eliwell

by Schneider Electric

ICPlus 915

EN **Electronic controller with 2 intervention points**

USER INTERFACE

ICPlus 915

KEYS

UP
Press and release
Scroll menu items
Increases values
Press for at least 5 sec
Function can be configured by the user (H31)

STAND-BY (ESC)
Press and release
Returns to the previous menu level
Confirms parameter value
Press for at least 5 sec
Function can be configured by the user (H33)

DOWN
Press and release
Scroll menu items
Decrease values
Press for at least 5 sec
Function can be configured by the user (H32)

SET (ENTER)
Press and release
Displays alarms (if active)
Opens Machine Status menu
Confirm commands
Press for at least 5 sec
Opens Programming menu

ICONs

Decimal Point
Permanently on: decimal point
Flashing: Soft Start active
Off: otherwise

Temperature
Permanently on: displays a temperature
Flashing: reduced set active, displays a temperature or no unit of measure selected

Pressure
Permanently on: displays a pressure
Flashing: reduced set active and displays a pressure

Humidity
Permanently on: displays a humidity
Flashing: reduced set active and displays a humidity

Relay OUT1
Permanently on: OUT1 output active
Flashing: a delay, a protection or a locked start-up
Off: otherwise

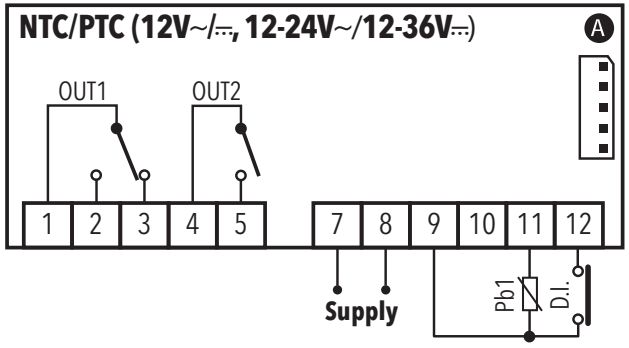
Relay OUT2
Permanently on: OUT2 output active
Flashing: a delay, a protection or a locked start-up
Off: otherwise

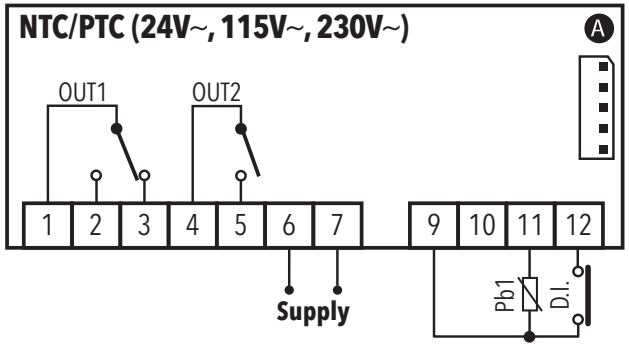
Alarm
Permanently on: alarm active
Flashing: alarm acknowledged
Off: otherwise

NOTE:
When switched on, the device performs a Lamp Test; the display and LEDs will flash for several seconds to check that they all function correctly.

NTC/PTC MODEL

CONNECTIONS





INPUT/OUTPUT CHARACTERISTICS

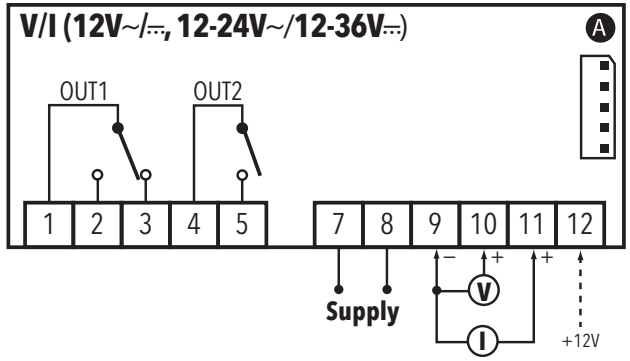
Display range:	**NTC**: -50...110°C (-58...230°F) **PTC**: -50...140°C (-58...302°F) on display with 3½ digits + sign
Digital input	1 digital voltage free input
Analogue input	1 **NTC** or 1 **PTC** (selectable by parameter **H00**)
Serial	TTL for connection to Copy Card or Televis/ Modbus remote control systems
Digital outputs	**OUT1**: 1 SPDT relay 8(4)A 250 V~ **OUT2**: 1 SPST relay 8(4)A 250 V~
Buzzer output	only on models where this is provided
Measurement range	-50 ... 140°C (-58 ... 284°F)
Accuracy	better than 0.5% of end of scale +1 digit
Resolution	0.1°C (0.1°F up to +199.9°F; 1°F over)

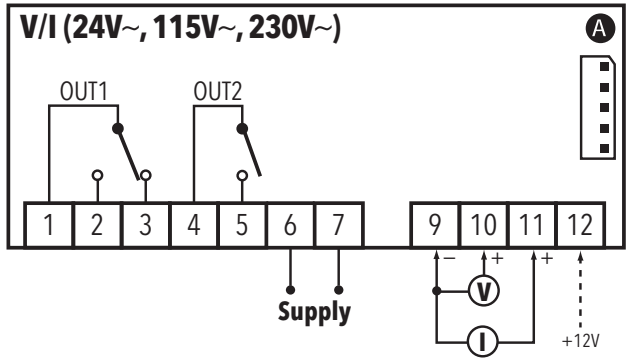
TERMINALS

1-2-3	regulator relay **OUT1**	***7-8**	Power supply 12V~/⎓ and 12-24V~/12-36V⎓.
4-5	regulator relay **OUT2**	**9-11**	Probe Pb1 Input
***6-7**	Power supply 24V~, 115V~ and 230V~.	**9-12**	Digital Input (D.I.)
A	TTL input for Copy Card and TelevisSystem connection		*** depends on model**

V/I MODEL

CONNECTIONS





INPUT/OUTPUT CHARACTERISTICS

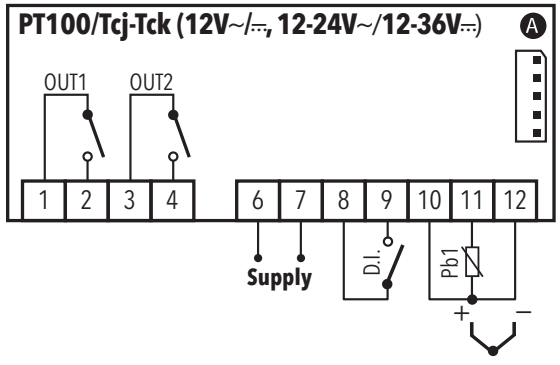
Display range:	-199...199 (ndt = **n**) -199.9...199.9 (ndt = **y**) -1999...1999 (ndt = **int**) on display with 3½ digits + sign
Digital input	1 digital voltage free input
Analogue input	1 **V/I** (0-1V, 0-5V, 0-10V, 0...20mA, 4...20mA) (selectable by parameter **H00**) Maximum load: - current = 100 Ω - voltage = 20 kΩ
Serial	TTL for connection to Copy Card or Televis/ Modbus remote control systems
Digital outputs	**OUT1**: 1 SPDT relay 8(4)A 250 V~ **OUT2**: 1 SPST relay 8(4)A 250 V~
Buzzer output	only on models where this is provided
Measurement range	-1999 ... 1999
Accuracy	better than 0.5% of end of scale +1 digit
Resolution	1 or 0.1 digit according to settings

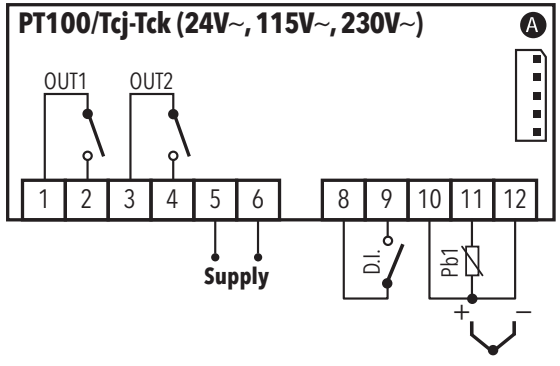
TERMINALS

1-2-3	regulator relay **OUT1**	***7-8**	Power supply 12V~/⎓ and 12-24V~/12-36V⎓.
4-5	regulator relay **OUT2**	***9-10-12**	Voltage input (**9**=GND; **10**="+"; **12**=12V)
***6-7**	Power supply 24V~, 115V~ and 230V~.	***9-11-12**	Current input (**9**=GND; **11**="+"; **12**=12V)
A	TTL input for Copy Card and TelevisSystem connection		*** depends on model**

PT100/Tcj-Tck MODEL

CONNECTIONS





INPUT/OUTPUT CHARACTERISTICS

Display range:	**PT100**: -150...650°C **TcJ**: -40...750°C **TcK**: -40...1350°C on display with 3½ digits + sign
Digital input	1 digital voltage free input
Analogue input	1 **PT100** or 1 **TcJ** / **Tck** (selectable by parameter **H00**)
Serial	TTL for connection to Copy Card or Televis/ Modbus remote control systems
Digital outputs	**OUT1**: 1 SPST relay 8(4)A 250 V~ **OUT2**: 1 SPST relay 8(4)A 250 V~
Buzzer output	only on models where this is provided
Measurement range	-150 ... 1350°C (-238 ... 2462°F)
Accuracy	see 'Pt100/TcJ/TcK models' table
Resolution	see 'Pt100/TcJ/TcK models' table

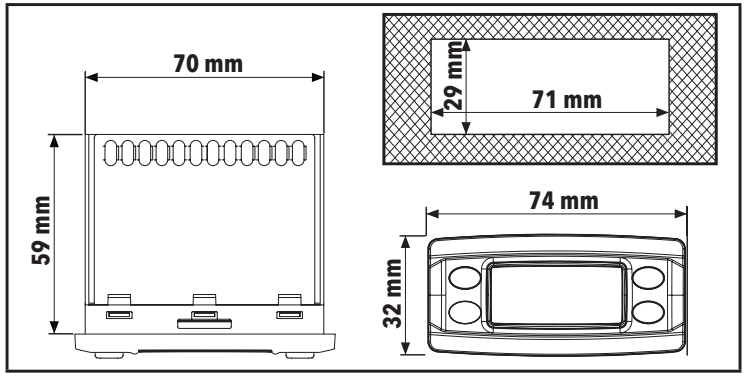
TERMINALS

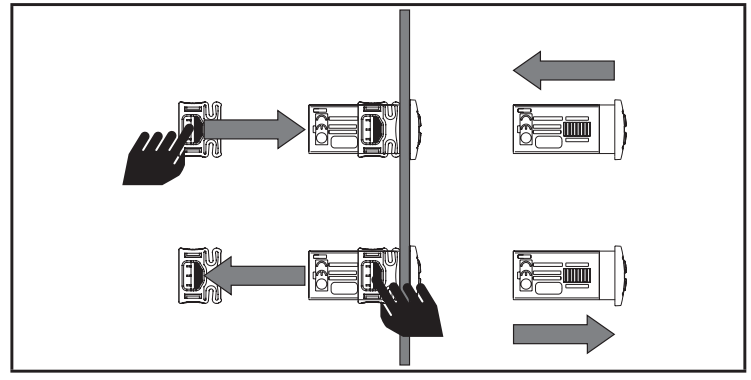
1-2	regulator relay **OUT1**	**8-9**	Digital Input (D.I.)
3-4	regulator relay **OUT2**	***10-11-12**	Probe **PT100** input - 3 wires (Pb1)
***5-6**	Power supply 24V~, 115V~ and 230V~.	***11-12**	**TcJ**/**TcK** input
***6-7**	Power supply 12V~/⎓ and 12-24V~/12-36V⎓.		
A	TTL input for Copy Card and TelevisSystem connection		*** depends on model**

PT100/Tcj-Tck MODELs		
PT100:	ACCURACY:	0.5% for whole scale + 1 digit 0.2% from -150 to 300°C
	RESOLUTION:	0.1°C (0.1°F) from -199.9°C up to 199.9°C; 1°C (1°F) beyond
TcJ:	ACCURACY:	0.4% for whole scale + 1 digit
	RESOLUTION:	0.1°C (0.1°F) from -199.9°C up to 199.9°C; 1°C (1°F) beyond
Tck:	ACCURACY:	0.5% for whole scale + 1 digit 0.3% from -40 to 800°C
	RESOLUTION:	0.1°C (0,1°F) from -199.9°C up to 199.9°C; 1°C (1°F) beyond

MOUNTING - DIMENSIONS

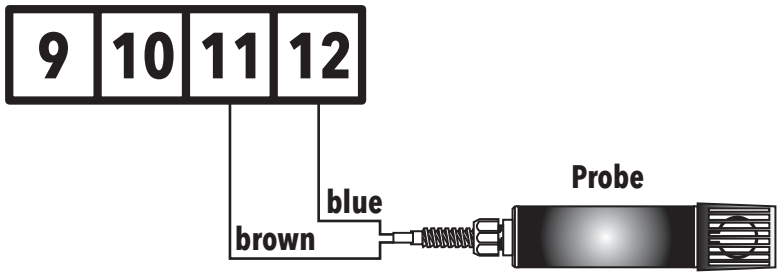
The device is designed for panel mounting. Drill a 29x71 mm hole and insert the instrument; secure it with the special brackets provided.
Do not install the instrument in damp and/or dirty places; in fact, it is suitable for use in places with ordinary or normal levels of pollution.
Keep the area around the instrument cooling slots adequately ventilated.



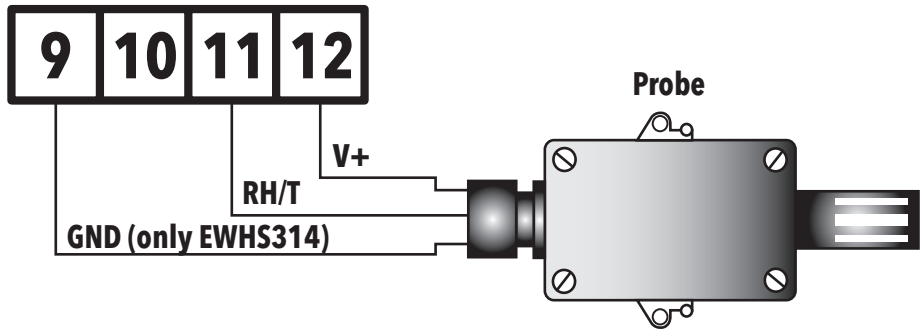


EWPA-EWHS PROBE CONFIGURATION

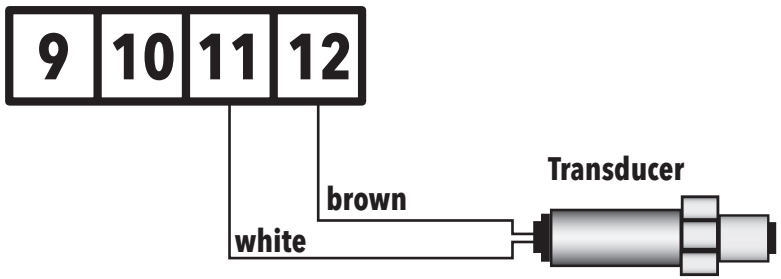
EWHS 284 2 wires



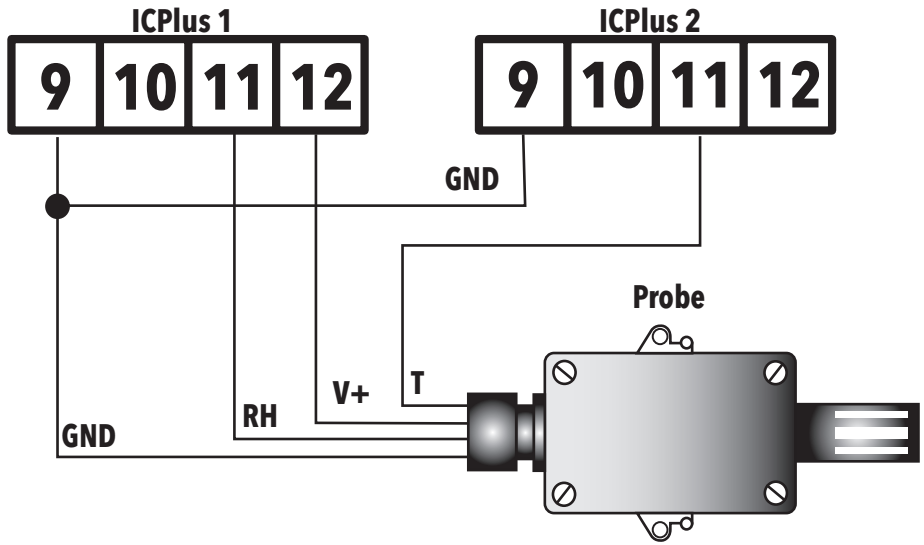
EWHS 304/314 3 wires



EWPA 007/030 2 wires / Transducer



EWHS 314 4 wires (V-I model)



ACCESSING AND USING THE MENUs

The resources are organized into 2 menus which are accessed as follows:

- 'Machine Status' menu: press and release the SET key.
- 'Programming' menu: hold down the SET key for 5 seconds.

Either do not press any keys for 15 seconds (timeout) or press the ⏻ key once, to confirm the last value displayed and return to the previous screen.

PASSWORD

Password 'PA1': used to access **User** parameters. The password is not enabled by default (**PS1**=0).
To enable it (**PS1**≠0): press and hold SET for longer than 5 seconds, scroll through the parameters using ⌃ and ⌄ until you see the label **PS1**, press SET to display the value, modify it using ⌃ and ⌄, then save it by pressing SET or ⏻. If enabled, it will be required in order to access the User parameters.

Password 'PA2': used to access **Installer** parameters. The password is enabled by default (**PS2**=15).
To modify it (**PS2**≠15): press and hold SET for longer than 5 seconds, scroll through the parameters using ⌃ and ⌄ until you see the label **PA2**, press SET, set the value to '15' using ⌃ and ⌄, then confirm using SET. Scroll through the folders until you find the label **diS** and press SET to enter. Scroll through the parameters using ⌃ and ⌄ until you see the label **PS2**, press SET to display the value, modify it using ⌃ and ⌄, then save it by pressing SET or ⏻.

The visibility of **'PA2'** is as follows:

1) **PA1** and **PA2 ≠ 0**: Press and hold SET for longer than 5 seconds to display **PA1** and **PA2**. It will then be possible to decide whether to access the User parameters (**PA1**) or the Installer parameters (**PA2**).
2) **Otherwise**: The password **PA2** is amongst the level1 parameters. If enabled, it will be required when accessing the Installer parameters; to enter it, proceed as instructed for password **PA1**.

If the value entered is incorrect, the label **PA1**/**PA2** will be displayed again and the procedure will need to be repeated.

MACHINE STATUS MENU

Access the Machine Status menu by pressing SET and releasing the key. If no alarms are active, the 'SP1' label appears.
Use the keys ∧ and ∨ to scroll through all the folders in the menu:

- **AL**: alarms folder (**only visible if an alarm is active**);
- **SP1**: Setpoint 1 setting folder;
- **SP2**: Setpoint 2 setting folder;
- **Pb1**: probe 1 - Pb1 folder;

Setting the Setpoint: To display the Setpoint value press the SET key when the 'SP1' or 'SP2' label is displayed. The Setpoint value appears on the display. To change the Setpoint value, press the ∧ and ∨ keys within 15 seconds. Press SET to confirm the modification.

Displaying probes: When label Pb1 is present, press the SET key to view the value measured by the corresponding probe (**NOTE**: the value cannot be modified).

PROGRAMMING MENU

To access the 'Programming' menu, press the SET key for more than 5 seconds. If specified, an access PASSWORD will be requested: 'PA1' for User parameters and 'PA2' for Installer parameters (see 'PASSWORD' paragraph).

User Parameter: When accessed, the display will show the first parameter (e.g. 'dF1'). Press ∧ and ∨ to scroll through all the parameters on the current level. Select the desired parameter by pressing SET. Press ∧ and ∨ to modify it and SET to save the changes.

Installer Parameter: When accessed, the display will show the first folder (e.g. 'rE1'). Press ∧ and ∨ to scroll through the folders on the current level. Select the desired folder using SET. Press ∧ and ∨ to scroll through the parameters in the current folder and select the parameter using SET. Press ∧ and ∨ to modify it and SET to save the changes.

NOTE: Make sure you switch the instrument off and on again each time the parameter configuration is changed, in order to prevent malfunctioning in the configuration and/or timing in progress.

DIAGNOSTICS

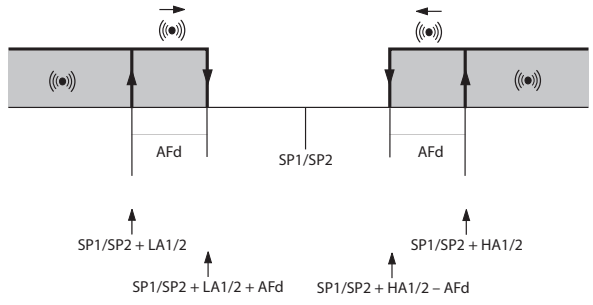
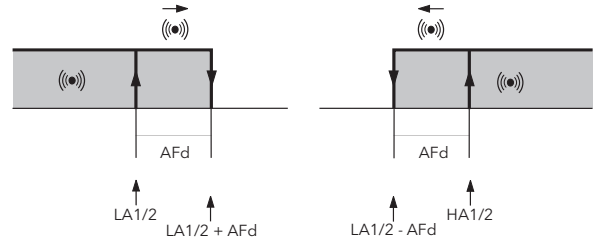
Alarms are always indicated by the alarm icon ⚠, the buzzer and the relay (if setting).
To switch off the buzzer, press and release any key; the corresponding icon will continue to flash.

N.B.: If alarm exclusion times have been set (see 'AL' folder in the parameters table) the alarm will not be signalled.

ALARMs

Label	Fault	Cause	Effects	Remedy
E1	Probe1 faulty (ambient)	• measured values are outside operating range • Probe faulty/short-circuited/ open	• Display label **E1** • Alarm icon permanently on • Buzzer and Alarm relay (if setting) activation • Disable max/min alarm controller • Compressor operation based on parameters **On1/2** and **OF1/2**	• check probe type (**H00**) • check probe wiring • replace probe
AH1/2	Alarm for HIGH value (Probe1)	value read by **Pb1** > **HA1/2** after time of **tAO**. (see 'MAX/MIN TEMP. ALARMS')	• Recording of label **AH1/2** in folder AL • Alarm icon permanently on • Buzzer and Alarm relay (if setting) activation • No effect on regulation	Wait until value read by Pb1 returns below **HA1/2**.
AL1/2	Alarm for LOW value (Probe1)	value read by **Pb1** < **LA1/2** after time of **tAO**. (see 'MAX/MIN TEMP. ALARMS')	• Recording of label **AL1/2** in folder AL • Alarm icon permanently on • Buzzer and Alarm relay (if setting) activation • No effect on regulation	Wait until value read by Pb1 returns above **LA1/2**.
EA	External alarm	Digital input activated (**H11** = ±5)	• Recording of label **EA** in folder AL • Alarm icon permanently on • Buzzer and Alarm relay (if setting) activation • Regulation locked	Check and remove the external cause which triggered the alarm on the D.I.

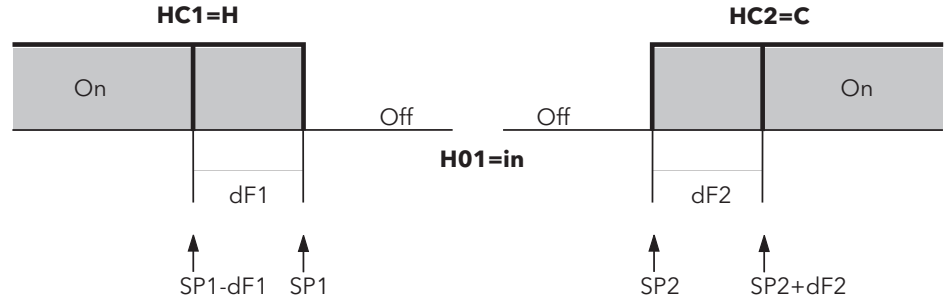
MAX/MIN TEMPERATURE ALARMS

	Temperature as a value relative to Setpoint (Att=1)	**Temperature as an Absolute value (Att=0)**
		
Minimum alarm	Temp. ≤ **SP1/2 + LA1/2 ***	Temp. ≤ **LA1/2** (**LA1/2** with sign)
Maximum alarm	Temp. ≥ **SP1/2 + HA1/2 ****	Temp. ≥ **HA1/2** (**HA1/2** with sign)
Returning from minimum	Temp. ≥ **SP1/2 + LA1/2 + AFd** or ≥ **SP1/2 -** I**LA1/2**I **+ AFd** (LA1/2<0)	Temp. ≥ **LA1/2 + AFd**
Returning from maximum	Temp. ≤ **SP1/2 + HA1/2 - AFd** (HA1/2>0)	Temp. ≤ **HA1/2 - AFd**
	*** if LA1/2 is negative, SP1/2+LA1/2 < SP1/2** **** if HA1/2 is negative, SP1/2+HA1/2 < SP1/2**	

ON-OFF CONTROL DIAGRAM

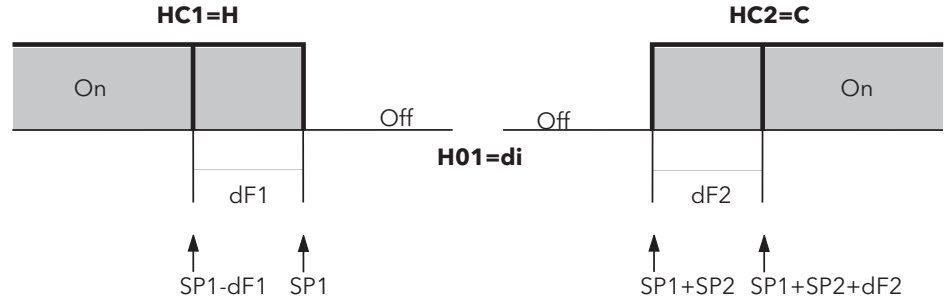
ON-OFF regulation diagram with independent setpoint (H01=0, HC1=H and HC2=C).

The two outputs regulate as though they were completely independent of each other.



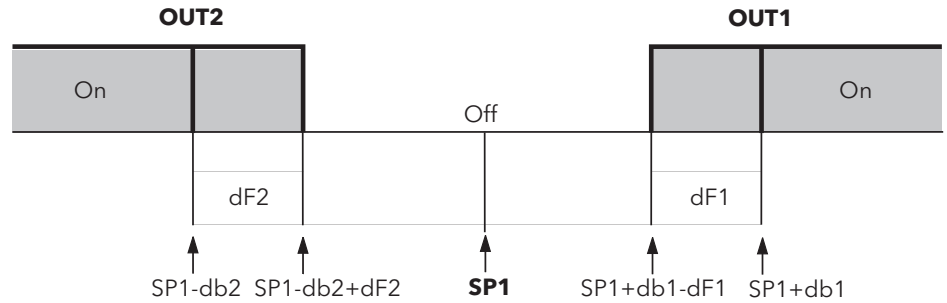
ON-OFF regulation diagram with dependent setpoint (H01=1, HC1=H and HC2=C).

Setpoint 2 (SP2) regulates relative to SP1.



ON-OFF regulation diagram with Neutral zone (or window) (H01=2, HC1and HC2= irrilevant).

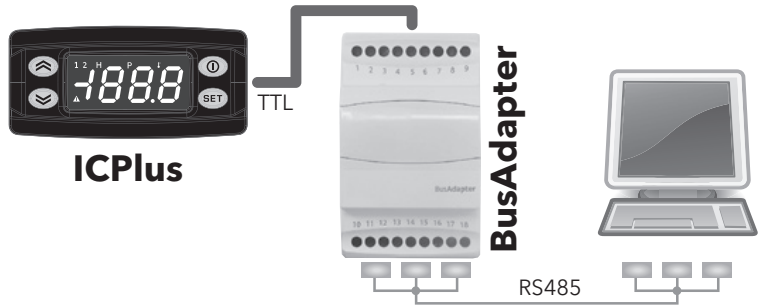
If dF1=0 and dF2 = 0, the outputs are deactivated when SP1 is reached.



TELEVIS SYSTEM

The Televis remote control systems can be connected using the TTL serial port (TTL-RS485 **Bus**Adapter 130 or 150 interface module must be used).

To configure the instrument to do this, you need to access the **Add** folder and use the **dEA** and **FAA** parameters.



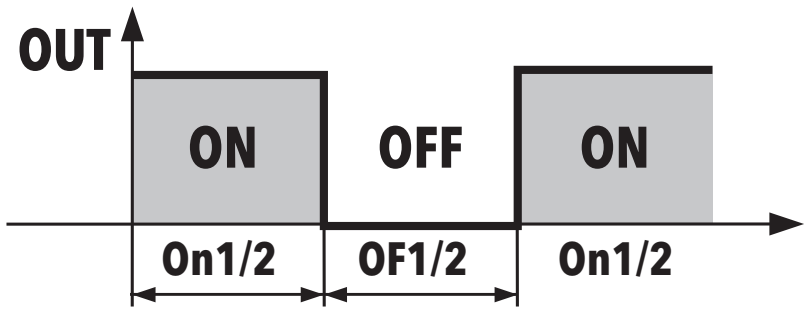
IMPORTANT! CHECK THE AVAILABILITY OF MODELS COMPATIBLE WITH REMOTE SUPERVISION SYSTEMS.

DUTY CYCLE DIAGRAM

The device uses parameters On1/2 e OF1/2 set for Duty Cycle.
An error condition in probe1 (regulation) causes one of the following actions:

- Code '**E1**' is shown on the display
- The regulator is activated as indicated by parameters On1/2 and OF1/2 if set for Duty Cycle

On1/2	OF1/2	Regulator output
0	0	OFF
0	>0	OFF
>0	0	ON
>0	>0	Duty Cycle



TECHNICAL DATA (EN 60730-2-9)

Classification:	operation (not safety) device for incorporation
Mounting:	panel mounting with 71x29 mm (+0.2/-0.1 mm) drilling template
Type of action:	1.B
Pollution class:	2
Material class:	IIIa
Overvoltage category:	II
Rated impulse voltage:	2500V
Temperature:	Operating: –5 … +55 °C - Storage: –30 … +85 °C
Power supply:	• 12V~/⎓ (±10%) • 24 V~ ±10% • 12-24V~/12-36V⎓ ±10% (Dedicated power supply not grounded or earth connected) • 115V~ ±10% 50/60 Hz • 230 V~ ±10% 50/60 Hz
Consumption:	• 1.5 VA max (model 12V~/⎓) • 3 W max (models: 24V~, 12-24V~/12-36V⎓, 115V~ and 230V~)
Digital outputs (relay):	refer to the label on the device
Fire resistance category:	D
Software class:	A

NOTE: check the power supply specified on the instrument label.

FURTHER INFORMATION

Input/Output Characteristics

See 'Connections' section

Mechanical Characteristics

Casing:	PC+ABS UL94 V-0 resin casing, polycarbonate window, thermoplastic resin keys
Dimensions:	front panel 74x32 mm, depth 59 mm (without terminals)
Terminals:	screw/disconnectable terminals for cables with a diameter of 2,5mm^2
Connectors:	TTL for connection of Unicard/Copy Card
Humidity:	Operating / Storage: 10…90 % RH (non-condensing)

Regulations

Electromagnetic compatibility:	The device conforms to Directive 2004/108/EC
Safety:	The device conforms to Directive 2006/95/EC
Food Safety:	The device complies with standard EN13485 as follows:

- suitable for storage
- application: air
- climate range A
- measurement class 1 in the range from -25°C to 15°C (*)

(* exclusively using Eliwell probes)

NOTE: The technical specifications given in this document regarding measurement (range, accuracy, resolution, etc.) refer to the instrument and not to any accessories provided, such as the probes. This means, for example, that the error introduced by the probe must be added to the typical error of the instrument.

USING THE COPY CARD

The Copy Card is connected to the serial port (TTL) and allows rapid programming of the instrument parameters.
Access **Installer** parameters by entering 'PA2', scroll through the folders using ⌃ and ⌄ until folder **FPr** appears. Select it using SET, scroll through the parameters using ⌃ and ⌄, then select the function using SET (eg. **UL**).

- **Upload** (**UL**): Select UL and press SET. This function uploads the programming parameters from the instrument to the card. If the procedure is a success, '**y**', will appear on the display, otherwise '**n**' will appear.
- **Format** (**Fr**): This command is used to format the copy card (recommended when using the card for the first time).
  Important: the **Fr** parameter deletes all data present. This operation cannot be cancelled.
- **Download**: Connect the Copy Card when the instrument is switched off. At power-on, data is downloaded from the copy card to the instrument automatically. At the end of the lamp test, the display will show '**dLy**' if the operation was successful and '**dLn**' if not.

NOTE: **After downloading, the instrument works with the settings of the new map just downloaded.**

H13 PARAMETER CONFIGURATION

H13	D.I. STATE	FROM KEY OR FROM MENU		FUNCTION STATE	COMMENTS
		ENABLED	DISABLED		
NO	open	YES	YES	ON	enabled / disabled with each mode
NO	closed	YES	YES	OFF	enabled / disabled with each mode
NC	open	YES	YES	OFF	enabled / disabled with each mode
NC	closed	YES	YES	ON	enabled / disabled with each mode
NOP	open	YES	YES	ON	enabled only from D.I. / disabled with each mode
NOP	closed	NO	N/A	OFF	Enabled only when D.I. is reopened
NCP	open	YES	YES	OFF	enabled with each mode / disabled only from D.I.
NCP	closed	N/A	NO	ON	enabled with each mode / disabled only from D.I.

PARAMETERS TABLE

PAR.	DESCRIPTION	MODEL	RANGE	VALUE	M.U.	LEVEL
SP1	Pb1 value control setpoint **SP1**. **The SEtpoint is visible from the machine status menu and not from the programming menu.**	**NTC/PTC**	LS1...HS1	0.0	°C/°F	
		PT100-Tc		0.0	°C/°F	
		V/I		0	num	
SP2	Pb1 value control setpoint **SP2**. **The SEtpoint is visible from the machine status menu and not from the programming menu.**	**NTC/PTC**	LS2...HS2	0.0	°C/°F	
		PT100-Tc		0.0	°C/°F	
		V/I		0	num	
	REGULATOR 1 (folder 'rE1')					
HC1	This sets the controller 1 operating mode. **H** (0) = Hot; **C** (1) = Cold.	ALL	H/C	H	flag	Inst
OS1	Value to be added to **SP1** if reduced set enabled	**NTC/PTC**	-30.0...30.0	0.0	°C/°F	Inst
		PT100-Tc	-30.0...30.0	0.0	°C/°F	
		V/I	-30...30	0	num	
db1	Operating band 1. (**See 'ON/OFF regulation diagram'**)	**NTC/PTC**	0.0...30.0	1.0	°C/°F	Inst
		PT100-Tc	0.0...30.0	1.0	°C/°F	
		V/I	0...30	1	num	
dF1	Regulator 1 activation differential. The utility stops on reaching the **SP1** value (as indicated by control probe) and restarts at a value equal to **T=SP1+dF1** relative to **HC1**.	**NTC/PTC**	0.0...30.0	1.0	°C/°F	User/Inst
		PT100-Tc	0.0...30.0	1.0	°C/°F	
		V/I	0...30	1	num	
HS1	Maximum value assignable to setpoint SP1.	**NTC/PTC**	LS1...HdL	140.0	°C/°F	User/Inst
		PT100-Tc		1350	°C/°F	
		V/I		199	num	
LS1	Minimum value assignable to setpoint SP1.	**NTC/PTC**	LdL...HS1	-50.0	°C/°F	User/Inst
		PT100-Tc		-199.9	°C/°F	
		V/I		-199	num	
HA1	Pb1 maximum value alarm on regulator 1. (**See 'Max/Min temperature alarms'**)	**NTC/PTC**	LA1...150.0	140.0	°C/°F	User/Inst
		PT100-Tc	LA1...1999	1350	°C/°F	
		V/I	LA1...150	150	num	

PAR.	DESCRIPTION	MODEL	RANGE	VALUE	M.U.	LEVEL
LA1	Pb1 minimum value alarm on regulator 1. (**See 'Max/Min temperature alarms'**)	**NTC/PTC**	-150.0...HA1	-50.0	°C/°F	User/Inst
		PT100-Tc	-328...HA1	-199.9	°C/°F	
		V/I	-150...HA1	-150	num	
dn1	Switch-on delay. The indicated time must elapse between the request for activation of the controller 1 relay and switch-on. **0** = not active.	ALL	0...250	0	secs	Inst
dO1	Delay time after switching off. The indicated time must elapse between deactivation of the controller 1 relay and the next switch-on. **0** = not active.	ALL	0...250	0	min	Inst
di1	Delay between switch-ons. The indicated time must elapse between two consecutive switch-ons of regulator 1. **0** = not active.	ALL	0...250	0	min	Inst
dE1	Switch-off delay. The indicated time must elapse between the request for deactivation of the controller 1 relay and switch-off. **0** = not active.	ALL	0...250	0	secs	Inst
On1	Controller 1 switch-on time in the event of faulty probe. if **On1**=1 and **OF1**=0, the controller remains on; if **On1**=1 and **OF1**>0, the controller operates in Duty Cycle mode.	ALL	0...250	0	min	Inst
OF1	Controller 1 switch-off time in the event of faulty probe. if **OF1**=1 and **On1**=0, the controller remains off; if **OF1**=1 and **On1**>0, the controller operates in Duty Cycle mode.	ALL	0...250	1	min	Inst
	REGULATOR 2 (folder 'rE2')					
HC2	This sets the controller 2 operating mode. **H** (0) = Hot; **C** (1) = Cold.	ALL	H/C	H	flag	Inst
OS2	Value to be added to **SP2** if reduced set enabled	**NTC/PTC**	-30.0...30.0	0.0	°C/°F	Inst
		PT100-Tc	-30.0...30.0	0.0	°C/°F	
		V/I	-30...30	0	num	
db2	Operating band 2. (**See 'ON/OFF regulation diagram'**)	**NTC/PTC**	0.0...30.0	1.0	°C/°F	Inst
		PT100-Tc	0.0...30.0	1.0	°C/°F	
		V/I	0...30	1	num	

PAR.	DESCRIPTION	MODEL	RANGE	VALUE	M.U.	LEVEL
dF2	**Regulator 2** activation differential. The utility stops on reaching the **SP2** value (as indicated by control probe) and restarts at a value equal to **T=SP2+dF2** relative to **HC2**.	**NTC/PTC**	0.0...30.0	1.0	°C/°F	User/Inst
		PT100-Tc	0.0...30.0	1.0	°C/°F	
		V/I	0...30	1	num	
HS2	Maximum value assignable to setpoint SP2.	**NTC/PTC**	LS2...HdL	140.0	°C/°F	User/Inst
		PT100-Tc		1350	°C/°F	
		V/I		199	num	
LS2	Minimum value assignable to setpoint SP2.	**NTC/PTC**	LdL...HS2	-50.0	°C/°F	User/Inst
		PT100-Tc		-199.9	°C/°F	
		V/I		-199	num	
HA2	Pb1 maximum value alarm on Regulator 2. (**See 'Max/Min temperature alarms'**)	**NTC/PTC**	LA2...150.0	140.0	°C/°F	User/Inst
		PT100-Tc	LA2...1999	1350	°C/°F	
		V/I	LA2...150	150	num	
LA2	Pb1 minimum value alarm on Regulator 2. (**See 'Max/Min temperature alarms'**)	**NTC/PTC**	-150.0...HA2	-50.0	°C/°F	User/Inst
		PT100-Tc	-328...HA2	-199.9	°C/°F	
		V/I	-150...HA2	-150	num	
dn2	Switch-on delay. The indicated time must elapse between the request for activation of the controller 2 relay and switch-on. **0** = not active.	ALL	0...250	0	secs	Inst
dO2	Delay time after switching off. The indicated time must elapse between deactivation of the controller 2 relay and the next switch-on. **0** = not active.	ALL	0...250	0	min	Inst
di2	Delay between switch-ons. The indicated time must elapse between two consecutive switch-ons of regulator 2. **0** = not active.	ALL	0...250	0	min	Inst
dE2	Switch-off delay. The indicated time must elapse between the request for deactivation of the controller 2 relay and switch-off. **0** = not active.	ALL	0...250	0	secs	Inst
On2	Controller 2 switch-on time in the event of faulty probe. if **On2**=1 and **OF2**=0, the controller remains on; if **On2**=1 and **OF2**>0, the controller operates in Duty Cycle mode.	ALL	0...250	0	min	Inst

PAR.	DESCRIPTION	MODEL	RANGE	VALUE	M.U.	LEVEL
OF2	Controller 2 switch-off time in the event of faulty probe. if **OF2**=1 and **On2**=0, the controller remains off; if **OF2**=1 and **On2**>0, the controller operates in Duty Cycle mode.	ALL	0...250	1	min	Inst
	SOFT START CONTROLLER (folder 'SFt')					
dSi	Value of each subsequent increase (dynamic) of the setpoint. **0** = disabled.	**NTC/PTC**	0.0...25.0	0.0	°C/°F	Inst
		PT100-Tc	0.0...25.0	0.0	°C/°F	
		V/I	0...25	0	num	
dSt	Time between two subsequent increases (dynamic) of the Setpoint.	ALL	0...250	0	hours	Inst
Unt	Unit of measurement (parameter **dSt**). **0** = hours; **1** = minutes; **2** = seconds.	ALL	0/1/2	0	num	Inst
Sen	Establishes which outputs the function must be enabled on: **0** = disabled; **1** = OUT 1; **2** = OUT 2; **3** = OUT 1 & 2	ALL	0/1/2/3	0	num	Inst
Sdi	Function reactivation threshold. Establishes the threshold beyond which the SOFT START function is automatically reactivated.	**NTC/PTC**	1.0...50.0	2,0	°C/°F	Inst
		PT100-Tc	1.0...50.0	2.0	°C/°F	
		V/I	1...50	2	num	
	CYCLIC CONTROLLER (folder 'cLc')					
Con	Output ON time.	ALL	0...250	0	min	Inst
CoF	Output OFF time.	ALL	0...250	0	min	Inst
	ALARMs (folder 'AL')					
Att	Parameters '**HA1/HA2**' and '**LA1/LA2**', intended as the absolute value or differential in relation to the setpoint "**SP1/SP2**". **AbS** (0) = absolute value; **rEL** (1) = relative value.	ALL	AbS/rEL	AbS	flag	Inst
AFd	Alarm differential.	**NTC/PTC**	1.0...50.0	2.0	°C/°F	Inst
		PT100-Tc	1.0...50.0	2.0	°C/°F	
		V/I	1...50	2	num	
PAO	Alarm override time after device is switched on following a power failure.	ALL	0...10	0	hours	Inst

PAR.	DESCRIPTION	MODEL	RANGE	VALUE	M.U.	LEVEL
SAO	Alarm exclusion time until the Setpoint is reached. **0** = disabled. If **SAO** >0, an alarm will be generated if the Setpoint is not reached after the time **SAO** (in hours).	ALL	0...10	0	hours	Inst
tAO	Delay preceding indication of temperature alarm.	ALL	0...250	0	min	Inst
AOP	Alarm output polarity. **nC** (0) = alarm active and output disabled **nO** (1) = alarm active and output enabled	ALL	nC/nO	nC	flag	Inst
tP	Enable all keys to acknowledge an alarm. **n** (0) = no; **y** (1) = yes.	ALL	n/y	y	flag	Inst
	COMMUNICATION (folder 'Add')					
PtS	Selection of communication protocol. **t** = Televis; **d** = Modbus.	ALL	t/d	t	flag	Inst
dEA	Index of the device within the family (valid values from 0 to 14).	ALL	0...14	0	num	Inst
FAA	Device family (valid values from 0 to 14).	ALL	0...14	0	num	Inst
Adr	Modbus protocol controller address.	ALL	1...255	1	num	Inst
bAU	Baudrate selection. **48** (0) = 4800; **96** (1) = 9600; **192** (2) = 19200; **384** (3) = 38400.	ALL	48/96/ 192/384	96	num	Inst
Pty	Modbus parity bit. **n** (0) = none; **E** (1) = even; **o** (2) = odd.	ALL	n/E/o	E	num	Inst
StP	Modbus stop bit. **1b** (0) = 1 bit; **2b** (1) = 2 bit.	ALL	1b/2b	1b	flag	Inst
	DISPLAY (folder 'diS')					
LOC	LOCk. 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.	ALL	n/y	n	flag	User/Inst
PS1	Password 1. When enabled (**PS1 ≠ 0**) it is the password to the '**User**' parameters (User).	ALL	0...250	0	num	User/Inst
PS2	Password 2. When enabled (**PS2 ≠ 0**) it is the password to the '**Installer**' parameters (Inst).	ALL	0...250	15	num	Inst
ndt	Display values with decimal point. **n** (0) = no (without decimal point); **y** (1) = yes (with decimal point); **int** (2) = integer (V/I models only).	ALL	n/y/int	n	num	User/Inst

PAR.	DESCRIPTION	MODEL	RANGE	VALUE	M.U.	LEVEL
CA1	Calibration 1. Positive or negative value added to the value read by **Pb1**, according to the setting of parameter **CAI**.	**NTC/PTC**	-30.0...30.0	0.0	°C/°F	User/Inst
		PT100-Tc	-30.0...30.0	0.0	°C/°F	
		V/I	-30...30	0	num	
CAI	Intervention of the offset on display, temperature control or both. **0** = only the value shown is modified; **1** = sum with only the value used by the controllers and not for the display, which remains unchanged; **2** = sum with the displayed value, which is also used by the regulators.	ALL	0/1/2	2	num	Inst
LdL	Minimum value that can be displayed by the device.	**NTC/PTC**	-199.9...HdL	-50.0	°C/°F	Inst
		PT100-Tc	-328...HdL	-199.9	°C/°F	
		V/I	-199...HdL	-199	num	
HdL	Maximum value that can be displayed by the device.	**NTC/PTC**	LdL...199.9	140.0	°C/°F	Inst
		PT100-Tc	LdL...1350	1350	°C/°F	
		V/I	LdL...199	199	num	
dro	Select the unit of measurement of probe 1. • **NTC/PTC**: **C** (0) = °C, **F** (1) = °F • **PT100-Tc**: **C** (0) = °C, **F** (1) = °F • **V/I**: **n** (0) = no unit of measure selected, **t** (1) = temperature, **P** (2) = pressure, **H** (3) = humidity	**NTC/PTC**	C/F	C	flag	Inst
		PT100-Tc	C/F	C	flag	
		V/I	n/t/P/H	n	num	
	CONFIGURATION (folder 'CnF') ➡ If one or more parameters are changed, the controller MUST be switched off and switched on again.					
H00	Probe type selection. • **NTC/PTC**: **Ptc** (0) = PTC, **ntC** (1) = NTC • **PT100-Tc**: **Jtc** (0) = TcJ, **Htc** (1) = Tck, **Pt1** (2) = PT100. • **V/I**: **420** (0) = 4...20mA, **020** (1) = 0...20mA, **t10** (2) = 0...10V, **t05** (3) = 0...5V, **t01** (4) = 0...1V.	**NTC/PTC**	Ptc/ntC	ntc	flag	User/Inst
		PT100-Tc	Jtc/Htc/Pt1	Jtc	num	
		V/I	420/020 t10/t05/t01	420	num	
H01	Output link: **0** = independent; **1** = dependent; **2** = Neutral Zone (or window).	ALL	0/1/2	0	num	Inst

PAR.	DESCRIPTION	MODEL	RANGE	VALUE	M.U.	LEVEL
H02	Press the ESC, UP and DOWN keys (if configured for a second function) for the time **H02** to activate the function itself. **N.B.**: The AUX function has a fixed activation time of 1 second.	ALL	0...15	5	secs	Inst
H03	Lower input current/voltage limit. (**only present on model V/I**)	**NTC/PTC**				User/Inst
		PT100-Tc				
		V/I	-1999...1999	0	num	
H04	Upper current/voltage limit for input. (**only present on model V/I**)	**NTC/PTC**				User/Inst
		PT100-Tc				
		V/I	-1999...1999	1000	num	
H05	Window filter: **-2** = very fast; **-1** = fast; **0** = normal; **1** = slow; **2** = very slow.	ALL	-2/-1/0/1/2	0	num	Inst
H06	Key or Digital Input with aux/light active with the device OFF (but powered). **n** (0) = not active; **y** (1) = active.	ALL	n/y	y	flag	Inst
H08	Stand-by operating mode. **0** = only display switches off; **1** = display on and controllers locked; **2** = display off and controllers locked.	ALL	0/1/2	2	num	Inst
H10	Delay for output activation after Power On. If **H10** = 0 the delay is NOT active; if **H10** ≠ 0 the output will not be activated before this time has expired.	ALL	0...250	0	min	Inst
H11	Digital Input Configuration. **0** = disabled; **1** = SOFT START; **2** = Offset setpoint; **3** = Outputs stopped; **4** = Periodic cycle; **5** = AUX; **6** = Stand-by; **7** = Not used; **8** = External alarm; **9** = External alarm to lock regulators.	**NTC/PTC**	0..9	0	num	Inst
		PT100-Tc	0...9	0	num	
		V/I				
H13	Polarity and priority of Digital Inputs (D.I.). **no** (0) = normally open; **nc** (1) = normally closed; **noP** (2) = normally open with priority; **ncP** (3) = normally closed with priority.	**NTC/PTC**	no/nc/noP/ncP	no	num	Inst
		PT100-Tc	no/nc/noP/ncP	no	num	
		V/I				
H14	Digital input activation delay.	**NTC/PTC**	0...250	0	min	Inst
		PT100-Tc	0...250	0	min	
		V/I				

PAR.	DESCRIPTION	MODEL	RANGE	VALUE	M.U.	LEVEL
H21	Configuration of Digital Output1 (**OUT1**). **0** = disabled; **1** = on-off (controller 1) **2** = on-off (controller 2); **3** = Alarm; **4** = Cyclic; **5** = Aux/Light; **6** = Stand-by.	ALL	0...6	1	num	Inst
H22	Configuration of Digital Output2 (**OUT2**). Same as **H21**.	ALL	0...6	1	num	Inst
H31	Configuration of **UP** key. **0** = disabled; **1** = SOFT START; **2** = Offset setpoint; **3** = Outputs stopped; **4** = Periodic cycle; **5** = AUX output; **6** = Stand-by; **7** = not used.	ALL	0...7	0	num	Inst
H32	Configuration of **DOWN** key. Same as **H31**.	ALL	0...7	0	num	Inst
H33	Configuration of **ESC** key. Same as **H31**.	ALL	0...7	6	num	Inst
rEL	firmware version. Device software release: **read-only parameter**.	ALL	/	/	/	User/Inst
tAb	Parameters table. Reserved: **read-only parameter**.	ALL	/	/	/	User
	COPY CARD (folder 'FPr')					
UL	Upload. Transfer of programming parameters from instrument to Copy Card.	ALL	/	/	/	Inst
dL	Download. Transfer of programming parameters from Copy Card to instrument.	ALL	/	/	/	Inst
Fr	Format. Cancels all data entered in the Copy Card. **IMPORTANT**: If parameter Fr (Copy Card formatting) is used, the data entered in the card will be permanently lost. This operation cannot be reversed.	ALL	/	/	/	Inst

FUNCTIONS (folder 'FnC')

Function	Function label ACTIVE	Function label NOT ACTIVE	D.I.	KEY	Alarm signaling
Soft start	SOn	SOF	1	1	Flashing icon
Reduced setpoint	OSP	SP	2	2	ON Icon
Actuations block	bOn	bOF	3	3	ON Icon
Periodic cycle	Con	CoF	4	4	ON Icon
AUX	AOn	AOF	5	5	ON Icon
Stand-by	On	OF	6	6	ON Icon
Alarm acknowledgement	tAL	tAL	7	7	ON Icon

NOTES: - to modify the status of a given function, press the '**set**' key
- If the instrument is switched off, the function labels will return to the default status

ELECTRICAL CONNECTIONs

Attention! Make sure the machine is switched off before working on the electrical connections.

The instrument is equipped with screw or disconnectable terminal blocks for connecting electrical cables with a max. diameter of 2.5 mm^2 (one wire per terminal for power connections): for the terminal ratings, see the label on the instrument.
Do not exceed the maximum permissible current; in case of higher loads, use a suitably rated contactor.
Make sure the power supply voltage complies with that required by the instrument. NTC/PTC/PT100 probes have no connection polarity and can be extended using a normal bipolar cable (Note that extending the probes burdens the behaviour of the instrument in terms of EMC electromagnetic compatibility: specifically, if Pt100 probes with cable longer than 3 mt are used, an extreme care must be taken during wiring operations).
Probe cables, power supply cables and the TTL serial cable should be routed separately from power cables.

CONDITIONS OF USE

Permitted use

For safety reasons, the instrument must be installed and used according to the instructions supplied and, in particular, parts under dangerous voltages must not be accessible in normal conditions.
The device must be adequately protected from water and dust with regard to its application, and must only be accessible using tools (except for the front panel). The device is suitable for use in household refrigeration appliances and/or similar equipment and has been tested for safety aspects in accordance with the harmonised European reference standards.

Improper use

Any use other than that expressly permitted is prohibited. The relay contacts provided are of a functional type and 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 instrument.

LIABILITY AND RESIDUAL RISKS

ELIWELL CONTROLS SRL declines any liability for damage due to:

- installation/uses different from those specified and, in particular, not complying with the safety regulations and/or instructions given in this document;
- use on panels that do not provide adequate protection against electric shocks, water or dust when assembled;
- use on panels allowing access to dangerous parts without the use of tools;
- tampering with and/or modifying the product;
- installation/use on panels not complying with current standards and regulations.

DISCLAIMER

Every care has been taken in preparing this document; nevertheless ELIWELL CONTROLS SRL cannot accept liability for any damage resulting from its use. The same applies to any person or company involved in preparing and editing this document. ELIWELL CONTROLS SRL reserves the right to make aesthetic or functional changes at any time without notice.

DISPOSAL

The appliance (or the product) must be disposed of separately in compliance with the local standards in force on waste disposal.