cod. 9IS44012
rel. 7/05 -GB-

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

LEDs

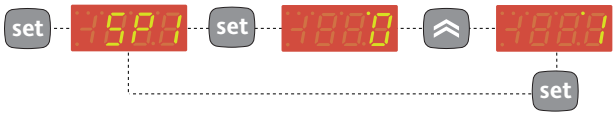
out 1 **Relay OUT 1**
ON for relay on (energized);blinking for delay, protection or enabling blocked.

out 2 **Relay OUT 2**
ON for relay on (energized);blinking for delay, protection or enabling blocked.

Alarm
ON for active alarm; blinking for silenced alarm

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.

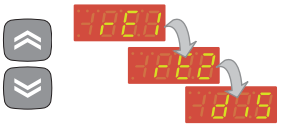
To set the Set point 2 value, follow the same procedure for setting Set point 1.

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	• 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	• check the probe wiring • replace the probe

PARAMETER TABLE

	PAR.	RANGE	DEFAULT	U.M.
	SP1	LS1...HS1	0.0	°C/°F
	SP2	LS2...HS2	0.0	°C/°F
Controller 1-rE1 label	HC1	H/C	H/C*	Flag
	db1	0...30.0	1*	°C/°F
	dF1	0...30.0	0*	°C/°F
	HS1	LS1...HdL	*	°C/°F
	LS1	LdL...HS1	*	°C/°F
	dn1	0...250	1	sec
	dO1	0...250	0	min
	di1	0...250	0	min
	dE1	0...250	0	sec
	On1	0...250	0	min
	OF1	0...250	1	min
Controller 2-rE2 label	HC2	H/C	H/C*	Flag
	db2	0...30.0	1*	°C/°F
	dF2	0...30.0	0*	°C/°F
	HS2	LS1...HdL	*	°C/°F
	LS2	LdL...HS1	*	°C/°F
	dn2	0...250	1	sec
	dO2	0...250	0	min
	di2	0...250	0	min
	dE2	0...250	0	sec
	On2	0...250	0	min
	OF2	0...250	1	min

	PAR.		RANGE	DEFAULT	U.M.
Display - dIS label	LOC		n/y	y	flag
	PA1		0...250	0	num
	ndt	IC 915 NTC/PTC	n/y	n	flag
		IC 915 V-I	n/y/int		num
		IC 915 Pt-100	n/y		flag
	CA1	NTC/PTC-Pt100	-30.0...30.0	0.0	°C/°F
		IC 915 V-I			num
	dro	IC 915 NTC/PTC IC 915 Pt100	°C/°F	°C	flag
	LdL	IC 915 V-I	-99.9...HdL	0*	°C/°F
	HdL	IC 915 V-I	LdL...100	100/100.0/1000	°C/°F
Configuration- CnF label	H00 (!)	IC 915 NTC/PTC(1)	PtC/ntC	PtC/ntC*	flag
		IC 915 V-I	420/020/010/05/01	*	num
		IC 915 Pt100-Tc(2)	Pt1/JtC/HtC	Pt1/JtC/HtC*	num
	H01		0/1/2	0/1/2*	num
	H03	IC 915 V-I	(ndt=n) -99...100 (ndt=y) -99.0...100.0 (ndt=int) -990...1000	20*	num
	H04	IC 915 V-I	(ndt=n) -99...100 (ndt=y) -99.0...100.0 (ndt=int) -990...1000	*	num
	H10		0...250	0	min
	rEL		/	/	/
	tAb		/	/	/
	rEL		/	/	/
Fpr	UL		/	/	/
	dL		/	/	/
	Fr (3)		/	/	/

NOTES :

(1) Check the NTC/PTC probe type installed (see label)

(2) 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.

(3) 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-Imodel

* The default value depends on the model

DESCRIPTION OF PARAMETERS

CONTROLLER 1/CONTROLLER 2 (folders with "rE1"/"rE2" label)

HC1/HC2 If set to H, the controller operates in heating mode. If set to C, the controller operates in cooling mode.

db1/db2 Operating band 1, 2 **See ON-OFF control diagram**

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**

HS1/HS2 Maximum value for set point 1/2.

LS1/LS2 Minimum value for set point 1/2.

CONTROLLER 1 PROTECTIONS/CONTROLLER 2 PROTECTIONS (folders with "rE1"/"rE2" label)

dn1/dn2 Start-up delay. The specified time must elapse between the controller relay start-up request and actual start-up.

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.

di1/di2 Delay between start-ups. Between two subsequent start-ups of the controller 1/2, the specified time must elapse.

dE1/dE2 Shut-down delay. The specified time must elapse between the controller 1/2 relay shut-down request and actual shut-down.

NOTE: for parameters dn1, dn2, do1, do2, di1, di2, dE1 0= not active

On1/On2 Controller start-up time if probe is faulty. If set to "1" with Oft at "0" the controller is always on whereas if Oft>0 it operates in duty cycle mode.

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.

DISPLAY (folder with "diS" 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.

PA1 Password 1. When enabled (value is not 0) it represents the access key to level 1 parameters.

ndt number display type. Display with decimal point. y = Yes; n = No.; int=integer

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.

LdL Minimum value the instrument is able to display.

HdL Maximum value the instrument is able to display.

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).

CONFIGURATION (folder with "CnF" label)

H00 Selection of probe type.

H01 Output link. 0 = independent; 1 = dependent; 2 = Neutral Area (or window)

H03 Minimum value of current input

H04 Maximum value of current input

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

rEL Device version. Read only parameter.

tAb Reserved. Read only parameter.

COPY CARD (folder with "Fpr" label)

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	IC 915 P/R/V-I/I-V	IC 915 Pt100/TC
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 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), -99,9...100,0 (ndt=y), -999...1000 (ndt=int) 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 - output OUT2	 1 SPDT 8(3)A 1/2 hp 250 V~ 1 on SPST relay 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~	 1 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 ?50 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~/⎓, 12/24 V~/⎓, 24V~/⎓ 10%, 110/115V~, 220/230 V~ 10% 50/60 Hz	12V~/⎓, 12/24 V~/⎓, 24V~/⎓ 10%, 110/115V~, 220/230 V~ 10% 50/60 Hz	12V~/⎓, 12/24 V~/⎓, 24V~/⎓ 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

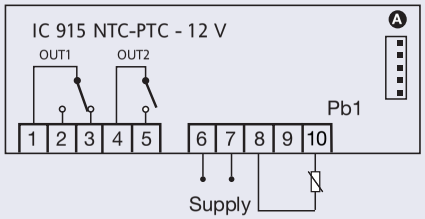
TcJ:

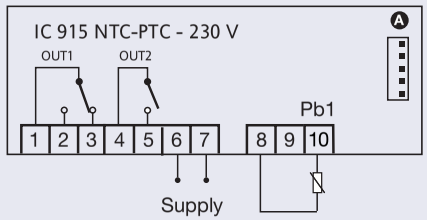
Accuracy:
0.4% for full scale value + 1 digit;
Resolution:
1°C (1°F)

TcK:

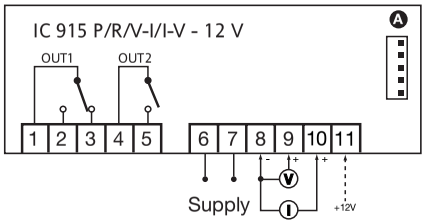
Accuracy:
0,5% for full scale value + 1 digit;
0.3% from -40 to 800°C
Resolution:
1°C (1°F)

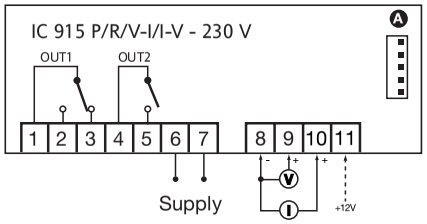
The technical characteristics in this document concerning measurements (range, accuracy, resolution, etc.) refer to the instrument in the strictest sense and not to any accessories provided such as probes, for example. This means, for example, that an error introduced by the probe is added to any error that is typical of the instrument.



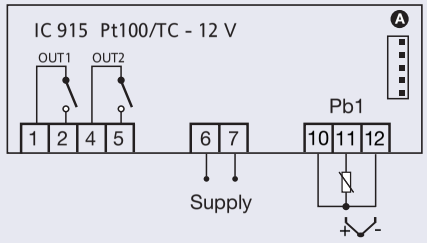


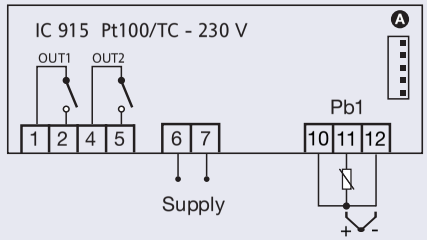
N.O. controller relay OUT1
1-3 N.C. controller relay OUT1
4-5 N.O. controller relay OUT2
6-7 Power supply
8-10 Pb1 probe input (control)
A TTL input for Copy Card





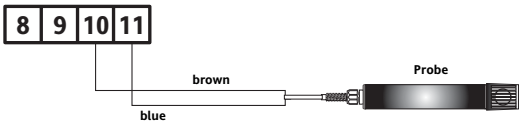
N.O. controller relay OUT1
1-3 N.C. controller relay OUT1
4-5 N.O. controller relay OUT2
6-7 Power supply
*8-9-11 Voltage input (8=ground; 9=signal; 11=12V)
*8-10-11 Current input (8=ground; 9=signal; 11=12V)
A TTL input for Copy Card
* depending on model



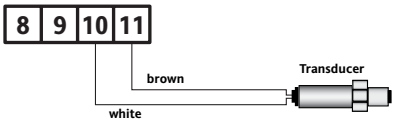


N.O. controller relay OUT1
4-5 N.O. controller relay OUT2
6-7 Power supply
*10-11-12 Probe input Pt100 3 wires Pb1
*11-12 TcJ/TcK input
A TTL input for Copy Card
* depending on model

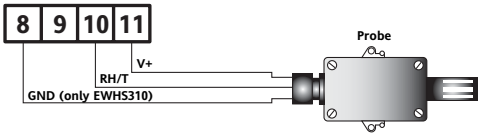
CONFIGURATION OF EWPA-EWHS PROBES



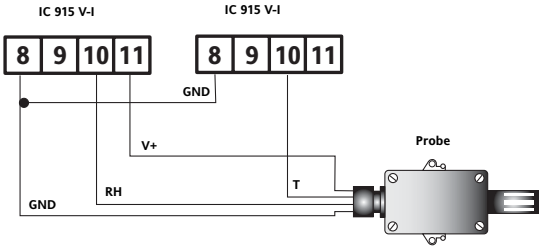
● EWPA 007/030 2 wires / Transducer



● EWHS 300/310 3 wires



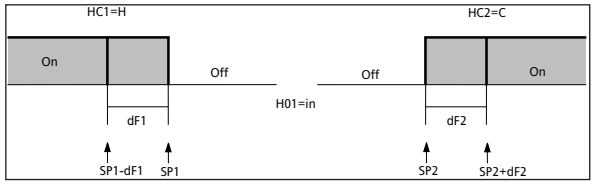
● EWHS 310 4 wires



ON-OFF CONTROL DIAGRAM

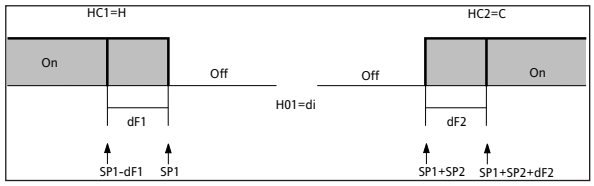
HC1	HC2	H01	type of regulation
H	C	0	independent set points
H	C	1	dependent set points
-	-	2	Neutral Zone (or window).

NOTE: examples with HC1=H and HC2=C



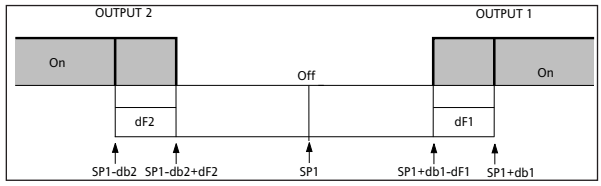
independent ON-OFF control diagram.
The two outputs regulate as though they are completely independent

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 mm^2 (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.

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.

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