cod. 91543096
rel. 7/06 -GB-

EWTS 950-990 LX

programmable electronic timers

LEDs

cnt	• slow flashing for parameter programming • fast flashing when counting in progress • permanently on when counting stopped • off when counting stopped, terminated or reset
out1	• indicates status of output out 1
out2 (EWTS 990 LX)	• indicates status of output out 2
separation LED	• separation between hours/minutes, minutes/seconds, seconds/hundredths

KEYS

Increases value of parameter
Scrolls menus and enables associated function (Par. H31)

UP button

fnc button esc function
Enables associated function (Par. H33)

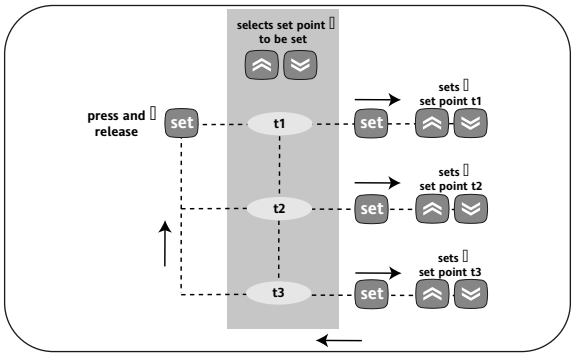
Decreases value of parameter
Scrolls menus and enables associated function (Par. H32)

DOWN button

set Button Accesses 3 Set points
Confirms commands
Accesses menus

SETTING THE SET POINT

EWTS 950 2 enables to configure two set times, “t1” and “t2”, while EWTS 990 enables 3 set times to be specified, i.e. “t1”, “t2”, “t3”.
To configure the set points, press the “set” button and quickly release it. "t1" displays and the “cnt” LED starts quickly flashing.
To select one of the other two set points, “t2”, and“t3”, press the UP or DOWN buttons.
To change the set points, press "set" once more, then use the UP or DOWN buttons to change the value.
The set point configuration mode is automatically closed if no set button is pressed for approximately 15 seconds or if the Fnc button is pressed once. The count reached at that time then reappears on the display. Times can always be set, regardless of whether the counting is in progress or not.



PROGRAMMING MENU

The menu is divided into 2 levels once users have pressed the ‘set’ button for 5 seconds, they can access the user level folders (1)

Navigation at user level(1):

• By using the ‘UP’ / ‘DOWN’ buttons you can scroll through all the folders in the programming menu that only contain user level parameters (1)

How to access the installer level (2):

• By using the ‘UP’ / ‘DOWN’ buttons, scroll through the user level folders (1) until the folder with the “CnF” label is displayed. Then press ‘set’ to access the parameters contained in it.

• By using the ‘UP’ / ‘DOWN’ all the parameters in the user level (1) in ‘CnF’ are displayed, continue until the ‘PA2’ label is not longer displayed and press ‘set’.

• By pressing the ‘set’ button next to ‘PA2’ the first folder containing installer level parameters will be displayed and then the ‘PrO’ folder.

Navigation at installer level(2):

• By using the ‘UP’ / ‘DOWN’ buttons you can scroll through all the folders in the programming menu that only contain installer level parameters (2)

How to modify the parameter value (on both levels):

• When the ‘set’ button is pressed, the first folder in the menu is displayed. (e.g.: “PrO” folder)

• By using the ‘UP’ / ‘DOWN’ buttons you can scroll through all the folders in current level.

• By pressing the ‘set’ button next to the selected folder (in this case “Add”) the first parameter in the current level will be displayed. Select the desired parameter using the ‘UP’ / ‘DOWN’ keys.

• By pressing the ‘set’ button the value of the selected parameter is displayed and by using the ‘UP’ and ‘DOWN’ buttons, it can be modified.

PASSWORD

Access to parameter handling both at user level and installer level can be limited by using passwords. The passwords can be enabled by setting the PA1 (user password) and PA2 (installer password) in the ‘dIS’ folder. The passwords are enabled if the value of the 2 parameters PA1 and PA2 is not 0.

• To access the “Programming” menu hold down the “set” button for more than 5 seconds.
If specified, the user level(1) access PASSWORD will be requested

• If password 1 is enabled (not 0) you will be asked to enter it. Perform the operation by selected the correct value using the ‘UP’ e ‘DOWN’ keys and press the ‘set’ button to confirm.

Installer level (2) parameters

In the programming menu scroll through the folders containing the user level parameters using the UP’ and ‘DOWN’ buttons until the CnF folder is displayed.

• Press the 'set' button to enter the 'CnF' folder where the'PA2' label is present.

• Scroll through the folder parameters and press the 'set' button next to the 'PA2' label, '0' will appear on the display.

• Use the 'UP' / 'DOWN' buttons to select the correct value of the installer password and then press the 'set' button to access the installer level parameters (2).

If the password is not entered correctly, the device will display the 'PA2' label again and the operation will have to be repeated.

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.

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 commands necessary for use of the Copy Card. Press 'set' to access the functions.

• Use the 'UP' / 'DOWN' buttons to display the required function. Press the 'set' and uploading (or downloading) will be performed.

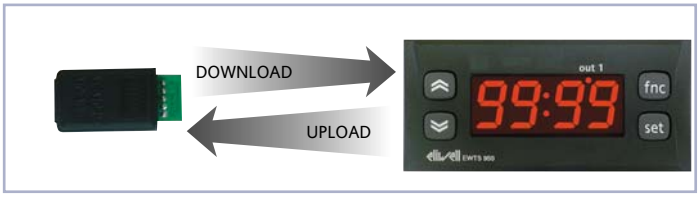
• If the operation is successful 'y' will be displayed, if it is not successful, 'n' will be displayed.

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 the parameters have been downloaded, the device uses the downloaded parameter map settings.

• **see** "FPr folder" in Parameter Table and Description of parameters

KEYBOARD LOCKED

Keyboard operating can be locked by programming the "Loc" parameter (see folder with "diS" table). If the keyboard is locked you can access the Programming Menu by pressing the "set" button.

The set point can also be displayed.

OPERATING

COUNT COMMANDS

Counting is enabled/disabled using the fnc button on the front keypad (configured as START/STOP, par H33=1), or the CNT EN input.

Counting is reset using the RES input or the button configured as 'reset'.

Operation of the 'esc' button on the front keypad configured as START/STOP and the CNT EN input is controlled by the status of the 2 parameters P10 and P09 respectively (see parameter table).

The RES input always stops and resets counting and also has priority over the other commands.

Whilst the reset function is active, counts cannot be started. The rLoc label is displayed (with rapid flashing) rather than the normal display. Parameter P08 controls device operating in the event of a power failure (see parameter table).

When the instrument is able to continue counting even if there is a power failure, during counting in these conditions, the only active command is the RESET command that can only be enabled using the 'fnc' button (configured for resetting, par H33=2). Counting cannot therefore be reactivated after being stopped when the instrument is battery powered.

DISPLAY

The SET/CNT LED is used to indicate:

• the input being programmed (fast flashing)

• counting in progress (slow flashing)

• counting stopped before ending (permanently on)

• counting terminated and reset status (off).

After resetting, 0000 is displayed if the up counting mode is set (par. P07=1) or the set point value set if the down counting mode is set (par. P07=2) During counting the value of the time that elapses, up or down, will be displayed.

THE 'ddd' parameter can be used to display the t3 time, up or down.

If the back-up mode is set to continue counting even if there is a power failure (par P08=2) the 2 central LEDs remain permanently on if counting has stopped, there is a power-down or an external battery is connected. If counting was in progress the two LEDs flash once a second while the display is off.

STAND-BY CONTROLLER

The Stand-by controller can be enabled using the digital input if it is suitably configured (H11-12), or the specially programmed button (H31, 32, 33). The H08 parameter can be used to select the Stand-by operating mode:

•H08=0: In off mode the display stays on and all controllers are disabled.

•H08=1: In off mode the display is switched off and all controllers are disabled.

•H08=2: In off mode "OFF" appears on the display and all controllers are disabled. Each time the device is switched off the cycle times are reset.

MECHANICAL ASSEMBLY

The unit has been designed for panel-mounting: Drill a 29x71 mm hole, insert the keyboard and fix it in place with the special 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 unit cooling slits is adequately ventilated.

TECHNICAL DATA

Front protection: IP65.

Casing: PC+ABS UL94 V-0 resin plastic body, polycarbonate front, thermoplastic resin buttons.

Dimensions: front 74x32 mm, 60 mm depth.

Mounting: on panel, with drilling template 71x29 mm (+0.2/-0.1 mm).

Operating temperature: -5...55 °C.

Storage temperature: -30...85 °C.

Operating and storage ambient humidity: 10...90 % RH (non-condensing).

Display range: 9999 hours, 99 hours and 59 minutes, 99 minutes and 59 seconds, 99 seconds and 99 hundredths.

Digital inputs: 2 voltage-free parameter-configurable digital inputs.

Serial: TTL for Copy Card or connection to TelevisSystem.

Digital outputs **(for EWTS 950 LX):**

• 1 output on SPDT relay 8(3)A 1/2hp 250V~

Digital outputs **(for EWTS 990 LX):**
- first output on
  SPDT relay 8(3)A 1/2hp 250V~
- second output on
  SPDT relay 8(3)A 1/2hp 250V~

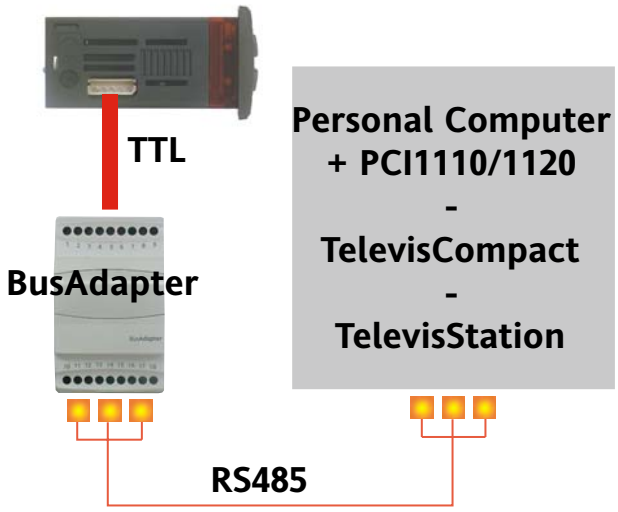
Accuracy: 3.6 sec/h
Consumption: 3 VA.
External battery not rechargeable:
- power supply 9V⎓ ,
- battery duration: depending on model;
  with battery 9V⎓ / 10mA/h
  duration 1h,
- instrument absorption with battery power: 10mA.

Power supply: 12 V~/⎓ or 230 V~ (±10% 50/60 Hz)
Caution: check the power supply specified on the instrument label; for information on relay capacity and power supplies contact the Sales Office).

Televis**System**

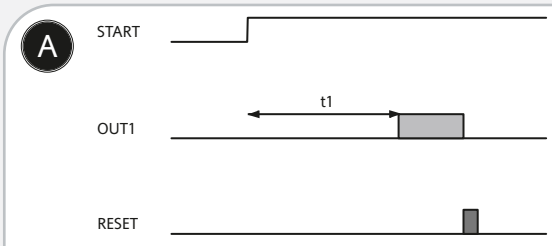
BusAdapter130/150
TTL - RS-485 serial interface on DIN rail for connecting the device and an RS-485 network designed for connection to Televis or ModBUS supervision system.

PCInterface1110/1120
RS-232/RS-485 serial interface for connecting a PC and a series of instruments in an RS-485 network. The device needs the BlueCard activation module supplied with the Eliwell software package licence to be plugged in.

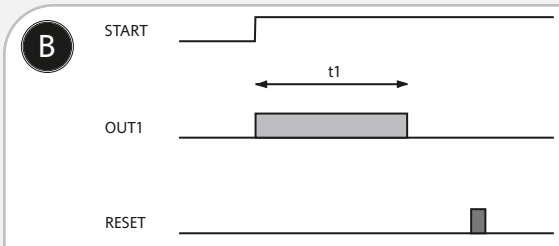


OUTPUT OUT1 OPERATING

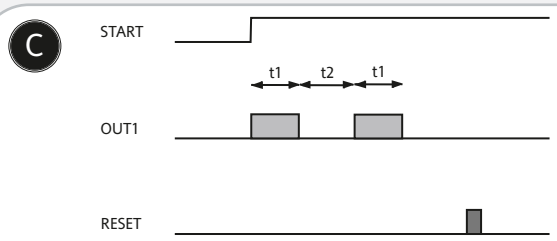
The instrument can be programmed using parameter P01 to operate in 5 different modes:



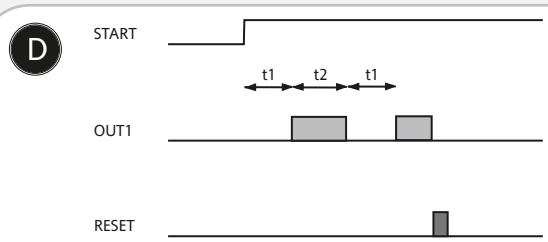
P01=1 — Excitation delay
When the instrument has received the start signal, counting begins and when time "t1" expires output OUT1 is activated. The output is therefore disabled by the reset signal.



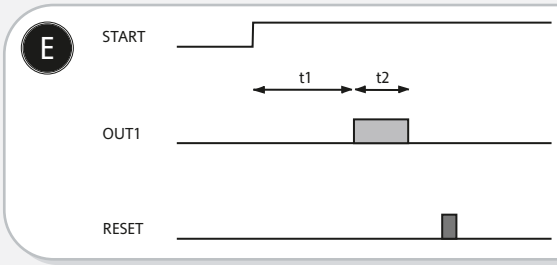
P01=2 — Pass-band excitation
When the instrument has received the start signal, counting begins and output OUT1 is enabled. It is disabled when time "t1" expires. The output can only be reactivated when the instrument has received the reset signal and another start signal



P01=3 — Asymmetric Pause-Start with start = ON
Setting of set point "t2" is enabled. When the start signal has been given, output OUT1 is enabled for the time set in the first set point ("t1"). When this period expires, it is disabled and is re-enabled when the time set in the second set point ("t2") expires and so on until the stop/reset signal is given.
t1 is therefore the ON time of the output OUT1 whereas t2 is the OFF time



P01=4 — Asymmetric Pause-Start with start = OFF
Setting of set point "T2" is enabled. When the start signal has been given, output OUT1 remains disabled for the time set in the first set point ("t1"). When this period expires, it is enabled and is disabled when the time set in the second set point ("t2") expires and so on until the stop/reset signal is given. As a result "t1" is the OFF time of the output OUT1 whereas "t2" is the ON time.



P01=5 - Pause-Start with Pause start and single cycle
It operates in the same way as P01=4 (including enabled set point "t2") and the only difference is that only one Pause-Start cycle is performed. When the start signal has been given, output OUT1 remains disabled for the time set in the first set point ("t1"). When this period expires, it is enabled and is disabled when the time set in the second set point ("t2"). The cycle can only start up again when the instrument has received the reset signal and another start signal.

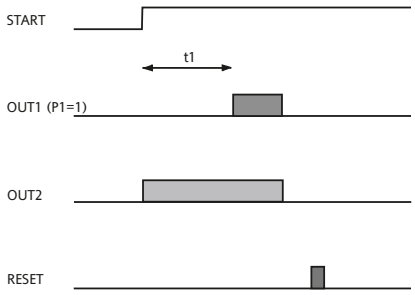
OUTPUT OUT2 OPERATING
(for EWTS 990 LX model only)

The instrument can be programmed using parameter P02 to operate in 4 different modes:

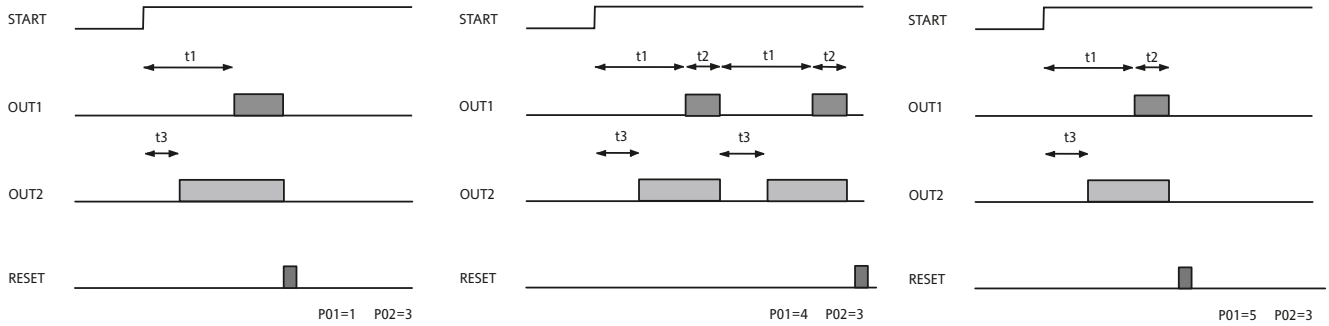
A **P02=0**
Output OUT2 is always disabled

B **P02=1**
Output OUT2 operates in exactly the same way as OUT1 so that it has a dual output contact

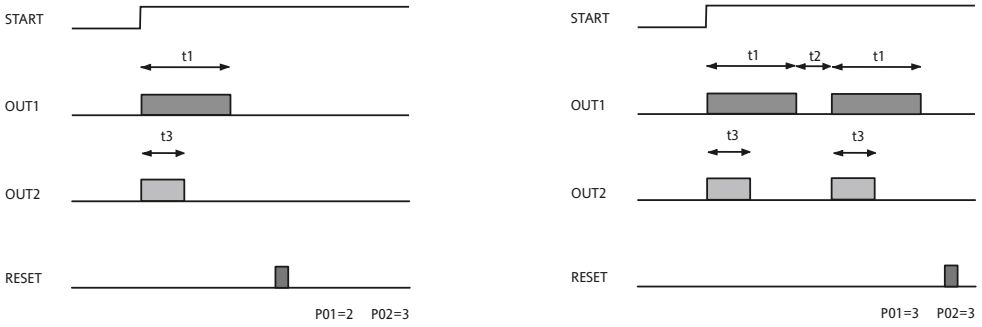
C **P02=2 Output OUT2 operating as instantaneous contact**
The output OUT2 is enabled during counting and remains active until the reset command is given



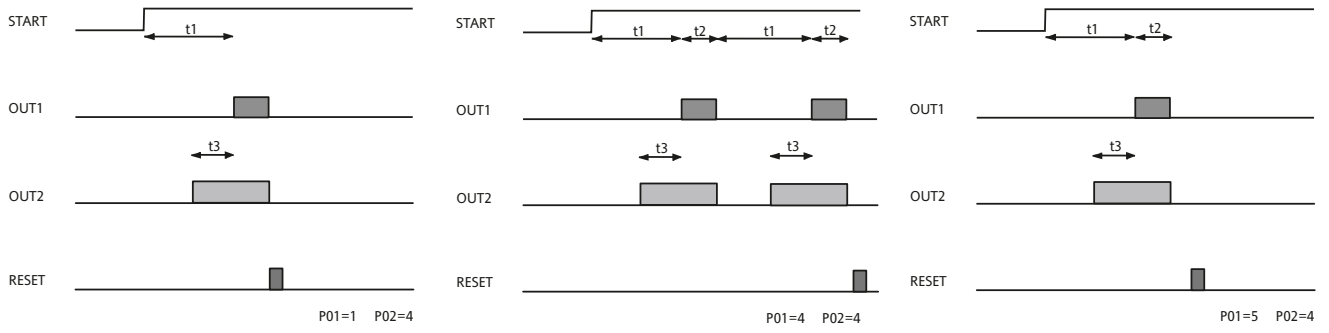
D **P02=3 Operates in same way as P01 (time t1) but time "t3" is absolute**
With P02 = 3 setting of set point "t3" is enabled. It has the same time scale as "t1" and cannot be greater than "t1"
When the instrument has received the start signal, it starts counting and operates on output OUT2 in exactly the same way that P01 operates on output OUT1.
When setting time "t3", "t3 i" is displayed to indicate that time t3 is independent. As a result, if P01=1, 4 or 5 the output OUT2 operates with the excitation delay function with time "t3"



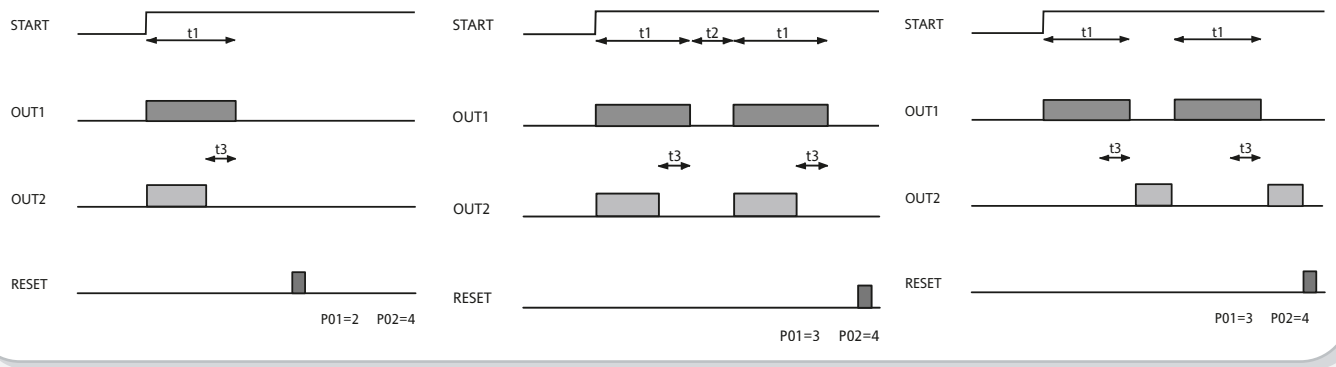
If OUT1 = 2 or 3, output OUT2 operates with the pass-band excitation function with time "t3":



E **P02=4 Operates in same way as P01 (time t1) but with relative time t3 early**
With P02 = 4 setting of set point "t3" is enabled. It has the same time scale as "t1" and cannot be greater than "t1". When the instrument has received the start signal, it starts counting and operates on output OUT2 in exactly the same way that P01 operates on output OUT1. When setting time "t3", "t3 d" is displayed to indicate that time t3 is independent. if P01=2 or 3, output OUT2 operates with the pass-band excitation function with time "t1"-"t3":



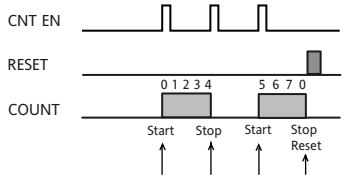
If OUT1 = 2 or 3, output OUT2 operates with the pass-band excitation function with time “t3”:



CNT EN OUTPUT OPERATING

The start signal can be given using the START/STOP front button that usually has bistable functionality or the count enabling inputs IN_ST_SP. The IN_ST_SP input can be programmed using parameter P09 to operate in 4 different modes:

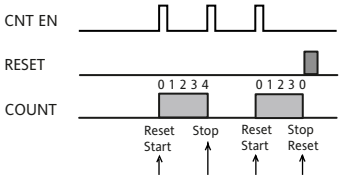
A



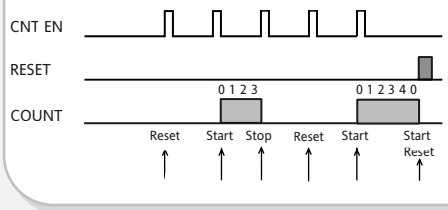
P09=1 - BISTABLE START/STOP
By sending an impulse to input IN_ST_SP, counting is enabled and when the next impulse is sent the counting will stop at the value it has reached. After another impulse the counting will restart from where it stopped until counting has been completed or the reset signal has been given.

B

P09=2 - BISTABLE RESET-START/STOP
It operates in the same way as the START/STOP front button and also depends on par. P10 that has two operating modes:

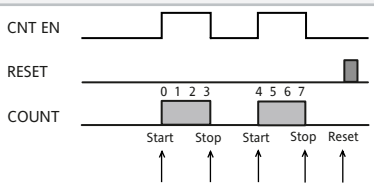


P09=2, P10=1 - RESET - START|STOP
when the first impulse is supplied to input IN_ST_SP, the timer is reset and started whereas with the second impulse:
•if it is given before the end of counting, is stopped (disabling the output if active).
•if it is given after the end of counting, starts a new cycle.



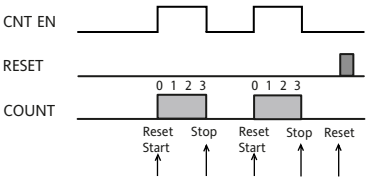
P09=2, P10=2 - RESET / START|STOP
when the first impulse is supplied to input IN_ST_SP the timer is reset whereas with the second impulse counting is started and stopped with the third.

C



P09=3 - MONOSTABLE START/STOP *
by enabling input IN_ST_SP and keeping it enabled, counting is started and stops on the value reached when the input is disabled. At this point, if the input is re-enabled, counting will restart from the value reached and so on until the reset signal is given.

D



P09=3 MONOSTABLE RESET-START|STOP *
by enabling input IN_ST_SP and keeping it enabled, the timer resets, counting is started and then stops on the value reached when the input is disabled.

*** In this operating mode the START/STOP front button only works as a reset button**

ELECTRICAL CONNECTIONS

Warning! Always switch off machine before working on electrical connections.
The instrument has screw terminal blocks for connecting cables with a maximum diameter of 2.5 mm2 (only one conductor per terminal block for power connections): for terminal capacity, see the label on the instrument.
The relay outputs 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.

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 independently mounted as regards its construction;
• as a 1 R type operated control device as regards its automatic operating features;
• as a Class A device as regards 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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- 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 adequate 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.

	PAR.	DESCRIPTION	RANGE	DEFAULT	VALUE	LEVEL	U.M.
	t1	Set Point "t1"	0...9999	1		/	hours/min/sec
	t2	Set Point "t2"	0...9999	1		/	hours/min/sec
	EWTS 990 LX only						
	t3	Set Point "t3"	0...9999	1		/	hours/min/sec
Programming — PrO label	P01	Output OUT1 operating mode; establishes operating of output OUT1 for counting: 1=excitation delay; 2=pass-band excitation 3=asymmetric oscillator (Pause-Start) start off 4=asymmetric oscillator (Pause-Start) start on 5=single cycle pause-start	1...5	1		1-**2**	num
	EWTS 990 LX only						
	P02	Output OUT2 operating mode; establishes operating of output OUT2 for counting: 0=output not operating by enabling input CNT EN and keeping counting active; 1=operating as OUT1; 2=active during counting and will remain active until reset command; 3=Same as OUT1 with time 2 independent; 4=Same as OUT1 with time 2 independent	0...5	0		1-**2**	num
	P03	Time scale t1; establishes unit of measurement of time t1 (and t3 if enabled): 1=hours (9999) 2=hours-min (99 hours/59 min) 3=min-sec (99 min/59 sec) 4=sec-hundredths (99 sec/99 hundredths)	1...4	1		1-**2**	num
	P04	Time scale t2; establishes unit of measurement of time t2: 1=hours (9999) 2=hours-min (99 hours/59 min) 3=min-sec (99 min/59 sec) 4=sec-hundredths (99 sec/99 hundredths)	1...4	1		1-**2**	num
	P05	Time t1 maximum set point; establishes the maximum value of the 2 most significant figures that can be set for set point t1	0...99	99		1-**2**	hours/min/sec
	P06	Time t2 maximum set point; establishes the maximum value of the 2 most significant figures that can be set for set point t2	0...99	99		1-**2**	hours/min/sec
	P07	Counting mode; establishes if the counting must be UP or DOWN: 1=UP 2=DOWN	1...2	1		1-**2**	num
	P08	Back-up mode; establishes the behaviour of the machine if there is a power failure: 1=stops counting and stores the value 2=continues counting (only with battery present) 3=resets counting	1...3	1		1-**2**	num
	P09	CNT EN input operating mode; establishes operating of count enabling input: 1=bistable START|STOP 2=bistable RESET-START|STOP 3=monostable START/STOP 4=monostable RESET-START|STOP	1...4	1		1-**2**	num
	P10	START/STOP button operating mode: 0=non operational 1=RESET-START/STOP 2=RESET|START/STOP 3=RESET only	0...3	1		1-**2**	num
Communication Add label	dEA (1)	Device address in family	0...14	0		1-**2**	num
	FAA (1)	Device family	0...14	0		1-**2**	num
Programming PrO label	LOC (2)	Keyboard locked (blocks activation of primary functions) 0=n=keyboard enabled 1=y=keyboard locked	n/y	n		1-**2**	flag
	PA1	Contains the password for access to level 1 parameters. Enabled if not 0	0...255	0		1-**2**	num
	PA2	Contains the password for access to level 2 parameters. Enabled if not 0	0...255	0		***2***	num
	EWTS 990 LX only						
	ddd	display of fundamental state; determines display when instrument starts up: 0=t1/t2 1=t3	0/1	0		1-**2**	flag

NOTE: The symbol 1-2 indicates the parameters that are displayed at both menu levels At level 2 the folders will only display level 2 parameters.

	PAR.	DESCRIPTION	RANGE	DEFAULT	VALUE	LEVEL	U.M.
Programming — CnF label	H02	Quick enabling time using configured buttons.	0...15	1		2	sec
	H08	Stand-By operating mode 0=display remains on and controllers are disabled 1=display is turned off and controllers disabled 2="OFF" is displayed and controllers are disabled	0/1/2	2		2	num
	H11 (3)	Configurability of digital inputs/polarity 0=disabled 1=CNT enable (reads front buttons) 2=RESET (reads level) 3=Stand By	-3...3	-1**	**WARNING: **H11** & **H12** MUST BE ALWAYS DIFFERENT	2	num
	H12 (3)	Configurability of digital inputs/polarity Same as H11	-3...3	-2**		2	num
	H21	Digital output 1 configurability: 0=disabled; 1=out1; 2=out2 **(for EWTS 990 LX only)**	0...2	1		2	num
	EWTS 990 LX only						
	H22	Digital output 2 configurability: Same as H21	0...2	2		2	num
	H31	UP button configurability 0=disabled 1=START/STOP 2=RESET 3=Stand By	0...3	0		2	num
	H32	DOWN button configurability Same as H31	0...3	0		2	num
	H33	fnc button configurability. Same as H31: in the event of a power failure, the only active command is the RESET command that can only be activated by the 'fnc' button	0...3	1		2	num
	rEL	Device version. Read only parameter	0...65535	/		1-2	num
	tAb	Parameter table. Read only parameter	0...65535	/		1-2	num
Copy Card Fpr label	UL	Transfer of parameter map from instrument to Copy Card	/	/		1-2	/
	dL	Transfer of parameter map from Copy Card to ON and OFF	/	/		1-2	/
	Fr (4)	Formatting. Cancels all data on Copy Card	/	/		1-2	/

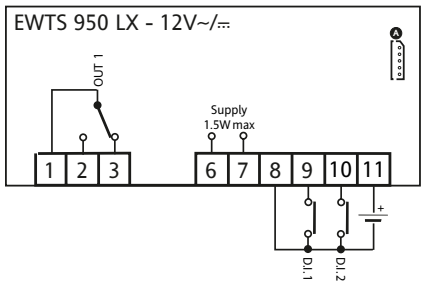
NOTES:
(1) The pair of values dEA and FAA represents the device network address and is indicated as "FF.DD" (where DD=dEA and FF=FAA).
(2) When the keyboard lock is enabled the Set Point can only be displayed using the "set" button and the password-protected parameter programming menu accessed.
(3) CAUTION: positive or negative values change polarity, positive values: active input when the contact is closed; negative values: active input when contact is open.
(4) If the Fr parameter is used, the data previously stored on the Copy Card will be permanently lost. **This operation cannot be undone**

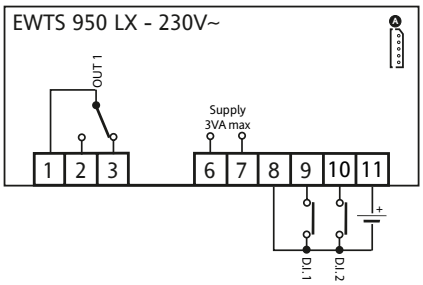
CONNECTIONS

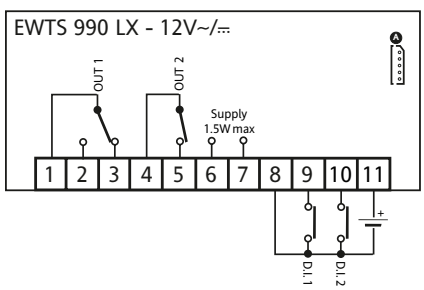
TERMINALS

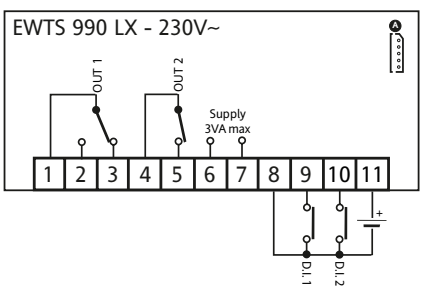
1-2	N.O. relay output OUT 1 see par. H21
1-3	N.C. relay output OUT 1 see par. H21
4-5*	N.O. relay output OUT 2 see par. H22
6-7**	Power supply
8-9	Digital input D.I.1
8-10	Digital input D.I.2
8-11	External battery 9V⎓
A	TTL input for Copy Card and connection to TelevisSystem

*	for EWTS 990 LX models only
**	Available in 2 different power supplies: 12V~/⎓ ±10% or 230V~ ±10%









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