IC 901

electronic thermostat with single output

THE USER INTERFACE

The user has a display and four keys for controlling status and programming of the instrument.

KEYS AND MENUS

UP key		Scrolls through the menu items Increases the values
DOWN key		Scrolls through the menu items Decreases the values
FNC key		ESC function (exit)
SET key		Accesses the setpoint Accesses the menus Confirms the commands

The instrument has two main menus: the "Machine Status" and "Programming" menu.

ACCESSING AND USING MENUS

The instrument is programmed by menus. To access a menu, press and quickly release the "SET" key ("Machine status" menu) or press the "SET" key for over 5 seconds ("Programming" menu).
To access the contents of each folder, indicated by the relevant label, just press the "SET" key once.
You can now scroll through the contents of each folder, modify it or use its functions. If you do not use the keyboard for over 15 seconds (time-out) or if you presence the "FNC" key once, the last value shown on the display is confirmed and you return to the previous screen mask.

MACHINE STATUS MENU

To access the "Machine Status "menu, press and quickly release the "SET" key.
The "Set" folder label appears. To view the Setpoint value, press the "SET" key again.
The Setpoint value appears on the display.
To change the Setpoint value, use the "UP" and "DOWN" keys within 15 seconds.
If the parameter is LOC = y the Setpoint cannot be changed.

PROGRAMMING MENU

To enter the "Programming" menu, press the "SET" key for more than 5 seconds.
If specified, the access PASSWORD will be requested, (parameter "PA1"), and the label of the first folder will follow.
To scroll through the other folders, use the "UP" and "DOWN" keys.
To enter the folder, press "SET". The label of the first visible parameter appears.
To scroll through the other parameters, use the "UP" and "DOWN" keys. To change the parameter, press and release "SET" then set the desired value with the "UP" and "DOWN" keys, and confirm with the "SET" key, to move to the next parameter.

COPY CARD

The Copy Card is an accessory that connected to the serial door TTL permits both fast programming of instrument's parameters (download), and the possibility to save the instrument's parameters (upload) in order to use them to ri-program other equivalent instruments. To do this operation enter the folder identified from label "FPr" and use parameters "UL" or "dL" depending on the case; to start uploading (downloading) simply press "SET" button.

KEYBOARD LOCKING

The instrument includes a facility for disabling the keyboard, by programming the "Loc" parameter (see folder with "Dis" label). If the keyboard is locked, you can still access the programming menu by pressing the "SET" key.
The Setpoint can also be viewed.

DIAGNOSTICS

The alarm condition is always signalled by the buzzer (if present) and by the led of the alarm icon
The alarm signal produced by a faulty room probe (probe 1) is shown as E1 on the instrument display 1.

LED

Position	Associated function	Status
	Relay 1	ON for relay ON, flashing for delay, disabled protection or activation
	Alarm	ON for an active alarm

INSTALLATION

The instrument is designed for flush panel mounting. Insert the unit through a 71x29 mm panel cut-out and affix with the U-bracket supplied.
Select a location which will not be subject to high humidity or condensation and allow some ventilation to provide cooling to the instrument.

ELECTRICAL CONNECTIONS

Attention! Never work on electrical connections when the machine is switched on.
The instrument is equipped with screw terminal boards for connection of electrical cables with a diameter of 2.5 mm^2 (one conductor only per terminal for power connections). For the capacity of the terminals, see the label on the instrument.
Relay outputs are voltage free. Do not exceed the maximum permissible current – in case of higher loads, use a contactor of adequate power. Make sure that the supplied voltage matches the values specified for the instrument.
In the versions supplied on 12V, the power supply must be provided via a safety transformer protected by a 250 mA delayed fuse. The probes do not have any insertion polarity and can be lengthened by using a normal bipolar cable (note that if the probes are lengthened, this will affect the behaviour of the instrument in terms of EMC electro-magnetic compatibility – wiring must be done with great care).
We advise you to keep the probe and supply cables well away from the power cables.

CONDITIONS OF USE

PERMITTED USE

For safety reasons the instrument must be installed and used according to the instruction provided and in particular, under normal conditions, parts bearing dangerous voltage levels must not be accessible.
The device must be adequately protected from water and dust as per the application and must also only be accessible via the use of tools (with the exception of the frontlet).
The device is ideally suited for use on household appliances and/or similar refrigeration equipment and has been tested with regard to the aspects concerning European reference standards on safety.

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It is classified as follows:
o according to its manufacture: as an automatic electronic control device to be incorporated by independent mounting;
o according to its automatic operating features: as a 1 B-type operated control type;
o as a Class A device in relation to the category and structure of the software.

USE NOT PERMITTED
Any other use other than that permitted is de facto prohibited. It should be noted that the relay contacts provided are of a practical type and therefore subject to fault. Any protection devices required by product standards or dictated by common sense due to obvious safety reasons should be applied externally.

LIABILITY AND RESIDUAL RISKS

Invensys Controls Italy S.r.L. shall not be liable for any damages deriving from:
- installation/use other than that prescribed and, in particular, that which does not comply with safety standards anticipated by regulations and/or those given herein;
- use on boards which do not guarantee adequate protection against electric shock, water or dust under the conditions of assembly applied;
- use on boards which allow access to dangerous parts without the use of tools;
- tampering with and/or alteration of the products;
- installation/use on boards not complying with the standards and provisions of current legislation.

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TECHNICAL DATA

Frontal panel protection: IP65.
Container: plastic body in resin type PC+ABS UL94 V-0, inspection window in polycarbonate, buttons in thermoplastic resin.
Dimensions: frontal panel 74x32 mm, depth 60 mm.
Installation: on panel, with template 71x29 mm (+0.2/–0.1 mm).
Ambient temperature: –5...55 °C.
Storage temperature –30...85 °C.
Operating environment humidity: 10...90% RH (non condening).
Storage environment humidity: 10...90% RH (non condensing).
Viewing range: –50...99 °C on 2 digit + mark display.
Analog inputs: one PTC or NTC input (selectable through parameter).
Digital outputs: one relay output, SPDT 8(3)A 250V~ relay or SPDT 15A(1hp) 250V~ relay (for capacity relay see label on the instrument).
Measuring range: from –50 to 99 °C.
Precision: 0.5% better than full scale.
Resolution: 1 °C.
Consumption: according to model.
Power supply: according to model. See label on instrument.

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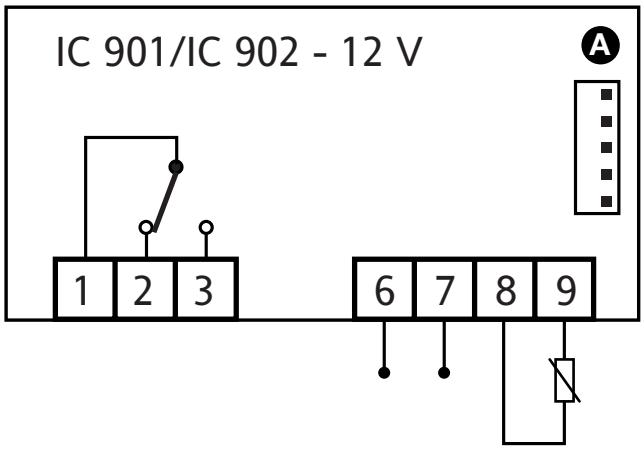
Tab. 1 Parameter description & values table

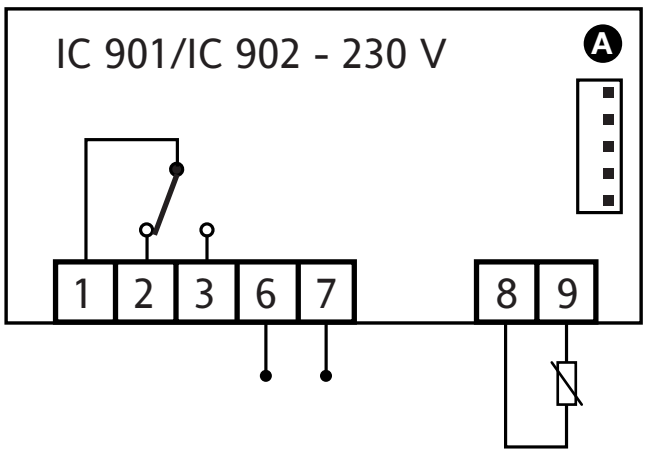
PARAMETER	DESCRIPTION	RANGE	DEFAULT	VALUE	U.M.
	REGULATOR (folder with "CP")				
diF	Relay regulator tripping differential. The regulator stops on reaching the Setpoint value (as indicated by the adjustment probe), and restarts at temperature value equal to the Setpoint plus the value of the differential. Note: the value 0 cannot be assumed.	1...30	2		°C/°F
HSE	Maximum possible setpoint value.	LSE..99	99		°C/°F
LSE	Minimum possible setpoint value.	-55...HSE	-55		°C/°F
HC	Heat/Cool Mode. If set to H the generic regulator actuates for hot operation. If set to C the generic regulator actuates for cold operation	H/C	H		flag
	REGULATOR PROTECTIVE DEVICES (folder with "CP" label)				
Ont	Regulator activation time in the event of faulty probe. If set to "1" with Oft at "0", the regulator is always on, while for Oft >0, it functions always in duty cycle mode.	0...250	0		min
OFt	Regulator in disabled state time in the event of a faulty probe. If set to "1" with Ont at "0", the regulator is always off, while at Ont >0, it functions always in duty cycle mode.	0...250	1		min
dOn	Delay time in activating the regulator relay after switch-on of instrument.	0...250	0		sec
dOF	Delay after switch off. The indicated time must elapse between switch-off of the regulator relay and the successive switch-on.	0...250	0		min
dbi	Delay between switch-ons. The indicated time must elapse between two successive switch-ons of the regulator.	0...250	0		min
OdO	delay time in activating the outputs after switch-on of the instrument or after a power failure.	0...250	0		min
	DISPLAY (folder with label "diS")				
LOC	Keyboard locking. However, you can enter parameter programming, modify them and change the status of this parameter to unlock the keyboard. y = yes; n = no.	n/y	n		flag
PA1	Password 1. When enabled (value other than 0) it constitutes the access key for level 1 parameters.	0...250	0		num.
CA1	Calibration 1. Positive or negative temperature value added to the value read on the adjustment room probe (probe 1) before being displayed and used for adjustment.	-12...12	0		°C/°F
dro	Selection of °C or °F to view the temperature read by the probe. 0 = °C, 1 = °F.	0/1	1		flag
	CONFIGURATION (folder with label "CnF")				
H00*	Probe type selection, PTC or NTC. 0 = PTC; 1 = NTC.	0/1	0		flag
rEL	Device version. Read only parameter.	/	/		/
tAb	Reserved. Read only parameter.	/	/		/
	COPY CARD (folder with label "Fpr")				
UL	UpLoad: transferring parameters from instrument to Copy Card.	/	/		/
dL	downLoad: transferring parameters from Copy Card to instrument.	/	/		/

* For 230 V~ model default value is set to 1 (NTC probe , see label on instrument).

WIRING

1 - 2	N.C. regulator relay output
1 - 3	N.O. regulator relay output
6 - 7	Power supply
8 - 9	Sensor input
A	TTL input for Copy Card





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