



9IS5438911

eliwell

by Schneider Electric

EWRC 300/500/5000 NT

Controllers for static and ventilated cold rooms



English

QUICK START

Product related information

⚠️⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power from all equipment including connected devices prior to removing any covers or doors, or installing or removing any accessories, hardware, cables or wires.
- Always use a properly rated voltage sensing device to confirm the power is off where and when indicated.
- Before powering the device back up, fit back and fix all the covers, hardware components and wiring.
- Check the earthing connections on all earthed devices.
- Use only the specified voltage when operating this equipment and any associated products.
- Comply with all standards regarding accident protection and local applicable safety directives.

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

⚠️ DANGER

POTENTIAL OF OVERHEATING AND FIRE

- Do not use with loads other than those indicated in the technical specification.
- Do not exceed the maximum permitted current; for higher loads, use a meter with sufficient power capacity.

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

⚠️ WARNING

UNINTENDED EQUIPMENT OPERATION

- The equipment signal cables (probes, digital inputs, communication, and the 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.

⚠️ WARNING

POTENTIAL OF OVERHEATING AND/OR FIRE

Verify that your application has not been designed with device outputs connected directly to devices generating a frequently operated capacitive load ⁽¹⁾.

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

⁽¹⁾ Even if your application not apply a frequently operated capacitive load on the relay, capacitive loads will reduce the life of any electromechanical relay, and installation of a contactor or an external relay, that is sized and maintained according the dimensions and characteristics of the capacitive load, will help minimize the consequence of relay degradation.

⚠️ WARNING

UNINTENDED EQUIPMENT OPERATION DUE TO ELECTROSTATIC DISCHARGE

Before handling the equipment, always discharge the static electricity from the body by touching an earthed surface or type-approved antistatic mat.

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

HACCP Module - RCN●●●●●●●● MODELS

NOTICE

INOPERABLE EQUIPMENT

For TTL serial line connection, use cables no longer than 1 m (3.28 ft).

Failure to follow these instructions can result in equipment damage.

NOTE. For information on the cables to be used with the HACCP Module, contact your local Eliwell representative.

Flammable refrigerant gases

This equipment is designed to operate outside all hazardous locations and is not to be used in applications which generate (or could potentially generate) hazardous environments. Install this equipment only in areas and applications known to be free from dangerous atmospheres at all times.

⚠ DANGER

POTENTIAL FOR EXPLOSION

- Install and use this equipment in non-hazardous locations only.
- Do not install or use this equipment in applications which could generate hazardous atmospheres, such as applications which use flammable refrigerants.

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

For information regarding the use of control equipment in applications capable of generating hazardous materials, please contact the relevant national regulatory bodies or certifying authorities.

INTRODUCTION

The **Coldface EWRC 300/500/5000 NT** series controls the temperature of a static or ventilated cold room. The instrument controls positive or negative cold rooms and is capable of managing a double evaporator and condenser fan. **Coldface** has 3 or 5 configurable relays, depending on the model, and 2(3) configurable digital inputs for door switches or other devices. Models are available with clock with yearly calendar and HACCP event logging.

The instrument can be connected to **TelevisSystem / Modbus** via the **RS-485 plug-in module (optional)**. The container lets you install one or more electromechanical devices, depending on the model.

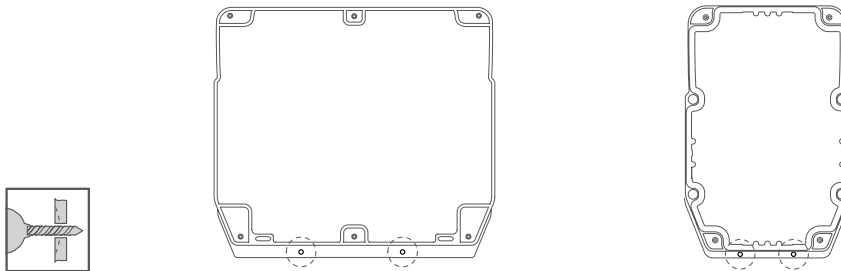
This summary document contains basic information about the standard **EWRC 300/500/5000 NT models**. For further information and custom configurations, refer to the complete user manual code **9MA•0258**, available to download from the website **www.eliwell.com**.

INSTALLATION PROCEDURE

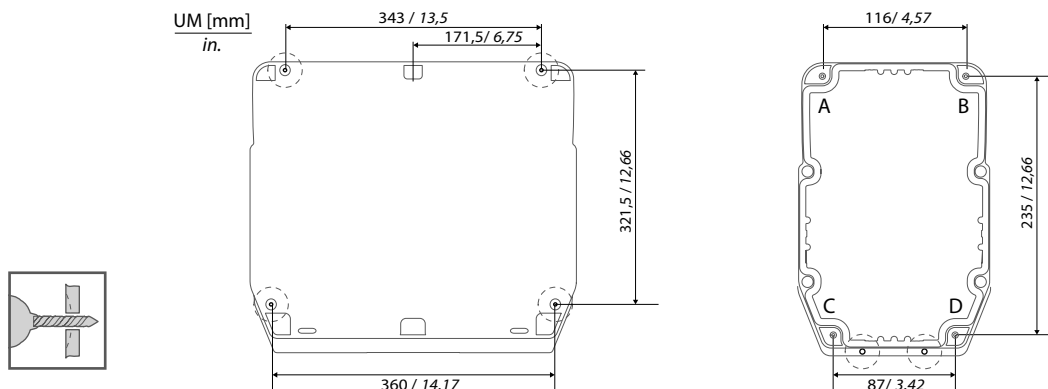
NOTE: procedural steps that are common to all models.

- 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.

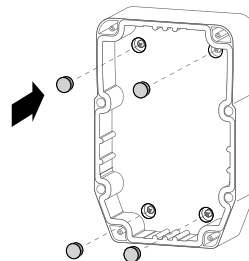
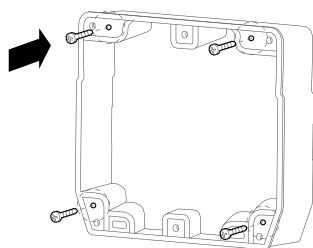
NOTE: for the 300/500 models, use the drilling template provided.



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



- 3) Fix the back of the panel to the wall using four screws (not supplied) suited to the wall thickness.
NOTE: TDI20 screw caps (not provided) can be fitted to 300/500 models at the wall mounting points so that the IP rating is not altered.



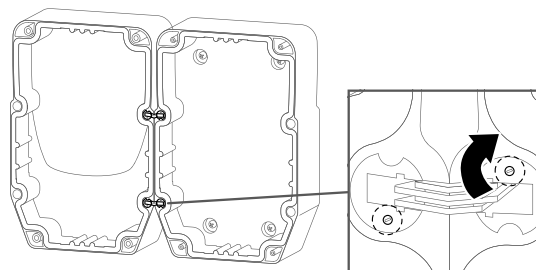
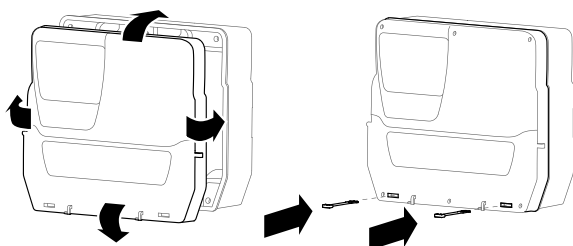
- 4) Fit the hinges to secure the cover.

EWRC 5000

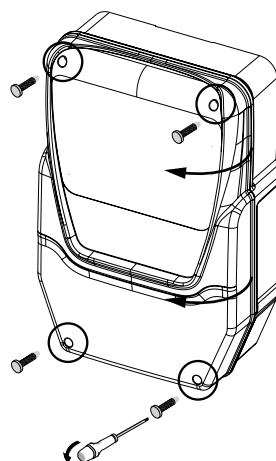
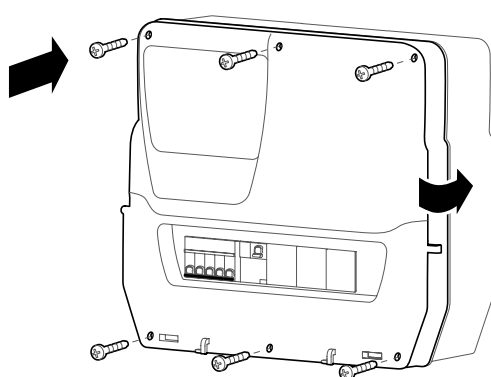
Place the panel cover on the base making it stick to the perimeter seal. Then, while holding the cover in place, fit the two hinges provided into the corresponding holes and press them until you hear them click as they are locked into place.

EWRC 300/500

Fit the hinges provided into their housings on the right or left side of the panel and tighten the corresponding screws to secure them.



- 5) Close the cover and secure it with the screws provided.



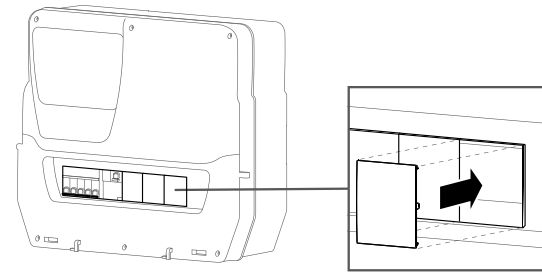
⚠️ ⚠️ DANGER

RISK OF ELECTRIC SHOCK, EXPLOSION OR EXPOSURE TO ACCESSIBLE PARTS

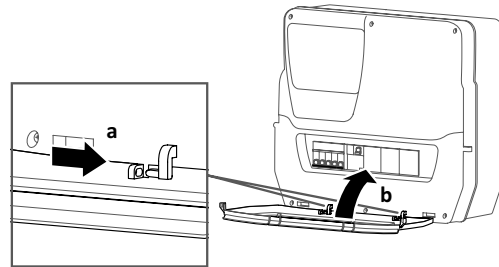
The final application must disallow access to parts at hazardous voltage, as the instrument offers no intrinsic protection against this risk.

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

- 6) In models with window aligned with DIN rail only. Use the dedicated plugs (code 1602149) to prevent access to the inside of the panel through the front window.
For EWRC NT 500 models with the plastic knockout removed and no internal magnetothermal switch, the end user is responsible for ensuring that the open parts of the box are not accessible.



- 7) EWRC 5000 only. Fit the door (a): align the front door with the two hooks at the bottom of the panel and push it towards the right until it clicks and locks into place.



- 8) Close the door (b)

ELECTRICAL CONNECTIONS

Digital Outputs (default settings)

- relay **OUT1** = Compressor (or liquid line valve)
 - relay **OUT2** = Defrost
 - relay **OUT3** = Evaporator fan
 - relay **OUT4** = Light (EWRC 500/5000 only)
- OUT1-4 common-line max 18 A
- relay **OUT5** = Alarm/AUX (EWRC 500/5000 only)

Analogue Inputs (default settings)

- **Pb1** = Cold room NTC probe
- **Pb2** = Defrost end NTC probe
- **Pb3** = Not configured

Use parameter **H00** to switch between NTC/PTC probe types. **SWITCH THE INSTRUMENT OFF AND ON AGAIN** after the change.

Digital Inputs (default settings)

- **DI1** = Door switch
- **DI2** = 300/500 model: not configured; 5000 mode: external alarm
- **DI3** = not configured

Serial ports

- **TTL** for connection to HACCP Module (**RCN**..... models) UNICARD / Copy Card / TelevisSystem
- **RS-485** available **ONLY** with the optional plug-in module for connecting to TelevisSystem / Modbus.

⚠️ DANGER

LOOSE WIRING CAN RESULT IN ELECTRIC SHOCK

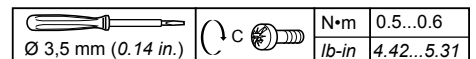
Tighten the connections in compliance with the technical specifications for pairs torque values and make sure the wiring is correct.

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

Use copper conductors (obligatory).

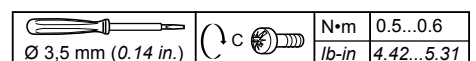
- **Analogue inputs and digital inputs, OUT5 relay: screw terminals with spacing 5.08 mm (0.197 in):** electric cables with max. cross-section 2.5 mm² (AWG 14).

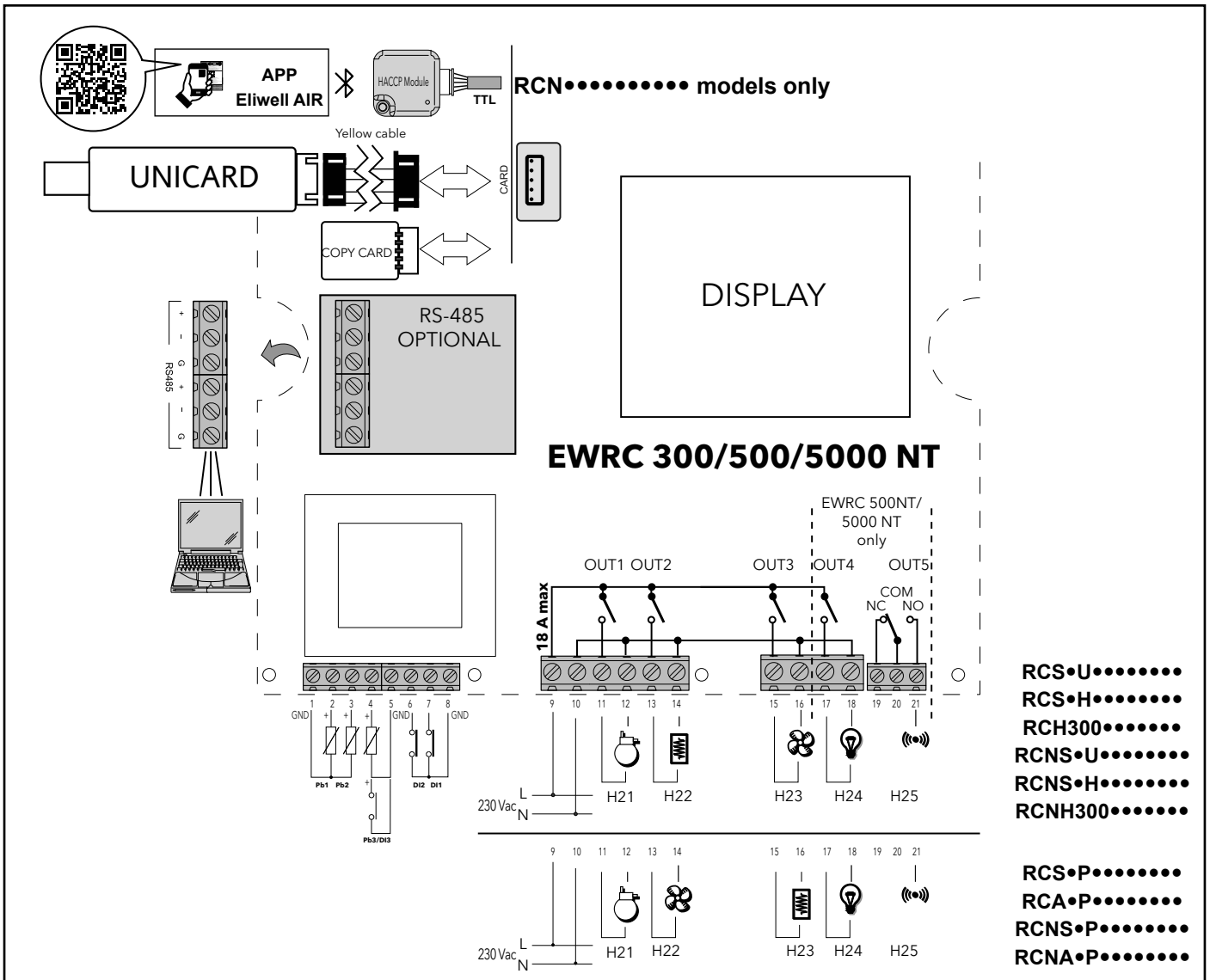
$\frac{\text{mm}}{\text{in.}}$ 7 0.28								
mm ²	0.2...2.5	0.2...2.5	0.25...2.5	0.25...2.5	2x0.2...0.75	2x0.2...0.75	2x0.25...0.75	2x0.5...1.5
AWG	24...14	24...14	22...14	22...14	2x24...18	2x24...18	2x22...18	2x20...16



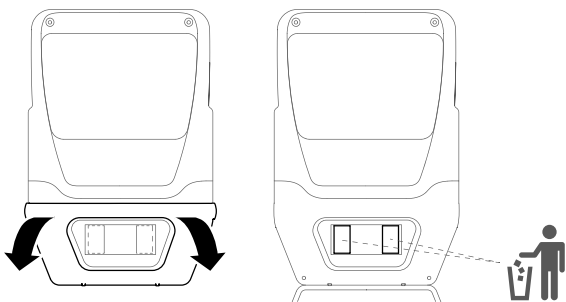
- **Power supply and relay OUT1..OUT4: screw terminals with spacing 7.62 (0.30 in.):** electric cables with max. cross-section 4 mm² (AWG 12).

$\frac{\text{mm}}{\text{in.}}$ 7 0.28								
mm ²	0.2...4	0.2...2.5	0.25...2.5	0.25...2.5	2x0.2...1.5	2x0.2...1.5	2x0.25...0.75	2x0.5...1.5
AWG	24...12	24...14	22...14	22...14	2x24...16	2x24...16	2x22...18	2x20...16





MODELS WITH DOOR AND INTERNAL CIRCUIT BREAKER
EWRC 500 NT BREAKER | EWRC 500 NT 4-DIN



Versions with a door on the front panel allow direct access to the switch or to the top part of the device installed on the internal DIN rail.

To open the door, use both hands as shown in the figure. Use your thumbs to apply gentle pressure at the top to release the side tabs. Simultaneously with the index finger gently pull the door toward you.

In versions provided with the miniature circuit breaker, the installer must connect the magnetothermal switch to the power supply of the electronic board through the wiring harness included in the packaging.

The figure below shows the wiring diagram. Versions with a door always have the omega DIN rail installed.

You can mount up to a maximum of 4 DIN modules, including 2DIN miniature circuit breaker when present. It is easy to enlarge the window on the DIN housing from 2 to 4 DIN, using the knockouts as shown in the figure at the top right.

Cable types and wire sections for the magnetothermal switch

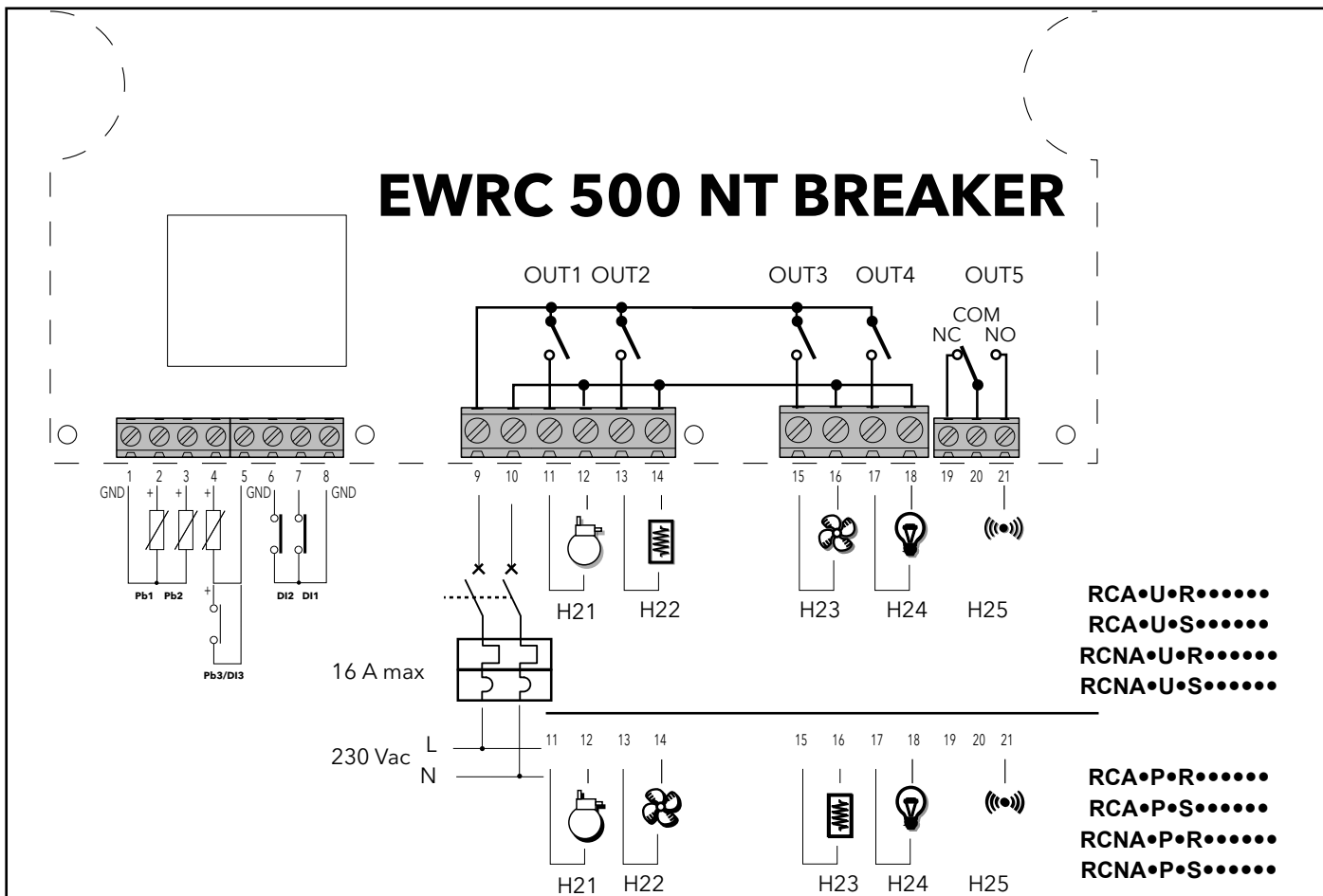
mm in.	14 0.55					N•m lb-in	2 17.7
mm ²	1...25	1...16					
AWG	18...4	18...6					

For EWRC NT 500 models with plastic knockout removed and no magnetothermal switch installed: the end user is responsible for ensuring that open parts of the box cannot be accessed.

⚠ ⚠ DANGER

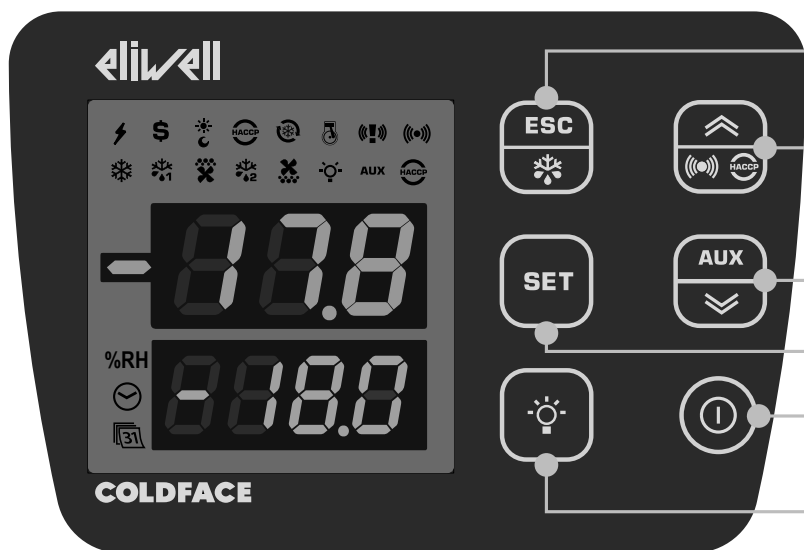
RISK OF ELECTRIC SHOCK, EXPLOSION OR EXPOSURE TO ACCESSIBLE PARTS

Prevent access to parts at hazardous voltages, as the instrument offers no protection against this risk.
Failure to follow these instructions will result in death or serious injury.



English

DISPLAY



3-FIGURE TOP DISPLAY plus the - sign

Display:

- operating value
- parameters label
- alarms, functions

if Top display **blinking**

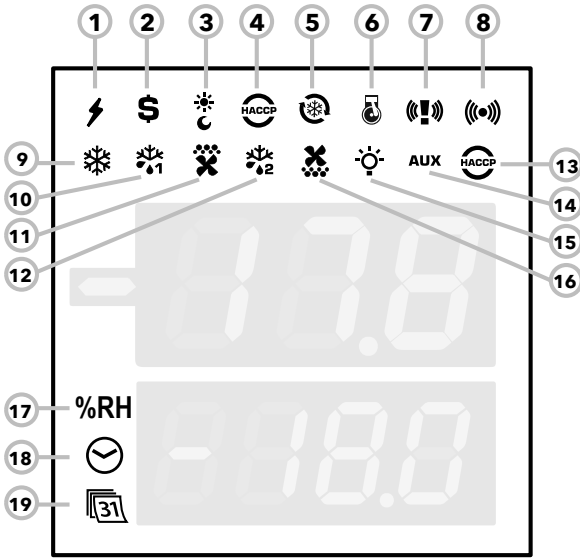
it means that the value of the Bottom Display can be modified

4-FIGURE BOTTOM DISPLAY

Display:

- parameters value
 - probe value
 - function state
- HACCP models**
- time

RCN..... models: when the HACCP Module is connected and the Bluetooth connection to the Eliwell Air App is active, the btL label appears on the TOP DISPLAY and the BOTTOM DISPLAY and icons are turned off.



ICONS

No.	ICON	colour	description
17	RH	amber	not used
18	TIME	amber	access in case of time display or editing
19	DATA	amber	access in case of date display or editing

ALARMS

Alarm	ICON 7	ICON 8	Colour	Buzzer	OFF	
					ICON	Buzzer
ALARM			Red	See "ALARMS TABLE" at page 13		
PANIC			Red		---	---
LEAK DETECTOR			Red			---
PANIC + LEAK DETECTOR			Red		---	(1)

(1) = As long as the Panic alarm persists it will not be possible to mute the buzzer from the keypad.

No.	ICON	COLOUR	ON	FLASHING	OFF
1	POWER SUPPLY	green	Power supply ON	/	Power supply OFF
2	ENERGY SAVING	amber	Energy saving ON	/	Energy saving OFF
3	NIGHT & DAY	amber	Night & Day ON	/	Night & Day OFF
4	HACCP	amber	HACCP menu	/	/
5	DEEP COOLING (DCC)	amber	Drip cooling cycle ON	/	Drip cooling cycle OFF
6	PUMP DOWN	amber	Compressor Pump Down ON	/	Compressor Pump Down OFF
9	COMPRESSOR	amber	Compressor ON	delay	Compressor OFF
10	DEFROST 1	amber	defrost	coil drainage	No defrost
11	EVAPORATOR FANS	amber	Fans ON	forced ventilation	Fans OFF
12	DEFROST 2	amber	defrost	coil drainage	No defrost
13	HACCP ALARM	red	HACCP alarm	Not displayed	No alarm
14	AUXILIARY (AUX)	amber	AUX ON	/	AUX OFF
15	LIGHT	amber	Light ON	/	Light OFF
16	CONDENSER FANS	amber	Fans ON	/	Fans OFF

ON: function/alarm ON; OFF: function/alarm OFF

KEYS

No.	KEY	press and release	press and hold for about 3 seconds	NAVIGATION MENU	Notes
A	ESC Defrost	Functions Menu	<ul style="list-style-type: none"> Manual defrost Return to Main Menu 	Output	/
B	▲ UP Alarms	Alarms Menu (always visible)	/	<ul style="list-style-type: none"> Scroll Increase values 	HACCP alarms only on foreseen models and if present
C	SET	<ul style="list-style-type: none"> Display setpoint / probe values / time (Models with clock) Confirm values Access value edit mode (top display blinking) 	Access Parameters menu	<ul style="list-style-type: none"> Confirm values Move right 	display time Models with clock only
D	▼ DOWN AUX	system INFO See Technical Support	Activate auxiliary function	<ul style="list-style-type: none"> Scroll Decrease values 	/
E	ON/OFF	/	Switch On/Off device	/	/
F	LIGHT	/	Switch light On/Off	/	/

USER INTERFACE

How to modify the setpoint

- Press and release the SET key. The top display will show SEt, the bottom display will indicate the current setpoint value
- Press and release the SET key once more. The top display will show SEt blinking
- Use the UP & DOWN keys to adjust the setpoint value
- Press the ESC key to return to the normal display

How to read the probe value

- Press and release the SET key. The top display will show SEt, the bottom display will indicate the current setpoint value
- Press and release the DOWN key. If the RTC clock is present, the time will be shown in the bottom display
- Press and release the DOWN key once more. The top display will show Pb1, the bottom display will indicate the value read by the room probe
- Press and release the DOWN key once more to read the value of probe Pb2 and Pb3 if configured
- Press the ESC key to return to the normal display

How to modify the User Parameters

The 'User' parameters are the most commonly used. This document describes them in the Parameters Table section.

- 1) Press and hold the SET button for at least 3 seconds, until the display shows USr
- 2) Press and release the SET key. The top display will show the first parameter, the bottom display will indicate the current parameter value
- 3) Using the UP & DOWN keys, find the parameter that you wish to modify
- 4) Press and release the SET key again. The top display will show the name of the blinking parameter
- 5) Use the UP & DOWN keys to adjust the parameter value
- 6) Press and release SET to save the parameter value
- 7) Return to step 3) or press ESC to return to the normal display.

USER PARAMETERS TABLE

This section describes the most commonly used parameters, which are always visible (the access password PA1 is not enabled by default). For a description of all other parameters, see the user manual.

NOTE: the User parameters ARE NOT divided into sub-folders and are always visible by default. The same parameters are also visible in the respective folders 'Compressor', 'Fans', etc. (indicated also here to make the groupings clearer) in the password-protected Installer parameters menu.

PAR.	DESCRIPTION	UM	RANGE	DEFAULT
SEt	Temperature regulation setpoint	°C/°F	-58.0...302	0.0
COMPRESSOR (CPr)				
diF	Activation differential N.B.: diF cannot be equal to 0.	°C/°F	0 ... 30.0	2.0
HSE	Maximum value that can be assigned to the setpoint. NOTE: The two setpoints are interdependent: HSE cannot be less than LSE and vice-versa.	°C/°F	LSE ... HdL	50.0
LSE	Minimum value that can be assigned to the setpoint. NOTE: The two setpoints are interdependent: LSE cannot be greater than HSE and vice-versa.	°C/°F	LdL ... HSE	-50.0
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.	°C/°F	-30.0 ... 30.0	0.0
Cit	Minimum activation time of compressor before possible deactivation. If Cit = 0 not active.	min	0 ... 255	0
CAt	Maximum activation time of compressor before possible deactivation. If CAt = 0 not active.	min	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.	min	0 ... 255	10

PAR.	DESCRIPTION	UM	RANGE	DEFAULT
OFt	Controller switch-off time in the event of faulty probe. - if OFt = 1 and Ont = 0, the compressor stays off permanently (OFF), - if Ont > 0 and OFt > 0, it operates in Duty Cycle mode	min	0 ... 255	10
dOn	Delayed start. The parameter indicates that protection is active on the general compressor relay actuations. At least the indicated time must elapse between the request and the actual activation of the compressor relay.	s	0 ... 255	2
dOF	Delay time after power-off: the delay time indicated must elapse between deactivation of the compressor relay and the next power-on.	min	0 ... 255	0
dbi	Delay between switch-ons; the delay time indicated must elapse between two consecutive compressor power-ons.	min	0 ... 255	2
OdO	Delay in activating outputs after the instrument is switched on or after a power failure. 0 = Not active	min	0 ... 255	0
DEFROST (dEF)				
dtY	Defrost mode 0 = Electric defrost (OFF Cycle defrost), i.e. compressor not running during defrost); NOTE: electric defrost + air defrost, in the case of fans connected in parallel to the defrost output relay 1 = cycle inversion defrost (hot gas, or compressor on during defrost); 2 = "Free" mode defrost (independent from the compressor)	num	0 ... 2	0
dit	Interval between defrost cycles Time interval between the start of two consecutive defrost cycles. 0 = Function disabled (defrost NEVER performed).	hours	0 ... 255	6
dCt	Defrost interval count mode 0 = Compressor running time (DIGIFROST® method); defrost active ONLY when the compressor is on. NOTE: compressor running hours are counted separately from the evaporator probe (count active also when evaporator probe missing or faulty). 1 = Appliance running time; defrost counting is always active when the machine is on and starts at each power-on; 2 = Compressor stopped. 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	num	0 ... 3	1
dOH	Defrost cycle enabling delay from request Delay preceding start of first defrost after call.	min	0 ... 59	0
dEt	Defrost timeout Determines the maximum defrost time on Evaporator 1.	min	1 ... 255	30
dSt	Defrost end temperature Defrost 1 end temperature (determined by evaporator probe 1).	°C/°F	-58.0...302	6.0
dPO	Defrost enabling request from power-on Determines whether the instrument must enter defrost mode at power-on (provided that the temperature measured at the evaporator will allow defrost). n (0) = No, no defrost at power-on; y (1) = Yes, defrost at power-on.	flag	n/y	n
FANS (FAn)				
FSt	Fans lockout temperature; if the value read is greater than FSt, the fans will be stopped. The value may be positive or negative	°C/°F	-58.0...302	0.0
FAd	Fans activation differential	°C/°F	0.1 ... 25.0	0.1
Fdt	Fans activation delay after a defrost cycle	min	0 ... 250	0
dt	dripping time. Dripping time.	min	0 ... 250	0
dFd	Operating mode of evaporator fans during defrost. n (0) = no (depending on the FCO parameter); y (1) = yes (fan off).	flag	n/y	y
FCO	Evaporator fans operating mode. The status of the fans will be: With the compressor ON, the fans are thermostat controlled; with the compressor OFF, it depends on FCO FCO=0 , fans OFF FCO=1-2 , fans thermostat controlled FCO=3-4 , fans in duty cycle Dutycycle: controlled by way of parameters " FOn " and " FOF ".	num	0 ... 4	1
ALARMS (ALr)				
AFd	Alarms cut-in differential.	°C/°F	0.1 ... 25.0	1.0

PAR.	DESCRIPTION	UM	RANGE	DEFAULT
HAL	Probe 1 maximum alarm. Temperature value (intended either as distance from the setpoint or as an absolute value based on Att) above which the probe will trigger activation of the alarm signal.	°C/°F	LA1...302	5.0
LAL	Probe 1 minimum alarm. Temperature value (intended as distance from setpoint or as an absolute value based on Att) under which the probe will trigger activation of the alarm signal.	°C/°F	-58.0...HA1	-5.0
PAO	Alarm exclusion time after device is switched on following a power failure. This parameter refers to high/low temperature alarms LAL and HAL only.	hours	0 ... 10	3
dAO	Temperature alarm exclusion time after defrost.	min	0 ... 250	60
tAO	Delay preceding temperature alarm signal. This parameter refers to high/low temperature alarms LAL and HAL only.	min	0 ... 250	0
DISPLAY (diS)				
LOC	Setpoint edit lock. The parameter programming menu can still be accessed, and the settings changed, which means also that the status of this parameter can be changed so as to unlock the keypad. n(0) = No; y(1) = Yes.	flag	n/y	n
PA1	PAssword 1. When enabled (PA1≠0) this is the access key to User parameters (USr).	num	0 ... 250	0
ndt	Display values with decimal point. n (0) = No (integers only); y (1) = Yes (displayed with decimal point).	flag	n/y	y
CA1	Calibration of probe Pb1. Positive or negative temperature value added to the value read by Pb1. This sum is used for both temperature display and temperature regulation purposes.	°C/°F	-30.0...30.0	0.0
CA2	Calibration of probe Pb2. Positive or negative temperature value added to the value read by Pb2. This sum is used for both temperature display and temperature regulation purposes.	°C/°F	-30.0...30.0	0.0
ddl	Display mode during defrost. 0 = Displays the temperature read by the probe. 1 = Locks the reading at the temperature value registering via the probe when the defrost cycle starts and until the next time the SEt is reached 2 = Displays the label dEF during defrosting and until the SEt is reached (or until Ldd has elapsed)	num	0/1/2	1
CONFIGURATION (CnF) If one or more parameters are changed, the controller must be switched off and on again.				
H00	Selection of type of probe used (Pb1 ... Pb3). 0 = PTC 1 = NTC	num	0/1	1
H23*	Configuration of digital output 3 (OUT 3). 0 = disabled 1 = compressor 2 = defrost 1 3 = evaporator fans 4 = alarm 5 = AUX 6 = stand-by 7 = light 8 = buzzer output 9 = defrost 2 10 = compressor 2 11 = frame heater 12 = condenser fans 13 = compressor pump down	num	0 ... 13	3
H42	Evaporator probe (Pb2) present. n (0) = not present y (1) = present	num	n/y	y
rEL	Firmware version release (e.g. 1, 2,...). Read only. See Technical Support.	/	/	/
tAb	Map code. Read only. See Technical Support.	/	/	/
COPY CARD / UNICARD (FPr).				
UL	Upload. Transfers programming parameters from the instrument to a Copy Card / UNICARD.	/	/	/
dL	Download. Transfers programming parameters from a Copy Card / UNICARD to the instrument.	/	/	/
Fr	Formatting. Deletes data on the Copy Card / UNICARD. NOTE: If parameter "Fr" is used, the data entered will be permanently lost. This operation cannot be reversed.	/	/	/
* H23 Installer (inS) level for the EWRC5000 model				

IT IS POSSIBLE TO EDIT OTHER INSTALLER PARAMETERS (inS) ON THE INSTRUMENT

How to edit the Installer Parameters

In this case the parameters are arranged in folders (Compressor / Defrost / Fans etc.)

- 1) Press and hold the SET key for 3 seconds until the display shows USr
 - 2) Use the UP & DOWN keys to select the **inS** parameter section
 - 3) Press and release the SET key again. The display will show the first folder
 - 4) Press and release the SET key again. The top display will show the first parameter in the folder, the bottom display will indicate the current parameter value
 - 5) Use the UP & DOWN keys to find the parameter that you want to change
- The procedure progresses in a similar manner to that described for the User parameters (steps 4-7).

OPERATION IN DEFAULT CONFIGURATION

The instrument is configured for negative cold. For positive cold, disable the evaporator probe Pb2 (set **H42=n**) and relay OUT3 (set **H23=6**) to prevent continuous ventilation.

COMPRESSOR

The compressor is active if the cold room temperature measured by Pb1 exceeds the value of **SEt + diF**. The compressor stops if the cold room temperature detected by Pb1 falls below the setpoint value. The instrument includes compressor on/off protection.

DEFROST

Defrost is by means of electric heaters (parameter **dtY** = 0) and the time counter is always active with the instrument switched on (**dCt=1**).

Manual defrost

Manual defrost is activated by pressing and holding the ESC key (A)

If conditions are not right for defrosting, (e.g. the evaporator probe temperature is higher than the defrosting end temperature) or parameter **OdO**≠0, the display will blink three times to indicate that the operation will not be performed.

Default Defrost settings

dit = 6 hours. interval between 2 defrost cycles

dSt = 6.0 °C. defrosting end temperature. set by Pb2

The Defrost cycle may terminate due to a timeout based on the parameter **dEt** (default 30 min).

EVAPORATOR FANS

The OUT3 relay is configured as the fan relay and is activated when required, according to the delay and parameter settings.

Default fan settings

dt = 0 min. dripping time

dFd = Y. Fans off during defrosting

LIGHT (EWRC 500/5000)

The light is activated by pressing and holding the LIGHT key (F)

As digital input DI1 is configured as door switch, relay OUT4 (light) is activated when the door is opened. The light also switches on with the instrument in stand-by.

ALARM relay (EWRC 500/5000)

Relay OUT5 is configured as alarm relay and is activated in the case of alarms, according to delays and parameter settings.

SOFTWARE TOOLS

EWRC 300/500/5000 NT can be connected to:

- Televis**System** or third-party monitoring systems via Modbus protocol
- DeviceManager fast parameter configuration software
- Eliwell AIR App for HACCP Module (**RCN**..... models)

The connection is direct RS-485 using the optional RS-485/TTL plug-in module (not included). See the Wiring diagram.

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

TECHNICAL SUPPORT

Have the following information available when contacting Eliwell Technical Support:

- IdF firmware version (e.g. 554) (e.g 812 for AIR models)
- rEL firmware version release (e.g. 1,2,...)
- tAb map code
- rC instrument model (e.g. 300 or 500)

To obtain this information:

- Press and release the DOWN / INFO key
- Press and release the DOWN key once more to display other information about the instrument.
- Press the ESC key to return to the normal display.

ALARMS AND TROUBLESHOOTING

How to display the alarms

1) Press and release the UP key. The top display will always show the label ALr. The bottom display will show:

- nOnE if no alarms active
- SYS to indicate system alarms - see Alarms Table
- HACP to indicate HACCP alarms - see HACCP alarms

2) Using the UP & DOWN keys, find the type of alarm that you want to check

System alarms

The top display will show the label ALr, the bottom display will indicate the alarm code - see Alarms Table

- Using the UP & DOWN key, scroll the other alarms
- Press the ESC key to return to the previous alarm code, press the ESC key several times (or keep it pressed) to return to the normal display

HACCP ALARMS • AVAILABLE ONLY FOR HACCP MODELS

The instrument logs high and low temperature alarms for the cold room probe, as well as any power failures. The alarm types and the duration and start time of the alarm itself will be displayed in the alarms folder ALr. It is possible to disable the recording of alarms and/or resetting of HACCP alarms. See Functions Menu.

ALARMS TABLE

This section lists alarms associated with the default configuration of the instrument.

For a description of alarms relating to custom configurations, refer to the user manual or contact Eliwell Technical Support.

Label	Cause	Effects	Problem solving
E1*	Pb1 room probe faulty • Measured values are outside operating range • Probe faulty/short-circuited/open	• Label E1 displayed • Maximum and minimum alarm regulator disabled • Compressor operation based on parameters "Ont" and "OFt" if set for duty cycle.	• Check probe type NTC/PTC (see H00) • Check probe wiring • Replace probe
E2*	Pb2 defrost probe faulty • Measured values are outside operating range • Probe faulty/short-circuited/open	• Label E2 displayed • The Defrost cycle will end due to time-out (Parameter "dEt")	• Check probe type NTC/PTC (see H00) • Check probe wiring • Replace probe
LA1	Pb1 LOW temperature alarm • Value read by Pb1 < LAL after time of tAO.	• Recording of label LA1 in folder ALr • No effect on regulation	Wait for the temperature value read by Pb1 to come back above LAL+AFd
HA1	Pb1 HIGH temperature alarm • value read by probe Pb1 > HAL after time of "tAO".	• Recording of label HA1 in folder ALr • No effect on regulation	Wait until temperature value read by Pb1 returns below HAL-AFd.
Ad2	End of defrost cycle due to time-out rather than due to defrost end temperature being read by the defrost probe	• Recording of label Ad2 in folder ALr	Await next defrost cycle for automatic return to normal

This section lists alarms associated with the default configuration of the instrument.
For a description of alarms relating to custom configurations, refer to the user manual or contact Eliwell Technical Support.

Label	Cause	Effects	Problem solving
OPd	<ul style="list-style-type: none"> Digital input is activated (set as door switch) See para. H11/H12/H13 Depends on delay set by parameter tdO 	<ul style="list-style-type: none"> Recording of label OPd in folder ALr Regulator locked (see para. dOA/PEA) 	<ul style="list-style-type: none"> Close door Depends on delay set by parameter OAO
E10**	<p>**Models with clock only</p> <p>Clock alarm: clock faulty or unpowered for a long time</p>	Functions associated with clock not controlled	Contact Eliwell Technical Support

ALL ALARMS

- Alarm icon on continuously.
 - Buzzer (if present) and alarm relay (OUT5) activated, except Ad2.
 - Press any key to mute the alarm. The icon changes from steady to blinking.
- NOTE:** the buzzer is deactivated while the alarm relay remains active.

*E1 - E2: If simultaneous they will be shown alternately on the display at a frequency of 2 seconds.

TECHNICAL DATA (EN 60730-2-9:2010, EN 61439-1:2011 / 61439-2:2011 / EN 60204-1:2006)

DESCRIPTION

Front panel	IP65
Classification	Electronic automatic control device (not safety device) for stand-alone installation
Installation	<p>wall</p> <p>EWRC300/500: spacing holes A-B 116 mm (4.57 in.); holes C-D 87 mm (3.42 in.); holes A-C 235 mm (9.25 in.) Hinges are available for mounting on special compartments for opening the cover both right and left. Screw on the respective anchoring screws taking care that the hinges are fitted well and lie flush so that they do not interfere with the compression of the seal.</p>
	<p>wall</p> <p>EWRC5000: See Installation procedure section</p>
Type of action	1.B
Pollution class	2
Panel type	Fixed panel
Maximum installation site altitude	2000 m (2187 yd)
Weight	< 2 kg (< 4.41 lb)
Panel use	Internal use
Material class	IIIa
Over voltage category	II
Nominal pulse voltage	2500 V
Operating temperature	-5 ... 50 °C (23 ... 122 °F) (EN 60730-2-9:2010)
Power supply	230 Vac ± 10% 50/60 Hz
Control	EWRC NT electronic controller
Power consumption	11 VA max
Digital outputs (relay)	refer to the label on the device
Fire resistance category	D
Software class	A
Connection	device on external flexible cable, Y type connection
Ball test temperature	100 °C (212 °F)
EWRC 500 BREAKER RCA●●●R●●●●● / RCA●●●S●●●●● / RCNA●●●R●●●●● / RCNA●●●S●●●●● :	
Magnetothermal switch	Two-pole (2P)

Electrical specifications

DESCRIPTION	
Rated voltage (Un)	230 Vac
Rated operating voltage (Ue)	230 Vac
Rated insulation voltage (Ui)	230 Vac
Conditioned short circuit current (Icc)	< 4.5 kA
Rated frequency (fn):	50/60 Hz
EWRC 500 BREAKER RCA•••S•••••••• / RCA•••R•••••••• / RCNA•••R•••••••• / RCNA•••S•••••••• :	
Rated impulse withstand voltage (Uimp)	4 kV (EN 61439-2:2011)
Rated panel current (InA)	16 A (EN 61439-2:2011)
Rated circuit current (InC)	16 A (EN 61439-2:2011)

FURTHER INFORMATION

RELAY OUTPUTS						
MODEL	EWRC 300 NT		EWRC 500/5000 NT		EWRC 500 NT	
CODE	RCS•H•••••••• RCA•H•••••••• RCNS•H•••••••• RCNA•H••••••••		RCS•U•••••••• RCA•U••••~•••••• RCH300•••••••• RCNS•U••••~•••••• RCNA•U••••~••••~•• RCNH300••••~••••~••		RCS•P••••~••••~•• RCA•P••••~••••~•• RCNS•P••••~••••~•• RCNA•P••••~••••~••	
STANDARD	EN60730 max 250 Vac	UL60730 max 240 Vac	EN60730 max 250 Vac	UL60730 max 240 Vac	EN60730 max 250 Vac	UL60730 max 240 Vac
OUT1	12(8) A	12FLA - 72LRA	12(8) A	12FLA - 72LRA	12(8) A	12FLA - 72LRA
OUT2	8 A	8FLA - 48LRA	8 A	8FLA - 48LRA	8 A	8FLA - 48LRA
OUT3	8(4) A	8 A resistive 4.9FLA - 29.4LRA	8(4) A	8 A resistive 4.9FLA - 29.4LRA	12(8) A	12FLA - 72LRA
OUT4	-	-	8 A	8FLA - 48LRA	8 A	8FLA 48LRA
OUT5	-	-	NO 8(4) A, NC 6(3) A	NO 8 A, NC 6 A resistive NO 4.9FLA 29.4LRA	NO 8(4) A, NC 6(3) A	NO 8 A, NC 6 A resistive NO 4.9FLA 29.4LRA
NOTE	Maximum common flow rate 16 A for models EWRC 500 BREAKER: RCA•••S••••~••••~•• / RCA•••R••••~••••~•• / RCNA•••S••••~••••~•• / RCNA•••R••~••••~•• Maximum common flow rate 18 A for all other models					

DESCRIPTION	
Container	PC+ABS
Dimensions	EWRC 300/500: front panel 213 x 318 mm (8.38 x 12.51 in.), depth 102 mm (4.01 in.) EWRC 500 BREAKER: front panel 221 x 318 mm (8.70 x 12.51 in.), depth 107 mm (4.21 in.) EWRC 5000: front panel 420 x 360 mm (16.53 x 4.17 in.), depth 147 mm (5.79 in.)
Connections	screw-on terminals (see wiring diagram) with internal housing for magnetothermal switch, remote control switch, contactor, etc. on DIN rail
Storage temperature	-20 ... 85 °C (-4 ... 185 °F) RCA••••~••••~•• / RCNA••••~••••~•• Models -20 ... 60 °C (-4 ... 140 °F)
Operating humidity Storage humidity	10...90% RH non-condensing
Display range	NTC: -50...110 °C (-58 ... 230 °F) PTC: -55...150 °C (-67 ... 302 °F) no decimal point, on 2 displays: (top display) 3 digit + sign/ (bottom display) 4 digit
Analogue Inputs	3(2) NTC inputs, PTC selectable via parameter H00
Digital Inputs	2(3) voltage-free digital inputs configurable via parameter H11/H12/H13
Buzzer	only on models where this is provided

DESCRIPTION

Serial ports	<ul style="list-style-type: none">• 1 TTL port for connection to HACCP Module (RCN..... models) / UNICARD / Copy Card / TelevisSystem• 1 RS-485 serial port for connection to TelevisSystem / Modbus (use with optional plug-in module) NOTE: if using the TTL port to communicate, disconnect the RS-485 port and vice-versa.
Accuracy	better than 0.5% of integral-scale + 1 digit
Resolution	1 or 0.1 °C (0.1 °F)
Clock backup **	Up to four days in the absence of an external power supply

USE CONDITIONS

Permitted use

The device must be installed and used in accordance with the instructions provided. In particular, parts carrying dangerous voltages must not be accessible under normal conditions.

It must be adequately protected from water and dust with regard to the application, and must only be accessible using tools or a keyed locking mechanism (with the exception of the front panel).

The device is suitable for use in household refrigeration appliances and/or similar equipment and has been tested in accordance with the harmonized European reference standards.

Prohibited use

Any use other than that expressly permitted is prohibited. The relays provided are of a functional type and can be subject to failure: any protection devices required by product standards, or suggested by common sense for obvious safety requirements, must be installed externally to the controller.

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 the legislation in force in the country of installation and/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 devices which allow access to dangerous parts without the aid of a keyed or tooled locking mechanism;
- tampering with and/or modification of the product;
- installation/use on equipment that does not comply with the regulations in force in the country of installation.

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DISPOSAL



The equipment (or product) must be subjected to separate waste collection in compliance with the local legislation on waste disposal.

NOTE: Electrical equipment must be installed, used 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 knowledge regarding the structure and the operation of electrical equipment and who has received safety training on how to avoid the inherent dangers.

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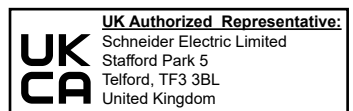
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