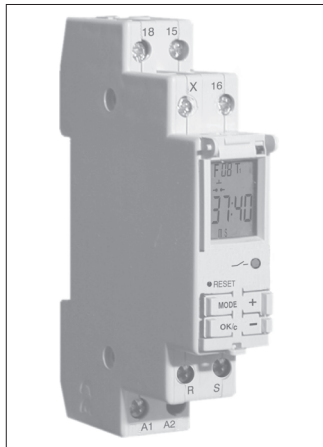


TIMED MULTIFUNCTION, MULTI-VOLTAGE OR SINGLE-VOLTAGE RELAY - 1 DIN with backlit display



ENGLISH

PC - DEITNN004 04/03

1 - TECHNICAL SPECIFICATIONS

Model	Supply	Type of output	Maximum power	
			AC	DC
Multivoltage	11 ÷ 253 V AC/DC	Relay with changeover contact voltage free	16A 250 VAC (Cosφ = 1) AC15: N.O. 3A 240VAC N.C. 1,5A 240VAC	16A 250 VDC (L/R=0 ms) DC13: N.O. 2,5A 24VDC (50 ms)
230V	230 V AC ± 10 %			
110V	110 V AC ± 10 %			
48V	48 V AC/DC ± 10 %			
24V	24 V AC/DC ± 10 %			
12V	12 V AC/DC ± 10 %			

Nominal frequency:

Protection degree:

Installation:

Dimensions W x D x h (width x depth x height):

Maximum wire section at terminals:

Time setting range:

Power consumption:

Minimum pulse duration:

Recovery time:

Voltage for insulation test:

Operating temperature limits:

Storing temperature limits:

Reference standard for CE mark:

(directives 73/23/CEE - 89/336/CEE).

50 - 60 Hz

IP 40 (DIN rail) IP 30 (Wall mount)

DIN rail - Wall mount (with optional terminal cover)

17,5 x 60 x 90 mm

1 mm² ÷ 2,5 mm²

0,1 s ÷ 99 h 59 min

max 3 VA

50 ms

≤ 100 ms

2,5 KV / 1 min

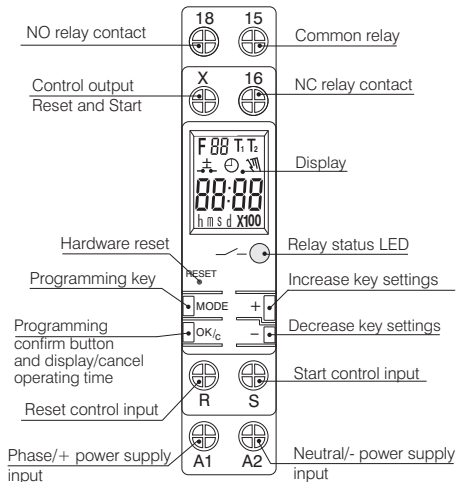
-5 ÷ +50 °C

-25 ÷ +65 °C

LVD EN 61812-1

EMC EN 61812-1 application class 1

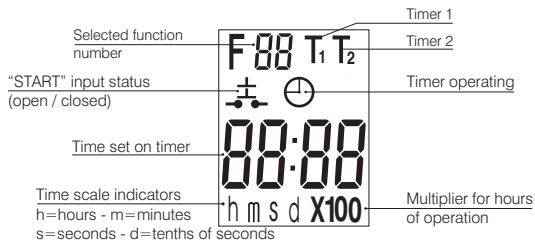
Description, front view and display



NOTE: in these instructions the following convention is used:

88 permanently
alight

88 blinking



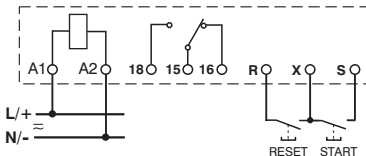
Important: the installation and electrical connections of devices and equipment must be performed by qualified personnel in conformity with current standards and regulations. The manufacturer does not assume any responsibility concerning the use of the products, which must conform to particular environmental and/or installation standards.

2 - ELECTRICAL CONNECTIONS

switch mains supply off
connect the power supply, depending on the model, to terminals **A1** and **A2**
connect the interlocked device to terminals:

15 - Common **16** - Normally closed contact **18** - Normally open contact

START and **RESET** buttons can be connected to terminals **R, X, S**



WARNING: in case of particularly reactive loads or or with a $\cos \varphi$ value lower than indicated in the technical data, the relay could suffer damage.

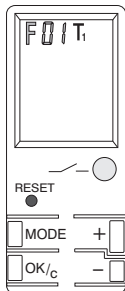
It is advisable in such instances to use a suitably rated external or solenoid switch.

3 - PROGRAMMING

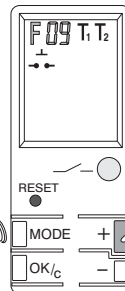
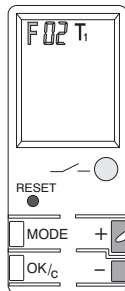
FUNCTION SELECTION

When first switched on (no configuration set), the device does a test cycle (lamp-test) and automatically goes to the **Function Selection** phase.

On the display, **F01** flashes and **T1** fixed,

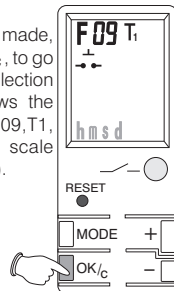


use **+** or **-** keys to select the desired function. For each function, the timers activated are indicated by lighting up of indicators **T1** and **T2** and the symbol of the type of **START** (external symbol on) see CHAP. 9 FUNCTIONS.



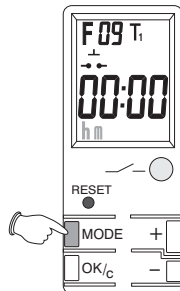
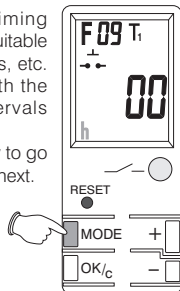
TIME SCALE

Once selection is made, confirm with **OK/C**, to go to **Time Scale** selection (the display shows the function e.g. F09,T1, fixed; the time scale indicators flashes).



N.B. To modify the previous configurations see CHAP. 4 ACTIVATION OF PROGRAMMING CYCLE TO CHANGE SETTINGS.

According to the timing required, the most suitable scale, hours, minutes, etc. can be selected with the programmable intervals given in the table. Press the **MODE** key to go from one scale to the next.

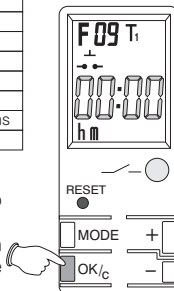


	Scale	Adjustable Interval
h	hours	from 1 to 99 hours
hm	hours-minutes	from 0 h and 1 m to 99 h and 59 m
m	minutes	from 1 to 59 minutes
ms	minutes-seconds	from 0 m and 1 s to 59 m and 59 s
s	seconds	from 1 to 59 seconds
sd	seconds - tenths	from 0 s and 1 tenth to 59 s and 9 tenths
d	tenths of seconds	from 1 to 9 tenths

TIMER SETTING

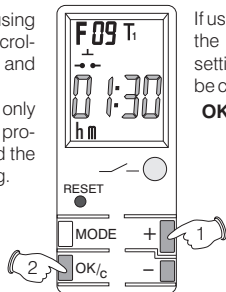
Once selection is made, press **OK/C** to confirm and go to **timer Setting**.

The display shows the selected Function, the Timer on which the setting is being made and the time scale indicators; the central figures flash.

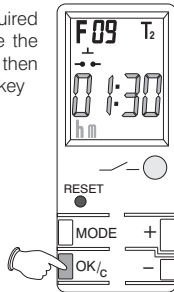


Set **Timer 1** as required, using the **+** or **-** keys (for fast scrolling, keep **+** or **-** pressed) and confirm with **OK/C**.

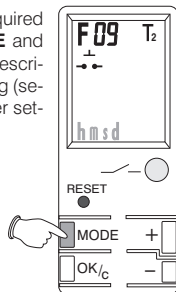
If the selected function only requires the use of Timer 1, programming is complete and the central figures stop flashing.



If use of **Timer 2** is also required the display will reposition the setting for Timer 1, it can then be copied by pressing the key **OK/C** again,

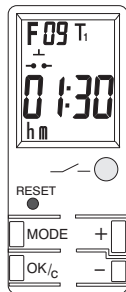


if a different setting is required for **Timer 2** press **MODE** and repeat the procedure described above for timer setting (selection of time scale, timer setting).

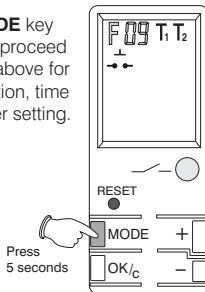


4 - ACTIVATION OF PROGRAMMING CYCLE TO CHANGE SETTINGS

To activate the **programming cycle** and **change** previous settings during normal operation or with device cycle timing in progress,



press the **MODE** key for 5 sec. and proceed as described above for function selection, time scale and timer setting.



If the programming cycle is activated but no settings are to be changed, press **OK/C** to confirm the current programming.

IMPORTANT:

-Changing the type of function automatically involves resetting of all the settings for Timer 1 and Timer 2 (if required) which will have to be reprogrammed.

-Changing the time scale for Timer 1 or 2 only involves resetting of the value set for Timer 1 or 2.

N.B. Starting a programming modification procedure interrupts the **cycle in progress**, cancelling the timing and deactivating the relay.

5 - OPERATION

Display with timer not activated

During this phase of operation the display shows the following information:


- Selected function number
- START input status (only for functions requiring it)
- The set value and related time scale for Timer 1 (fig. A)

If the selected function requires use of both Timers the display will show the following:


- If the setting for Timer 1 is the same as Timer 2, the display will show the set value, the time scale and indicators T1 and T2 will be lit (fig. B)
- If the setting for Timer 2 is different, the display shows the two settings (fig. C) alternately for 5 seconds.

Display with timer activated

-Function in progress and Timer activated (fig. D)

- Selected function number flashing
- Symbol T1 or T2 lit (indicating which Timer is operating)
- Time Clock symbol lit
- The figures for timing indicate the time remaining before the current count finishes and the symbol  flashes.

-Function in progress and Timer on standby only for functions requiring it (fig. E)

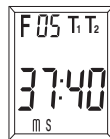
- Selected function number flashing
- Symbol T1 or T2 lit (indicating which Timer is operating)
- Time Clock symbol flashes
- The figures for timing indicate the time remaining before the current standby count finishes and the symbol  is lit

N.B. During the count the time scale automatically adjusts to the remaining time to be displayed.

During operation the relay status is indicated by the LED  (LED on = relay activated)(fig. F).



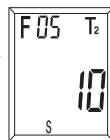
A



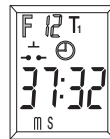
B



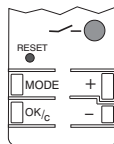
C



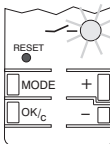
D



E



F



6 - OPERATING TIME COUNTER

Display of operating time

The timer memorizes the count of total hours of active relay operation. The memorization is increased by one unit on the elapsing of each hour. If a Reset is done before the full hour has elapsed, the increase will not be memorized.

To display the counter, press the key **OK/c** for 5 seconds; the display will stay on for 10 seconds.

Operating times are displayed in the following manner:

From 0 to 9999 the total number of hours is displayed (fig. A)

From 10000 to 999900 the multiplier X100 is switched on ex. (10000 hours = 100 X100) (fig. B)

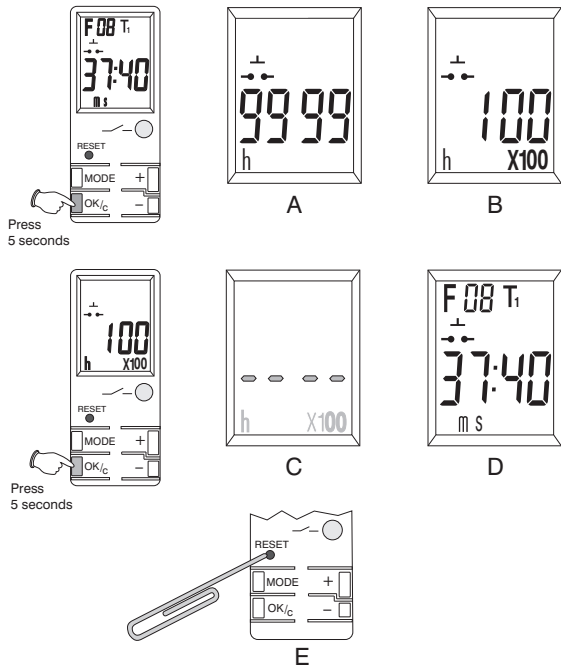
Cancelling operating times

The hour count can be reset while the counter **is displayed**, by pressing the key **OK/c** again for 5 seconds until the flashing symbols appear on the display, as shown in fig. C. When the key **OK/c** is released the initial display (fig. D) appears.

7 - HARDWARE RESET

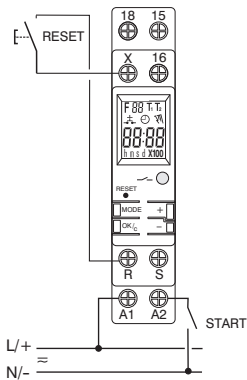
In the case that the device shows anomalous displays or improper functioning, insert a thin pointed object (max 1 mm) in the hole of the panel front, marked **RESET**, and press once (fig. E).

Hardware resetting does not cancel the settings previously entered in the memory.

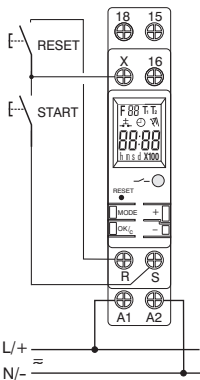


Connection diagrams

with internal START



with external START



8 - RESET CONTROL OPERATION

When the **Reset** button is pressed the device immediately de-energizes the relay and interrupts operation regardless of what settings are selected.

When the **Reset** button is released:

- For connections with **internal START** timing of the set function restarts from the beginning.
- For connections with **external START**, it is necessary to operate the START command again to resume the set function from the beginning.

9 - FUNCTIONS

Symbols used in the graphics:

U = Power supply (A1-A2)
 T1-T2 = Set time for Timer 1 - 2
 Control = Relay control output

S = Start control
 R = Reset control
 P1-P2 = Pause timing

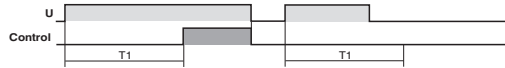
Functions with internal START activation

(when the device is powered up)

FUNCTION 01 - Delay with energizing

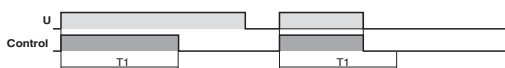
Timing starts when the device is powered up with **U** current; once the set time **T1** has elapsed, the **control** relay is energized.

The relay is deactivated if the power supply **U** is disconnected. If the power supply **U** is disconnected before the set time has elapsed, the timer count is reset.



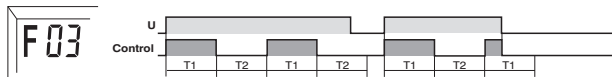
FUNCTION 02 - Delay in passing to energizing

The **control** relay is activated when the device is powered up in **U** current. The **control** relay is de-energized when the set time **T1** has elapsed. If the power supply **U** is disconnected before the set time elapses, the timer count is reset and the relay is deactivated.



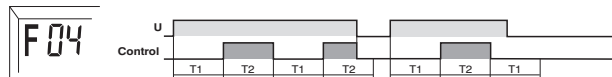
FUNCTION 03 - Intermittent control for active relay Start

When the device is powered up in **U** current, the control relay is activated and the set time **T1** count starts. The control relay is de-energized when the time **T1** elapses. When the relay is deactivated the time **T2** count begins, after which the relay is activated and the **T1** count starts. The cycle repeats until the power is disconnected, which deactivates the relay if it is energized and resets the timer count.



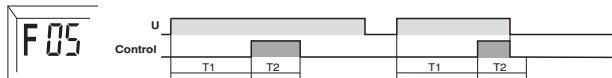
FUNCTION 04 - Intermittent control for deactivated relay Start

When the device is powered up in **U** current, the set time **T1** count starts. When the time **T1** elapses, the control relay is activated, at the same time the **T2** time count starts, after which the relay is deactivated and the **T1** count starts. The cycle repeats until the power supply **U** is disconnected, which deactivates the relay if energized and resets the timer count.



FUNCTION 05 - Fixed impulse delay

Timing starts when the device is powered up in **U** current; when the time **T1** has elapsed, the control relay is energized. The duration of active time is equal to the setting of **T2**. Disconnection of power supply **U** stops the cycle, deactivates the relay if energized and resets the timer count.

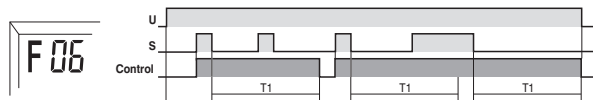


Functions with external START activation

FUNCTION 06 - Delay with de-energizing (on releasing the control Start S)

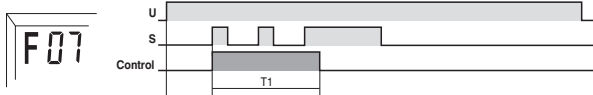
The relay energizes on closing of the Start control **S**, timing starts on release of the Start control; when set time **T1** has elapsed the control relay is deactivated. A new Start **S** command during timing has the following effects:

- If the Start **S** command is interrupted before the end of the set time, it is ignored.
- If Start control **S** is closed after time **T1** has elapsed, the relay remains energized, when the control is released a new timing begins.



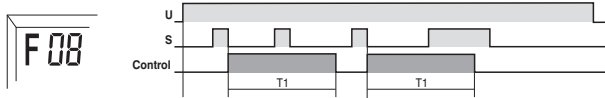
FUNCTION 07 - Delay in passing to energizing (instantaneous with the command Start S)

The relay energizes on closing of the Start control **S**, timing starts at the same time as the Start command; when the set time **T1** has elapsed the **control** relay is deactivated. A new Start **S** command during timing does not have any effect on operation.



FUNCTION 08 - Delay in passing to energizing. (on releasing the control Start S)

The relay and timing start on release of the Start control **S**; when the set time **T1** has elapsed the control relay is deactivated. A new Start **S** command during timing does not have any effect on operation.

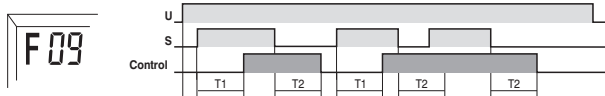


FUNCTION 09 - Delay with energizing and de-energizing

Timing starts on closing of the Start control **S**; when the set time **T1** has elapsed the control relay is activated. On release of the Start control **S**, the relay de-energizes after set time **T2** has elapsed.

Particular conditions:

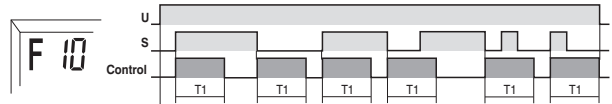
- If the Start control **S** is interrupted before the end of time **T1** it is ignored.
- If the Start control **S** is closed when time **T2** elapses, the relay remains energized and a new timing with **T2** starts on releasing the control.



FUNCTION 10 - Timing control with energizing and de-energizing

On closing the Start control **S** the timing is started and the relay is energized; when the set time **T1** has elapsed the control relay is deactivated. On releasing the Start control **S** the relay is activated again and de-energizes when time **T1** elapses..

- If the Start control **S** is activated during a release time count, the deactivation cycle is finished and the activation cycle is ignored; a new deactivation cycle starts on releasing the control.
- If the Start control **S** is activated and deactivated during a deactivation cycle it is ignored.
- If the Start control **S** is interrupted before the end of time **T1**, only an entry cycle is executed.

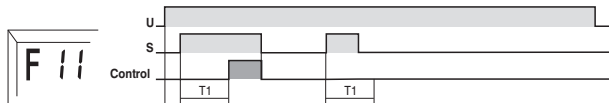


FUNCTION 11 - Type 1 activation delay

Timing starts on closing of the Start control **S**; when the set time **T1** has elapsed the control relay is activated. The relay de-energizes on releasing the Start control **S**.

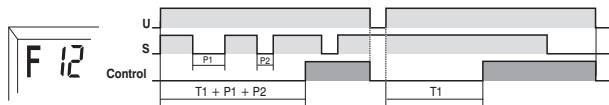
Particular conditions:

- If the Start control **S** is interrupted before the end of time **T1** it is ignored.



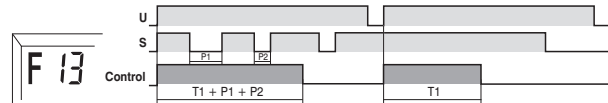
FUNCTION 12 - With type 2 activation of delay (possibility interrupt the control contact)

Count **T1** starts with connection to power supply **U** and Start control **S** closed. Opening of the Start control puts count **T1** on standby (**P1,P2**), the time count resumes when the control is closed. At the end of the set time the relay energizes and remains closed until power supply **U** is disconnected.



FUNCTION 13 - With impulse (possibility interrupt the control contact)

The relay and time count **T1** are activated with connection to power supply **U**. The count occurs only with the Start control **S** closed. Opening of the Start control **S** puts the count on standby (**P1,P2**), the count of **T1** resumes when the control is closed. At the end of the set time the relay de-energizes and remains open until power supply **U** is disconnected.



FUNCTION 14 - De-energizing delay that can be reactivated

The relay becomes excited on closing of Start control **S**, timing starts when Start control **S** is released.

The relay is deactivated once set time **T1** has elapsed. If Start control **S** is pressed again during timing **T1**, the relay remains activated.

Timing **T1** restarts when Start control **S** is released.

When time **T1** has elapsed the relay is deactivated.

