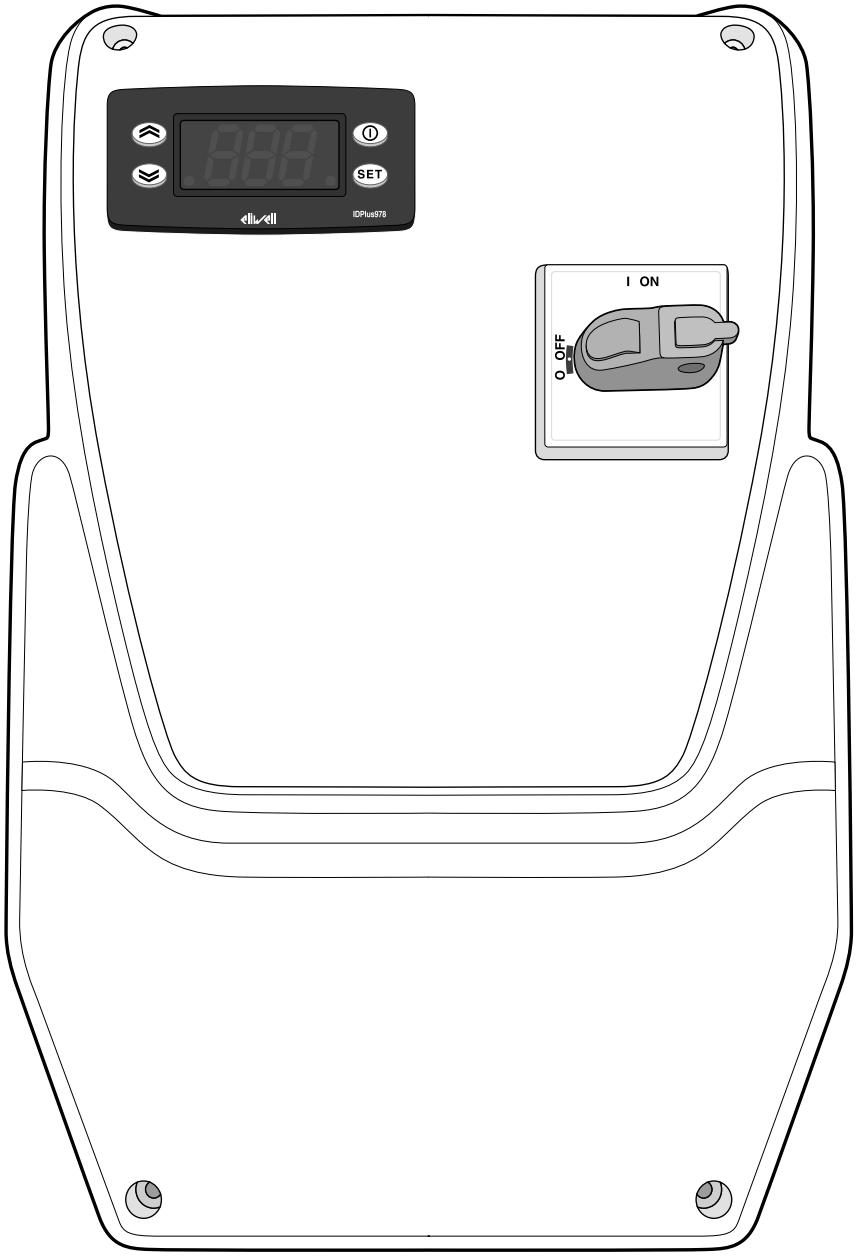
by Schneider Electric

IDPanel 978

User manual

9MA10274.01 06/18

Instructions translated from the original



Information ownership

The information provided in this documentation contains general descriptions and/or technical character-istics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor Eliwell nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Eliwell software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

Contents

Safety information

Important information

Read these instructions carefully and visually inspect the equipment to familiarise yourself with the device before attempting to install it, put it into operation, overhaul or service it. The following warning messages may appear anywhere in this documentation or on the equipment to warn of potential dangers or to call attention to information that can clarify or simplify a procedure.

The addition of this symbol to a danger warning label indicates the existence of an electrical danger that could result in personal injury should the user fail to follow the instructions.

This is the safety warning symbol. It is used to warn the user of the potential dangers of personal injury. Observe all the safety warnings accompanied by this symbol to avoid the risk of serious injury or death.

⚠ DANGER

DANGER indicates a dangerous situation that, unless avoided, **will result in** death or cause serious injuries.

⚠ WARNING

WARNING indicates a potentially dangerous situation which, **if not avoided,** could result in death or serious injury.

⚠ CAUTION

CAUTION indicates a potentially dangerous situation which, **if not avoided,** could result in minor or moderate injury.

NOTICE

NOTICE used in reference to procedures not associated with physical injuries.

NOTE

The electrical panel (device) must be installed and repaired by qualified personnel only. Schneider Electric and Eliwell accept no responsibility for any consequences resulting from the use of this material.

A qualified person is someone who has specific skills and knowiconge regarding the structure and the operation of electrical equipment and who has received safety training on how to avoid the inherent dangers.

Permitted use

This device is used to control cold rooms in commercial refrigeration sectors.

The device must be installed and used in accordance with the instructions provided.

The device must be adequately protected from water and dust with regard to the application and the inside must only be accessible using a keyed or tooled locking mechanism.

Prohibited use

Any use other than that described in the previous paragraph, Permitted Use, is strictly forbidden.

The relays supplied are electromagnetic and the contacts are subject to failure. The protection devices required by product standards, or suggested by good practice in view of obvious safety requirements, must be installed externally of the device.

Liability and residual risks

The liability of Schneider Electric and Eliwell is limited to the correct and professional use of the product according to the directives referred to herein and in the other supporting documents, and does not cover any damage (including but not limited to) the following causes:

- unspecified installation/use and, in particular, in contravention of the safety requirements of established legislation or specified in this document
- use on equipment which does not provide adequate protection against electrocution, water and dust in the actual installation conditions;
- use on equipment in which dangerous components can be accessed without the use of specific tools;
- tampering and / or alteration of the product;
- installation/use on equipment which does not comply with established legislation and technical standards.

Disposal


The device must be subjected to separate waste collection in compliance with the local legislation on waste disposal.

Product related information

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Turn off all devices, including connected devices, before removing any covers or doors, or installing/uninstalling accessories, hardware, cables, or wires.
- To check that the system is powered down, always use a voltmeter properly calibrated to the nominal voltage value.
- Before restarting the unit, replace and secure all covers, hardware accessories, cables, and check for a good ground connection.
- Use this equipment and all connected products only at the specified voltage.
- Comply with all the standards regarding accident protection and the local applicable safety directives.

Failure to follow these instructions will result in death or serious injury.

This equipment has been designed to operate outside of any hazardous location, and exclusive of applications that generate, or have the potential to generate, hazardous atmospheres. Only install this equipment in zones and applications known to be free, at all times, of hazardous atmospheres.

⚠ DANGER

POTENTIAL FOR EXPLOSION

- Install and use this equipment in non-hazardous locations only.
- Do not install and use this equipment in applications capable of generating hazardous atmospheres, such as those applications employing flammable refrigerants.

Failure to follow these instructions will result in death or serious injury.

For information concerning the use of control equipment in applications capable of generating hazardous materials, consult your local, regional, or national standards bureau or certification agency.

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

- The signal cables (probes, digital inputs, communication, and relative power supplies) of the device must be routed separately from the power cables.
- Every implementation of this device must be tested individually and completely in order to check its proper operation before putting it in service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

About the book

Document scope

This document describes the IDPanel 978 electrical panel, including all information on installation and wiring.

Use this document to:

- install, use and maintain the electrical panel.
- connect the electrical panel to a supervisor.
- become familiar with the functions of the electrical panel.

Note: read this document and all related documents carefully before installing, operating or maintaining the electrical panel.

Note regarding validity

This document is valid for the following versions of the IDPanel 978:

- Single-phase, thermal relay 5.5...8 A 230 Vac
- Single-phase, thermal relay 8...11 A 230 Vac
- Three-phase, thermal relay 3.7...5.5 A 400 Vac
- Three-phase, thermal relay 5.5...8 A 400 Vac

The technical characteristics of the devices described in this manual can also be consulted on-line. The characteristics illustrated in this manual should be identical to those which can be consulted on-line.

In line with our policy of continuous improvement, we may revise the contents to improve clarity and accuracy. If you note any discrepancies between the manual and the information consulted on-line, please use the latter as a reference.

Related documents

Document title	Reference document code
User manual IDPanel 978 (this manual)	9MA00274.01 (IT)
	9MA10274.01 (EN)
	9MAA0274.01 (RU)
	9MAU0274.01 (AR)
IDPlus user manual	9MA00053 (IT)
	9MA10053 (EN)
Schneider Electric component documentation	see https://www.schneider-electric.com

You can download these technical publications and other technical information from our website at: www.eliwell.com

Receipt, handling and storage

Storage and handling

Warnings

NOTICE
INOPERABLE DEVICE • Consult the manufacturer and check the warranty conditions if the product must be stored for long periods. • Protect the panel appropriately from humidity, vibrations and knocks. • Check that all the cables are inside the box and that the cover is closed and locked. **Failure to follow these instructions can result in equipment damage.**

Environmental conditions

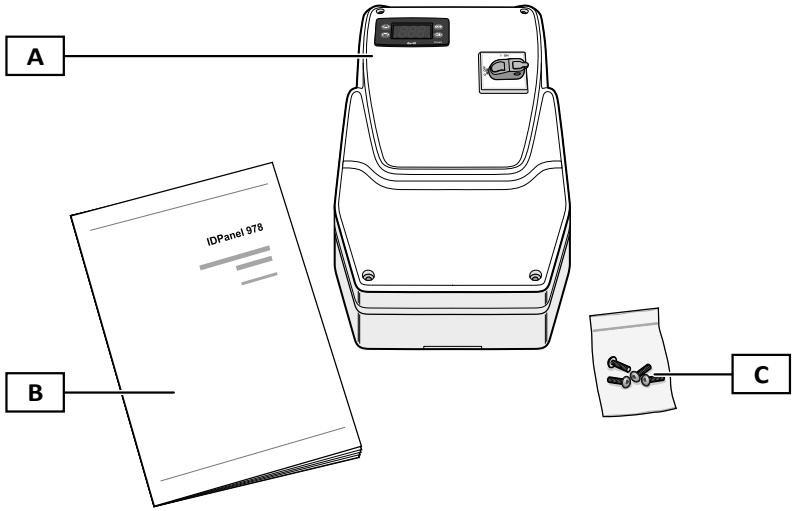
The electrical equipment is designed to withstand the effects of shipping and storage temperatures between -25 °C and +70°C (-13 and 158 °F). For temperatures beyond this range, take appropriate precautions for further protection.

See “Environmental storage conditions” on page 46.

Product identification

Pack contents

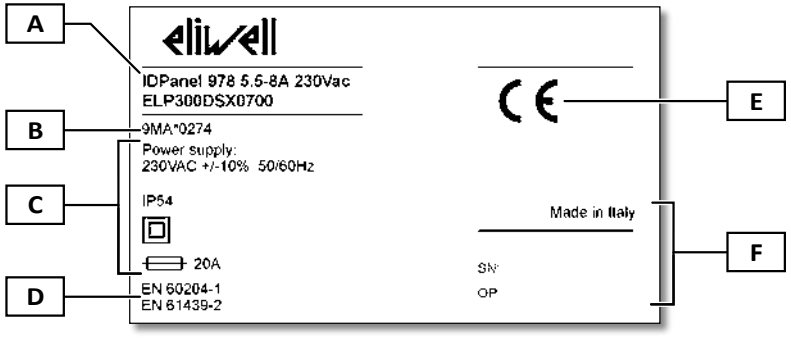
The following elements are supplied in the sales package:



Part	Description
A	IDPanel 978
B	Instruction manual and drilling template (this document)
C	Four screws for closing the panel cover

Identification label

The information contained in the identification label is important for requesting assistance, maintenance or any accessories.



Part	Description
A	Product identification data (name, basic characteristics, code)
B	Reference instruction manual code (this manual)
C	Technical data
D	Reference standards
E	CE marking
F	Production data

Description of the equipment

General description

Introduction

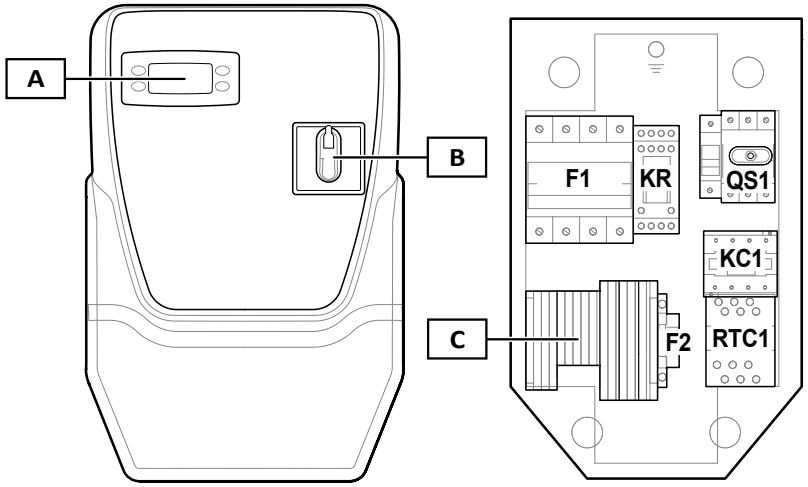
IDPanel 978 is an electrical panel including an electronic controller and electro-mechanical components for controlling both static and ventilated refrigerating units.

Versions

IDPanel 978 is available in several versions, for controlling three-phase or single-phase electric heaters and compressors:

- Single-phase, thermal relay 5.5...8 A 230 Vac
- Single-phase, thermal relay 8...11 A 230 Vac
- Three-phase, thermal relay 3.7...5.5 A 400 Vac
- Three-phase, thermal relay 5.5...6 A 400 Vac

Main components



Part	Description
A	IDPlus 978 electronic controller
B	Disconnector handle
C	Main terminal board
F1	Power component protection fuse holder
KR	Relay with four change-over contacts
QS1	General disconnector with door lock
KC1	Contactor
RTC1	Thermal relay
F2	Controller protection fuse holder

Note: the illustration refers to the three-phase version.

Inputs and outputs

Introduction

Via the controller, the IDPanel 978 manages:

- two probe inputs
- one multi-purpose input (digital or probe) DI1 / Pb3
- one digital input DI2
- four digital outputs
- one TTL serial port

The input and output configuration must be defined when configuring the panel.

Probe input

The probe Pb1 is used for the temperature sensor to control the compressor, the probe Pb2 for the temperature sensor to control the defrost or evaporator fans.

Note: it is possible to connect a probe Pb3, in place of the digital input DI1.

Digital inputs

The digital inputs can be used for:

- energy saving algorithms.
- enabling defrost
- AUX management
- door-switch
- stand-by
- external alarm
- deep cooling
- pressure switch
- HACCP alarms

Note: the digital input DI1 can be used as probe Pb3.

Relay

The four digital outputs can be used to manage:

- evaporator fans
- defrosting element
- compressor
- lights/AUX
- alarm
- stand-by

Digital output 2 and digital output 3 are managed indirectly, respectively via a relay and a contactor plus a thermal relay.

TTL serial port

The TTL serial port has the following functions:

- connect the panel to supervision systems (Televis**System** or other supervisor via Modbus communication) or connect a second digital input.

  Note: communication via a supervisor precludes the use of a second digital input and requires an interface module TTL-RS485 Bus**Adapter** 150 (optional).
- use the Copy Card (optional) to configure the controller.

Parameters

The parameters

The input and output configuration and operating logics of the controller are defined via the parameters available directly on the interface.

The controller is pre-configured with a parameters map. The map values can be edited and reset if necessary.

Visibility of parameters

The parameters have two levels of visibility:

- **User**: parameters for basic controller configuration. They may be protected by the user password **PA1** and are given in the “User parameter table” on page 52
- **Installer**: organised in folders, including the user parameters and other parameters for advanced controller configuration. They may be protected by the installer password **PA2** and are given in the “Installer parameter table” on page 54

Applications

Introduction

The applications are sets of default parameters which facilitate the controller set-up. The values of the application are loaded automatically in the parameters map and can then be edited if necessary to better respond to the actual application.

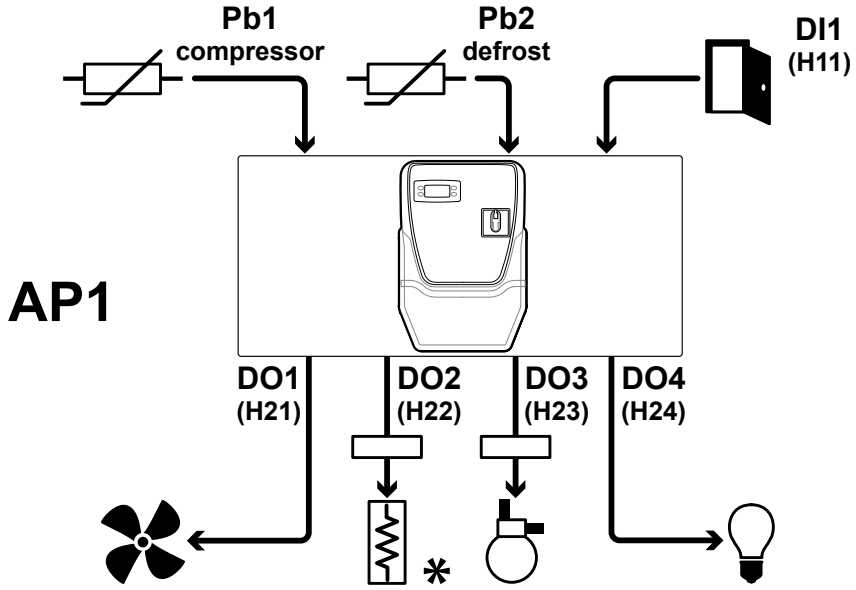
Default applications

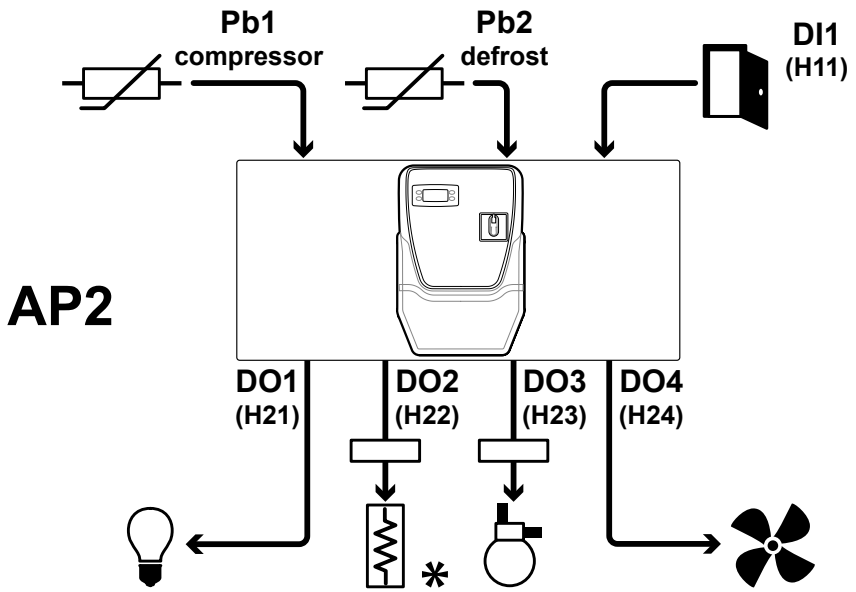
There are four default applications (**AP1**, **AP2**, **AP3**, **AP4**), which are differentiated mainly for the configuration of the digital outputs.

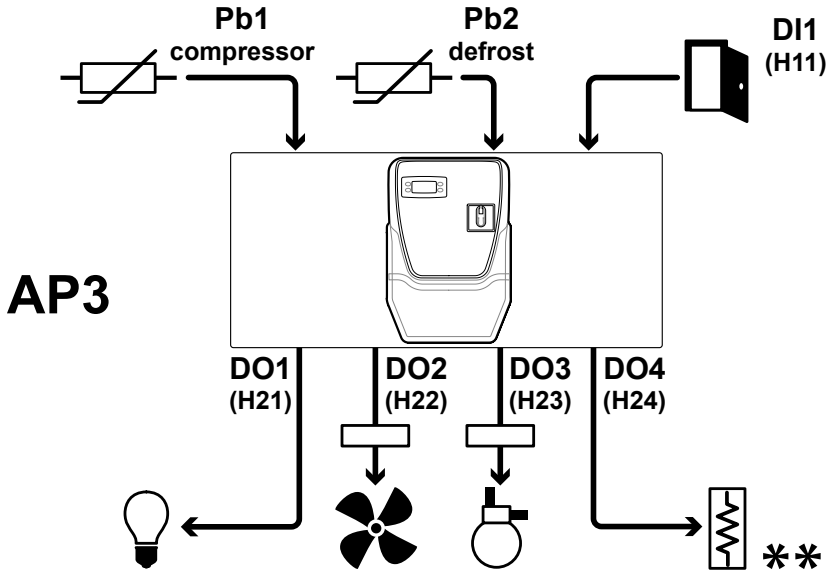
Application AP1 corresponds to the factory settings.

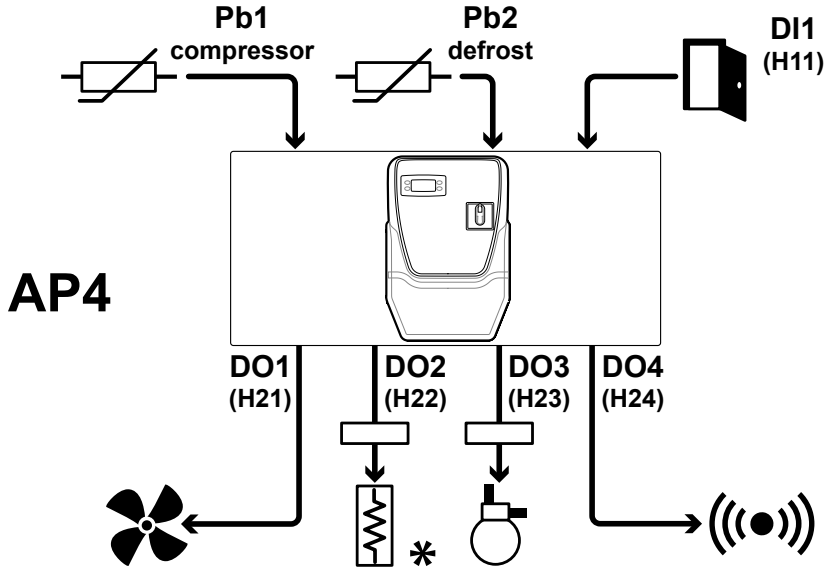
Application	Digital output DO1 parameter H21	Digital output DO2 parameter H22	Digital output DO3 parameter H23	Digital output DO4 parameter H24	Probe Pb1	Probe Pb2	Digital input DI1
AP1	Evaporator fans (**3**)	Defrosting element (**2**)	Compressor (**1**)	Light (**5**)	Compressor	Evaporator	Door-switch
AP2	Light (**5**)	Defrosting element (**2**)	Compressor (**1**)	Evaporator fans (**3**)	Compressor	Evaporator	Door-switch
AP3	Light (**5**)	Evaporator fans (**3**)	Compressor (**1**)	Cycle inversion defrost (**2**)	Compressor	Evaporator	Door-switch
AP4	Evaporator fans (**3**)	Defrosting element (**2**)	Compressor (**1**)	Alarm (**4**)	Compressor	Evaporator	Door-switch

To know the default values of the applications for all parameters, see the “Installer parameter table” on page 54.


AP1
Pb1
compressor
Pb2
defrost
DI1
(H11)
DO1
(H21)
DO2
(H22)
DO3
(H23)
DO4
(H24)
*


AP2
Pb1
compressor
Pb2
defrost
DI1
(H11)
DO1
(H21)
DO2
(H22)
DO3
(H23)
DO4
(H24)
*


AP3
Pb1
compressor
Pb2
defrost
DI1
(H11)
DO1
(H21)
DO2
(H22)
DO3
(H23)
DO4
(H24)
**


AP4
Pb1
compressor
Pb2
defrost
DI1
(H11)
DO1
(H21)
DO2
(H22)
DO3
(H23)
DO4
(H24)
*

Legend

Part	Description	Part	Description
compressor	Pb1, temperature sensor for controlling the compressor		Defrosting element **Note ***: electric defrost. **Note ****: inverse cycle defrost.
defrost	Pb2, temperature sensor for controlling the defrost		Compressor
	Door-switch		Light
	Evaporator fans		Alarm

Controller interface

Controller state

Resource controller	Display	Disconnector handle position	Description
On	On	ON	The controller is on in all functions (unless anomalies are reported)
On	“LOC”	ON	Push-button panel locked. The secondary functions (long press) of buttons  ,  and  are disabled and the setpoint value cannot be modified
Stand-by	“OFF”	ON	The controller is on but all utilities are disabled and no regulation is done
Off	Off	OFF	The controller is off

Buttons

Button	Function (short press)	Function (long press)
	• Scroll through the menu items • Increase the values	Settable function (parameter **H31**) Enable manual defrosting (**H31=1**) by default
	• Scroll through the menu items • Decrease the values	Settable function (parameter **H32**) The function enables auxiliary output **AUX** (**H31=2**) by default
	• Return to the higher menu level • Confirm the parameter value	Enable standby (when not inside the menus)
	• Confirm the commands • Access the “Machine Status” menu • Display any alarms (if present)	Access the “Programming” menu

ICONS

Note: when switched on the controller runs a test (lamp test) to check that the display is intact and operating correctly: the digits and the icons blink for a few seconds.

Part	Description	Part	Description
	Permanently on: reduced set on Flashing: access to installer parameters		Permanently on: alarm tripped Flashing: alarm acknowiconged.
	Permanently on: compressor active Flashing: delay, a protection or a blocked start-up		Permanently on: defrost active Flashing: manual defrost activation or via digital input
	Permanently on: fans on	AUX	Permanently on: AUX output active Flashing: manual deep cooling activation or via digital input
°C	Permanently on: display the temperature in °C (parameter **dro**=0)	°F	Permanently on: display the temperature in °F (parameter **dro**=1)

Menu

Two menus are available:

Menu	Function	List of folders
Machine state	Display probe values Display and/or edit the setpoint Display any alarms present	**AL**: alarms file * **SEt**: set point setting folder **Pb1**: Pb1 value folder **Pb2**: Pb2 value folder **Pb3**: Pb3 value folder ** **Note ***: present only if alarms are active. **Note ****: present only if the probe is present.
Programming:	Set the parameters	User parameters: “User parameter table” on page 52 Installer parameters: “Installer parameter table” on page 54

Installation of the equipment

Installation warnings

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- The panel must only be installed by persons who are able to work in safety.
- Turn off all devices, including connected devices, before removing any covers or doors, or installing/uninstalling accessories, hardware, cables, or wires.
- To check that the system is powered down, always use a voltmeter properly calibrated to the nominal voltage value.
- Before restarting the unit, replace and secure all covers, hardware accessories, cables, and check for a good ground connection.
- Use this equipment and all connected products only at the specified voltage.
- Comply with all the standards regarding accident protection and the local applicable safety directives.

Failure to follow these instructions will result in death or serious injury.

This equipment has been designed to operate outside of any hazardous location, and exclusive of applications that generate, or have the potential to generate, hazardous atmospheres. Only install this equipment in zones and applications known to be free, at all times, of hazardous atmospheres.

⚠ DANGER

POTENTIAL FOR EXPLOSION

- Install and use this equipment in non-hazardous locations only.
- Do not install and use this equipment in applications capable of generating hazardous atmospheres, such as those applications employing flammable refrigerants.

Failure to follow these instructions will result in death or serious injury.

For information concerning the use of control equipment in applications capable of generating hazardous materials, consult your local, regional or national standards bureau or certification agency.

⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

- The signal cables (probes, digital inputs, communication, and relative power supplies) of the device must be routed separately from the power cables.
- Every implementation of this device must be tested individually and completely in order to check its proper operation before putting it in service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE. For correct and accurate operation of the equipment, use exclusively Eliwell probes.

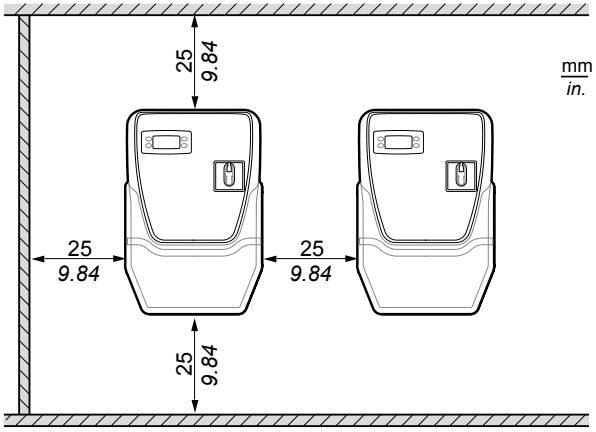
Install IDPanel 978

Installation sequence

The following sequence is suggested for installing the panel:

1. See “Prepare the panel at the bench” on page 22
2. See “Mount the panel on the wall” on page 23, and check the distances
3. See “Connect the wires” on page 23
4. See “Calibrate the thermal relay on the compressor” on page 24
5. See “Close the panel” on page 25
6. See “Configure the controller” on page 26
7. See “Check the correct operation of the panel” on page 26

Distances



Comply with the indicated distances when installing the product (see above Figure).

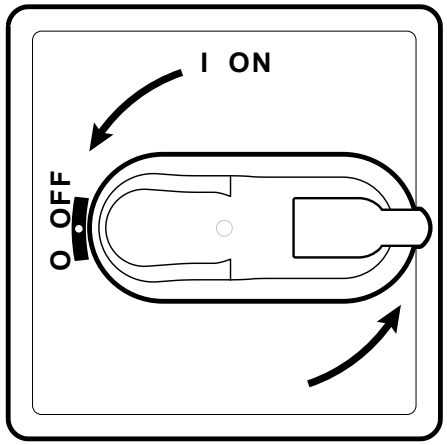
⚠ WARNING

INCORRECT OPERATION OF THE DEVICE

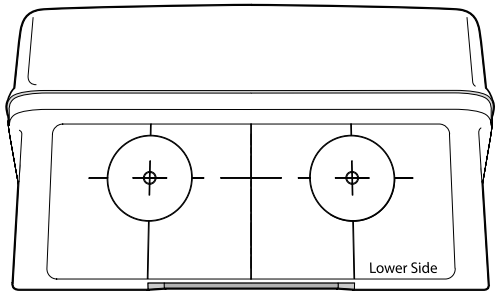
- Do not place these devices near or above any devices which could cause overheating.
- Install the device in a point that guarantees the minimum distances from all structures and adjacent equipment as indicated in this document.
- Install all equipment in conformity with the technical specifications given in the respective documentation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

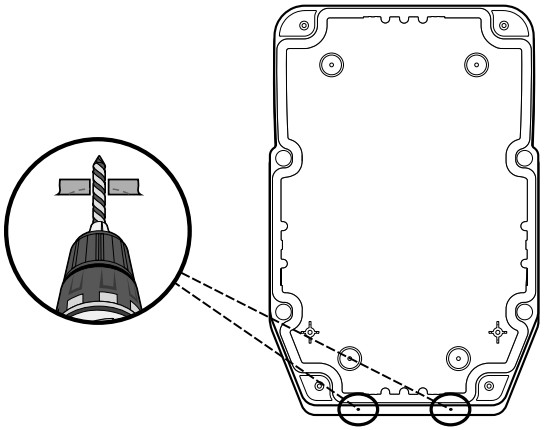
Prepare the panel at the bench



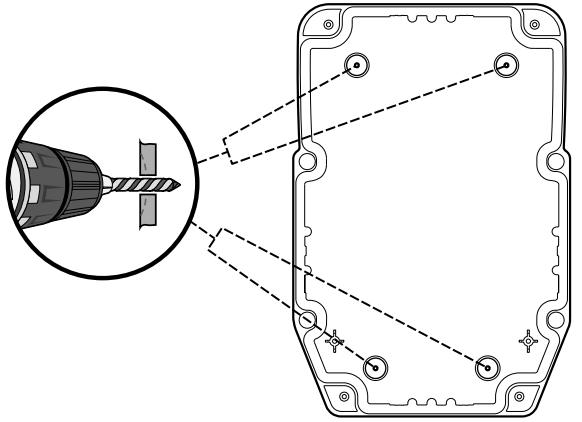
1. Turn the disconnector handle to OFF and open the cover.



2. Place the drilling template on the lower side of the panel.

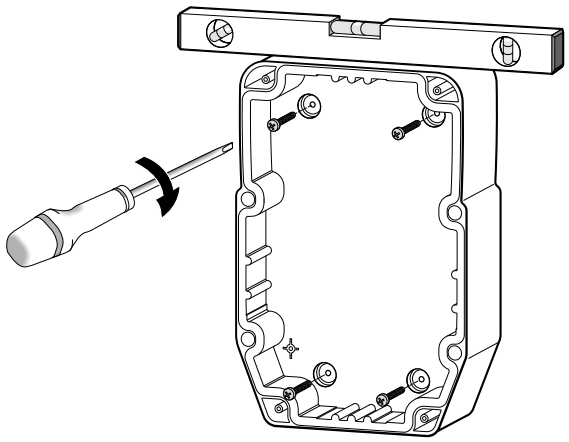


3. Drill the holes for the cable clamps (one for power cables and one for signalling cables).

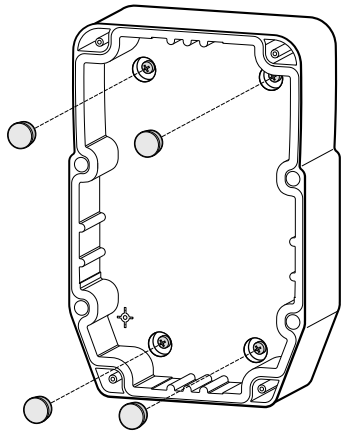


4. Drill the holes in the bottom of the panel in the marked areas.

Mount the panel on the wall



1. Fix the panel to the wall using four screws (not supplied) suited to the wall thickness.



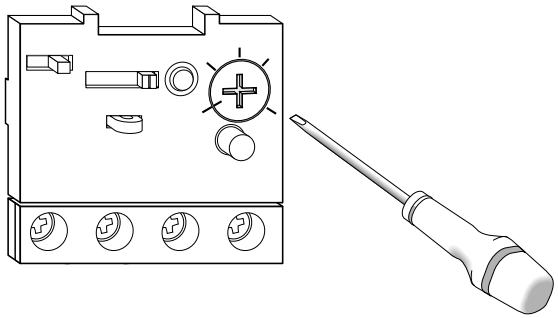
2. Optional. Insert the TDI 20 screw covers (not supplied).

Connect the wires

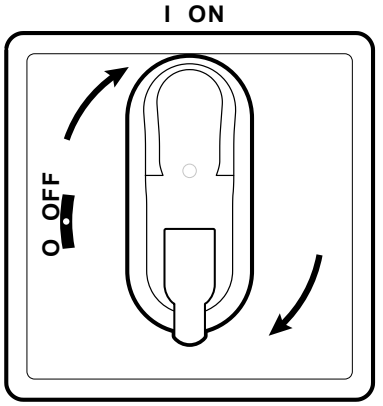
Connect the main terminal board, the thermal relay (**RTC1**) and the disconnector (**QS1**), referring to the data given in the “Electrical connections” on page 47. Use suitable cable/pipe clamps.

NOTICE
INOPERABLE DEVICE If you wish to configure the utilities differently to what set in the factory settings, pay attention to the characteristics of each digital output and adapt the wiring diagram provided in annex. **Failure to follow these instructions can result in equipment damage.**

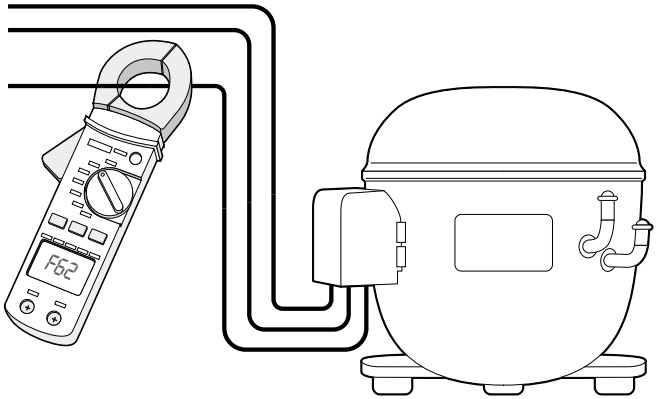
Calibrate the thermal relay on the compressor



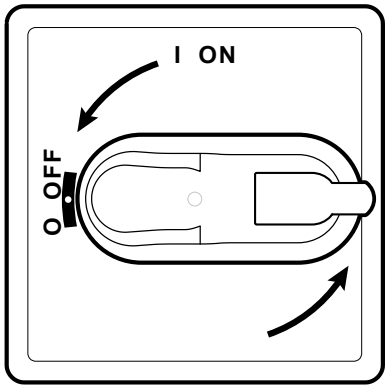
1. Turn the adjusting screw on the thermal relay (**RTC1**) and set an absorption greater than that indicated on the compressor data plate.



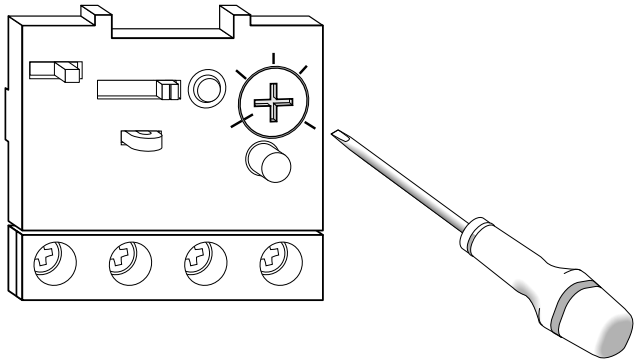
2. Check that all the cables are inside the box, close the cover and turn the disconnector handle to ON.



3. Check the effective absorption of the compressor with an ammeter.

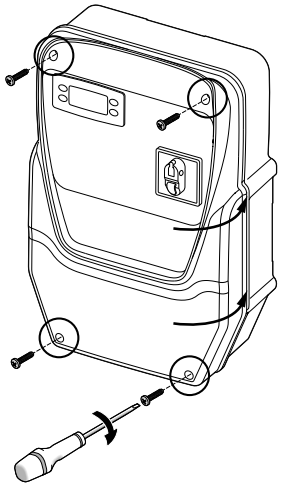


4. Turn the disconnector handle to OFF and open the cover.



5. Turn the adjusting screw on the thermal relay (**RTC1**) and set the effective absorption of the compressor.

Close the panel



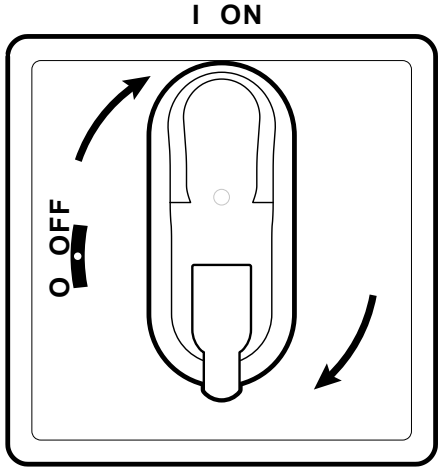
1. Check that all the cables are inside the box, close the cover and lock with the four screws provided.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Verify cable isolation is not damaged.

Failure to follow these instructions will result in death or serious injury.



2. Turn the disconnector handle to ON: the controller runs the lamp test and switches on.

Configure the controller

When powered up, the controller is configured with the values of the parameters set in AP1, see “Applications” on page 15. Configure the controller as follows:

If	Then
The actual application corresponds to the application AP1.	Check the values of all parameters and, if necessary, edit the parameters, see “Modifying the parameters” on page 31.
The actual application corresponds to applications AP2 or AP3 or AP4.	Load the correct application, see “Loading a default application” on page 26. Check the values of all parameters and, if necessary, edit the parameters, see “Modifying the parameters” on page 31.
The actual application does not correspond to a default application.	Set the parameters as required, see “Modifying the parameters” on page 31.

Check the correct operation of the panel

Run a complete refrigeration cycle and check the correct operation of the IDPanel 978 and the correct regulation of the controlicon refrigerated unit.

Installer procedure

Loading a default application

1. Hold down button SET and at the same time turn the disconnector handle to ON: “AP1” appears on the display.
2. Scroll through the applications using buttons ⌃ and ⌄.
3. To select the required application press SET; to cancel the operation press ⏻: if the operation was successful, the letter “y” appears, otherwise “n” appears.
4. Wait for a few seconds: the main screen appears.

Setting communication with a supervisor

It is possible to make the IDPanel 978 communicate with a supervisor, the procedure is described below:

1. Connect the cable supplied with the Bus**Adapter** 150 to the TTL port on the controller.
2. Set the parameters, as follows:

If	Then
If you wish to communicate with Televis**System**	In the **Add** folder, set the parameters **dEA**, **FAA, PtS = t**.
If you wish to communicate with a supervisor via Modbus protocol	In the **Add** folder, set the parameters **dEA**, **FAA**, **Pty, PtS = d** and **Stp**.

3. Connect the cable to the Bus**Adapter** 150.

Changing the password

There are two levels of password:

- Password “PA1”: allows access to user parameters. By default the password is disabled (parameter **PS1**=0).
- Password “PA2”: allows access to installer parameters. By default the password is enabled (parameter **PS2**=15).

The procedure for changing the two passwords is described below.

Enable password “PA1”

1. Hold down the SET button.
2. Scroll through the parameters with buttons ∧ and ∨ to view parameter **PS1** and press the SET button.
3. Change the value with buttons ∧ and ∨.
4. To confirm the value, press the SET key.
5. To validate the new setting, switch the controller off and back on again.

Changing the password “PA2”

1. Hold down the SET button.
2. Scroll through the parameters with buttons ∧ and ∨ to view parameter **PA2** and press the SET button.
3. Set the value “15” with buttons ∧ and ∨ and press the SET button.
4. Scroll through the folders with buttons ∧ and ∨ to view the **diS** folder and press the SET button.
5. Scroll through the parameters with buttons ∧ and ∨ to view parameter **PS2** and press the SET button.
6. Change the value with buttons ∧ and ∨.
7. To confirm the value, press the SET key.
8. To validate the new setting, switch the controller off and back on again.

Lock/unlock the controller pushbutton panel

The controller pushbutton panel can be locked. If the lock is on, the secondary functions (long press) of buttons , and are disabled and the setpoint value cannot be modified. It is in any case possible to enter the “Programming” menu and modify the parameters.

From the “Machine Status” menu

1. Press the SET button: you will enter the “Machine Status” menu
2. Within two seconds, press buttons and at the same time.

Note: the procedure is the same for both locking and unlocking the pushbutton panel.

From the “Programming” menu

To lock the pushbutton panel, set the parameter **LOC**, in the folder **diS, LOC** = y; to unlock **LOC** = n.

Use of the equipment

Operator procedures

Modifying the controller state

The actions to change the controller state are described below:

- To switch on: turn the disconnector handle to ON
- To switch off: turn the disconnector handle to OFF
- To place in standby: hold down the ⏻ button
- To re-enable after standby: hold down the ⏻ button

Setting the Set point

1. To enter the “Machine Status” menu, press the SET button.
2. Scroll through the folders using buttons ⌃⌃ and ⌄⌄ to display the folder **SEt** and press the SET button: the current setpoint value is shown.
3. To modify the value, within 15 seconds press buttons ⌃⌃ and ⌄⌄.

Note: if “LOC” appears on the display the setpoint can only be viewed but not modified.

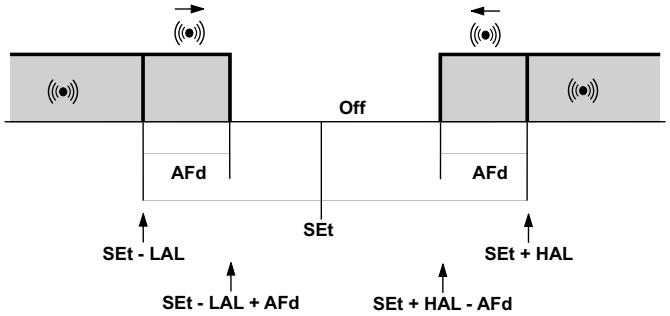
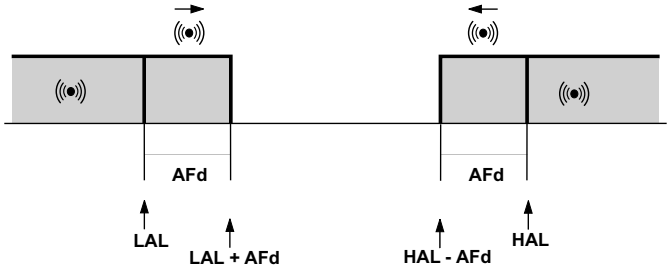
4. To confirm the value, press the SET key.

Displaying the probes

1. To enter the “Machine Status” menu, press the SET button.
2. Scroll through the folders using buttons ⌃⌃ and ⌄⌄ to view the folder **Pb1**, **Pb2** or **Pb3** and press the SET button: the value measured by the associated probe appears.

Managing alarms

Consider the following diagram to set the parameters managing the temperature out of tolerance warnings:

	Temperature value relative to setpoint (Att=1)	**Temperature as an Absolute value (Att=0)**
		
Minimum temperature alarm	Temperature ≤ Set + LAL *	Temperature ≤ LAL (LAL with sign)
Maximum temperature alarm	Temperature ≥ Set + HAL **	Temperature ≥ HAL (HAL with sign)
Reset from minimum temperature alarm condition	Temperature ≥ Set + LAL + AFd or ≥ Set - ILALI + AFd (LAL < 0)	Temperature ≥ LAL + AFd
Reset from maximum temperature alarm condition	Temperature ≤ Set + HAL - AFd (HAL > 0)	Temperature ≤ HAL - AFd
	* If LAL is negative, Set + LAL < Set ** If HAL is negative, Set + HAL < Set	

Modifying the parameters

1. To enter the “Programming” menu hold down the SET button:

If	Then
If the user password is disabled (PS1 = 0)	Entering the “Programming” menu, the first user parameter appears directly. To modify user parameters, proceed with step 2. To access the installer parameters, scroll through the parameters until **PA2** appears and press the SET button. If requested, enter the password. **Note**: if the entered password is wrong, “PA2” will appear again and the password must be entered again.
If the user password is enabled (PS1 ≠ 0)	Entering the “Programming” menu, “PA1” and “PA2” alternate on the display. To access the user parameters, select PA1 with SET and enter the password To access the installer parameters, select PA2 with SET and enter the password **Note:** if the entered password is wrong, “PA1” or “PA2” will appear again and the password must be entered again.

2. Scroll through the parameters using buttons ⌃ and ⌄.
3. Display the required parameter and press the SET button.
4. Change the value with buttons ⌃ and ⌄.
5. To confirm the value, press the SET key.
6. To validate the new setting, switch the controller off and back on again.

Manually enabling the defrosting cycle

Hold down the ⌃ button: if the temperature conditions are correct, the defrost cycle will start; otherwise, the display flashes three times and the defrost cycle is interrupted.

Maintenance

Maintenance warnings

General warnings

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Any maintenance on the panel must only be performed by persons who are able to work in safety
- Turn off all devices, including connected devices, before removing any covers or doors, or installing/uninstalling accessories, hardware, cables, or wires.
- To check that the system is powered down, always use a voltmeter properly calibrated to the nominal voltage value.
- Before restarting the unit, replace and secure all covers, hardware accessories, cables, and check for a good ground connection.
- Use this equipment and all connected products only at the specified voltage.
- Comply with all the standards regarding accident protection and the local applicable safety directives.

Failure to follow these instructions will result in death or serious injury.

Power supply isolation

To prevent the power from being accidentally switched back on when replacing components inside or outside the panel and during maintenance, the person responsible for the operations must proceed as follows:

- Turn the disconnector handle to OFF.
- If the works involve components outside the panel, place a padlock in the hole on the disconnector handle and place the key in a safe place.
- Place a “Maintenance in progress” warning sign.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Do not remove or tamper with the padlock. Do not switch the power back on without authorisation.

Failure to follow these instructions will result in death or serious injury.

Controller maintenance

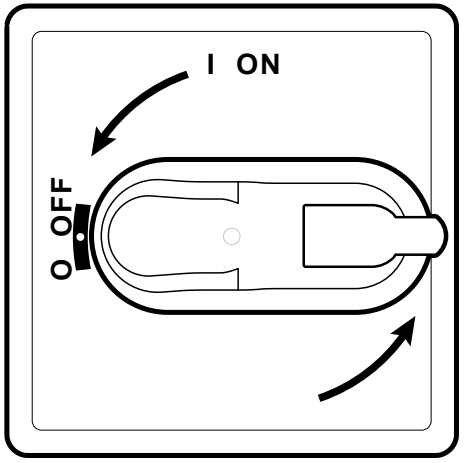
Replacing the controller

Foreword

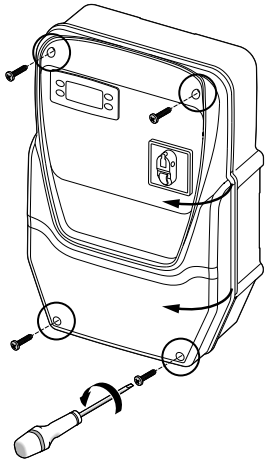
To adapt a new standard IDPlus 978 to work in the IDPanel 978, pay particular attention to the configuration of the digital outputs.

NOTICE
INOPERABLE DEVICE Note down the configuration of parameters H21, H22, H23 and H24 in the controller to be replaced. **Failure to follow these instructions can result in equipment damage.**

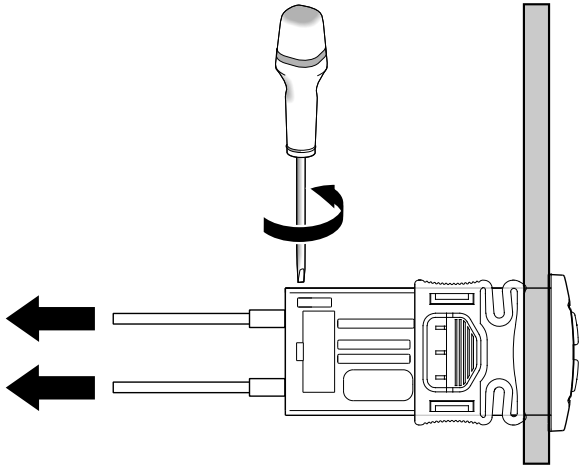
Procedure



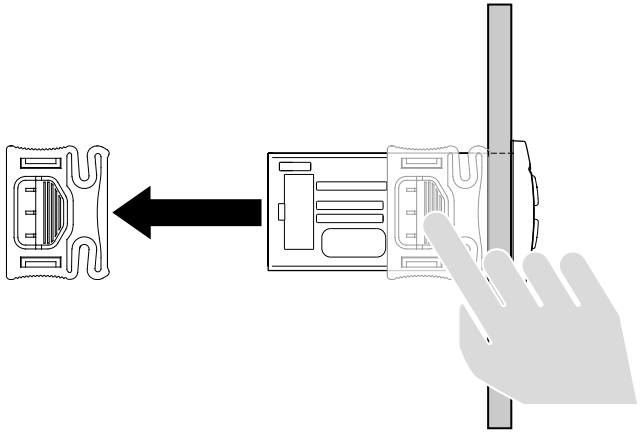
1. Turn the disconnector handle to OFF.



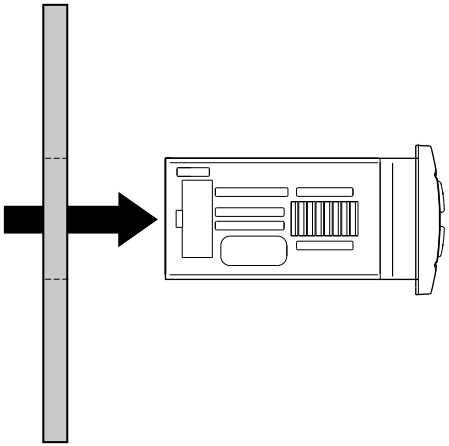
2. Remove the screws and open the panel cover.



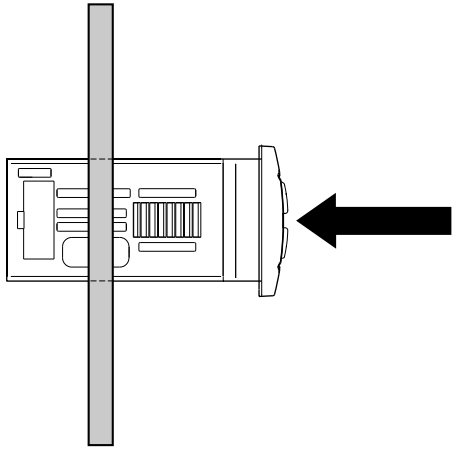
3. Remove the cables from the controller terminals. Pay attention to the original position of each cable.



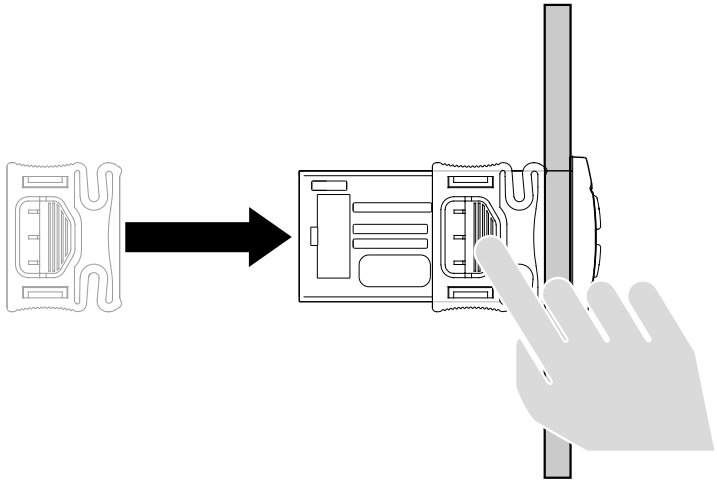
4. Remove the brackets.



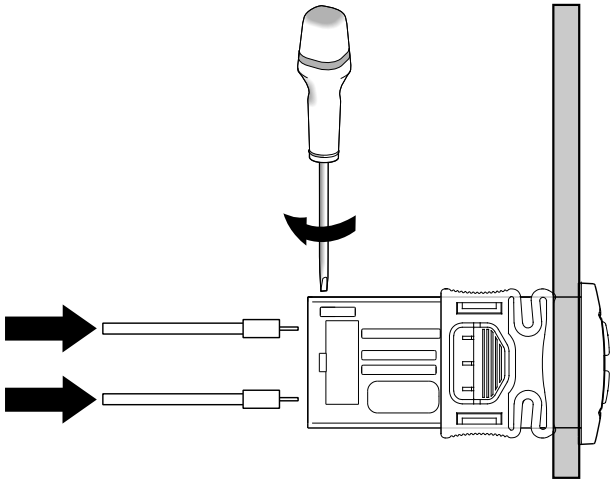
5. Remove the controller from the front of the panel.



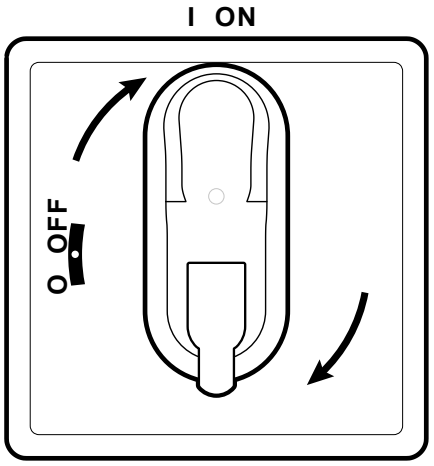
6. Fit the new controller in place of the one removed.



7. Fix the controller with the brackets.



8. Reconnect the cables to the terminals.



9. Turn the disconnector handle to ON: the controller runs the lamp test and switches on.

10. Correctly configure the controller, see “Controller maintenance” on page 33 .
11. To validate the new configuration, switch the controller off and back on again.

Using the Copy Card

The Copy Card is used to quickly set the parameters and is connected to the serial port (TTL).

1. Access the installer parameters, see step 1 in the procedure “Modifying the parameters” on page 31.
2. Scroll through the folders with buttons ⌃ and ⌄ to view the **FPr** folder and press the SET button.
3. Scroll through the parameters with buttons ⌃ and ⌄ to view the required parameter and press the SET button.

Operations with the Copy Card

- To format the card (recommended on first use) view parameter **Fr** and press the SET button.

NOTE. The **Fr** parameter deletes all data present and this operation cannot be reversed.

- To load the configuration parameters from the controller to the card, view parameter **UL** and press the SET button.
- To download the configuration parameters from the card to the controller, connect the card to the controller with the controller switched off. When switching the controller on, the data in the card will be automatically downloaded to the controller. At the end of the lamp test, the display will show “dLy” if the operation was successful and “dLn” if not.

Note: after the Download, the controller will use the newly uploaded map settings.

Resetting the default values

In the event of a malfunction or in case of need, the default values in the parameter map can be reloaded.

NOTICE
INOPERABLE DEVICE This operation resets the controller to its initial state, returning all parameters to their default values. This means that all changes that may have been made to operating parameters will be lost. **Failure to follow these instructions can result in equipment damage.**

1. Hold down button SET and at the same time turn the disconnector handle to ON: “AP1” appears on the display.
2. Select AP1 with the SET button; to cancel the operation press ⏻: if the operation was successful, the letter “y” appears, otherwise “n” appears.
3. Wait for a few seconds: the main display screen appears.

Routine maintenance

Operations

After the first 20 days of operation and subsequently once a year:

Operation	Component
Tightening	Disconnector terminals (**QS1**) Thermal relay terminals (**RTC1**)

Cleaning

Do not use abrasive products or solvents.

Diagnostics

Alarms

Introduction

An alarm condition is always shown with the icon, the buzzer and a relay (if configured).

Note: if alarm exclusion times have been set (see **AL** folder in the installer parameters) the alarm will not be indicated.

Alarm operations

To silence the buzzer, press any key: the relative icon will continue to flash.

To delete the folders **HC n**, **tC n**, **bC n** and **bt n** in the folder **AL**, launch the **rES** function in folder **FnC**.

Alarm key

Label	Description	Cause	Effects	Troubleshooting
E1	Probe Pb1 in error (ambient)	• Measured values are outside operating range • Probe error/short-circuited/open	• Label **E1** displayed • icon permanently on • Relay on (if configured) • Max/min alarm regulator disabled • Compressor operation based on parameters **Ont** and “**OFt**	• Check the probe type (parameter **H00**) • Check the probe wiring • Replace probe
E2	Probe Pb2 in error (defrost)	• Measured values are outside operating range • Probe faulty/short-circuited/open	• Label **E2** displayed • icon permanently on • Relay on (if configured) • The defrost cycle will end due to time-out (parameter **dEt**) • The evaporator fans will be: ON if the compressor is ON and based on parameter **FCO** if the compressor is OFF.	• Check the probe type (parameter **H00**) • Check the probe wiring • Replace probe

Label	Description	Cause	Effects	Troubleshooting
E3	Probe Pb3 in error	• Measured values are outside operating range • Probe error/short-circuited/open	• Label **E3** displayed • icon permanently on • Relay on (if configured)	• Check the probe type (parameter **H00**) • Check the probe wiring • Replace probe
AH1	Pb1 HIGH temperature alarm	Value read by probe Pb1 > HAL after time of tAO. (see Alarms Management)	• Recording of label **AH1** in folder **AL** • Relay on (if configured) • No effect on regulation.	Wait for temperature value read by Pb1 to return below HAL-AFd
AL1	Pb1 LOW temperature alarm	Value read by Pb1 < LAL after time of tAO. (see Alarms Management)	• Recording of label **AL1** in folder **AL** • Relay on (if configured) • No effect on regulation.	Wait for temperature value read by Pb1 to return above LAL+AFd
EA	External alarm	Digital input activated (**H11** = ±5)	• Recording of label **EA** in folder **AL** • icon permanently on • Relay on (if configured) • Regulation blocked if **rLO** = y	Check and remove the external cause which triggered the alarm on the digital input.
OPd	Door open alarm	Activation of digital input (**H11** = ±4) for a time greater than tdO	• Recording of label **Opd** in folder **AL** • icon permanently on • Relay on (if configured) • Regulator blocked	• Close the door • Delay function defined by OAO
Ad2	Defrost due to timeout	End of defrost cycle due to timeout rather than due to defrosting end temperature being read by Pb2.	• Recording of label **Ad2** in folder **AL** • icon permanently on • Relay on (if configured)	Await next defrost cycle for automatic return to normal

Label	Description	Cause	Effects	Troubleshooting
COH	Overheating alarm	Pb3 exceeded the value set by parameter **SA3**.	• Recording of label **COH** in folder **AL** • icon permanently on • Relay on (if configured) • Regulation locked (compressor)	Wait for the temperature to return to a value of SA3 (setpoint) minus dA3 (differential)
nPA	General pressure alarm	Activation of pressure switch alarm by general pressure switch.	If the number of pressure switch activations is n < PEn: • Recording of folder **nPA** in folder **AL** with the number of pressure switch activations • Regulation inhibited (compressor and fans)	Check and remove the cause of the alarm on the digital input (Automatic Reset)
PAL	General pressure alarm	Activation of pressure switch alarm by general pressure switch.	If the number of pressure switch activations is n = PEn: • Label PAL displayed • Recording of label **PA** in folder **AL** • icon permanently on • Relay on (if configured) • Regulation inhibited (compressor and fans)	• Switch the device off and back on again • Reset alarms by entering the functions folder and selecting the **rAP** (Manual Reset)
HC n	Max/Min value of Pb3 when out of range (**SLH**...**SHH**)	Stores the Max/Min value read by Pb3 when it exceeds the range **SLH**...**SHH**. "n" represents the sequential number of times the range is exceeded.	• Recording of folder **HC n** in folder **AL** • icon permanently on • Relay on (if configured) • No effect on regulation.	**Note:** "n" can assume the values 1 to 8. If n > 8, folder **HC8** will blink and the system will overwrite the folders starting from n=1.

Label	Description	Cause	Effects	Troubleshooting
tC n	Pb3 Dwell Time out of range (**SLH**... **SHH**)	Stores the time for which the Pb3 value remains outside of the range SLH...SHH. "n" represents the sequential number of times the range is exceeded.	• Recording of folder **tC n** in folder **AL** • icon permanently on • Relay on (if configured) • No effect on regulation.	**Note:** "n" can assume the values 1 to 8. If n > 8, folder **tC8** will blink and the system will overwrite the folders starting from n=1.
bC n	Value read by Pb3 on return from blackout	Stores the value read by Pb3 on return from a blackout. "n" represents the sequential number of blackouts that have occurred.	• Recording of folder **bC n** in folder **AL** • No effect on regulation.	**Note:** "n" can assume the values 1 to 8. If n > 8, folder **bC8** will blink and the system will overwrite the folders starting from n=1.
bt n	Pb3 out-of-range dwell time during blackout	Stores the time for which the Pb3 value remains out of range during a blackout. "n" represents the sequential number of blackouts that have occurred.	• Recording of folder **bt n** in folder **AL**. The value contained will be 0 if the value of Pb3 has remained within the range, ≠ 0 if the value has gone outside of the range. • No effect on regulation.	**Note:** "n" can assume the values 1 to 8. If n > 8, folder **bt8** will blink and the system will overwrite the folders starting from n=1.

Troubleshooting

List of possible problems

Problem	Possible causes	Solution
The compressor starts with a manual command but not a controller command	Panel not powered up.	• Check that the disconnector is in the ON position. • Check the disconnector connections. • Check the distribution line.
The controlicon utilities do not behave as expected	Incorrect wiring to the main terminal board	Check the wiring, referring to the data given in “Electrical connections” on page 47.
	Parameters set incorrectly.	Modify the value of the parameters, see “Modifying the parameters” on page 31.
The temperature value read by the probe is not real	Probe type set incorrectly.	Set the correct probe type (parameter **H00**)

Assistance

How to ask for assistance

Customer Technical Support

+39 0437 986 300

techsuppeliwell@schneider-electric.com

Sales

+39 0437 986 100 (Italy)

+39 0437 986 200 (Other countries)

saleseliwell@schneider-electric.com

How to return the equipment

In the event of a failure or malfunction which requires the equipment to be returned, return it in its original packaging to the local distributor.

Note the distributor data here:

Technical data

Technical specifications

General specifications

	Single-phase versions	Three-phase versions
Power supply	230 Vac (F + N + PE), 50/60 Hz	400 Vac (3F + N + T), 50/60 Hz
Command type	Single-phase	Three-phase
Disconnector	25 A	
Control	IDPlus 978 electronic controller	
Connectivity	TTL port for connection to Televis**System**/Modbus supervisor	
Controller protection	1 fuse, 5 x 20 mm (0.20 x 0.8 in) 160 mA, T	
General protection	2 fuses, 10 x 38 mm (0.40 x 1.5 in), 25 A, T. See “Single-phase version annexes” on page 61.	3 fuses *(1)*, 10 x 38 mm (0.40 x 1.5 in), 25 A, T. See “Three-phase version annexes” on page 66.
	(1) NOTE: pay attention to the fuses insertion in the three-phase version: the fuse holder is provided with dual slot for spare fuses. The correct position is the lower one.	
Motor protection	See “Single-phase version annexes” on page 61.	See “Three-phase version annexes” on page 66.
Enclosure rating	IP54	
Over voltage category	II (IEC 60664-1: 2007).	
Pollution class	2 (IEC 60664-1: 2007).	
Location type	Indoor	
Installation method	Stationary	
Max Altitude installation site	2000 m	

Electrical specifications

	Single-phase versions	Three-phase versions
Rated voltage (U_n)	230 Vac	400 Vac
Rated operating voltage (U_e)	230 Vac	400 Vac
Rated insulation voltage (U_i)	230 Vac	400 Vac
Rated panel current (I_{nA})	15 A 18 A	5,5 A per phase + 7 A on single phase 6 A per phase + 7 A on single phase
Rated circuit current (I_{nC})	15 A 18 A	5,5 A per phase + 7 A on single phase 6 A per phase + 7 A on single phase
Rated short-time withstand current (I_{cw})	19 A 24 A	15 A 19 A
Rated peak withstand current (I_{pk})	20 A 25 A	16 A 20 A
Conditioned short circuit current (I_{cc})	< 5 kA	<5 kA
Rated frequency (f_n)	50/60 Hz	50/60 Hz

Inputs and outputs (see “Electrical connections” on page 55)

Probe input	2 + 1 (in place of a digital input)
Digital inputs	1 (in place of a probe input) + 1 (if no communication with supervisor via the TTL port)
Digital outputs	4 relays

Probe values

Note: data relating only to the IDPanel 978 without considering the probes (accessories not supplied). The error introduced by the probe must be added to the values given here.

Display range	3 figures + sign NTC: -50.0...110 °C (-58...230 °F) PTC: -55.0...140 °C (-67...284 °F) Pt1000: -55.0...150 °C (-67...302 °F)
Accuracy	NTC/PTC/Pt1000 (-55.0...70 °C/-67...158 °F): 0.5% better than the integral scale + 1 digit Pt1000 (70...150 °C/158...302 °F): 0.6% better than the integral scale + 1 digit
Resolution	0.1 °C (1 °F)

Mechanical characteristics

	Single-phase versions	**Three-phase versions**
Material	PC + ABS	
Installation	On wall	
Size (L x hours x P)	213 x 318 x 102 mm (8.4 x 12.5 x 4 in)	
Weight	3 kg (6.6 lb)	

Ambient conditions of use

Temperature	-5...+40 °C (23...+104 °F)	according to IEC 61439-2, for indoor use
Humidity	10...90% without condensation	

Transportation and storage conditions

Temperature	-25...+70 °C (-13...+158 °F)
Humidity	10...90% without condensation

Standards and directives

Directives	2014/35/EU (Low voltage) 2014/30/EU (Electro-magnetic compatibility)
Standards	EN 60204-1 EN 61439-1
Marking	CE

Electrical connections

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

The electrical connections must only be made by persons who are able to work in safety.

Failure to follow these instructions will result in death or serious injury.

Wiring diagram

NOTICE

INOPERABLE DEVICE

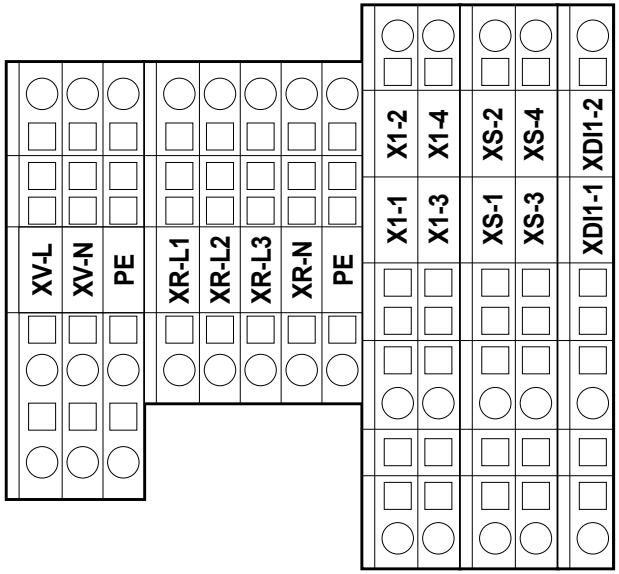
The wiring diagram refers to the factory configuration. If during installation a different configuration is defined, the installer must update the wiring diagram.

Failure to follow these instructions can result in equipment damage.

For single-phase versions, see “Single-phase version wiring diagram” on page 61.

For three-phase versions, see “Three-phase version wiring diagram” on page 66.

Main terminal board

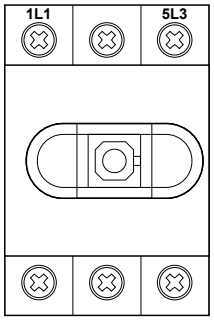
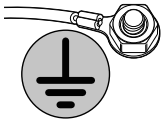


Note: use the **PE** terminals to connect the system to earth.

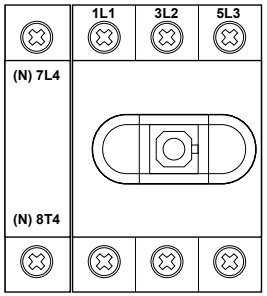
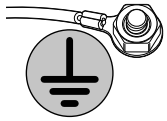
Terminal	Description	Features	Cables
XV-L	Digital output 1	250 Vac (1-PH)	Solid wire section: 0.08...4 mm^2 (28...12 AWG)
XV-N	(Evaporator fans)	10(6) A	Flexible wire section: 0.08...2.5 mm^2 (28...14 AWG)
PE			
XR-L1	Digital output 2	Single-phase versions: 800 W	Solid wire section: 0.08...4 mm^2 (28...12 AWG)
XR-L2	(Electrical defrosting element)	Three-phase versions: 1200 W	Flexible wire section: 0.08...2.5 mm^2 (28...14 AWG)
XR-L3			
XR-N			
PE			

Terminal	Description	Features	Cables
X1-1	Digital output 4 (Light)	250 Vac (1-ph)	Solid wire section: 0.08...4 mm^2 (28...12 AWG)
X1-2		8(4) A	Flexible wire section: 0.08...4 mm^2 (28...12 AWG)
X1-3	Not used	-	-
X1-4			
XP-1	Pressure switch input	230 Vac	Solid wire section: 0.08...4 mm^2 (28...12 AWG)
XP-2		For single-phase models see “Single-phase version wiring diagram” on page 61	Flexible wire section: 0.08...4 mm^2 (28...12 AWG)
		For three-phase models see “Three-phase version wiring diagram” on page 66	
XS-1	Probe Pb1	NTC (default)/PTC/Pt1000	Solid wire section: 0.08...4 mm^2 (28...12 AWG)
XS-2	(Temperature sensor for controlling the compressor)	(configurable by parameter H00)	Flexible wire section: 0.08...4 mm^2 (28...12 AWG)
XS-3	Probe Pb2	NTC (default)/PTC/Pt1000	Solid wire section: 0.08...4 mm^2 (28...12 AWG)
XS-4	(Temperature sensor for controlling the defrosting cycle)	(configurable by parameter H00)	Flexible wire section: 0.08...4 mm^2 (28...12 AWG)
XDI1-1	Digital input DI1/Probe Pb3 (Door-switch)	SELV	Solid wire section: 0.08...4 mm^2 (28...12 AWG)
XDI1-2			Flexible wire section: 0.08...4 mm^2 (28...12 AWG)

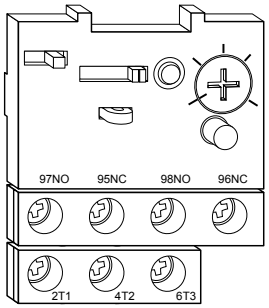
Disconnector - QS1 (single-phase versions)

	Terminal	Description	Features	Cables	Tightening
	1L1	Stage	See “General characteristics” on page 44	Solid wire section: 0.75 mm² (18 AWG) Flexible wire section: 10 mm² (8 AWG)	1 Nm (8.9 lb-in)
	5L3	Neutral			
		Ground	-	Solid wire section: 0.08...6 mm² (28...10 AWG) Flexible wire section: 0.08...4 mm² (28...12 AWG)	6 Nm (53.1 lb-in)

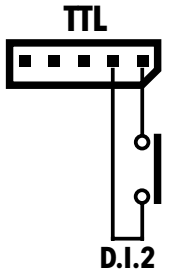
Disconnector - QS1 (three-phase versions)

	Terminal	Description	Features	Cables	Tightening
	1L1	Phase 1	See “General characteristics” on page 44	Solid wire section: 0.75 mm² (18 AWG) Flexible wire section: 10 mm² (8 AWG)	1 Nm (8.9 lb-in)
	3L2	Phase 2			
	5L3	Phase 3			
	(N) 7L4	Neutral			
		Ground	-	Solid wire section: 0.08...6 mm² (28...10 AWG) Flexible wire section: 0.08...4 mm² (28...12 AWG)	6 Nm (53.1 lb-in)

Thermal relay (RTC1)

	Terminal	Description	Features	Cables	Tightening
	2T1 4T2 6T3	Digital output 3 (Compressor)	Single-phase versions: Three-phase versions:	Screw clamp terminals 2 cable(s) 0.34...1.5 mm² (22...15 AWG) cable stiffness: flexible – with cable end Screw clamp terminals 1 cable(s) 0.34...2.5 mm² (22...14 AWG) cable stiffness: flexible – with cable end Screw clamp terminals 2 cable(s) 0.75...4 mm² (18...12 AWG) cable stiffness: flexible – without cable end Screw clamp terminals 1 cable(s) 0.75...4 mm² (18...12 AWG) cable stiffness: flexible – without cable end Screw clamp terminals 2 cable(s) 1.5...4 mm² (16...12 AWG) cable stiffness: solid Screw clamp terminals 1 cable(s) 1.5...4 mm² (16...12 AWG) cable stiffness: solid	1.3 Nm (11.5 lb-in)

Controller TTL serial port



TTL

TTL (Molex 5268) for connection to the Copy Card (maximum length = 3 m - 9.8 ft.)

Connection to the supervisor

Use only the cable supplied with the interface module TTL-RS485 Bus**Adapter** 150.

Digital input 2 connection

Use terminals 1 and 2 on the TTL connector: (see figure)

User parameter table

PARA.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
SEt	Temperature control setpoint	LSE ... HSE	0.0	0.0	0.0	0.0	°C/°F
diF	Compressor relay activation differential	0.1 ... 30.0	2.0	2.0	2.0	2.0	°C/°F
HSE	Maximum value settable for setpoint	LSE ... 302	99.0	99.0	99.0	99.0	°C/°F
LSE	Minimum value settable for setpoint	-58.0 ... HSE	-50.0	-50.0	-50.0	-50.0	°C/°F
dty	Type of defrost **0** = electrical defrost; **1** = inverse cycle defrost; **2** = defrost independent of compressor.	0/1/2	0	0	1	0	num
dit	Interval between the start of two consecutive defrost cycles	0 ... 250	6	6	6	6	hours
dEt	Defrost timeout	1 ... 250	30	30	30	30	min
dSt	Defrost end temperature	-50.0 ... 150	8.0	8.0	8.0	8.0	°C/°F
FSt	Fans disabling temperature	-58.0 ... 302	50.0	50.0	50.0	50.0	°C/°F
Fdt	Fans on delay after a defrost cycle	0 ... 250	2	2	2	2	min
dt	Dripping time	0 ... 250	1	1	1	1	min
dFd	Used to exclude the fans or not (depending on the parameter **FCO**) **n** (0) = no (depending on the parameter **FCO**); **y** (1) = yes (fan off).	n/y	y	y	y	y	flag
HAL	Maximum temperature alarm	LAL ... 150	50.0	50.0	50.0	50.0	°C/°F
LAL	Minimum temperature alarm	-50.0 ... HAL	-50.0	-50.0	-50.0	-50.0	°C/°F
LOC	Basic commands edit lock **n** (0) = no; **y** (1) = yes.	n/y	n	n	n	n	flag

PARA.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
PS1	Password 1 to access the parameters in the “QUICK” menu	0 ... 250	0	0	0	0	num
CA1	Calibration1. Value to be added to the value read by Pb1	-12.0 ... 12.0	0.0	0.0	0.0	0.0	°C/°F
CA2	Calibration2. Value to be added to the value read by Pb2	-12.0 ... 12.0	0.0	0.0	0.0	0.0	°C/°F
CA3	Calibration3. Value to be added to the value read by Pb3	-12.0 ... 12.0	0.0	0.0		0.0	°C/°F
ddL	Display mode during defrost **0** = shows the temperature read by Pb1; **1** = locks the reading on the value of Pb1 at the start of defrost; **2** = shows the label “dEF”.	0/1/2	0	0	0	0	num
Ldd	Display lock disabling time-out. 0 = function disabled	0 ... 255	30	30	30	30	min
SHH	Maximum HACCP alarm signals threshold	-55.0 ... 150	50.0	50.0	50.0	50.0	°C/°F
SLH	Minimum HACCP alarm signals threshold	-55.0 ... 150	-50.0	-50.0	-50.0	-50.0	°C/°F
drA	Minimum dwelling time in critical area before alarm	0 ... 99	0	0	0	0	min
drH	HACCP alarm reset time from last reset	0 ... 250	72	72	72	72	hours
H50	Enable HACCP and alarm relay functions **0** = HACCP alarms NOT enabled; **1** = HACCP alarms enabled and alarm relay NOT enabled; **2** = HACCP enabled and alarm relay enabled.	0/1/2	0	0	0	0	num
H51	HACCP alarm override time	0 ... 250	0	0	0	0	min
H42	Evaporator probe present	n/y	y	y	y	y	flag
H43	Probe Pb3 present	n/y	n	n	n	n	flag
rEL	rELease firmware. Reserved: read-only parameter	/	/	/	/	/	/
tAb	tAble of parameters. Reserved: read-only parameter	/	/	/	/	/	/
PA2	Access to installer parameters	/	/	/	/	/	/

Installer parameter table

PARA.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
SEt	Temperature control setpoint.	LSE ... HSE	0.0	0.0	0.0	0.0	°C/°F
COMPRESSOR (folder "CP")							
diF	Compressor relay activation differential.	0.1...30.0	2.0	2.0	2.0	2.0	°C/°F
HSE	Maximum value that can be assigned to the setpoint.	LSE...302	99.0	99.0	99.0	99.0	°C/°F
LSE	Minimum value that can be assigned to the setpoint.	-58.0...HSE	-50.0	-50.0	-50.0	-50.0	°C/°F
OSP	Temperature value to be added to the setpoint if reduced set enabled (Economy Function).	-30.0...30.0	3.0	3.0	3.0	3.0	°C/°F
Hc	Regulation method. **C** = Cold; **hours** = Hot.	C/hours	C	C	C	C	flag
Ont	Controller switch-on time in the event of faulty probe. If **Ont** = 1 and **OFt** = 0 the compressor remains on continuously; if Ont=1 and OFt>0 it operates in duty cycle mode.	0 ... 250	15	15	15	15	min
OFt	Controller switch-off time in the event of faulty probe. If **OFt** = 1 and **Ont** = 0 the controller remains off continuously; if **OFt** = 1 and **Ont** > 0 it operates in duty cycle mode.	0 ... 250	15	15	15	15	min
dOn	Compressor relay activation delay after request.	0 ... 250	0	0	0	0	s
dOF	Delay after switching off and subsequent switch-on.	0 ... 250	0	0	0	0	min
dbi	Delay between two consecutive compressor switch-ons.	0 ... 250	0	0	0	0	min
OdO	Delay in activating outputs after the controller is switched on or after a power failure. **0** = not active. **Note:** if this parameter is modified, the controller MUST be switched off and then switched back on to make the modification effective.	0 ... 250	0	0	0	0	min
dCS	"Blast Chilling" setpoint.	-58.0...302	0.0	0.0	0.0	0.0	°C/°F
tdc	"Blast Chilling" duration.	0 ... 255	0	0	0	0	min
dcc	Defrost activation delay after a “Blast Chilling Cycle”.	0 ... 255	0	0	0	0	min

PARA.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
DEFROST (folder "dEF")							
dtY	Type of defrost **0** = electrical defrost; **1** = inverse cycle defrost; **2** = defrost independent of compressor.	0/1/2	0	0	1	0	num
dit	Interval between the start of two consecutive defrost cycles.	0 ... 250	6	6	6	6	hours
dCt	Selects the count mode for the defrost interval. **0** = hours of compressor operation; **1** = hours of equipment operation; **2** = at each compressor stop a defrost cycle is run.	0/1/2	1	1	1	1	num
dOH	Delay preceding start of first defrost after call.	0 ... 59	0	0	0	0	min
dEt	Defrost time-out; determines the maximum defrost duration.	1 ... 250	30	30	30	30	min
dSt	Defrost end temperature - determined by probe Pb2.	-50.0...150	8.0	8.0	8.0	50.0	°C/°F
dPO	Determines whether or not the instrument must defrost at power-up. **n** (0) = no; **y** (1) = yes.	n/y	n	n	n	n	flag
FANS (folder “FAn”)							
FSt	Fans disabling temperature.	-58.0...+302	50.0	50.0	50.0	50.0	°C/°F
FAd	Fan activation differential.	1.0 ... 50.0	2.0	2.0	2.0	2.0	°C/°F
Fdt	Fan activation delay after a defrost cycle.	0 ... 250	2	2	2	2	min
dt	Dripping time.	0 ... 250	1	1	1	1	min
dFd	Allows exclusion of the evaporator fans to be selected or not selected during defrosting. **n** (0) = no (depending on the parameter **FCO**); **y** (1) = yes (fan off).	n/y	y	y	y	y	flag
FCO	Selects or deselects fan deactivation at compressor OFF. **0** = fans off; **1** = thermostat-controlicon fans; **2** = duty cycle.	0/1/2	0	0	0	0	num
FOn	Time fans remain ON during daytime duty cycle.	0 ... 99	0	0	0	0	min
FOF	Time fans remain OFF during daytime duty cycle	0 ... 99	0	0	0	0	min
Fnn	Time fans remain ON during night-time duty cycle.	0 ... 99	0	0	0	0	min
FnF	Time fans remain OFF during night-time duty cycle.	0 ... 99	0	0	0	0	min

PARA.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
ESF	"Night" activation mode. **n** (0) = no; **y** (1) = yes.	n/y	n	n	n	n	flag
ALARMS (folder “AL”)							
Att	Can be used to select if parameters **HAL** and **LAL** have absolute (**Att=** 0) or relative value (**Att** = 1).	0/1	0	0	0	0	flag
AFd	Alarm differential.	1.0 ... 50.0	2.0	2.0	2.0	2.0	°C/°F
HAL	Maximum temperature alarm.	LAL...302	50.0	50.0	50.0	50.0	°C/°F
LAL	Minimum temperature alarm.	-58.0...HAL	-50.0	-50.0	-50.0	-50.0	°C/°F
PAO	Alarm exclusion time on switching back on after power failure.	0 ... 10	1	1	1	1	hours
dAO	Temperature alarm exclusion time after defrost.	0 ... 999	15	15	15	15	min
OAO	Alarm signalling delay after digital input disabling.	0 ... 10	1	1	1	1	hours
tdO	Door open alarm activation delay.	0 ... 250	15	15	15	15	min
tAO	Delay preceding temperature alarm signal.	0 ... 250	0	0	0	0	min
dAt	Alarm signalling end of defrost due to timeout. **n** (0) = no; **y** (1) = yes.	n/y	n	n	n	n	flag
rLO	An external alarm locks the regulators. **n** (0) = does not lock; **y** (1) = locks	n/y	n	n	n	n	flag
SA3	Probe Pb3 alarm Setpoint.	-58.0...302	50.0	50.0	50.0	50.0	°C/°F
dA3	Probe Pb3 alarm differential.	1.0 ... 50.0	1.0	1.0	1.0	1.0	°C/°F
LIGHTS & DIGITAL INPUTS (folder “Lit”)							
dOd	Digital input for switching off utilities. **0** = disabiled; **1** = fans disabled; **2** = compressor disabiled; **3** = fans and compressor disabled.	0/1/2/3	3	3	3	3	num
dAd	Activation delay for digital input.	0 ... 255	0	0	0	0	min
dCO	Delay in deactivating compressor after door opened.	0 ... 255	1	1	1	1	min

PARA.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
AuP	AUX relay associated to door-switch. **n** (0) = not associated; **y** (1) = associated.	n/y	n	n	n	n	flag
PRESSURE SWITCH (folder "PrE")							
Pen	Number of errors allowed per generic pressure switch input.	0 ... 15	0	0	0	0	num
PEI	Generic pressure switch error count interval.	1 ... 99	1	1	1	1	min
PEt	Delay in activating compressor after pressure switch deactivation.	0 ... 255	0	0	0	0	min
COMMUNICATION (folder "Add")							
PtS	Selection of communication protocol. **t** (0) = Televis; **d** (1) = Modbus.	t/d	t	t	t	t	flag
dEA	Index of the device within the family (valid values from 0 to 14).	0 ... 14	0	0	0	0	num
FAA	Device family (valid values from 0 to 14).	0 ... 14	0	0	0	0	num
Pty	Modbus parity bit. **n** (0) = none; **E** (1) = even; **o** (2) = odd.	n/E/o	n	n	n	n	num
StP	Modbus stop bit. **1b** (0) = 1 bit; **2b** (1) = 2 bit.	1b/2b	1b	1b	1b	1b	flag
DISPLAY (folder "diS")							
LOC	Basic commands edit lock. It is still possible to access parameter programming and edit the parameters. **n** (0) = no; **y** (1) = yes.	n/y	n	n	n	n	flag
PS1	Password1: if PS1≠0 it is the password to the user parameters	0 ... 250	0	0	0	0	num
PS2	Password2: if PS2≠0 is the access key to the installer parameters	0 ... 250	15	15	15	15	num
ndt	Display with decimal point. **n** (0) = no; **y** (1) = yes.	n/y	y	y	y	y	flag
CA1	Calibration 1. Temperature value to be added to the value of Pb1.	-12.0...12.0	0.0	0.0	0.0	0.0	°C/°F
CA2	Calibration 2. Temperature value to be added to the value of Pb2.	-12.0...12.0	0.0	0.0	0.0	0.0	°C/°F

PARA.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
CA3	Calibration 3. Temperature value to be added to the value of Pb3.	-12.0...12.0	0.0	0.0	0.0	0.0	°C/°F
ddL	Display mode during defrost. **0** = shows the temperature read by Pb1; **1** = locks the reading on the value of Pb1 at the start of defrost; **2** = shows the label “dEF”.	0/1/2	0	0	0	0	num
Ldd	Timeout value for display unlock - label “dEF”.	0 ... 255	30	30	30	30	min
dro	Select the unit of measurement used when displaying the temperature recorded by the probes. **0** = °C, **1** = °F. **Note:** switching between °C and °F DOES NOT modify the SEt, diF etc. values. (for examp setpoint=10°C becomes 10 °F)	0/1	0	0	0	0	flag
ddd	Selects the type of value to show in the display. **0** = Setpoint; **1** = probe Pb1; **2** = probe Pb2; **3** = probe Pb3.	0/1/2/3	1	1	1	1	num
HACCP (folder “HCP”)							
SHH	Maximum HACCP alarm signals threshold.	-55.0...150	50.0	50.0	50.0	50.0	°C/°F
SLH	Minimum HACCP alarm signals threshold.	-55.0...150	-50.0	-50.0	-50.0	-50.0	°C/°F
drA	Minimum dwelling time in critical area for the event to be recorded. After this time a HACCP alarm will be logged and signalicon.	0 ... 99	0	0	0	0	min
drH	HACCP alarm reset time from last reset.	0 ... 250	72	72	72	72	hours
H50	Enable HACCP and alarm relay functions. **0** = HACCP alarms NOT enabled; **1** = HACCP alarms enabled and alarm relay NOT enabled; **2** = HACCP enabled and alarm relay enabled.	0/1/2	0	0	0	0	num
H51	HACCP alarm override time.	0 ... 250	0	0	0	0	min
CONFIGURATION (Folder “CnF”)							
Note: if at least one parameter in this folder is modified, the controller MUST be switched off and then switched back on to make the modification effective.							
H00	Probe type selection. 0 = PTC; 1 = NTC; 2 = Pt1000.	0/1/2	1	1	1	1	num

PARA.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
H11	Configuration of digital input DI1/polarity. **0** = disabled; **±1** = defrost; **±2** = reduced set; **±3** = AUX; **±4**= door-switch; **±5** = external alarm; **±6** = standby; **±7** = pressure switch; **±8** = deep cooling; **±9** = disable HACCP alarm logging. **Note:** the "+" sign indicates the input is active when the contact is closed; the "-" sign indicates that the input is active when the contact is opened	-9 ... +9	4	4	4	4	num
H12	Configuration of digital input 2/polarity. Same as H11.	-9 ... +9	0	0	0	0	num
H21	Configurability of digital output 1. **0** = disabled; **1** = compressor; **2** = defrost; **3** = fans; **4** = alarm; **5** = AUX; **6** = standby.	0 ... 6	3	5	5	3	num
H22	Configurability of digital output 2. Same as H21.	0 ... 6	2	2	3	2	num
H23	Configurability of digital output 3. Same as H21.	0 ... 6	1	1	1	1	num
H24	Configurability of digital output 4. **0** = disabled; **1** = compressor; **2** = defrosting; **3** = fans; **4** = alarm; **5** = AUX; **6** = standby; **7** = not used.	0 ... 7	5	3	2	4	num
H25	Enable/disable buzzer. **0** = Disabled; **4** = Enabled; **1-2-3-5-6-7-8** = not used.	0 ... 8	4	4	4	4	num
H31	Key configurability ⏶. **0** = disabled; **1** = defrosting; **2** = AUX; **3** = reduced set; **4** = standby; **5** = reset HACCP alarms; **6** = HACCP alarms disabled; **7** = deep cooling.	0 ... 7	1	1	1	1	num
H32	Configurability button ⏷. Same as H31.	0 ... 7	2	2	2	0	num
H42	Evaporator probe present. **n** (0) = not present; **y** (1) = present.	n/y	y	y	y	y	flag
H43	Probe 3 present. **n** (0) = not present; **y** (1) = present.	n/y	n	n	n	n	flag
rEL	Reserved: read-only parameter. Device version.	/	-	-	-	-	-

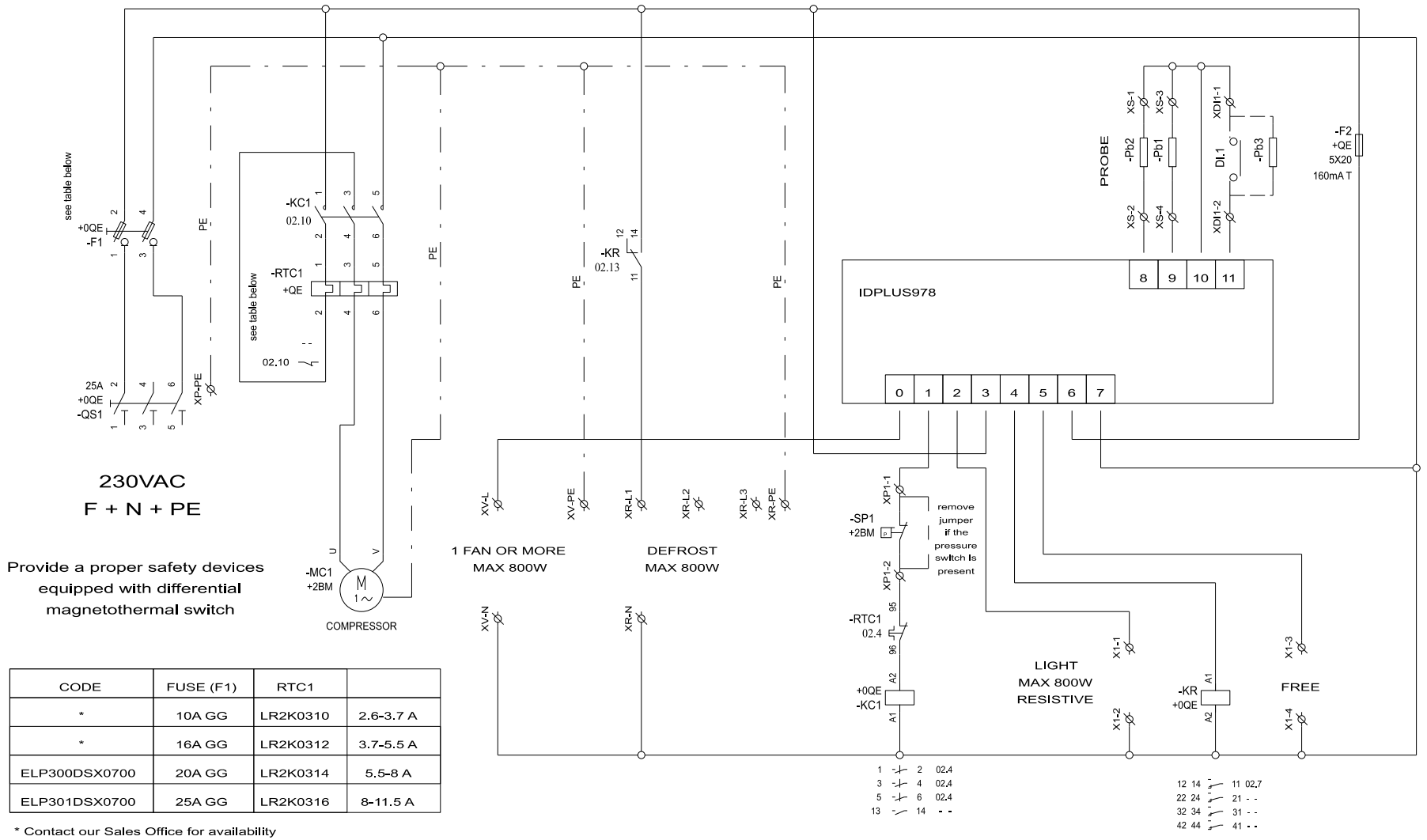
PARA.	DESCRIPTION	RANGE	AP1	AP2	AP3	AP4	M.U.
tAb	Reserved: read-only parameter. Table of parameters.	-	-	-	-	-	-
COPY CARD (folder “FPr”)							
UL	Transfer of programming parameters from instrument to Copy Card	-	-	-	-	-	-
Fr	Format Copy Card. To erase all data on the Copy Card. **Note:** if parameter “Fr” is used, the data entered will be permanently lost. This operation cannot be reversed.	-	-	-	-	-	-
Functions (folder “FnC”)							
rAP	Reset pressure switch alarms.	-	-	-	-	-	-
rES	Reset HACCP alarms.	-	-	-	-	-	-

Enclosures

Single-phase version annexes

Single-phase version wiring diagram

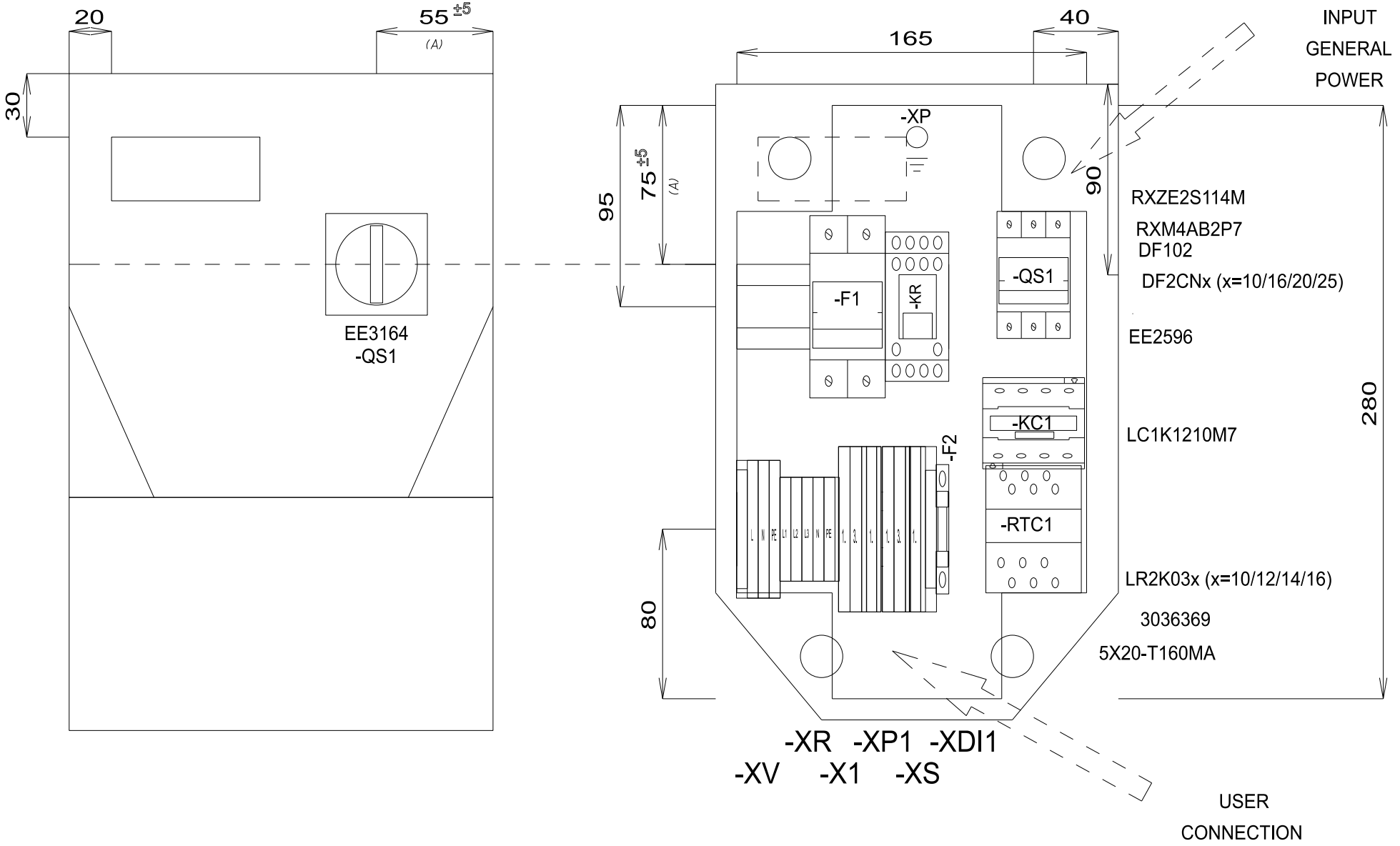
NOTICE
INOPERABLE DEVICE The wiring diagram refers to the factory configuration. If during installation a different configuration is defined, the installer must update the wiring diagram. **Failure to follow these instructions can result in equipment damage.**



CODE	FUSE (F1)	RTC1	
*	10A GG	LR2K0310	2.6-3.7 A
*	16A GG	LR2K0312	3.7-5.5 A
ELP300DSX0700	20A GG	LR2K0314	5.5-8 A
ELP301DSX0700	25A GG	LR2K0316	8-11.5 A

* Contact our Sales Office for availability

Single-phase version topography



Single-phase versions list of materials

MATERIAL LIST

Identification	Description	Code	Manufacturer	Location	Amount
F1	FUSE-HOLDER 2P 32A 690V	DF102	SCHNEIDER	0QE	1
F1	FUSE	DF2CN10 / 16 / 20 / 25	SCHNEIDER	0QE	2
F2	FUSE-HOLDER 5X20	3036369	PHOENIX	0QE	1
F2	FUSE 5X20 160MA T	5X20-T160MA	FUSIBILE	0QE	1
G1	RAIL	04180089	CON	0QE	1
KC1	CONTACTOR 12A AC3 230VAC	LC1K1210M7	SCHNEIDER	0QE	1
KR	4 CONTACTS RELAY-HOLDER	RXZE2S114M	SCHNEIDER	0QE	1
KR	4 CONTACTS RELAY 230VAC 6A LED	RXM4AB2P7	SCHNEIDER	0QE	1
QS1	MAIN SWITCH 25A 3P	EE2596	ABB	0QE	1
QS1	YELLOW/RED PADLOCKABLE HANDLE MINI	EE3164	ABB	0QE	1
QS1	SHAFT 6X130MM	EE3222	ABB	0QE	1
RTC1	TERMIC RELAY 5.5-8A / TERMIC RELAY 8-11.5A	LR2K0310 / 12 / 14 / 16	SCHNEIDER	0QE	1

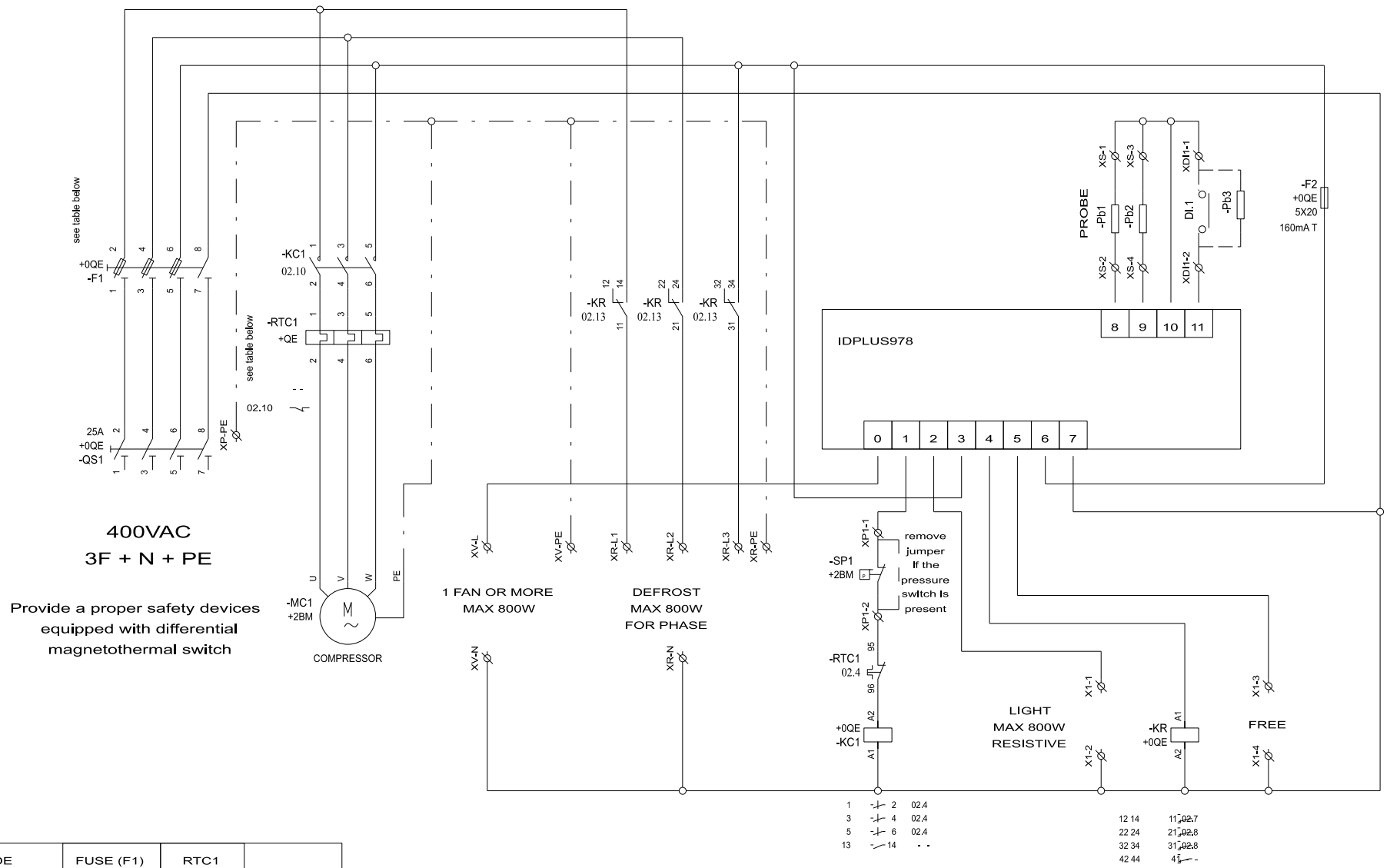
TERMINAL BOARD LIST

Identification	Description	Code	Manufacturer	Location
P1	FBS 2-5	3030161	PHOENIX	0QE
P2	FBS 2-5	3030161	PHOENIX	0QE
X1-	D-STTBS 2,5	3038503	PHOENIX	0QE
X1-1.	STTBS 2,5	3038464	PHOENIX	0QE
X1-3.	STTBS 2,5	3038464	PHOENIX	0QE
XP1-	D-STTBS 2,5	3038503	PHOENIX	0QE
XP1-1	STTBS 2,5	3038464	PHOENIX	0QE
XDI1-	D-STTBS 2,5	3038503	PHOENIX	0QE
XDI1-	CLIPFIX 35-5	3022276	PHOENIX	0QE
XDI1-1.	STTBS 2,5	3038464	PHOENIX	0QE
XR-	D-ST 2.5	3030417	PHOENIX	0QE
XR-L1	ST 2,5	3031212	PHOENIX	0QE
XR-L2	ST 2,5	3031212	PHOENIX	0QE
XR-L3	ST 2,5	3031212	PHOENIX	0QE
XR-N	ST 2,5	3031212	PHOENIX	0QE
XR-PE	ST 2,5-PE	3031238	PHOENIX	0QE
XS-	D-STTBS 2,5	3038503	PHOENIX	0QE
XS-1.	STTBS 2,5	3038464	PHOENIX	0QE
XS-3.	STTBS 2,5	3038464	PHOENIX	0QE
XV-	CLIPFIX 35-5	3022276	PHOENIX	0QE
XV-L	ST 2,5-TWIN	3031241	PHOENIX	0QE
XV-N	ST 2,5-TWIN	3031241	PHOENIX	0QE
XV-PE	ST 2,5-TWIN-PE	3031267	PHOENIX	0QE

Three-phase version annexes

Three-phase version wiring diagram

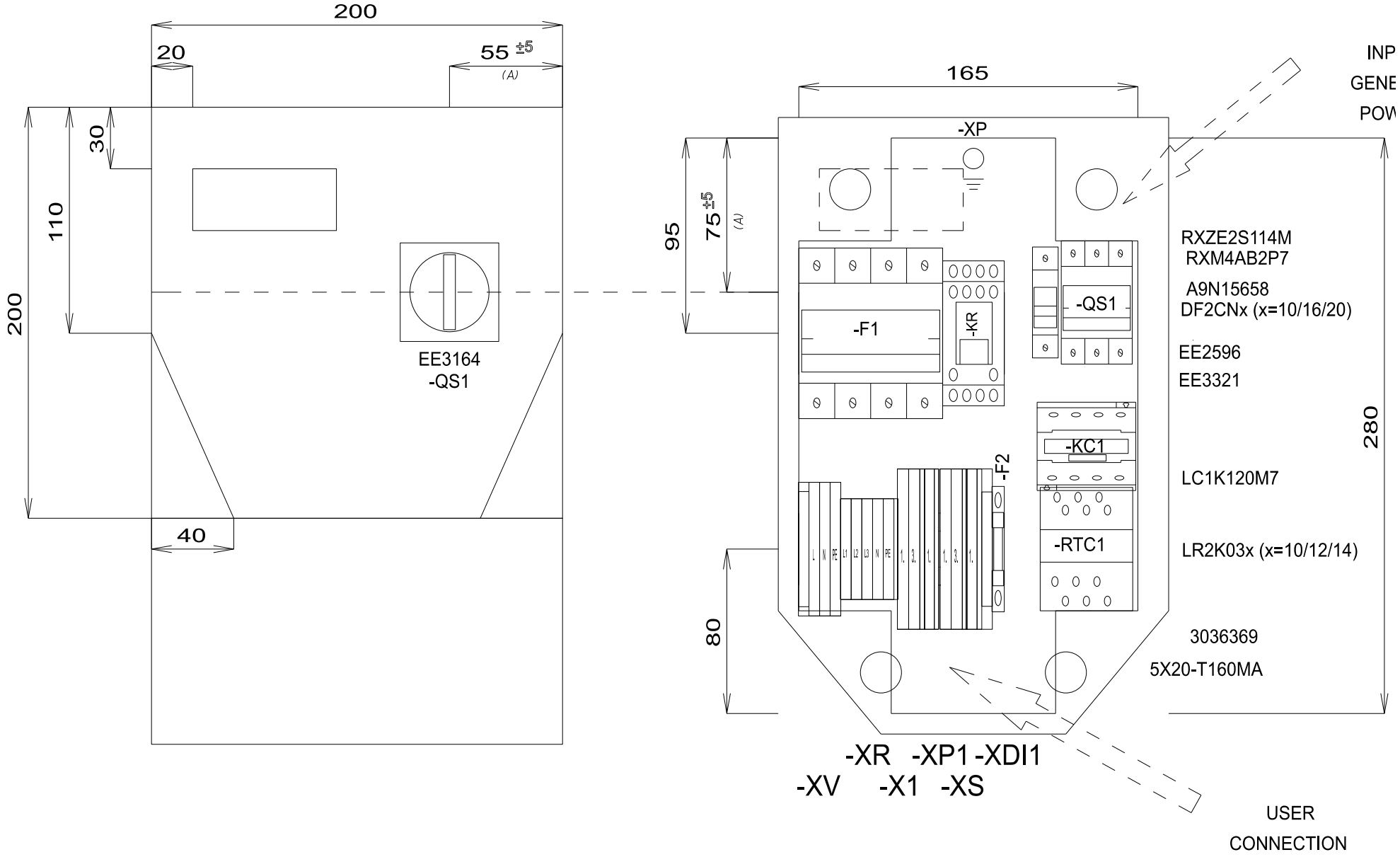
NOTICE
INOPERABLE DEVICE The wiring diagram refers to the factory configuration. If during installation a different configuration is defined, the installer must update the wiring diagram. **Failure to follow these instructions can result in equipment damage.**



CODE	FUSE (F1)	RTC1	
*	10A GG	LR2K0310	2.6-3.7 A
ELP302DSX0900	16A GG	LR2K0312	3.7-5.5 A
ELP303DSX0900	20A GG	LR2K0314	5.5-8 A

* Contact our Sales Office for availability

Three-phase version topography



Three-phase versions list of materials

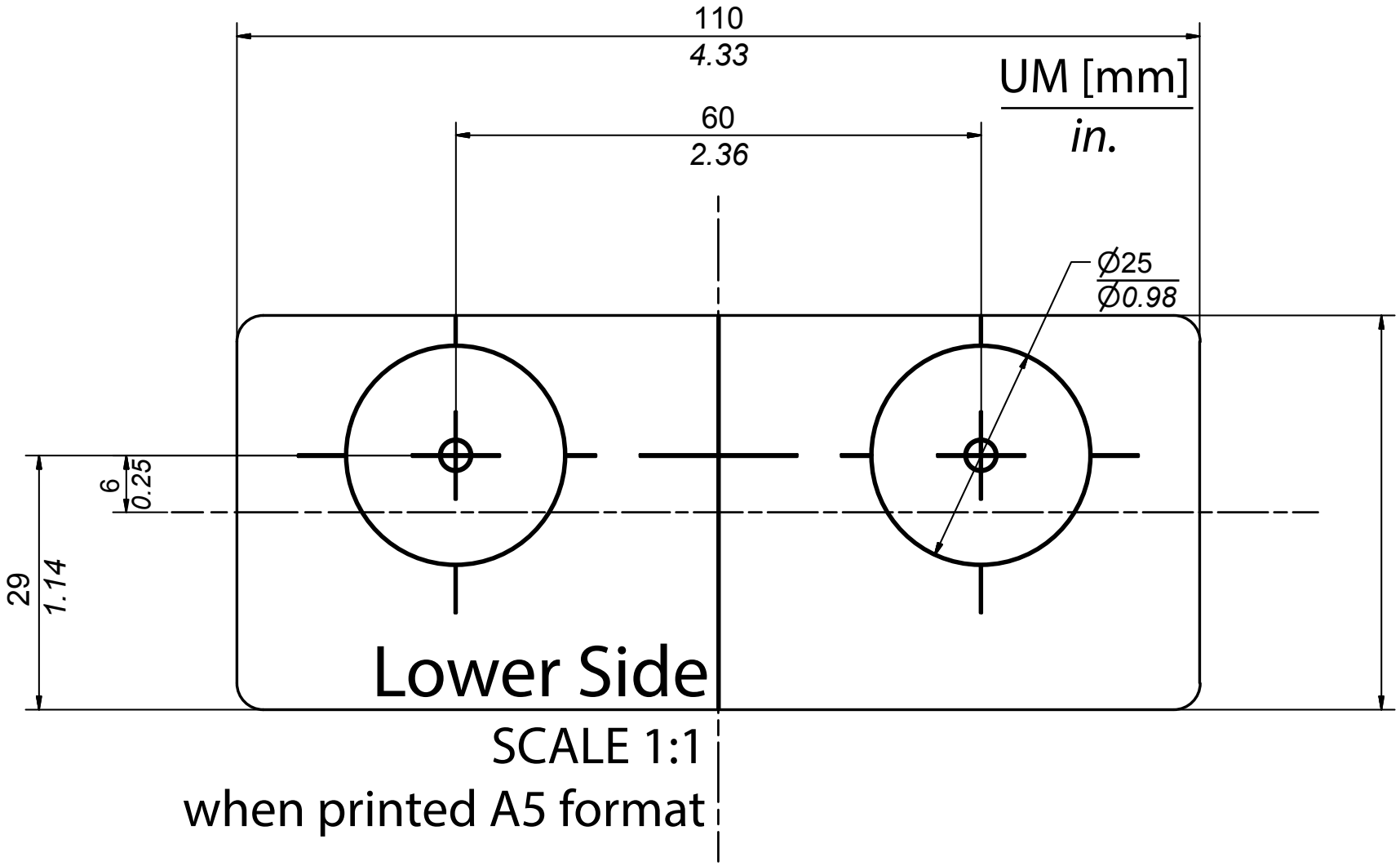
MATERIAL LIST

Identification	Description	Code	Manufacturer	Location	Amount
F1	FUSE-HOLDER 3P+N 32A 690V	A9N15658	SCHNEIDER	0QE	1
F1	FUSE	DF2CN10 / 16 / 20	SCHNEIDER	0QE	3
F2	FUSE-HOLDER 5X20	3036369	PHOENIX	0QE	1
F2	FUSE 5X20 160MA T	5X20-T160MA	FUSIBILE	0QE	1
G1	RAIL	04180089	CON	0QE	1
KC1	CONTACTOR 12A AC3 230VAC	LC1K1210M7	SCHNEIDER	0QE	1
KR	4 CONTACTS RELAY-HOLDER	RXZE2S114M	SCHNEIDER	0QE	1
KR	4 CONTACTS RELAY 230VAC 6A LED	RXM4AB2P7	SCHNEIDER	0QE	1
QS1	MAIN SWITCH 25A 3P	EE2596	ABB	0QE	1
QS1	SHAFT 6X130MM	EE3222	ABB	0QE	1
QS1	FOURTH POLE SWITCH 40A	EE3321	ABB	0QE	1
QS1	YELLOW/RED PADLOCKABLE HANDLE MINI	EE3164	ABB	0QE	1
RTC1	TERMIC RELAY 3.7-5.5A / TERMIC RELAY 5.5-8A	LR2K0310 / 12 / 14	SCHNEIDER	0QE	1

TERMINAL BOARD LIST

Identification	Description	Code	Manufacturer	Location	Amount
X1-	D-STTBS 2,5	3038503	PHOENIX	0QE	1
X1-1.	STTBS 2,5	3038464	PHOENIX	0QE	1
X1-3.	STTBS 2,5	3038464	PHOENIX	0QE	1
XP1-	D-STTBS 2,5	3038503	PHOENIX	0QE	1
XP1-1	STTBS 2,5	3038464	PHOENIX	0QE	1
XDI1-	D-STTBS 2,5	3038503	PHOENIX	0QE	1
XDI1-	CLIPFIX 35-5	3022276	PHOENIX	0QE	1
XDI1-1.	STTBS 2,5	3038464	PHOENIX	0QE	1
XR-L1	ST 2,5	3031212	PHOENIX	0QE	1
XR-L2	ST 2,5	3031212	PHOENIX	0QE	1
XR-L3	ST 2,5	3031212	PHOENIX	0QE	1
XR-N	ST 2,5	3031212	PHOENIX	0QE	1
XR-PE	ST 2,5-PE	3031238	PHOENIX	0QE	1
XS-	D-STTBS 2,5	3038503	PHOENIX	0QE	1
XS-1.	STTBS 2,5	3038464	PHOENIX	0QE	1
XS-3.	STTBS 2,5	3038464	PHOENIX	0QE	1
XV-	CLIPFIX 35-5	3022276	PHOENIX	0QE	1
XV-L	ST 2,5-TWIN	3031241	PHOENIX	0QE	1
XV-N	ST 2,5-TWIN	3031241	PHOENIX	0QE	1
XV-PE	ST 2,5-TWIN-PE	3031267	PHOENIX	0QE	1

Drilling template



IDPanel 978

User manual

9MA10274.01 EN 06/18

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