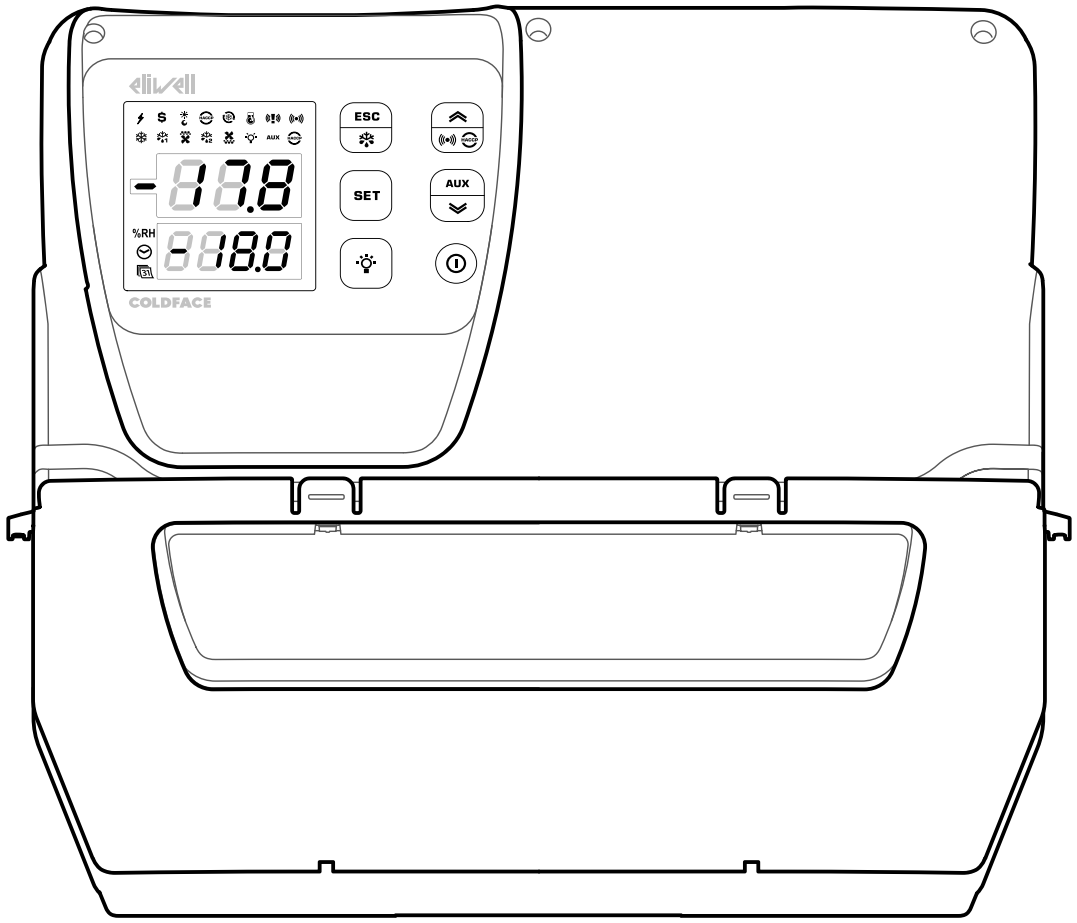
by Schneider Electric

EWRC 5010/5030

Instruction manual
9MA10279.01 | 05/19

Translation of the original instructions



Information ownership

The information provided in this documentation contains general descriptions and/or technical characteristics 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 your 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 that follow 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.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel.

No responsibility is assumed by Schneider Electric nor Eliwell for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Permitted use

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

For safety reasons, the equipment must be installed and used in accordance with the instructions provided.

Prohibited use

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

The relays supplied are electromagnetic and are subject to wear. The protection devices required by international or local laws must be installed outside the equipment.

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 defiance of safety requirements of established legislation and/or specified in this document
- installation/use on equipment which does not comply with established legislation and technical standards
- tampering with and/or modification of the product.

Disposal

The equipment 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.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables, and wires and confirm that a proper ground connection exists before applying power to the unit.
- Use only the specified voltage when operating this equipment and any associated products.
- 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.

FLAMMABLE GAS REFRIGERANTS

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 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.

Information about the manual

Document objective

This document describes the EWRC 5010/5030 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 EWRC 5010/5030, in particular the following models:

Model	Short code
RCH301••X•7••	2
RCH302••X•7••	3
RCH303••X•7••	4
RCH304••X•7••	5
RCH305••X•9••	6
RCH306••X•9••	7

Model	Short code
RCH307••X•9••	8
RCH308••X•9••	9
RCH309••X•9••	10
RCH310••X•9••	11
RCH311••X•9••	12
RCH312••X•9••	13

The technical characteristics of the equipment described in this manual can also be consulted online. The characteristics illustrated in this manual should be identical to those which can be consulted online.

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 online, please use the latter as a reference.

Related documents

Document title	Reference document code
Instruction manual EWRC 5010/5030 (this manual)	9MA0*279
Attached documents (wiring diagram, terminal blocks, layout and BOM)	9MA10285 (models 2, 3, 4, 5) 9MA10286 (models 6, 7, 8) 9MA10287 (models 9, 10, 11) 9MA10288 (model 12) 9MA10289 (model 13)
EWRC 300/500/5000 NT user manual	For further information and different configurations, refer to the complete user manual cod. 9MA*0258 which is available to download free of charge from www.eliwell.com
Schneider Electric component documentation	see http://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

Before removing the device from its packaging, make sure that the cardboard box has not been damaged. Generally, a damaged cardboard box suggests that the goods have not been handled with care and that the equipment inside may well be damaged. If you notice damage of any kind, contact the courier and your representative / distributor.

⚠ CAUTION

DAMAGED PACKAGING

- Handle the equipment with care
- Check whether the product shows signs of damage
- Do not operate or install the equipment or its accessories if they appear to be damaged.

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

⚠ CAUTION

RISK DURING TRANSPORTATION AND LIFTING

Wear personal protective equipment (PPE) during handling, lifting and unpacking.

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

NOTICE

INOPERABLE DEVICE

- Consult the manufacturer and check the warranty conditions if the product must be stored for long periods.
- Protect the panel from water, dust, humidity, vibrations and knocks.

Failure to follow these instructions can result in equipment damage.

Environmental conditions

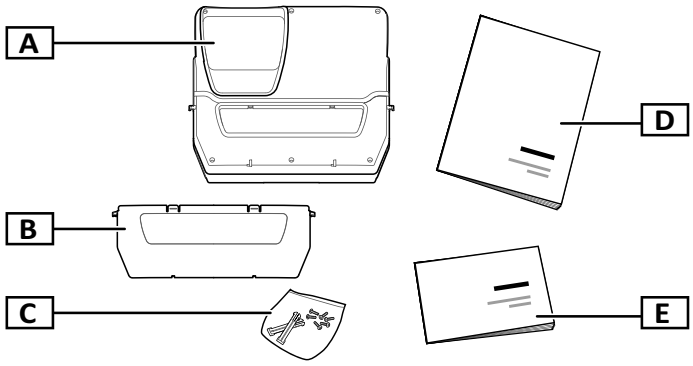
The equipment is designed to withstand shipping and storage temperatures between -20°C and +80°C. For temperatures outside this range, take appropriate precautions for further protection.

See “Ambient storage conditions” page 30.

Product identification

Pack contents

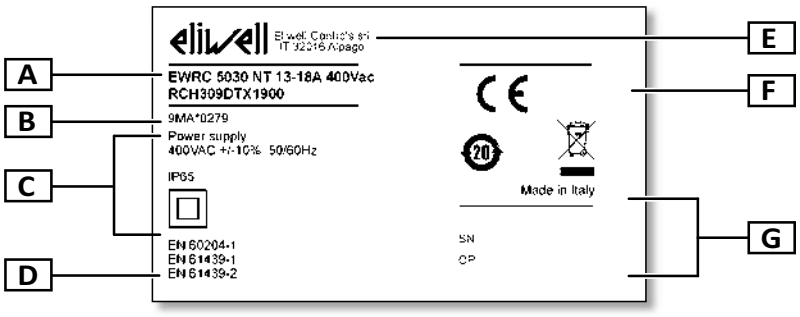
The following elements are supplied in the sales package:



Part	Description
A	EWRC 5010/5030
B	Front cover
C	Bag containing: • Two hinges for fixing the cover to the back • Six screws for closing the cover
D	Instruction manual (this document)
E	Attached documents (wiring diagrams, topography, terminal block description, list of materials)

Duplicate ID 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	Manufacturer address
F	Marks / labels
G	Production data

Description of the equipment

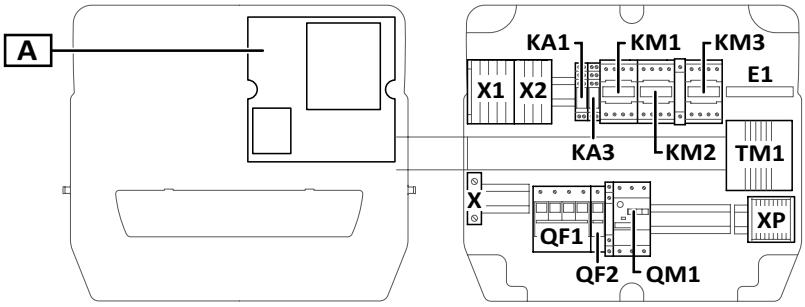
General description

Introduction

EWRC 5010/5030 is an electrical panel including a control board and electro-mechanical components for controlling both static and ventilated refrigerating units.

In particular, the panel can control the compressor, evaporator fans, defrosting element, condenser fans, solenoid valve, oil sump and chamber light.

Internal components

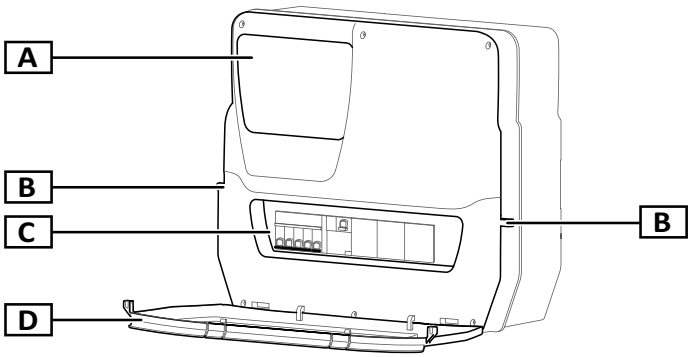


Note: the illustration refers to models 9, 10 and 11.

Part	Description	2-3-4-5	6-7-8	9-10-11	12	13
A	Electronic control board	**x**	**x**	**x**	**x**	**x**
X1	Input terminal block	**x**	**x**	**x**	**x**	**x**
X2	Auxiliary output terminal block	**x**	**x**	**x**	**x**	**x**
X	Ground contact terminal block	**x**	**x**	**x**	**x**	**x**
XP	Power output terminal block	**x**	**x**	**x**	**x**	**x**
KA1	Auxiliary relay	**x**	**x**	**x**	**x**	**x**
KA2	Auxiliary relay	**x**	**x**	**-**	**x**	**-**
KA3	Auxiliary relay	**x**	**x**	**x**	**x**	**x**
KA4	Auxiliary relay	**-**	**-**	**-**	**x**	**x**
E1	Fan	**-**	**-**	**x** *(1)*	**-**	**-**
KM1	Evaporator fans contactor	**-**	**-**	**x**	**-**	**x**
KM2	Defrost heater contactor	**x**	**x**	**x**	**x**	**x**
KM3	Compressor contactor	**x**	**x**	**x**	**-**	**-**
TM1	Insulation transformer	**x**	**x**	**x**	**x**	**x**
QF1	Main circuit breaker	**x**	**x**	**x**	**x**	**x**
QF2	Circuit breaker for electronics board and auxiliary contacts	**x**	**x**	**x**	**x**	**x**
QM1	Motor overload protection	**x**	**x**	**x**	**-**	**-**

(1) **model 11 only**

External parts



Part	Description
A	Multifunctional display
B	Holes for padlocks securing the cover
C	Front window
D	Front cover

Inputs and outputs

Introduction

EWRC 5010/5030 manages:

- two probe inputs
- two digital inputs
- one multi-purpose input (digital or probe)
- up to nine digital inputs, depending on the model
- one TTL serial port
- one RS-485 serial port (optional)

For details on configurable probes, inputs and outputs please refer to user manual 9MAx0258.

Probe inputs

Probe input 1 is used by default for the temperature sensor to control the compressor, probe input 2 for the temperature sensor to control the defrost or the evaporator fans.

Note: probe input 3 can be used as digital input 3.

Digital inputs

Digital input 1 is used by default for managing the micro-port; digital input 2 is configured as external alarm to indicate when the compressor stops unusually.

Note: digital input 3 can be used as probe input 3.

Relay

The digital outputs are used, depending on the panel model, to manage:

- compressor / condensing unit consent (depending on model)
- condenser fan (1/2 depending on model)
- defrosting element
- evaporator fans
- light
- alarm / auxiliary output
- sump oil
- solenoid valve

TTL serial port

The TTL serial port can be used to configure the control board by connecting with UNICARD, CopyCard and Device Manager via DMI.

RS-485 serial port

The serial port is available with an optional plug-in RS-485 module, which allows the board to be connected to Televis**System** or another supervisor via Modbus communication.

Note: if using the TTL port to communicate, disconnect the RS-485 port and vice-versa.

Parameters

Configuration parameters

The inputs and outputs can be configured and the control logic defined via parameters accessible directly from the multifunctional display.

The control board is pre-configured with a parameters map. The map values can be edited and reset.

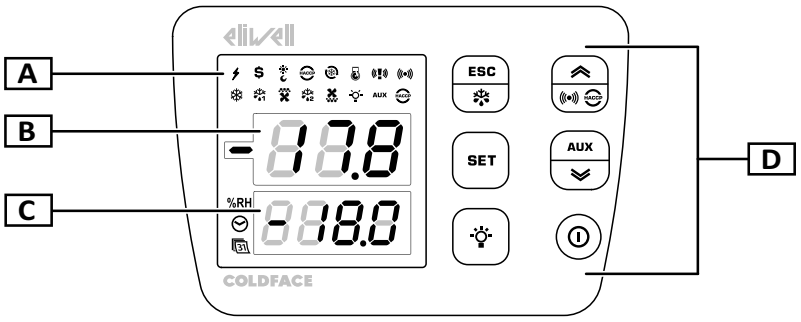
Visibility of parameters

The parameters have two levels of visibility:

- user: parameters for basic control board configuration. They may be protected by the user password **PA1** and are given in “User parameters table” page 33
- installer: organised in folders, including the user parameters and other parameters for advanced control board configuration. They may be protected by the installer password **PA2** and are given in the user manual.

Multifunctional display

It appears as follows



Part	Description
A	status LED
B	3-digit top display. It can show the following elements: • Parameter labels **Note:** flashing label in edit mode. • Function labels • Operating value • Alarms
C	4-digit bottom display. It can show the following elements: • Parameter values • Probe values • Function status • Date and time * **Note** *: HACCP models only.
D	Keypad

Key functions

Button	Main menu		Other menus	
	Function (short press)	Function (long press)	Function (short press)	Function (long press)
ESC	Access the “Functions” menu	Enable manual defrost	Return to the higher menu level	Return to the main menu
	Access the “Alarms” menu	-	• Scroll through the menu items • Increase the values	-
SET	Access the “Machine Status” menu	Access the “Parameters” menu	• Access value edit mode • Confirm values • Move to the next field in value edit mode • In “Functions” menu, enable/disable a function	-
AUX	Access “System information” menu	Auxiliary output On	• Scroll through the menu items • Decrease the values	
	-	Switch light on/off	-	-
	-	Enable standby	-	-

Status LED

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

LED	Colour	Description	LED	Colour	Description
	green	Power enabled		amber	Energy saving enabled
	amber	“Night and day” mode enabled	HACCP *	amber	HACCP menu (fourth LED from the left on the first row)
	amber	Deep cooling cycle active		amber	Compressor in pump down mode
	amber	• Steadily lit: panic alarm **NOTE:** when the buzzer is active a refrigerant leak alarm is also present. • Flashing: refrigerant leak alarm (leak detector)		amber	• Steadily lit: alarm tripped • Blinking: alarm acknowledged
	amber	• Compressor running • Compressor switch-on delay		amber	• Steadily lit: defrost 1 in progress • Blinking: dripping 1 in progress
	amber	• Steadily lit: evaporator fans on • Blinking: forced ventilation in progress		amber	• Steadily lit: defrost 2 in progress • Blinking: dripping 2 in progress

LED	Colour	Description	LED	Colour	Description
	amber	Condenser fans active		amber	Light on
AUX	amber	AUX enabled	HACCP *	red	HACCP alarm (last LED from the left on the second row)
%RH	amber	Not used	*	amber	View or edit time
*	amber	View or edit date			

Note *: HACCP models only.

Menu

Menu	Description
Functions	• **LOC**: keypad lock • **rHC**: HACCP alarms reset * • **rSE**: reduced setpoint • **rPA**: reset pressure switch alarm • **rEd**: disable HACCP alarms recording *
Machine status	• **SEt**: view/configure setpoint • **rtc**: set time * • **Pb1**: view probe 1 value - Pb1 • **Pb2**: view probe 2 value - Pb2 • **Pb3**: view probe 3 value - Pb3 **
Parameters	• **USr**: user parameters: “User parameters table” page 33 • **inS**: installer parameters: refer to the user manual.
Alarms	• **SYSt**: system alarms • **HACP**: HACCP alarms * **Note ***: HACCP models only.
System information	• **idF**: firmware version • **rEL**: firmware release version • **tAb**: parameters map • **rC**: equipment model

Note *: HACCP models only.

Note **: only if the probe is present and configured.

Status of the control board

Control board status	Display	QF2 circuit breaker position	Description
On	On	**ON**	The control board is on in all functions (unless anomalies are reported)
On	“LOC”	**ON**	After pressing a key: keypad locked (see “Operation with keypad locked” page 22 and LOC parameter in “User parameters table” page 33
Stand-by	“OFF”	**ON**	The control board is on but all utilities are disabled and no regulation is performed.
Off	Off	**OFF**	The control board is off

Installation of the equipment

Installation warnings

General warnings

⚠⚠ 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.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables, and wires and confirm that a proper ground connection exists before applying power to the unit.
- Use only the specified voltage when operating this equipment and any associated products.
- 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.

⚠ DANGER

POTENTIAL FOR EXPLOSION

- Install this device only in areas known to be free from dangerous surroundings.
- Install and use this equipment in non-hazardous locations only.

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

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- The signal cables (probes, digital inputs, communication, and relative power supplies) must be laid 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.

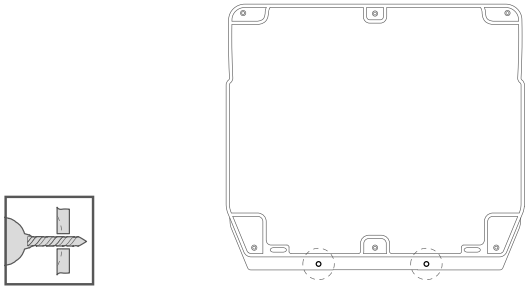
Install EWRC 5010/5030

Procedure sequence

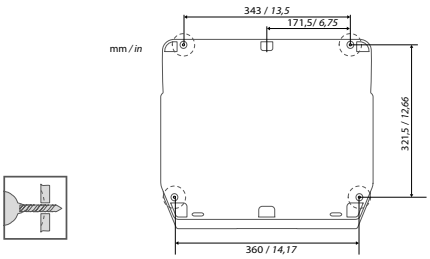
Proceed as follows when installing the panel:

1. “Prepare the panel on a workbench: make the holes in the back” page 17
2. “Optional. Prepare the panel on a workbench: install the plug-in RS-485 module for communication with the supervisor” page 17
3. “Mount the panel on the wall” page 18
4. “Connect the cables” page 18
5. “Connect the electronics board and close the panel” page 19
6. “Calibrate the motor overload protection” page 20
7. “Close the front cover” page 20
8. “Check the correct operation of the panel” page 20

Prepare the panel on a workbench: make the holes in the back



1. Remove the cover and drill the holes for the cable clamps (at least one for power cables and one for signalling cables) on the bottom of the panel.



2. Drill the wall fixing holes on the back of the panel, in the areas marked on the back.

When handling the equipment, use caution to avoid damage caused by electrostatic discharge.

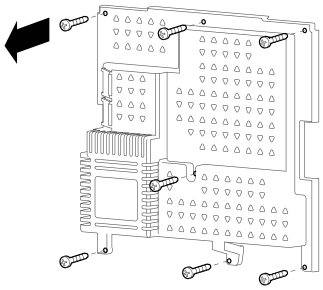
NOTICE

UNINTENDED EQUIPMENT OPERATION DUE TO ELECTROSTATIC DISCHARGE

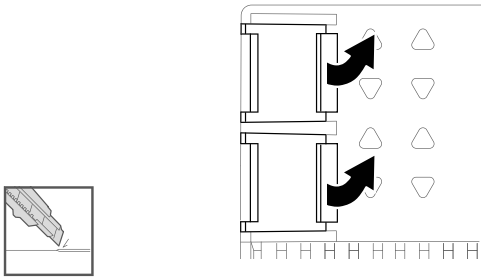
- Keep the device in the protective packaging until ready for installation.
- The device must only be installed in type-approved casings and/or in points that prevent accidental access and provide protection from electrostatic discharge as defined in IEC 1000-4-2.
- When handling sensitive devices, use an antistatic bracelet or equivalent earthed device protecting against electrostatic discharge.
- Before handling the device, always discharge the static electricity from the body by touching an earthed surface or an antistatic mat.

Failure to follow these instructions can result in equipment damage.

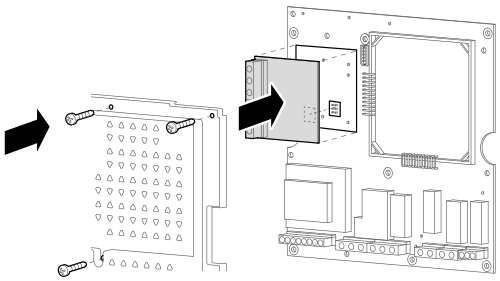
Optional. Prepare the panel on a workbench: install the plug-in RS-485 module for communication with the supervisor



1. Remove the seven screws securing the plastic protecting the board.



2. Remove the protective element, then use a box cutter to remove the two terminal covers.



NOTICE

INOPERABLE DEVICE

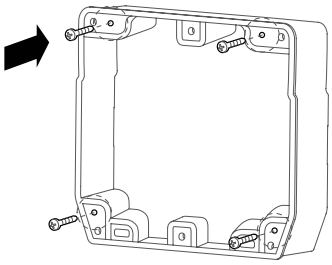
Insert the RS485 plug-in module into the strip connector aligning the four spacers with the holes on the electronic board.

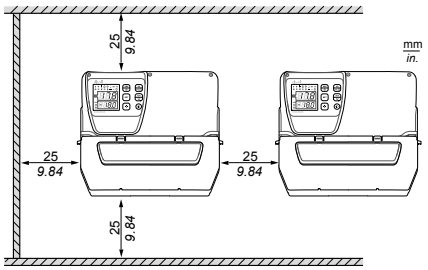
Failure to follow these instructions can result in equipment damage.

3. Connect the RS-485 plug-in module (optional) using the provided spacers, then replace the cover and secure it using the screws.

Mount the panel on the wall

Fix the back of the panel to the wall using four screws (not supplied) suited to the wall thickness and type.





Distances

Comply with the indicated distances when installing the product

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not place this equipment 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.

Connect the cables

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Keep the power disconnected for internal components. Before performing the connections make sure that the main circuit breaker QF1 is OFF.

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

Connect the terminal blocks, the main circuit breaker (**QF1**), the compressor contactor (**KM3**) where present and, as an option, the RS-485 plug-in module, observing the data provided in the attached documents and in “Electrical connections” page 31. Use suitable cable/pipe clamps.

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

The module is preconfigured for installation to the mains with a rated voltage of 230 Vac (single-phase models) or 400 Vac (three-phase models).

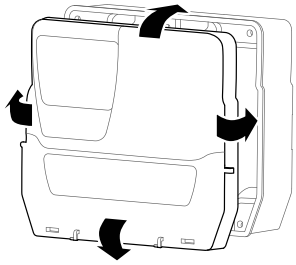
NOTICE

INOPERABLE DEVICE

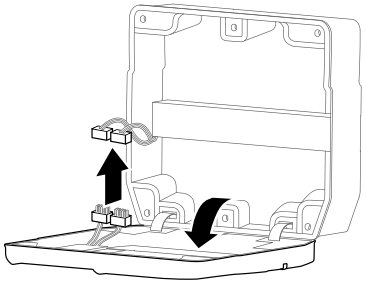
If the mains has a rated voltage of 220 Vac or 380 Vac, the transformer connections must be reconfigured with reference to the label on the transformer itself.

Failure to follow these instructions can result in equipment damage.

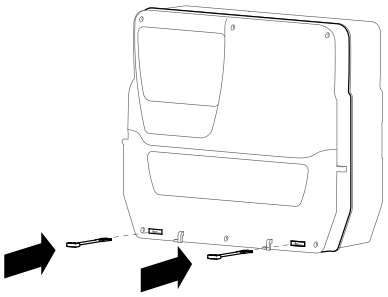
Connect the electronics board and close the panel



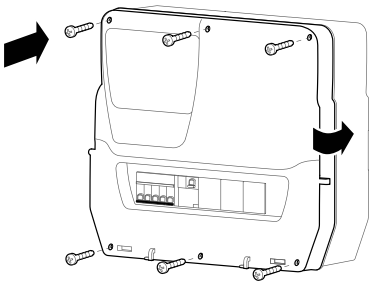
1. Place the panel cover over the back, making sure it adheres to the perimeter seal.



3. Gently let go of the cover and connect the two click-fit polarised connectors for the electronics board to the panel.

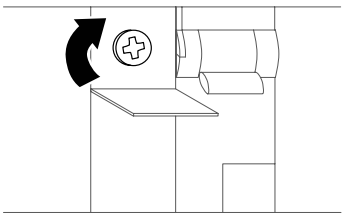


2. While holding the cover in place, fit the two hinges provided into the corresponding holes and press them until you hear them click into place.

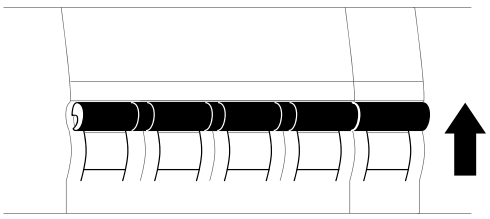


4. Check that all the cables are inside the box, close the cover and lock with the six screws provided. Take care not to damage the seal, as doing so could affect the IP protection rating.

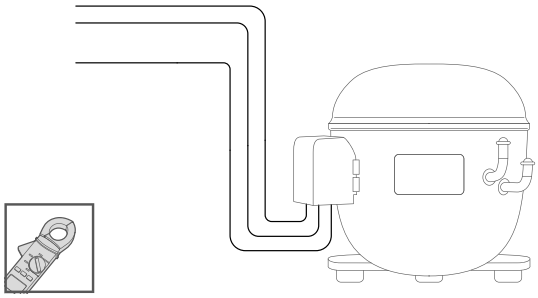
Calibrate the motor overload protection



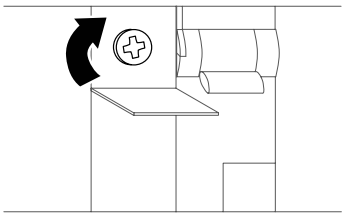
1. Turn the adjusting screw on the motor overload protection and set an absorption greater than the value indicated on the compressor data plate.



2. Set the circuit breakers QF1 and QF2 to ON.

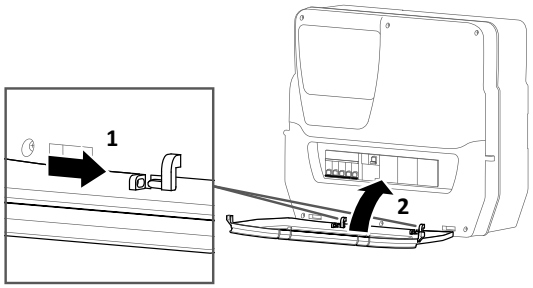


3. Check the effective absorption of the compressor with an ammeter.



4. Turn the adjusting screw on the motor overload protection and set the effective absorption of the compressor.

Close the front cover



1. Align the front cover with the two hooks on the bottom of the panel and push towards the right until it clicks into place.
2. Close the cover.

Check the correct operation of the panel

When it is first switched on, the control board is configured with the default values (see “User parameters table” page 33). If the real application does not correspond to the default values, see “Modifying the parameters” page 23 and/or refer to the user manual.

Run a complete refrigeration cycle and make sure that the EWRC 5010/5030 is operating correctly, and that the controlled refrigerated unit is set up correctly.

Installer procedure

Modify the installer parameters

1. To enter the “Parameters” menu press and hold **SET**.
2. Scroll through the folders using keys ( ) and ( ) until the **inS** folder is displayed.

If...	Then...
the installer password is disabled (**PA2** = 0)	press **SET**: the first available parameter appears on the display.
the installer password is enabled (**PA2** ≠ 0)	the text **PA2** appears on the second line of the display. Press **SET** and enter the password using the ( ) and ( ) keys, then press **SET**: the first available parameter appears on the display. **Note:** if the entered password is wrong, the **inS** folder will appear again and the password must be re-entered.

3. Scroll through the parameters using the ( ) and ( ) keys.
4. View the desired parameter and press **SET**: the parameter blinks and its value can be edited.
5. Change the value using the ( ) and ( ) keys.
6. To confirm the value press **SET**.

Change the time and date

Note: only applies to HACCP models.

1. Press **SET** to open the “Machine Status” menu.
2. Press ( ): the text **rtc** and the set time appear on the displays.
3. Press **SET** to enter edit mode: the hour blinks.
4. Change the value with the ( ) and ( ) keys.
5. To confirm the value and move on to the next field, press **SET**.
6. Repeat steps 4 and 5 to change - in sequence - the minutes, day, month and year.
7. Press **ESC** to confirm the changes.

   Note: press **ESC** at any time while editing the time and date to confirm the changes.

Parameters for setting communication with a supervisor

Parameter	Description	Range	Default
dEA	Index of the device within the family (valid values from 0 to 14).	0 ... 14	0
FAA	Device family (valid values from 0 to 14).	0 ... 14	0
Pty	Modbus parity bit. **n** = none; **E** = even; **o** = odd.	n/E/o	n
StP	Modbus stop bit. **1b** = 1 bit; **2b** = 2 bit.	1b - 2b	1b

Set communication with a supervisor

EWRC 5010/5030 can communicate with a supervisor. The procedure is described below.

1. Connect the RS-485 plug-in module to the board (“Optional. Prepare the panel on a workbench: install the plug-in RS-485 module for communication with the supervisor” page 17).
2. Set the parameters, as follows:

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

3. Connect the RS-485 module to the supervisor.

Password types

The following passwords are required:

- Password “PA1”: allows access to user parameters. By default the password is disabled (parameter **PA1**=0).
- Password “PA2”: allows access to installer parameters. The password is enabled by default (**PA2** ≠ 0), with **PA2**=15.
- Password “PA3” *: allows HACCP alarms to be reset in the “Functions” menu. By default the password is disabled (parameter **PA3**=0).

  Note *: HACCP models only.

Change the passwords

The procedure for changing the three passwords is described below.

Enable password “PA1”

1. Press and hold **SET** to access the “Parameters” menu.
2. Press **SET** to access the user parameters.
3. Scroll through the parameters using the ⌃ and ⌄ keys until parameter **PA1** is displayed and press **SET**: the parameter blinks and its value can be edited.
4. Change the value with the ⌃ and ⌄ keys.
5. To confirm the value press **SET**.

Change passwords “PA2” and “PA3”

1. Press and hold **SET** to access the “Parameters” menu.
2. Scroll through the folders using keys ⌃ and ⌄ to view the **inS** folder and press **SET**.
3. Set value “15” using the ⌃ and ⌄ keys and press **SET** to access the installer parameters.
4. Scroll through the folders using keys ⌃ and ⌄ to view the **diS** folder and press **SET**.
5. Scroll through the parameters using the ⌃ and ⌄ keys until parameter **PA2** or **PA3** is displayed and press **SET**: the parameter blinks and its value can be edited.
6. Change the value using the ⌃ and ⌄ keys.
7. To confirm the value press **SET**.

Operation with keypad locked

The keypad can be locked. While the lock is in place, the keypad can operate as follows:

- only the **SET**, **ESC**, **AUX** keys are enabled on the main menu, for access to the corresponding sub-menus;
- the navigation functions remain enabled within the menus;
- in the “Functions” menu, only the **LOC** function is available and can be changed.
- The “Machine status” menu is read-only;
- the parameters can still be viewed and edited.

Lock/Unlock the keypad

From the “Functions” menu

1. Press **ESC**: the “Functions” menu opens and the **LOC** function appears on the display
2. Press **SET** to lock/unlock the keypad.

From the “Parameters” menu

To lock the keypad, set the parameter **LOC** = y; to unlock it **LOC** = n.

Use of the equipment

Operator procedures

Change the status of the control board

The actions required to change the control board status are described below:

1. To switch it on: set the circuit breaker **QF2** to ON
2. To switch it off: set the circuit breaker **QF2** to OFF
3. To set it to standby: press and hold ⏻
4. To re-enable from standby mode: press and hold ⏻

Set the Set point

1. Press **SET**: the “Machine status” menu opens and the **SEt** parameter appears, along with its value.
2. Press **SET** to change the parameter.
3. To change the value, press the ∧ and ∨ keys within 15 seconds.
4. **Note**: if the keypad is locked (see **LOC** parameter in “User parameters table” page 33) the set point may be viewed but not changed.
5. To confirm the value press **SET**.

View values read by the probes

1. Press **SET** to open the “Machine Status” menu.
2. Scroll through the menu using the ∧ and ∨ keys, until labels **Pb1**, **Pb2** or **Pb3** are displayed: the value measured by the corresponding probe or any errors present will appear on the second line of the display.

Modifying the parameters

1. To enter the “Parameters” menu press and hold **SET**.
2. Open the **USr** folder, which contains all the user parameters.

If...	Then...
the user password is disabled (**PA1** = 0 *)	press **SET**: the first available parameter appears on the display.
the user password is enabled (**PA1** ≠ 0)	the text **PA1** appears on the second line of the display. Press **SET** and enter the password using the ∧ and ∨ keys, then press **SET**: the first available parameter appears on the display. **Note:** if the entered password is wrong, the USr folder will appear again and the password must be re-entered.

Note *: default value.

3. Scroll through the parameters using the ∧ and ∨ keys.
4. View the desired parameter and press **SET**: the parameter blinks and its value can be edited.
5. Change the value using the ∧ and ∨ keys.
6. To confirm the value press **SET**.

Note: to implement the change to parameters H00 and H42, the control board must be switched off and on again.

Manually enable the defrosting cycle

Press and hold the ❄ key: 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

- Turn off all devices, including connected devices, before removing any covers or doors, or installing/uninstalling accessories, hardware, cables, or wires.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Replace and secure all covers, accessories, hardware, cables, and wires and confirm that a proper ground connection exists before applying power to the unit.
- Use only the specified voltage when operating this equipment and any associated products.
- 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.

⚠ DANGER

COMPONENT REPLACEMENT

Only use the components indicated in the BOM.

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:

- Set the main circuit breaker (**QF1**) to OFF.
- If the procedure involves components outside the panel, place a padlock in the holes on the front cover and place the key in a safe location.
- Apply 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.

Routine maintenance

Operations

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

Operation	Component
Tightening	• Terminals for circuit breakers (**QF1** and **QF2**) • Motor overload protection terminals (**QM1**)

Cleaning

Do not use abrasive products or solvents.

Diagnostics

Alarms

Alarm visibility

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

Note: if alarm exclusion times have been set, the alarm will not be indicated.

In the Alarms menu, all the system alarms not indicated in the main menu and all HACCP alarms are visible.

Alarm operations

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

To delete all recorded HACCP alarms, start the **rHC** function in the “Functions” menu.

Alarm key

Alarm code	Description	Cause	Effects	Troubleshooting
E1	Probe 1 (Pb1) in error (ambient)	• Measured values are outside operating range • Probe error / short-circuited / open	• View label **E1** • Icon steadily lit • Relay on (if configured) • Max/min alarm regulator disabled • Compressor operation based on parameters **Ont** and **OFt**, if set for duty cycle	• Check the probe type (parameter **H00**) • Check the probe wiring • Replace probe
E2	Probe 2 (Pb2) in error (defrost)	• Measured values are outside operating range • Probe faulty / short-circuited / open	• View label **E2** • Icon steadily lit • Relay on (if configured) • Defrost cycle end due to time-out (parameter **dEt**) • Evaporator fans on: 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
E3	Probe 3 (Pb3) in error	• Measured values are outside operating range • Probe error / short-circuited / open	• View label **E3** • Icon steadily lit • Relay on (if configured)	• Check the probe type (parameter **H00**) • Check the probe wiring • Replace probe
LA1	Pb1 low temperature alarm	Value read by Pb1 < LAL after time of **tAO**.	• Record alarm code **LA1** in folder **AL** • Relay on (if configured) • No effect on regulation	wait for temperature value read by **Pb1** to return above **LAL**
HA1	Pb1 high temperature alarm	Value read by probe Pb1 > HAL after time of **tAO**.	• Record label **HA1** in folder **AL** • Relay on (if configured) • No effect on regulation	wait for temperature value read by **Pb1** to return below **HAL**
Ad2	Defrost due to timeout	End of defrost cycle due to timeout rather than due to defrost end temperature being read by Pb2.	• Record label **Ad2** in folder **AL** • Icon steadily lit • Relay on (if configured)	Await next defrost cycle for automatic return to normal
OPd	Door open alarm	Activation of digital input (**H11** = ±4) (for a time greater than **tdO**)	• Record label **Opd** in folder **AL** • Icon steadily lit • Relay on (if configured) • Regulator locked	• Close the door • Delay function defined by **OAO**

Alarm code	Description	Cause	Effects	Troubleshooting
E10 *	Clock alarm	• Clock faulty • Extended period without power	Functions associated with clock not controlled	Contact Eliwell technical support

Note *: HACCP models only.

Troubleshooting

List of possible problems

Problem	Possible causes	Solution
The compressor does not work.	• Motor overload protection off/not calibrated • Incorrect wiring on connection jumpers	• Check motor overload protection status. • Check the wiring, referring to the data provided in “Electrical connections” page 31.
The controlled utilities do not behave as expected.	Incorrect wiring on the terminal blocks	Check the wiring, referring to the data provided in “Electrical connections” 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 area

+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 malfunction or breakdown, contact your local distributor to arrange returning the equipment. Use the original packaging to return it to your local distributor.

Make a note of your local distributor information here:

Technical data

Technical specifications

General features

	2-3-4-5	6-7-8	9-10-11	12	13
Power supply*	220/230 Vac (Ph + N + PE), 50/60 Hz	380/400 Vac (Ph + N + PE), 50/60 Hz			
Consumption	• **2**: 54 VA • **3**: 54 VA • **4**: 54 VA • **5**: 54 VA	• **6**: 54 VA • **7**: 54 VA • **8**: 54 VA	• **9**: 60 VA • **10**: 60 VA • **11**: 66 VA	• 47 VA	• 54 VA
Command type	Single-phase	Three-phase			
Motor overload protection	• **2**: 2.5-4 A • **3**: 4-6.3 A • **4**: 6-10 A • **5**: 13-18 A	• **6**: 2.5-4 A • **7**: 4-6.3 A • **8**: 6-10 A	• **9**: 9-14 A • **10**: 13-18 A • **11**: 17-20 A	-	-
Electronics board protection	10/16 A circuit breaker				
Clock backup **	Up to four days in the absence of an external power supply				
Connectivity	TTL port for connection to UNICARD / Copy Card / Device Manager Optional. RS-485 serial port for connection to Televis**System** / Modbus supervisor				
Protection rating	IP65 with front cover fitted, closed and secured with two padlocks				
Over voltage category	II (IEC 60664-1: 2007)				
Pollution class	2 (IEC 60664-1: 2007)				
Electromagnetic compatibility classification	Environment B				
Panel use	Internal use				
Panel type	Fixed panel				
Maximum installation site altitude	2000 m				

Note

***:** For 220/380 Vac power supply, move the primary transformer connection in accordance with the data plate information and the wiring diagram.

****:** HACCP models ONLY.

Electrical specifications

	2	3	4	5	6	7	8	9	10	11	12	13
Rated voltage (U^n)	230 Vac		230 Vac		400 Vac							
Rated operating voltage (U^e)	230 Vac		230 Vac		400 Vac							
Rated insulation voltage (U^i)	230 Vac		230 Vac		400 Vac							
Rated panel current (I^{nA})	25 A	25 A	25 A	32 A	20 A	20 A	25 A	32 A	32 A	32 A	20 A	25 A
Rated circuit current (I^{nC})	25 A	25 A	25 A	32 A	20 A	20 A	25 A	32 A	32 A	32 A	20 A	25 A
Conditioned short circuit current (I^{cc})	< 10 kA			< 10 kA								
Rated frequency (f^n)	50/60 Hz											

Inputs and outputs (see “Electrical connections” page 31)

	2-3-4-5	6-7-8	9-10-11	12	13
Probe inputs	2 + 1 (may be configured for NTC/PTC probes)				
Digital inputs	2 + 1 (in place of a probe input)				
Compressor output	• **2**: 2.5-4 A • **3**: 4-6.3 A • **4**: 6-10 A • **5**: 13-18 A	• **6**: 2.5-4 A • **7**: 4-6.3 A • **8**: 6-10 A	• **9**: 9-14 A • **10**: 13-18 A • **11**: 17-20 A	-	-
Evaporator fans output (load AC-1)	single-phase max 500 W	single-phase max 800 W	three-phase max 2.2 kW	single-phase max 800 W	three-phase max 2.2 kW
Defrost heater output (balanced load AC-1)	single-phase 4 kW	three-phase 6 kW	three-phase 9 kW	three-phase 6 kW	three-phase 12 kW
Condenser fans output (load AC-1)	200 W	800 W	400 W + 400 W	-	-
Solenoid valve output (load AC-1)	max 10 W				
Light output (load AC-1)	800 W				
Oil sump outlet (load AC-1)	max 200 W			-	-
Alarm output	8 A (load AC-1)				

Mechanical characteristics

Material	PC + ABS
Installation	On wall
Size (L x H x D)	420 x 360 x 147 mm (16.5 x 14.17 x 5.8 in)
Weight	< 10 kg (22 lb)

Ambient operating conditions

Temperature	see table below
Humidity	10...90% without condensation

Model	Ambient operating temperature	Peak ambient temperature
2-8	40 °C (104 °F)	40 °C (104 °F)
9-10	35 °C (95 °F)	40 °C (104 °F)
11-13	40 °C (104 °F)	40 °C (104 °F)

Ambient storage conditions

Temperature	-20...+80°C (-4...+176°F)
Humidity	10...90% without condensation

Probe values

Note: data relating only to the EWRC 5010/5030 without considering the probes (accessories not supplied). The error introduced by the probe must be added to the values given here.

Display range	3 digits + sign on top display NTC: -50.0...110°C (-58...230°F) PTC: -55.0...150°C (-67...302°F)
Accuracy	Better than 0.5% of integral-scale +1 dgt
Resolution	0.1°C (0.1°F)

Conformity

Directives	2014/35/EU (Low voltage) 2014/30/EU (Electromagnetic compatibility)
Standards	EN 60204-1 EN 61439-1 EN 61439-2
Conformity	CE

Electrical connections

Wiring diagram

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

The module is preconfigured for installation to the mains with a rated voltage of 230 Vac (single-phase models) or 400 Vac (three-phase models).

NOTICE
INOPERABLE DEVICE If the mains has a rated voltage of 220 Vac or 380 Vac, the transformer connections must be reconfigured with reference to the label on the transformer itself. **Failure to follow these instructions can result in equipment damage.**

See wiring diagram in the attached document.

Features of the cables for terminal blocks X, XP, X1, X2

Terminal code	Features
ST 2.5 ST 2.5-PE STTBS 2.5	Rigid wire section: 0.08...4 mm_2 (AWG: 28...12) Flexible wire section: 0.08...2.5 mm_2 (AWG: 28...14)
UT10-PE	Rigid wire section: 0.5...16 mm_2 (AWG: 20...6) Flexible wire section: 0.5...16 mm_2 (AWG: 20...6)

Single-phase main circuit breaker (QF1)

Terminal	Description	Cables	Tightening
1	Stage	Rigid wire section: 1...35 mm_2 max (AWG: 18...2) Flexible wire section: 1...25 mm_2 max (AWG: 18...4) Wire stripping length: 14 mm	3.5 Nm (31 lb-in)
3	Neutral		

Three-phase main circuit breaker (QF1)

Terminal	Description	Cables	Tightening
1	Phase 1	Rigid wire section: 1...35 mm_2 max (AWG: 18...2) Flexible wire section: 1...25 mm_2 max (AWG: 18...4) Wire stripping length: 14 mm	3.5 Nm (31 lb-in)
3	Phase 2		
5	Phase 3		
7	Neutral		

Contactors

Models LC1D09P7 and LC1D012P7

Terminal	Description	Cables (terminals with one cable)	Cables (terminals with two cables)	Tightening
2	Phase 1	Rigid wire section: 1...4 mm_2 (AWG: 18...12) Flexible wire section: 1...4 mm_2 (AWG: 18...12)	Rigid wire section: 1...4 mm_2 (AWG: 18...12) Flexible wire section with cable end: 1...2.5 mm_2 (AWG: 18...14) Flexible wire section without cable end: 1...4 mm_2 (AWG: 18...12)	1.7 Nm (15 lb-in)
4	Phase 2			
6	Phase 3			

LC1D018P7 model

Terminal	Description	Cables (terminals with one cable)	Cables (terminals with two cables)	Tightening
2	Phase 1	Rigid wire section: 1.5...6 mm_2 (AWG: 16...10) Flexible wire section with cable end: 1...6 mm_2 (AWG: 18...10) Flexible wire section without cable end: 1.5...6 mm_2 (AWG: 16...10)	Rigid wire section: 1.5...6 mm_2 (AWG: 16...10) Flexible wire section with cable end: 1...4 mm_2 (AWG: 18...12) Flexible wire section without cable end: 1.5...6 mm_2 (AWG: 16...10)	1.7 Nm (15 lb-in)
4	Phase 2			
6	Phase 3			

LC1D025P7 model

Terminal	Description	Cables (terminals with one cable)	Cables (terminals with two cables)	Tightening
2	Phase 1	Rigid wire section: 1.5...10 mm_2 (AWG: 16...8) Flexible wire section with cable end: 1...10 mm_2 (AWG: 18...8) Flexible wire section without cable end: 1...10 mm_2 (AWG: 18...8)	Rigid wire section: 2.5...10 mm_2 (AWG: 14...8) Flexible wire section with cable end: 1.5...6 mm_2 (AWG: 16...10) Flexible wire section without cable end: 2.5...10 mm_2 (AWG: 14...8)	Power circuit 2.5 Nm (22.1 lb-in) Control circuit 1.7 Nm (15 lb-in)
4	Phase 2			
6	Phase 3			

User parameters table

Parameter	Description	Range	Default	UM
SEt	Temperature control setpoint	LSE ... HSE	0	°C/°F
diF	Compressor relay activation differential	0.1 ... 30.0	2.0	°C/°F
HSE	Maximum value settable for setpoint	LSE ... HdL	50.0	°C/°F
LSE	Minimum value settable for setpoint	LdL ... HSE	-50.0	°C/°F
OSP	Temperature value to be added algebraically to the setpoint if reduced set enabled (Economy function). Enabling can take place via key, function or digital input configured specifically for this purpose.	-30.0 ... 30.0	0.0	-
Cit	Minimum activation time of compressor before possible deactivation. **0** = no minimum time	0 ... 255	0	-
CAt	Maximum activation time of compressor before possible deactivation. **0** = no maximum time	0 ... 255	0	-
Ont	Controller switch-on time in the event of faulty probe. • If **Ont** = 1 and **OFt** = 0, the compressor stays on permanently (ON). • If **Ont** > 0 and **OFt** > 0, it operates in Duty Cycle mode.	0 ... 255	10	-
OFt	Controller switch-on time in the event of faulty probe. • If **Oft** = 1 and **Ont** = 0, the compressor will always stay off (OFF). • If **Ont** > 0 and **OFt** > 0, it operates in Duty Cycle mode.	0 ... 255	10	-
dOn	Delay between compressor switch-on request and the actual activation of the corresponding relay	0 ... 255	2	-
dOF	Delay between compressor switch-off and the next switch-on	0 ... 255	0	-
dbi	Delay between two consecutive compressor switch-ons	0 ... 255	2	-
OdO	Delay in activating outputs from switch-on or after power failure. **0** = no delay time	0 ... 255	0	-
dty	Type of defrost. **0** = electrical defrost; **1** = inverse cycle defrost; **2** = defrost independent of compressor.	0 ... 2	0	-
dit	Interval between the start of two consecutive defrost cycles	0 ... 255	6 (h)	h/min/s
dCt	Defrost interval count mode. **0** = compressor running time; defrost active only when the compressor is on. **Note:** compressor running time is counted separately from the evaporator probe (count active also when evaporator probe missing or faulty). **1** = device running time; defrost counting is always active when the machine is on and starts at each power-on; **2** = compressor stop. Every time the compressor stops, a defrost cycle is performed according to parameter **dtY**; **3** = with RTC. Defrost at specific times set by parameters dE1...dE8, F1...F8	0 ... 3	1	-
dOH	Delay preceding start of first defrost after call	0 ... 59	0	-
dEt	Defrost timeout	1 ... 255	30	min
dSt	Defrost end temperature	-302.0 ... 1472	6.0	°C/°F
dPO	Defrost at switch-on. **n** = disabled; **y** = enabled	n/y	n	-

Parameter	Description	Range	Default	UM
FSt	Fans disabling temperature	-58.0 ... 302	0.0	°C/°F
FAd	Fans activation differential	0.1 ... 25.0	0.1	°C/°F
Fdt	Fans on delay after a defrost cycle	0 ... 255	0	min
dt	Dripping time	0 ... 255	0	min
dFd	Operating mode of evaporator fans during defrost. **n** = fans running (depending on the parameter **FCO**); **y** = fans off	n/y	y	-
FCO	Operating mode of evaporator fans with compressor off. **0** = fans off; **1** = thermostat-controlled fans; **2** = duty cycle.	0 ... 4	1	-
AFd	Alarms cut-in differential.	0.1 ... 25.0	1.0	°C/°F
HAL	Maximum temperature alarm	LAL ... 150	5,0	°C/°F
LAL	Minimum temperature alarm	-58.0 ... HAL	-5.0	°C/°F
PAO	Alarm exclusion time on restart after power failure. **Note:** this parameter refers to high/low temperature alarms LAL and HAL only.	0 ... 10	3	h
dAO	Temperature alarm exclusion time after defrost.	0 ... 255	60	min
tAO	Delay preceding temperature alarm signal. **Note:** this parameter refers to high/low temperature alarms LAL and HAL only.	0 ... 255	0	min
LOC	Keypad lock **n** = disabled. **y** = enabled: only the **SET**, **ESC**, **AUX** keys are enabled on the main menu, for access to the corresponding sub-menus. The navigation functions remain enabled within the menus. In the “Functions” menu, only the **LOC** function is available and can be changed. The “Machine status” menu is read-only. The parameters can still be edited.	n/y	n	-
PA1	Password 1 offers access to user parameters. **0** = password disabled	0 ... 999	0	-
ndt	Display values with decimal point. **n** = disabled; **y** = enabled.	n/y	y	-
CA1	Calibration 1. Value to be added to the value read by Pb1	-30.0 ... 30.0	0.0	°C/°F
CA2	Calibration 2. Value to be added to the value read by Pb2	-30.0 ... 30.0	0.0	°C/°F
CA3 *	Calibration 3. Value to be added to the value read by Pb3	-30.0 ... 30.0	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	1	-
H00 **	Type of probes used (Pb1 ... Pb3). **0** = PTC; **1** = NTC.	0/1	1	-
H42 **	Evaporator probe present	n/y	y	-
rEL	Firmware release. Read-only parameter.	/	/	/
tAb	Map code. Read-only parameter.	/	/	/
UL ***	Transfer of programming parameters from control board to Copy Card.	/	/	/
dL ***	Transfer of programming parameters from Copy Card to control board.	/	/	/

Parameter	Description	Range	Default	UM
Fr ***	Format Copy Card. **Note:** the use of this parameter deletes all data on the Copy Card and this operation cannot be reversed.	/	/	/

Note *: only if probe Pb3 present.

Note **: to implement the change to the parameter, the control board must be switched off and on again.

Note ***: only available with Copy Card connected.

EWRC 5010/5030
Instruction manual
9MA10279.01 EN 05/19

Eliwell Controls srl

Via dell'Industria, 15 • Z.I. Paludi
32016 Alpago (BL) ITALY
Tel. +39 0437 986 111
www.eliwell.com

Customer Technical Support

Tel. +39 0437 986 300
E techsuppeliwell@schneider-electric.com

Sales office
Tel. +39 0437 986 100 (Italy)
+39 (0) 437 986 200 (other countries)
E saleseliwell@schneider-electric.com