

IC 915

NTC-PTC/ P R V-I I-V/ Pt100 Tc

double stage electronic controller



KEYS	UP Scrolls through the menu items Increases the values	DOWN Scrolls through the menu items Decreases the values	fnc ESC function (quit)	set Accesses the Set point and the Menus Confirms the commands
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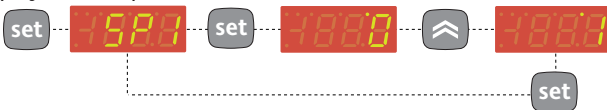
LEDs	Relay OUT 1 ON for relay on (energized);blinking for delay, protection or enabling blocked.	Relay OUT 2 ON for relay on (energized);blinking for delay, protection or enabling blocked.	Alarm ON for active alarm; blinking for silenced alarm
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SETTING THE SET POINT - MACHINE STATUS MENU

Press the 'set' button and release it to access the machine status menu.

In normal conditions, the labels for the two Set point values are found in the menu.

Once the 'SP1' label has been displayed, press the "set" button to display the Set point 1 value.



The Set point 1 value appears on the display. To change the Set point value, use the "UP" and "DOWN" buttons within 15 seconds.

If you press the "set" button again, when the fnc button is pressed or 15 seconds elapse, the last value displayed will be stored and the "SP1" label will reappear on the display.

To set the Set point 2 value, follow the same procedure for setting Set point 1.

PROGRAMMING MENU

To access the Programming menu, hold the "set" button down for more than 5 seconds.

• When the 'set' button is pressed, the first folder in the menu is displayed. (e.g.: "rE1" folder)

• By using the 'UP' e 'DOWN' buttons, you can scroll through all the folders in the programming menu

- By pressing the "set" button for the selected folder (in this example, 'diS') the first parameter is displayed. Use the "UP" and "DOWN" buttons to select the required parameter.
- Press "set" to display the selected parameter value and use the "UP" and "DOWN" buttons to change it.

Once the "set" button has been pressed (or the 15 second time out elapses) the new value is stored and the label of the corresponding parameter will be displayed.

PASSWORD

Access to parameter handling can be limited by using a password. The password can be enabled by setting the PA1 parameter in the 'diS' folder. The password is enabled if the value of the PA1 parameter is not 0.

• To enter the Programming menu hold the "set" button down for more than 5 seconds. If specified, the PASSWORD will be requested

- If the PA1 password is enabled (not 0) you will be asked to enter it. Do this by selecting the correct value using the UP and DOWN buttons and confirm by pressing the 'set' button.

If the password is not entered correctly, the device will display the 'PA1' label again and the step will have to be repeated.

COPY CARD

The Copy Card is an accessory connected to the TTL serial port used for quick programming of the unit parameters (upload and download parameter map to one or more units of the same type). upload (UL label), download (dL label) and copy card formatting (Fr label) operations are performed in the following way:

• The 'FPr' folder contains the command needed to use the Copy Card. Press 'set' to access the functions.

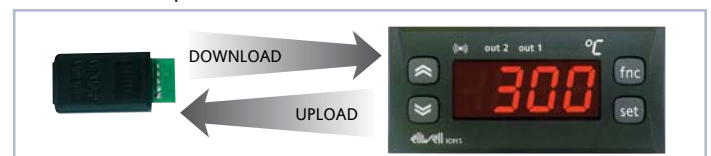
• Use the 'UP' e 'DOWN' buttons to display the required function. Press the 'set' to perform uploading (or downloading).

• If the operation is successful 'y' will be displayed, if it is not, 'n' will be displayed.

Download from reset

Connect the copy card when the instrument is OFF. The programming parameters are downloaded when the device is switched on. At the end of the lamp test, the following messages are displayed for about 5 seconds:

- dLY label if copy operation is successful
- DLn label if operation fails



NOTE:

- After downloading, the instrument will work with the parameter map settings that have just been downloaded.
- see "FPr folder" in Parameter Table and Description of parameters

At each level in both menus, when the “fnc” button is pressed or the 15 second time out elapses, you are taken back to the higher display level and the last value on the display is stored.

ALARMS

LABEL	Alarm	Cause	Effects	Resolving problems
E1	Probe 1(control) faulty	<ul style="list-style-type: none"> measuring of values outside the nominal reading range control probe faulty/shorted/open probe 	“E1” label appears on display; Controller enabled as indicated by the On1 and OF1 parameters if programmed for the Duty Cycle	<ul style="list-style-type: none"> check the probe wiring replace the probe

PARAMETER TABLE

	PAR.	RANGE	DEFAULT	U.M.		PAR.	RANGE	DEFAULT	U.M.		
Controller 1-rE1 label	SP1	LS1...HS1	0.0	°C/°F	Display - dis label	LOC	n/y	y	flag		
	SP2	LS2...HS2	0.0	°C/°F		PA1	0...250	0	num		
	HC1	H/C	H/C*	Flag		ndt	IC 915 NTC/PTC	n/y	n	flag	
	db1	0...30.0	1*	°C/°F			IC 915 V-I	n/y/int		num	
	dF1	0...30.0	0*	°C/°F			IC 915 Pt-100	n/y		flag	
	HS1	LS1...HdL	*	°C/°F		CA1	NTC/PTC-Pt100	-30.0...30.0	0.0	°C/°F	
	LS1	LdL...HS1	*	°C/°F			IC 915 V-I			num	
	dn1	0...250	1	sec		dro	IC 915 NTC/PTC	°C/°F	°C	flag	
	dO1	0...250	0	min			IC 915 Pt100				
	di1	0...250	0	min		LdL	IC 915 V-I	-99.9...HdL	0*	°C/°F	
	dE1	0...250	0	sec		HdL	IC 915 V-I	LdL...100	100/100.0/1000	°C/°F	
	On1	0...250	0	min		Configuration- CnF label	H00 (!)	IC 915 NTC/PTC(1)	PtC/ntC	PtC/ntC*	flag
	OF1	0...250	1	min				IC 915 V-I	420/020/010/05/01	*	num
	Controller 2-rE2 label	HC2	H/C	H/C*			Flag		IC 915 Pt100-Tc(2)	Pt1/JtC/HtC	Pt1/JtC/HtC*
db2		0...30.0	1*	°C/°F	H01			0/1/2	0/1/2*	num	
dF2		0...30.0	0*	°C/°F	H03		IC 915 V-I	(ndt=n) -99...100 (ndt=y) -99.0...100.0 (ndt=int) -990...1000	20*	num	
HS2		LS1...HdL	*	°C/°F	H04		IC 915 V-I	(ndt=n) -99...100 (ndt=y) -99.0...100.0 (ndt=int) -990...1000	*	num	
LS2		LdL...HS1	*	°C/°F	H10			0...250	0	min	
dn2		0...250	1	sec	rEL			/	/	/	
dO2		0...250	0	min	tAb			/	/	/	
di2		0...250	0	min	rEL			/	/	/	
dE2		0...250	0	sec	Fpr		UL		/	/	/
On2		0...250	0	min			dL		/	/	/
OF2		0...250	1	min			Fr (3)		/	/	/

NOTES :

- Check the NTC/PTC probe type installed (see label)
- The Pt100 model only works for the Pt100 input (3 wires) whereas Tcj/Tck models, on the basis of this parameter, can work with the Tc input and the Pt100 input.
- If the Fr command is used, the data entered in the card will be permanently lost. This operation cannot be undone. After the operation with the Copy Card, the controller must be switched off and then switched back on

WARNING(!)

If one or more parameters marked with (!) are modified, the controller must be switched off after the modification and then switched back on **N.B.:** The dro parameter is not present in models IC 915 NTC/PTC and Pt100/Tcj-Tck.

The LdL, HdL, H03 and H04 parameters are only present in the IC 915 V-I model

* The default value depends on the model

DESCRIPTION OF PARAMETERS

CONTROLLER 1/CONTROLLER 2 (folders with “rE1”/“rE2” label)	PA1	Password 1. When enabled (value is not 0) it represents the access key to level 1 parameters.
HC1/HC2 If set to H, the controller operates in heating mode. If set to C, the controller operates in cooling mode.	ndt	number display type. Display with decimal point. y = Yes; n = No.; int=integer
db1/db2 Operating band 1, 2 See ON-OFF control diagram	CA1	Calibration 1. Positive or negative temperature value that is added to the value read by control probe (probe 1) before being displayed or used for control.
dF1/dF2 Relay 1 intervention differential. The load will stop when Set point 1 is reached (as indicated by the control probe) and will restart at a temperature equal to Set point 1(2) plus (or minus depending on HC1/HC2) the value of the differential. See ON-OFF control diagram	LdL	Minimum value the instrument is able to display.
HS1/HS2 Maximum value for set point 1/2.	HdL	Maximum value the instrument is able to display.
LS1/LS2 Minimum value for set point 1/2.	dro	Select °C or °F to display temperature read by probe. N. B.: switching from °C to °F DOES NOT modify set points, differentials, etc. (for example set point=10°C becomes 10°F).
CONTROLLER 1 PROTECTIONS/CONTROLLER 2 PROTECTIONS (folders with “rE1”/“rE2” label)		CONFIGURATION (folder with “CnF” label)
dn1/dn2 Start-up delay. The specified time must elapse between the controller relay start-up request and actual start-up.	H00	Selection of probe type.
do1/do2 Delay after shut-down. The specified time must elapse between shut-down of the controller 1/2 relay and a subsequent start-up.	H01	Output link. 0 = independent; 1 = dependent; 2 = Neutral Area (or window)
di1/di2 Delay between start-ups. Between two subsequent start-ups of the controller 1/2, the specified time must elapse.	H03	Minimum value of current input
dE1/dE2 Shut-down delay. The specified time must elapse between the controller 1/2 relay shut-down request and actual shut-down.	H04	Maximum value of current input
NOTE: for parameters dn1, dn2, do1, do2, di1, di2, dE1 0= not active	H10	Output delay from power-on Attention! If = 0 is not active; if ≠ 0 the output will not be activated before this time has expired
On1/On2 Controller start-up time if probe is faulty. If set to “1” with Off at “0” the controller is always on whereas if Off>0 it operates in duty cycle mode.	rEL	Device version. Read only parameter.
OF1/OF2 Controller shut-down time if probe is faulty. If set to “1” with Ont at “0” the controller is always off whereas if Ont>0 it operates in duty cycle mode.	tAb	Reserved. Read only parameter.
DISPLAY (folder with “dis” label)		COPY CARD (folder with “Fpr” label)
LOC Keyboard locked (set point and buttons). However, you can still access the parameter programming menu and modify parameters including the status of this parameter to allow keyboard unlocking. y = yes; n = no.	UL	Upload: transfer of programming parameters from instrument to Copy Card.
	dL	download: transfer of programming parameters from Copy Card to instrument.
	Fr	Format. Cancelling all data entered in the copy card. N.B.: If “Fr” parameter (copy card formatting) is used, the data entered in the card will be permanently lost. This operation cannot be undone. After the operation with the Copy Card, the controller must be switched off and then switched back on

TECHNICAL DATA

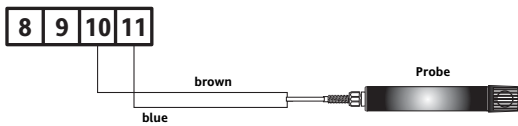
IC 915 NTC/PTC

Front protection	IP65	IP65	IP65
Casing	resin plastic casing PC+ABS UL94 V-0, polycarbonate front polycarbonate front, thermoplastic resin buttons	resin plastic casing PC+ABS UL94 V-0, polycarbonate front polycarbonate front, thermoplastic resin buttons	resin plastic casing PC+ABS UL94 V-0, polycarbonate front polycarbonate front, thermoplastic resin buttons
Dimensions	front panel 74x32 mm, depth 59mm (terminals excluded)	front panel 74x32 mm, depth 59mm (terminals excluded)	front panel 74x32 mm, depth 59mm (terminals excluded)
Mounting	panel-mounted with drilling template 71x29 mm (+0.2/-0.1 mm)	panel-mounted with drilling template 71x29 mm (+0.2/-0.1 mm)	panel-mounted with drilling template 71x29 mm (+0.2/-0.1 mm)
Operating temperature	-5°C...55°C	-5°C...55°C	-5°C...55°C
Storage temperature	-30°C...0.85°C	-30°C...0.85°C	-30°C...0.85°C
Usage ambient humidity	10..0.90% RH (non-condensing)	10..0.90% RH (non-condensing)	10..0.90% RH (non-condensing)
Display range	NTC: -50...110°C (-58...230°F) / PTC: -50...140°C (-58...302°F) on display 3 1/2 digits plus sign	-99...100 (ndt=n), -99...100.0 (ndt=y), -999...1000 (ndt=imt) on display 3 1/2 digits plus sign	Pt100: -150...650°C / Tcj: -40...750°C / Tck: -40...1350°C* on display 3 1/2 digits plus sign
Analogue input	1 NTC or PTC input (parameter selectable)	1 V-I (0-1V, 0-5V, 0-10V, 0-20...mA, 4...20mA par.H00)	1 Pt100 or 1 Tcj or Tck (depending on model)
Serial	TTL for Copy Card connection	TTL for Copy Card connection	TTL for Copy Card connection
Digital outputs (configurable)			
- output OUT1	1 SPDT 8(3)A 1/2 hp 250 V~	1 SPDT relay 8(3)A 1/2 hp 250 V~	1 SPST relay 8(3)A 1/2 hp 250 V~
- output OUT2	1 on SPST relay 8(3)A 1/2 hp 250 V~	1 on SPST relay 8(3)A 1/2 hp 250 V~	1 on SPST relay 8(3)A 1/2 hp 250 V~
Buzzer output	only in some models	only in some models	only in some models
Measurement range	from 750 to 140°C	from -999 to 1000	from -150 to 1350
Accuracy	better than 0.5% of full scale + 1 digit.	better than 0.5% of full scale + 1 digit.	see "Pt100/Tcj/Tck models" table
Resolution	0.1°C (0.1°F up to +199.9°F; 1°F above)	1 or 0.1 digits depending on parameter settings	see "Pt100/Tcj/Tck models" table
Consumption	1.5 W max(mod. 12V) / 3 VA max (mod. 230V)	1.5 W max(mod. 12V) / 3 VA max (mod. 230V)	1.5 W max(mod. 12V) / 3 VA max (mod. 230V)
Power supply	12V~/f _~ , 12/24 V~/f _~ , 24V~/f _~ 10%, 110/115V~, 220/230 V~ 10% 50/60 Hz	12V~/f _~ , 12/24 V~/f _~ , 24V~/f _~ 10%, 110/115V~, 220/230 V~ 10% 50/60 Hz	12V~/f _~ , 12/24 V~/f _~ , 24V~/f _~ 10%, 110/115V~, 220/230 V~ 10% 50/60 Hz

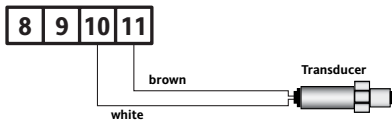
Pt100/ Tcj/ Tck MODELS

Pt100:	Accuracy: 0.5% for full scale value + 1 digit; 0.2% from -150 to 300°C	Resolution: 0.1°C (0.1°F) up to 199.9°C; 1°F	Over
Tcj:	Accuracy: 0.4% for full scale value + 1 digit;	Resolution: 1°C (1°F)	
Tck:	Accuracy: 0.5% for full scale value + 1 digit; 0.3% from -40 to 800°C	Resolution: 1°C (1°F)	
<p>The technical characteristics in this document concerning measurements (range, accuracy, resolution, etc.) refer to the instrument in the strictest sense and not to any accessories provided such as probes, for example. This means, for example, that an error introduced by the probe is added to any error that is typical of the instrument.</p>			
IC 915 NTC-PTC - 12 V			N.O. controller relay OUT1 1-3 N.C. controller relay OUT1 4-5 N.O. controller relay OUT2 6-7 Power supply 8-10 Pb1 probe input (control) A TTL input for Copy Card
IC 915 P/R/V-I/V - 12 V			N.O. controller relay OUT1 1-3 N.C. controller relay OUT1 4-5 N.O. controller relay OUT2 6-7 Power supply *8-9-11 Voltage input (8=ground; 9=signal; 11=12V) *8-10-11 Current input (8=ground; 9=signal; 11=12V) A TTL input for Copy Card * depending on model
IC 915 Pt100/TC - 12 V			N.O. controller relay OUT1 4-5 N.O. controller relay OUT2 6-7 Power supply *10-11-12 Probe input Pt100 3 wires Pb1 *11-12 Tcj/Tck input A TTL input for Copy Card * depending on model

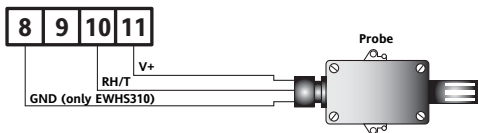
CONFIGURATION OF EWPA-EWHS PROBES



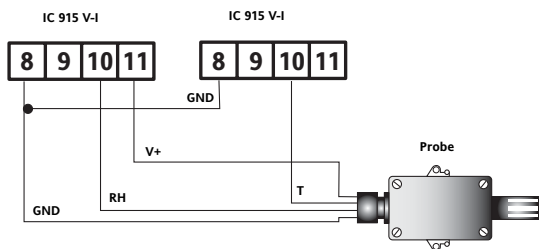
● EWPA 007/030 2 wires / Transducer



● EWHS 300/310 3 wires



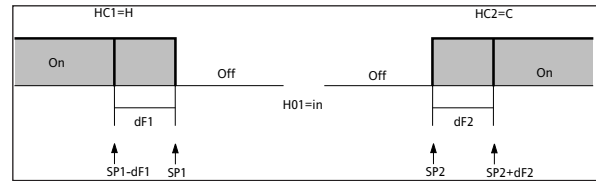
● EWHS 310 4 wires



ON-OFF CONTROL DIAGRAM

HC1	HC2	H01	type of regulation
H	C	0	independent set points
H	C	1	dependent set points
-	-	2	Neutral Zone (or window).

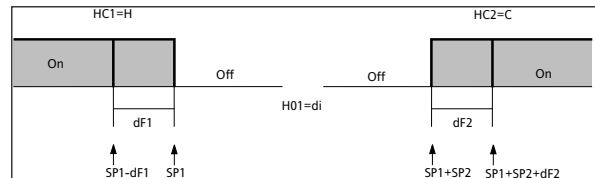
NOTE: examples with HC1=H and HC2=C



independent ON-OFF control diagram.

The two outputs regulate as though they are completely independent

1



dependent ON-OFF control diagram.

The set point 2 SP2 regulates according to SP1

2



ON-OFF control diagram Neutral Area (or window).

NOTE: if dF1 and dF2 are both =0 the outputs are deactivated when SP1 is reached

3

ELECTRICAL CONNECTIONS

Caution! Always switch off machine before working on electrical connections. The instrument has screw terminals for connecting electrical cables with a maximum diameter of 2.5 mm² (only one conductor per terminal for power connections); for terminal capacity, see instrument label. The relay contacts are voltage-free. Do not exceed the maximum current allowed. For higher loads, use a suitable contactor. Make sure that the power voltage complies with the device voltage. The sensor has no connection polarity and can be extended using an ordinary bipolar cable (note that extending the probe may affect the electromagnetic compatibility (EMC) of the instrument: special care must be used when wiring). Probe cables, power supply cables and the TTL serial cable should be kept separate from power cables.



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cod. 9IS44012
07-05 GB
IC 915

MECHANICAL ASSEMBLY

The unit has been designed for panel-mounting: Drill a 29x71 mm hole, insert a tool and fix it in place with the brackets provided. Do not assemble the instrument in excessively humid or dirty locations since it is designed to be used in locations with normal levels of pollution. Always make sure that the area next to the cooling openings of the tool is adequately ventilated.

RESPONSIBILITY AND RESIDUAL RISKS

Eliwell shall not be liable for any damages deriving from:

- installation/use other than that prescribed and, in particular, which does not comply with the safety standards specified in the regulations and/or those given herein;
- use on boards which do not guarantee proper protection against electric shock, water or dust when assembled;
- use on boards which allow dangerous parts to be accessed without the use of tools;
- tampering with and/or alteration of the product;
- installation/use on boards that do not comply with the standards and regulations in force.

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CONDITIONS OF USE

PERMITTED USE

For safety reasons the instrument must be installed and used in accordance with the instructions supplied. Users must not be able to access parts with dangerous voltage levels under normal operating conditions.

The device must be suitably protected from water and dust according to the specific application and only be accessible using special tools (except for the front keypad).

The device can be fitted to equipment for household use and/or similar use in the refrigeration sector and has been tested with regard to safety in accordance with the European harmonized reference standards: It is classified as follows:

- as an automatic electronic control device to be integrated as regards its construction;
- as a 1 B type operated control device as regards its automatic operating features;
- as a Class A device in relation to the category and structure of the software.

UNPERMITTED USE

The use of the unit for applications other than those described above is forbidden.

It should be noted that the relay contacts supplied with the device are functional and therefore exposed to potential faults. Any protection devices required to comply with product requirements or dictated by common sense due to obvious safety reasons should be installed externally.