



Read this document carefully before using this device. The guarantee will be expired by damaging of the device if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

# ENDA ETM441 DIGITAL TIMER

Thank you for choosing ENDA ETM441 digital timer.

- \* 48x48mm sized.
- \* 4 digits display.
- \* Easy to use by front panel keypad.
- \* Selectable 11 different time bases between 0-99.99s and 0-9999h.
- \* Selectable PNP or NPN sensor type.
- \* Operation with or without memory for each output type.
- \* 7 different output types.
- \* Selectable functional reset.
- \* Parameter access protection on 3 levels.
- \* Easy connection by removable screw terminal.
- \* Having CE mark according to European Norms.

Supply Voltage	Order Code
230V AC +%10 -%20	ETM442
24V AC ±%10	ETM442-24AC
9-30V DC SMPS module	ETM442-12AC



## TECHNICAL SPECIFICATIONS

ENVIRONMENTAL CONDITIONS	
Ambient/storage temperature	0 ... +50°C/-25 ... +70°C (with no icing)
Max. relative humidity	80% up to 31°C decreasing linearly 50% at 40°C.
Rated pollution degree	According to EN 60529      Front panel : IP60 Rear panel : IP20
Height	Max. 2000m
Do not use the device in locations subject to corrosive and flammable gases.	

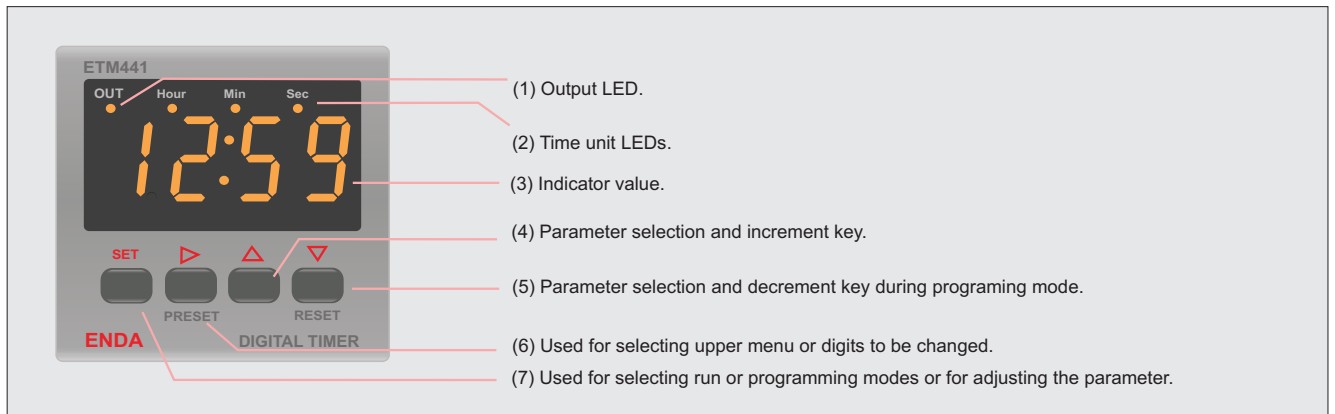
ELECTRICAL CHARACTERISTICS	
Supply	230V AC +%10 -%20, 50/60Hz or 24V AC ±%10, 50/60Hz or optional 9-30V DC SMPS module.
Power consumption	Max. 5VA
Wiring	2.5mm <sup>2</sup> screw-terminal connections
Date retention	EEPROM (Min. 10 years)
EMC	EN 61326-1: 1997, A1: 1998, A2: 2001 (Performance criterion B for the EMC standard)
Safety requirements	EN 61010-1: 2001 (pollution degree 2, overvoltage category II)

INPUTS	
START input	Input types can be adjusted as PNP or NPN in programming mode. Minimum On and Off times for input pulses is 20ms. For PNP input types, active level is 5 to 30V pulse, For NPN input types, active level is 0 to 2V pulse.
GATE input	
RESET input	

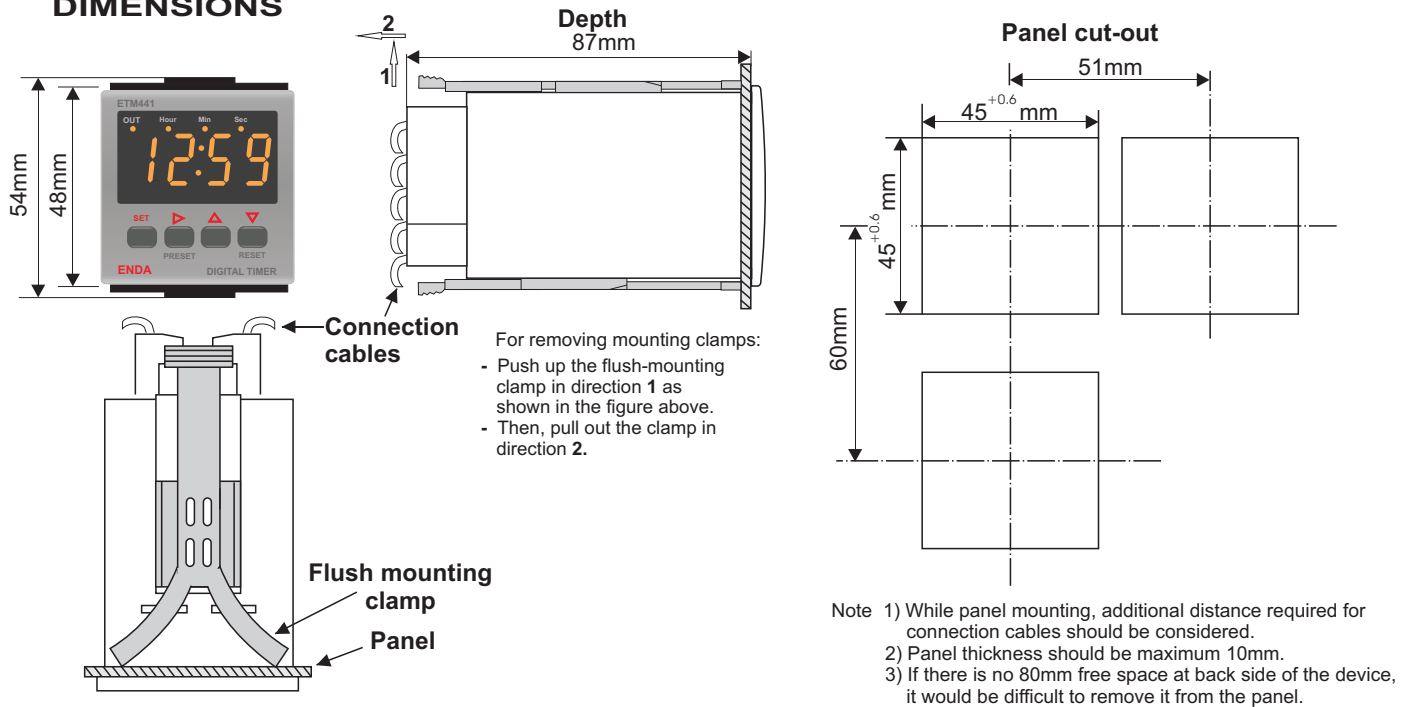
OUTPUTS	
Control output (OUT)	Relay : 250V AC, 2A (for resistive load), NO+NC Open collector output (S.S. OUT): Max. 30V DC, 100mA
Auxiliary power supply	12V DC, max. 50mA (without regulation)
Life expectancy for relay	Mechanical 30.000.000 operation; Electrical 300.000 operation
Accuracy	± % 0.1 ± 20ms
Note : Relay and S.S.OUT outputs are in synchronization . When OUT relay is energized S.S. OUT transistor goes into saturation.	

HOUSING	
Housing type	Suitable for flush-panel mounting according to DIN 43 700.
Dimensions	W48xH48xD87mm
Weight	Approx. 210g (after packing)
Enclosure material	Self extinguishing plastics
While cleaning the device, solvents (thinner, benzene, acid etc.) or corrosive materials must not be used.	

# TERİMLER



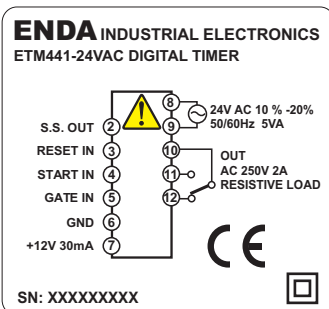
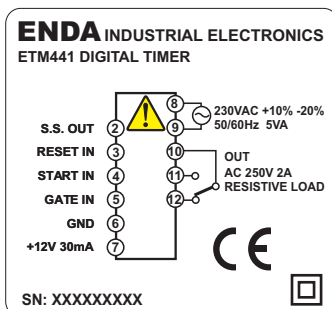
## DIMENSIONS



## CONNECTION DIAGRAM

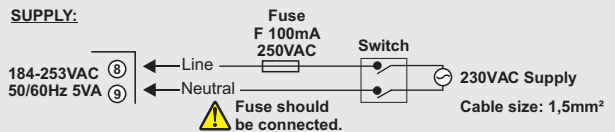


ENDA ETM441 is intended for installation in control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of energy. The device must be protected against inadmissible humidity, vibrations, severe soiling and make sure that the operation temperature is not exceeded. All input and output lines that are not connected to the supply network must be laid out as shielded and twisted cables. These cables should not be close to the power cables or components. The installation and electrical connections must be carried on by a qualified staff and must be according to the relevant locally applicable regulations.

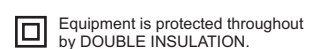
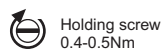


### NOTE :

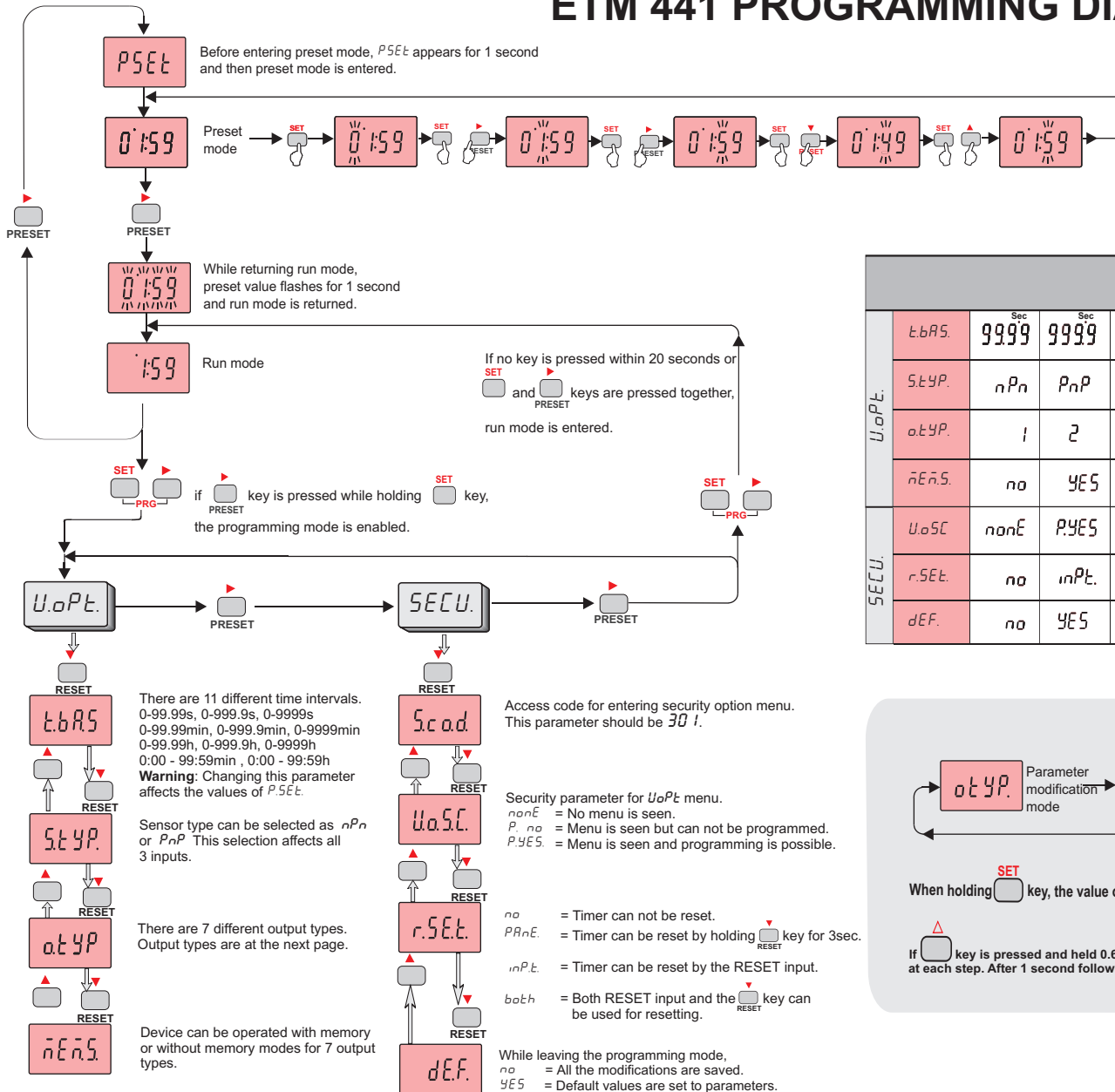
#### SUPPLY:



- Note 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.  
 2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.



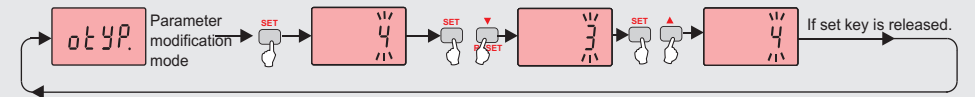
# ETM 441 PROGRAMMING DIAGRAM



## PARAMETER TABLE

	Sec	Sec	Sec	Min	Min	Min	Hour	Hour	Hour	Hour	Min
<i>t.bAS.</i>	9999	9999	9999	9999	9999	9999	9999	9999	9999	99:59	99:59
<i>S.tYP.</i>	<i>nPn</i>	<i>PnP</i>									
<i>a.tYP.</i>	1	2	3	4	5	6	7				
<i>n.E.n.S.</i>	<i>no</i>	<i>yES</i>									
<i>U.o.S.C.</i>	<i>nonE</i>	<i>P.yES</i>	<i>P.no.</i>								
<i>r.S.E.t.</i>	<i>no</i>	<i>nPt.</i>	<i>PRnE.</i>	<i>both.</i>							
<i>d.E.F.</i>	<i>no</i>	<i>yES</i>									

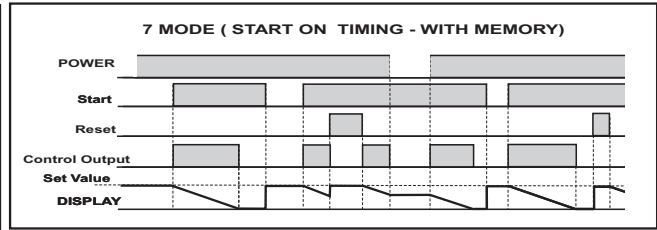
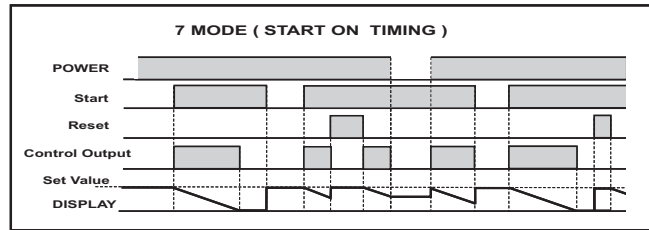
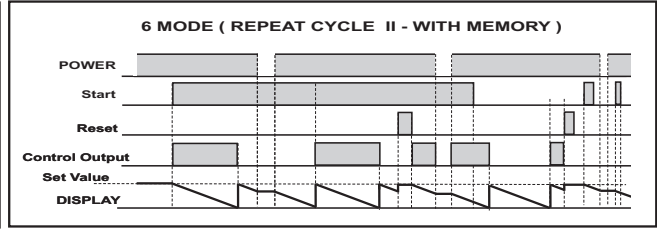
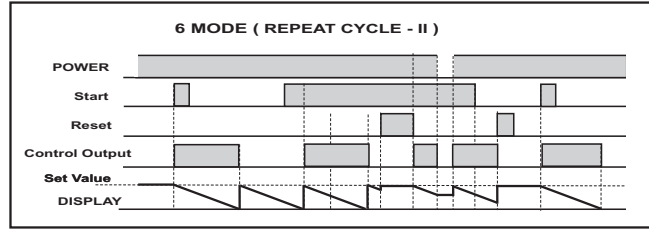
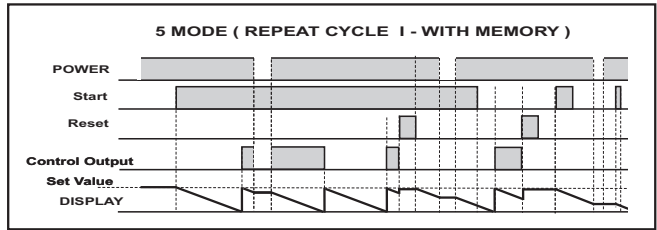
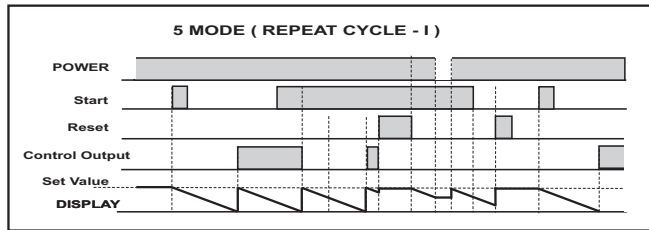
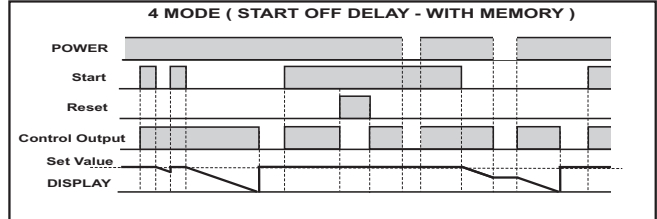
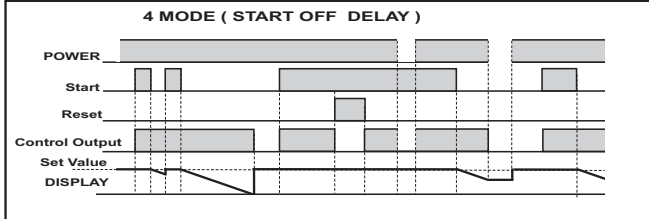
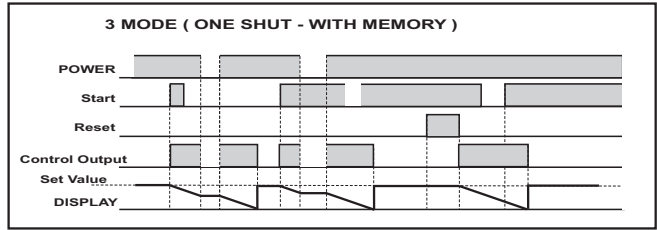
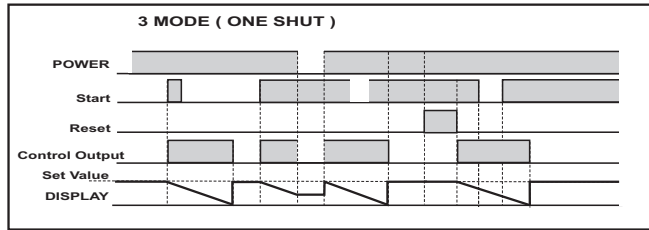
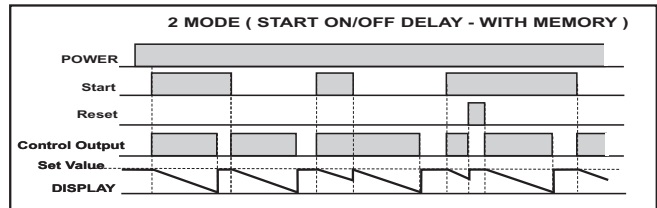
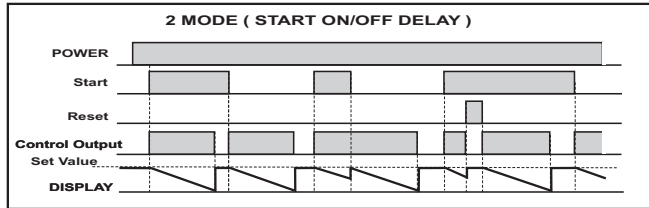
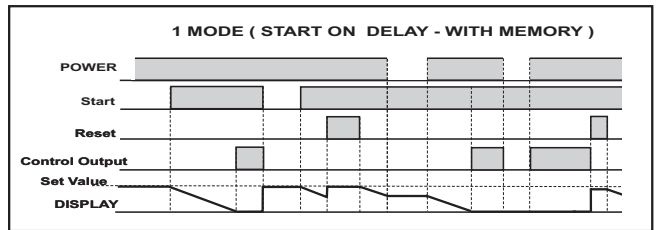
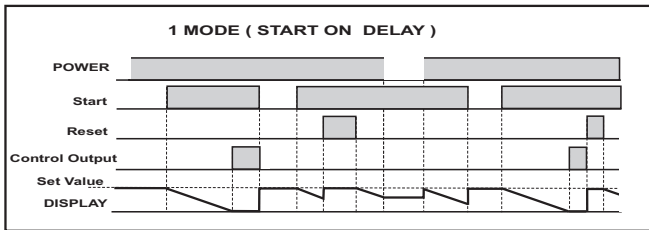
## Parameter Modification Diagram



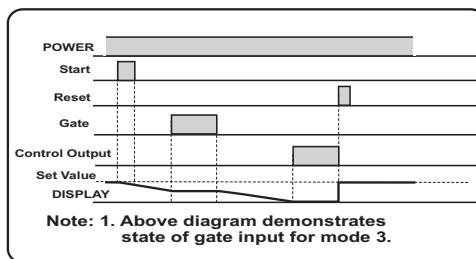
When holding **SET** key, the value of parameter flashes and using **RESET** keys the requested value can be adjusted.

If **RESET** key is pressed and held 0.6 seconds, the value of the selected parameter changes rapidly. If waited enough, The value increases 100 at each step. After 1 second following the release of the key, initial condition is returned. The same procedure is valid for the decrement key.

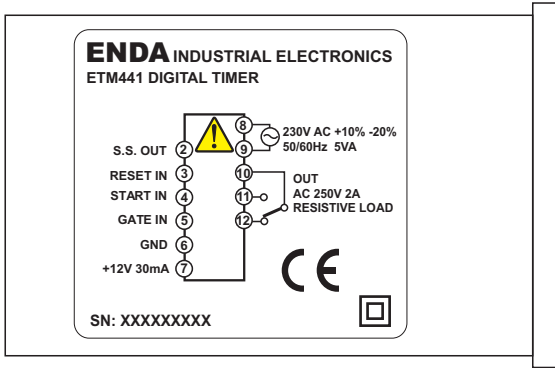
# OUTPUT TYPES



## GATE INPUT



## TERMINAL CONNECTIONS

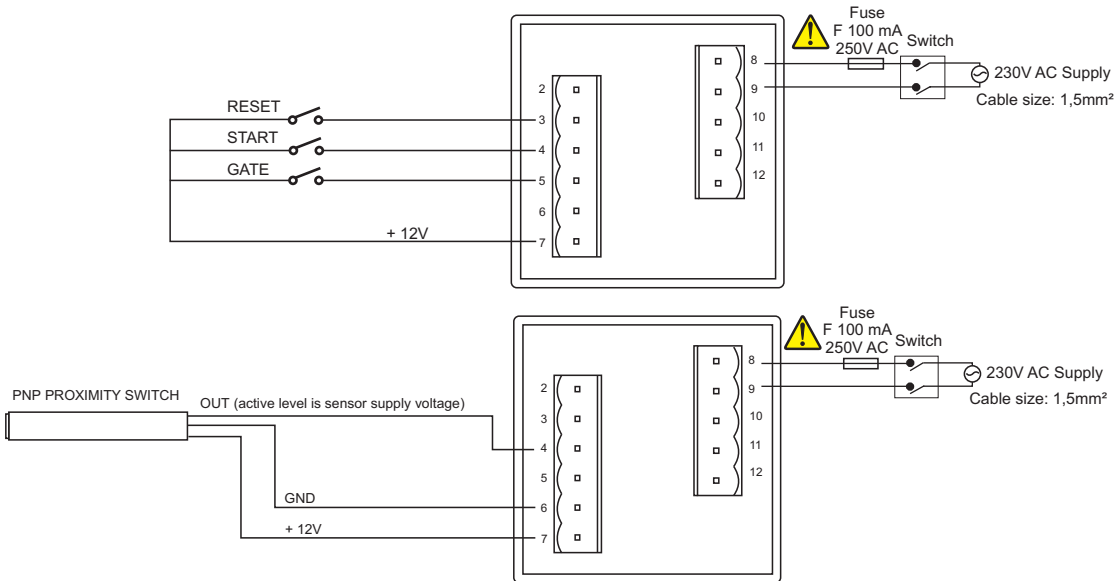


### Terminal description

- 2 : Solid state out (Max 30V 100mA, open collector NPN)
- 3 : Reset input (Max 30V)
- 4 : Start input (Max 30V)
- 5 : Gate input(Max 30V)
- 6 : GND
- 7 : +12V 30mA auxiliary supply output for sensors
- 8,9 : SUPPLY input
- 10,11,12 : Relay contacts (Max 2A 250V AC)

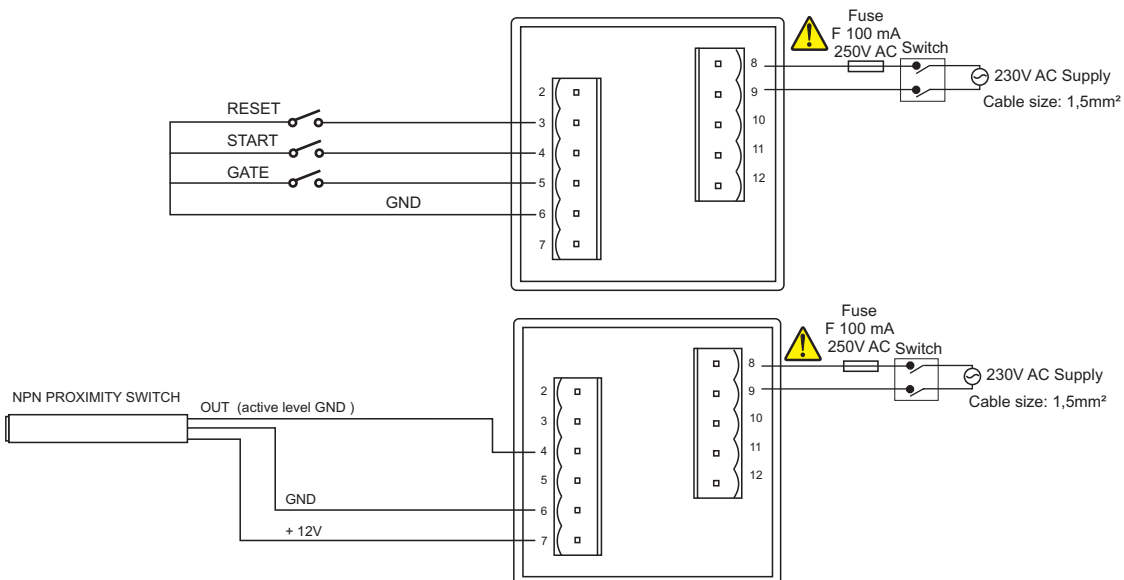
## TYPICAL SENSOR CONNECTIONS

### Typical connections for PNP sensor type



NOTE: FOR PNP SENSOR TYPE ACTIVE LEVEL IS AUXILIARY POWER SUPPLY VOLTAGE.

### Typical connections for NPN sensor type



NOTE: FOR NPN SENSOR TYPE ACTIVE LEVEL IS GROUND (GND).