a parameter:
  - press [HACCP] LED or
  - or press [HACCP] LED or
  - press [HACCP] LED or [for 15 s to set '743' and]
- press [HACCP] LED or do not operate the keypad for 15 s
- press [HACCP] LED or [for 4 s: the display will show 'DEP'
- for 4 s, after which the device will exit the procedure
- "Interrupt the power to the device."
- Ensure that the parameter default values are appropriate, particularly if the probes are PTF type.

4. HACCP

4.1 Introductory comments
The device is capable of storing up to 9 HACCP alarms, after which the most recent alarm will overwrite the oldest.

The device can furnish the following information:
- the critical value
- the data and time at which the alarm occurred
- the alarm duration (from 1 minute to 99 hours and 59 minutes, partial if the alarm is ongoing).

Warnings:
- the device records minimum temperature alarms and maximum temperature alarms providing the temperature associated with the alarm is the cabinet temperature (parameters A0 and A3 = 0) or the temperature measured by the auxiliary probe, providing its function is that of display probe (parameter P4 = 1 and parameters A0 a 2 and A3 = 1)
- In order to avoid repeatedly recording power failure alarms, disconnect the device power supply while in stand by mode.
- If the duration of a power failure alarm is such as to cause a clock error, then the device will not provide any information regarding alarm duration
- no alarms will be recorded if the device is in stand-by mode.

When the cause of the alarm is resolved, the display returns to normal, except in the case of a power failure alarm where normal display function must be restored manually.
To restore the normal display manually:
- press any key.
If parameter u1 is set to 4 for the service controlled by the fourth output is the alarm output, then pressing any key will also deactivate the alarm output.
The HACCP LED provides information relating to the status of the HACCP alarm memory, please refer to paragraph 6.1.

4.2 Viewing HACCP alarm information
To access the procedure
- ensure the keyboard is not blocked and that no procedures are running
- press [HACCP] LED or for 2 s: the display will show the first available label
- press [HACCP] LED or [for 2 s: the display will show the first available label
- or press [HACCP] LED or for 2 s: the display will show the selected alarm
- or press [HACCP] LED or for 4 s: the display will show the most recent alarm code, or one of the codes reported in the table in paragraph 4.1 followed by the number ‘1’ [the higher number following the code, the older the alarm].
- To select an alarm:
  - press [HACCP] LED or [to select AH3 (for example)]
  - To display the information relating to the alarm:
  - press [HACCP] LED or the HACCP LED will flash and remain on and the display will show the following information in succession (for example):

5. 6 INDICATORS

6.1 Indicators

LED MEANING
- [Compressor LED on then the compressor is on
- "the operational setpoint is being changed
- compressor protection is ongoing (parameters C0, C1, C2 and HE1)]
- [Defrosting LED if on, defrosting ongoing
- compressor protection is ongoing (parameters C0, C1, C2 and HE1)]
- [Refrigent fluid heating is ongoing (parameter AP4)]
- [If on then the evaporator fan is on
- if flashing, then evaporator fan stop is ongoing (parameter F3)]

HACCP alarm
- if on, you will have shown all the information on the HACCP alarms
- if flashing, the instrument will have stored at least one new HACCP alarm
- if off, you will have shown all the information on the HACCP alarms or you will have cancelled the list of the HACCP alarms.

Maintenance LED
- if on, compressor maintenance will be required (parameter C10)

Alarm LED
- if flashing, the cabinet light will have been turned on remotely (parameter r6)
- if on, the cabinet light will have been switched on manually

Degree Celsius LED
- if on, the unit of measurement for temperature is degrees Celsius (parameter p2)
- if flashing, then the Energy Saving function is in operation (parameters r4, i5, HE1 and HE2)

Degree Fahrenheit LED
- if on, the unit of measurement for temperature is degrees Fahrenheit (parameter p2)
- if flashing, then the Energy Saving function is in operation (parameters r4, i5, HE1 and HE2)

Power alarm LED
- parameter u1 is set to 0 (i.e. the service controlled by the fourth output is the cabinet light).
- if on, the cabinet light will have been switched on manually
- if flashing, the cabinet light will have been turned on remotely (parameter r6)
- if parameter u1 is set to 1, 4, 5, 6 or 7
- if on, the device controlled by the fourth output will be turned on
- if parameter u1 is set to 2 (i.e. the service controlled by the fourth output is the auxiliary output)
- if on, the auxiliary output will have been turned on manually
- if flashing, the auxiliary output will have been turned on remotely (parameter r6)
- if parameter u1 is set to 3 (i.e. the service controlled by the fourth output is compressor 2)
- if on, compressor 2 is on
- if flashing, compressor 2 delay is ongoing (parameter C9)

 Loc the key and/or operational setpoint is blocked (parameter r9), refer to paragraph 2.11

7.1 ALARMS

LED MEANING
- [Minimum temperature alarm (HACCP alarm) Remedies:
- check the alarm temperature
- check parameters A0, A1 and A2
- Main consequences:
- if parameter A0 is set to 0 or if parameter P4 is set to 1 and parameter A4 is set to 2, the device records the alarms
- if parameter u1 is set to 4, the alarm output will be activated]

Maximum temperature alarm (HACCP alarm)
Remedies:
- check the alarm temperature
- check parameters A3, A4 and A5
- Main consequences:
- if parameter A3 is set to 0 or if parameter P4 is set to 1 and parameter A4 is set to 2, the device records the alarms
- if parameter u1 is set to 4, the alarm output will be activated

Input malfunction alarm (HACCP alarm)
Remedies:
- check the causes which activated the input
- check parameters i0, i1, i2 and i3
- Main consequences:
- the outcome set by parameter i0
- if parameter i4 is set to 1, the device records the alarms, providing parameter i2 is not set to -1
- if parameter u1 is set to 4, the alarm output will be activated

Over voltage alarm (HACCP alarm)
Remedies:
- check the source of the power failure
- check parameters i5, i6 and i7
- Main consequences:
- the device records the alarm; see also parameter AA
- if parameter u1 is set to 4, the alarm output will be activated; pressing any key will also deactivate the alarm output

Input malfunction alarm (only if parameter P4 is set to 3)
Remedies:
- check the causes which activated the input
8.1 Internal Diagnostics

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pr1</td>
<td>Cabinet probe error</td>
</tr>
<tr>
<td>Pr2</td>
<td>Evaporator probe error</td>
</tr>
<tr>
<td>Pr3</td>
<td>Auxiliary probe error</td>
</tr>
<tr>
<td>rtc</td>
<td>Clock error</td>
</tr>
</tbody>
</table>

9 TECHNICAL DATA

9.1 Technical data

Case: | Code: Pt 47/10

Front panel protection classification: IP 65.
Connections (use copper conductors only): screw terminal blocks (power supply, inputs and outputs), 6 pin connector (serial port; by request), 4 pin connector (remote indicator; by request), spring extractable terminal blocks (power supply, inputs and outputs) by request.

Operating temperature: from 0 to 55°C (from 32 to 131°F). 100% relative humidity, without condensation.
Power supply: 12 VAC/DC (or 12-24 VAC/DC), 50/60 Hz, 3.5 VA (approximate) or 115 ... 230 VAC, 50/60 Hz, 5 VA (approximate). If the instrument is supplied at 115 ... 230 VAC, protect the power supply with a fuse rated 250 V, 1.25 A, 6 x 32 mm.
Insulation class: 2.

Maintenance of clock data in absence of power supply: 24 hours will battery fully charged.
Battery charge time: 2 minutes without interruptions (the battery is charged by the device power supply).
Alarm buzzer: available by request.
Sensor inputs: 2 (cabinet probe and evaporator probe) for PTC/NTC probes.
Digital inputs: 1 (microport) for N/O contact (clean contact, 5 V, 1 mA); fourth input can be configured as sensor input (display probe or condenser probe, for PTC/NTC probes) or digital input (multifunction, clean contact, 5 V, 1 mA).
Sensor range: from -50.0 to 150.0°C (from -50 to 300°F) for PTC probes, from -40.0 to 105.0°C (from -40 to 220°F) for NTC probes.
Sensitivity: 0.1°C/1°C/1°F.

Digital outputs: 4 relays:
- compressor relay: 16 A res. @ 250 VAC, 5 FLA, 30 URA (exchange contacts)
- defrost relay: 8 A res. @ 250 VAC, 2 FLA, 12 URA (exchange contacts)
- evaporator fan relay: 8 A res. @ 250 VAC, 2 FLA, 12 URA (exchange contacts)
- fourth output: 8 A res. @ 250 VAC, 2 FLA, 12 URA (exchange contacts)

The maximum permitted current on loads is 10 A.
Serial port: port for communicating with the monitoring system (by means of a serial interface, via TTL, using the MODBUS communication protocol) or with the programming key; by request.
Other communication ports: port for communicating with the remote indicator, by request.

When the cause of the alarm has been resolved, the device restores normal operation, except for clock errors (code "rtc") which require the date and time to be reset.

When the parameter was set to 0 via the programming key, the parameter will be set to 0.

When the parameter was set to 1 via the programming key, the parameter will be set to 1.

When the parameter was set to 2 via the programming key, the parameter will be set to 2.

When the parameter was set to 3 via the programming key, the parameter will be set to 3.

When the parameter was set to 4 via the programming key, the parameter will be set to 4.

When the parameter was set to 5 via the programming key, the parameter will be set to 5.

When the parameter was set to 6 via the programming key, the parameter will be set to 6.
### 10.0 Operational Setpoint and Configuration Parameters

#### 10.1 Operational Setpoint

<table>
<thead>
<tr>
<th>PARAM.</th>
<th>MIN.</th>
<th>MAX.</th>
<th>U.O.M.</th>
<th>DEF.</th>
<th>OPERATIONAL SETPOINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>d1</td>
<td>0</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>0°</td>
</tr>
<tr>
<td>d2</td>
<td>-99.0</td>
<td>99.0</td>
<td>°</td>
<td>-</td>
<td>0°</td>
</tr>
<tr>
<td>d3</td>
<td>0</td>
<td>99.0</td>
<td>min</td>
<td>-</td>
<td>0°</td>
</tr>
<tr>
<td>d4</td>
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<td>1</td>
<td>-</td>
<td>-</td>
<td>0°</td>
</tr>
<tr>
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<td>min</td>
<td>-</td>
<td>0°</td>
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<td>d7</td>
<td>0</td>
<td>15</td>
<td>min</td>
<td>-</td>
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</tr>
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<td>d8</td>
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<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>d9</td>
<td>-99.0</td>
<td>99.0</td>
<td>°</td>
<td>-</td>
<td>0°</td>
</tr>
</tbody>
</table>

#### 10.2 Configuration Parameters

<table>
<thead>
<tr>
<th>PARAM.</th>
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<th>MAX.</th>
<th>U.O.M.</th>
<th>DEF.</th>
<th>INGRESSI DI MISURA</th>
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<tbody>
<tr>
<td>C0</td>
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<td>240</td>
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</tr>
<tr>
<td>C1</td>
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<td>°</td>
<td>-</td>
<td>0°</td>
</tr>
<tr>
<td>C2</td>
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<td>°</td>
<td>-</td>
<td>0°</td>
</tr>
<tr>
<td>C3</td>
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<td>min</td>
<td>-</td>
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</tr>
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<td>C4</td>
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<td>-</td>
<td>0°</td>
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<tr>
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<td>-</td>
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<td>-</td>
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</tr>
<tr>
<td>C9</td>
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<tr>
<td>d14</td>
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<td>240</td>
<td>°</td>
<td>-</td>
<td>0°</td>
</tr>
</tbody>
</table>

---

1. **REAL TIME** - defrosting will be activated at the times established by parameters H01 ... H04.
2. **PERIODIC** - defrosting will be activated when the device has been running for the length of time d0.
3. **PERIODIC** - defrosting will be activated when the compressor has been running for the length of time d0.
4. **PERIODIC** - defrosting will be activated when the evaporator temperature remains below the temperature set by d9 for the amount of time et by d0.
5. **REAL TIME** - defrosting will be activated at the times established by parameters H11 ... H14.

---

### 11.0 Temperatures

<table>
<thead>
<tr>
<th>PARAM.</th>
<th>MIN.</th>
<th>MAX.</th>
<th>U.O.M.</th>
<th>DEF.</th>
<th>TEMPERATURE ALARMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0</td>
<td>0</td>
<td>99</td>
<td>°</td>
<td>-</td>
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</tr>
<tr>
<td>A1</td>
<td>0</td>
<td>99</td>
<td>°</td>
<td>-</td>
<td>0°</td>
</tr>
</tbody>
</table>

---

1. **REAL TIME** - defrosting will be activated at the times established by parameters H01 ... H04.
2. **PERIODIC** - defrosting will be activated when the device has been running for the length of time d0.
3. **PERIODIC** - defrosting will be activated when the compressor has been running for the length of time d0.
4. **PERIODIC** - defrosting will be activated when the evaporator temperature remains below the temperature set by d9 for the amount of time et by d0.
5. **REAL TIME** - defrosting will be activated at the times established by parameters H11 ... H14.
**DIGITAL INPUTS**

- **i0**: 0 5 0 = no effect
  0 = effect caused by activation of microport input; see also i4
  1 = the cabinet light will be switched on (only if u1 = 0, until the input is deactivated)
  2 = the evaporator fan will be switched off (for up to the length of time set by i3 or until the input is deactivated)
  3 = the compressor and evaporator fan will be switched off (for up to the length of time set by i3 or until the input is deactivated)
  4 = the evaporator fan will be switched off (for up to the length of time set by i3 or until the input is deactivated) and the cabinet light will be switched on (only if u1 = 0, until the input is deactivated)
  5 = the compressor and evaporator fan will be switched off (for up to the length of time set by i3 or until the input is deactivated) and the cabinet light will be switched on (only if u1 = 0, until the input is deactivated)

- **i1**: 0 1 0 = no effect
  1 = effect caused by activation of the multifunction input (only if P4 = 1)

- **i2**: 0 1.20 min 30 = effect caused by activation of the multifunction input; see also i7, i8 and i9

- **i3**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **i4**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **i5**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **i6**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **i7**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **i8**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **i9**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

**DIGITAL OUTPUTS**

- **u1**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **u2**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **u3**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **u4**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **u5**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **u6**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **u7**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **u8**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)

- **u9**: 0 1 0 = effect caused by activation of multifunction input (only if P4 = 1)
(6) If parameter C1 is set to 0, the cabinet probe error resolution delay will be 2 minutes in any case.

(5) The time period established by the parameter is counted even while in standby mode.

(4) The parameter is even effective after power supply interruption, such as when the device is switched on.

(3) The compressor is switched off 10 s after activation of the input. If the input is activated during defrosting or evaporator fan stop, activation will have no effect on the compressor.

(2) If parameter P3 is set to 0 or 2, the device will operate as though parameter d8 was set to 0.

(1) If parameter P3 is set to 0, the device will operate as though parameter A0 was set to 0, but will not record the alarm.

(6) If, on defrost activation, the compressor on duration is less than the time established by parameter dA, the compressor will remain on for the fraction of time required to complete it.

(5) During defrosting, drip draining and ventilator fan stop, there are no temperature alarms, if said occur following defrost activation.

(4) If, on device start-up, the condenser temperature is already above that established by parameter C7, parameter C8 will have no effect.

(3) If parameter u1 is set to 3, the service controlled by the fourth output will be compressor 2: compressor 1 and compressor 2 are referred to as “compressor”; compressor 2 operates in parallel with compressor 1, regardless of parameter C9.

(2) Set appropriate regulator parameters after altering parameter P2.

(1) The unit of measurement depends on parameter P2.

### Table 1: Device Parameters

<table>
<thead>
<tr>
<th>PARAM</th>
<th>MIN.</th>
<th>MAX.</th>
<th>U.O.M.</th>
<th>DEF.</th>
<th>REAL TIME ENERGY SAVING</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE2</td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>real time Energy Saving function duration; see also P1 and HE1</td>
</tr>
<tr>
<td></td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>real time Energy Saving function is never activated</td>
</tr>
</tbody>
</table>

### Table 2: Device Parameters

<table>
<thead>
<tr>
<th>PARAM</th>
<th>MIN.</th>
<th>MAX.</th>
<th>U.O.M.</th>
<th>DEF.</th>
<th>SERIAL NETWORK (MODBUS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA</td>
<td>1-247</td>
<td>1-247</td>
<td>2</td>
<td>0</td>
<td>device address</td>
</tr>
<tr>
<td>LD</td>
<td>0-2</td>
<td>1-2</td>
<td>2</td>
<td>0</td>
<td>baud rate [0 = 2.400 baud, 1 = 4.800 baud, 2 = 9.600 baud, 3 = 19.200 baud]</td>
</tr>
<tr>
<td>LF</td>
<td>0-2</td>
<td>1-2</td>
<td>2</td>
<td>0</td>
<td>parity</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>none [no parity]</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>odd</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>even</td>
</tr>
</tbody>
</table>

### Table 3: Device Parameters

<table>
<thead>
<tr>
<th>PARAM</th>
<th>MIN.</th>
<th>MAX.</th>
<th>U.O.M.</th>
<th>DEF.</th>
<th>REAL TIME DEFROSTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD1</td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>first real time defrost never activated</td>
</tr>
<tr>
<td>MD2</td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>second real time defrost never activated</td>
</tr>
<tr>
<td>MD3</td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>third real time defrost never activated</td>
</tr>
<tr>
<td>MD4</td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>fourth real time defrost never activated</td>
</tr>
<tr>
<td>MD5</td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>fifth real time defrost never activated</td>
</tr>
</tbody>
</table>

### Table 4: Device Parameters

<table>
<thead>
<tr>
<th>PARAM</th>
<th>MIN.</th>
<th>MAX.</th>
<th>U.O.M.</th>
<th>DEF.</th>
<th>REAL TIME ENERGY SAVING</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>real time defrost activation time [only if d7 = 3]</td>
</tr>
<tr>
<td></td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>second real time defrost activation time [only if d7 = 3]</td>
</tr>
<tr>
<td></td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>third real time defrost activation time [only if d7 = 3]</td>
</tr>
<tr>
<td></td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>fourth real time defrost activation time [only if d7 = 3]</td>
</tr>
<tr>
<td></td>
<td>00:00</td>
<td>23:59</td>
<td>h:min</td>
<td>00:00</td>
<td>fifth real time defrost activation time [only if d7 = 3]</td>
</tr>
</tbody>
</table>

### Table 5: Device Parameters

<table>
<thead>
<tr>
<th>PARAM</th>
<th>MIN.</th>
<th>MAX.</th>
<th>U.O.M.</th>
<th>DEF.</th>
<th>SERIAL NETWORK (MODBUS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>1-247</td>
<td>1-247</td>
<td>2</td>
<td>0</td>
<td>device address</td>
</tr>
<tr>
<td>CD</td>
<td>0-2</td>
<td>1-2</td>
<td>2</td>
<td>0</td>
<td>baud rate [0 = 2.400 baud, 1 = 4.800 baud, 2 = 9.600 baud, 3 = 19.200 baud]</td>
</tr>
<tr>
<td>CF</td>
<td>0-2</td>
<td>1-2</td>
<td>2</td>
<td>0</td>
<td>parity</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>none [no parity]</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>odd</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>even</td>
</tr>
</tbody>
</table>

### Table 6: Device Parameters

<table>
<thead>
<tr>
<th>PARAM</th>
<th>MIN.</th>
<th>MAX.</th>
<th>U.O.M.</th>
<th>DEF.</th>
<th>SERIAL NETWORK (MODBUS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EV</td>
<td>0-1</td>
<td>0-1</td>
<td>1</td>
<td>1</td>
<td>reserved</td>
</tr>
</tbody>
</table>

The device must be disposed of in accordance with local regulations pertaining to the collection of electrical and electronic appliances.