⚠ 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 EC762 UP/DOWN COUNTER

Thank you for choosing ENDA EC762 COUNTER.

* 72x72mm sized.
* 2x6 digits display.
* Easy to use by front panel keypad.
* Counting up and down with a 2 channel inputs having 90° phase shift.
* Input frequency can be selectable.
* Prescaler factor can be adjusted between 0.001 and 9.99999.
* Decimal point can be adjusted between 1. and 5. digits.
* Sensor type can be selected as PNP, NPN or Encoder.
* Single set-points control is made by a relay outputs.
* Output can be energized continuously or just for a time interval of 0.1 to 999.9 seconds.
* Selectable functional reset input.
* Input offset feature.
* Parameter access protection on 3 levels.
* Easy connection by removable screw terminal.
* CE marked according to European Norms.

Order Code : EC762-☐☐☐☐☐

　　　　　　　　　　 1
Supply Voltage
230VAC...230V AC
24VAC.....24V AC
SM...........9-30V DC / 7-24V AC

CE　　R⊘HS Compliant

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 :　IP65 　　　　　　　　　　　　　　　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% or 24V AC ±10%, 50/60Hz or optional 9-30V DC / 7-24V AC ±10% SMPS module.
Power consumption	Max. 7VA
Wiring	2.5mm² 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	
Count inputs (CP1, CP2)	2 channels (Max. 10kHz, 5V to 30V pulse)
Frequency (Hz)	25, 500, 1000, 2000, 5000, 7500, 10kHz (selectable by programming)
Minimum On ans Off times for pulses	20ms for f=25Hz 1ms for f=500Hz 500 s for f=1kHz 250 s for f=2kHz 100 s for f=5kHz 67 s for f=7,5kHz 50 s for f=10kHz
Reset input	PNP: Positive reset (5V to 30V pulse with adjustable pulse time between 2ms and 50ms) NPN: GND terminal is connected to the RESET IN terminal.

OUTPUTS	
Control output (OUT)	Relay : 250V AC, 2A (for resistive load), NO+NC Open collektor output (S.S. OUT): Max. 30V DC, 100mA.
Auxiliary power supply	12V DC, Max. 50mA (without regulation)
Life expectancy for relays	Mechanical 30.000.000 operation; Electrical 300.000 operation.
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	W72xH72xD97mm
Weight	Approx. 405g (after packing)
Enclosure material	Self extinguishing plastics

⚠ While cleaning the device, solvents (thinner, benzine, acid etc.) or corrosive materials must not be used.

TERMS

EC762

(1) Counting value during in the run mode.
Parameter name or value in the programming mode.

(2) Preset value in the run mode.
Parameter name, vale or unit in the programming mode.

(3) Output LED.

(4) Increment or parameter selection key in the programming mode.

(5) Reset key in the run mode.
Decrement key in the programming mode.

(6) Used for selecting preset value in the run mode.
Used for selecting $oPt\,ion.$ s or parameter to be changed in the programming mode.

(7) Used for selecting run or programming modes or for adjusting parameters.

(1) Digital display	6 digits, seven segment red LED
(2) Digital display	6 digits, seven segment yellow LED
Character height	Digital display (1) : 9.1mm
	Digital display (2) : 7.1mm
(3) Output LED	Red LED
(4),(5),(6),(7) Keypad	Micro switch

DIMENSIONS

78mm
72mm

Depth
97mm
2
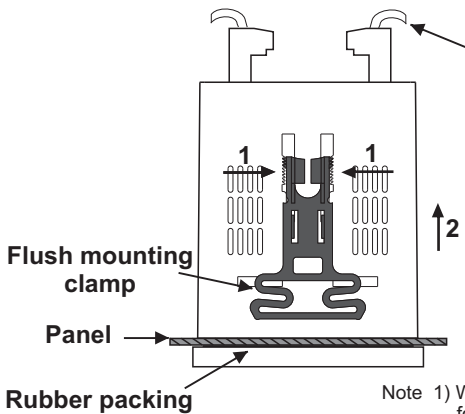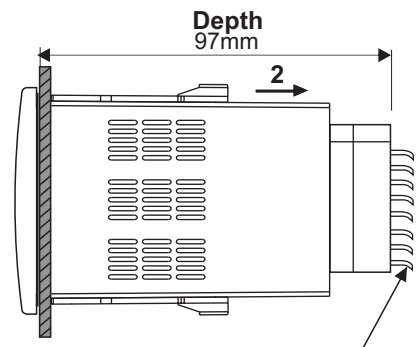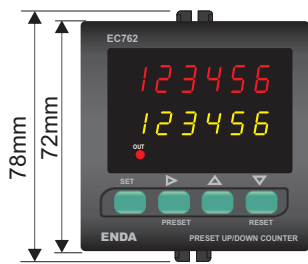
Connection cables

For removing mounting clamps:
- Push the flush-mounting clamp in direction **1** as shown in the figure left.
- Then, pull out the clamp in direction **2**.

Flush mounting clamp

Panel

Rubber packing
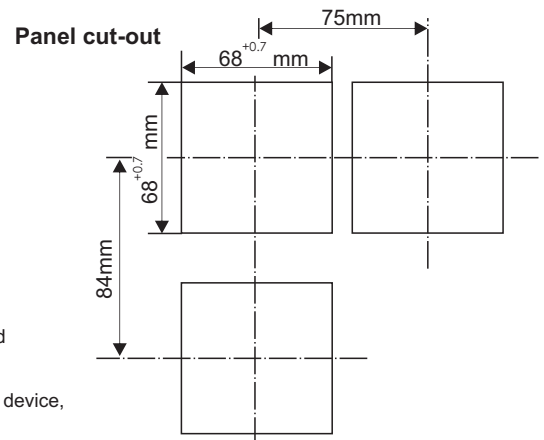
Note 1) While panel mounting, additional distance required for connection cables should be considered.
2) Panel thickness should be maximum 10mm.
3) If there is no 90mm free space at back side of the device, it would be difficult to remove it from the panel.

Panel cut-out

75mm
68 $^{+0.7}$ mm
68 $^{+0.7}$ mm
84mm

CONNECTION DIAGRAM

ENDA EC762 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 :

184-253V AC 50/60Hz 7VA

Line
Neutral

Fuse F 100 mA 250V AC

Fuse should be connected.

Switch

230V AC Supply
Cable size: 1,5mm²
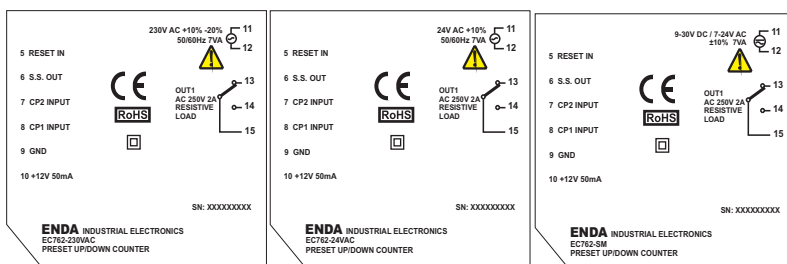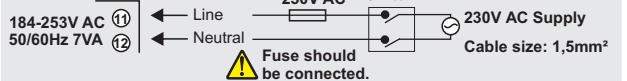
Note : 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.
2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

Holding screw 0.4-0.5Nm

Equipment is protected throughout by DOUBLE INSULATION.

Run mode

Counting value is on the upper display.
PrSEt value is on the lower display.

`99999 / 100000`

`PrSEt / 100000`

Preset value.
See NOTE 1 for modification.

if [SET] key is pressed while holding [PRESET] key, the programming mode is entered. (PRG)
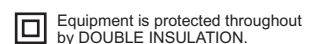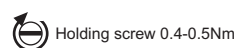
PARAMETER TABLE

inPut tYPE	CP1.UP CP2.dn	CP1.UP CP2.UP	CP1.UP CP2.Gt.	CP1.UP CP2.dir.	UP Ph.4	UP-dn Ph.1	UP-dn Ph.2			
inPut oPtion Countr. dir.	dirEct.	oPPoS.								
inPut Frq.	25 HErt.	500 HErt.	1000 HErt.	2000 HErt.	5000 HErt.	7500 HErt.	10000 HErt.			
SEnSor tYPE	nPn	PnP	Encod.							
rESEt PulS	0.002 SEcond	0.005 SEcond	0.010 SEcond	0.020 SEcond	0.050 SEcond					
OutPut oPtion outPut tYPE	ConFiG.1	ConFiG.2	ConFiG.4	ConFiG.5	ConFiG.6	ConFiG.7	ConFiG.8	ConFiG.9	ConFiG.10	
out ti.	000.0	....	999.9							

diSP. oPtion dEci. Point	0	0.0	....	0.00000
diSP. CAL.	0.00001	....	9.99999	
oFFSEt dAtA	0	....	500000	
SECUr. oPtion SECUr. codE	1111			
inP.oPt. SECUr.	nonE	ProG. no	ProG. YES	
Out.oPt. SECUr.	nonE	ProG. no	ProG. YES	
diSoPt. SECUr.	nonE	ProG. no	ProG. YES	
Count. rESEt	no	PAnEL rESEt	rESEt inPut	rESEt both
dEFAUL SEt	no	YES		

`inPut oPtion.` → `OutPut oPtion.` → `diSP. oPtion.` → `SECUr. oPtion.`

inPut tYPE
There are seven different input types. A schematic diagram of counting modes according to the input types is at the next page.
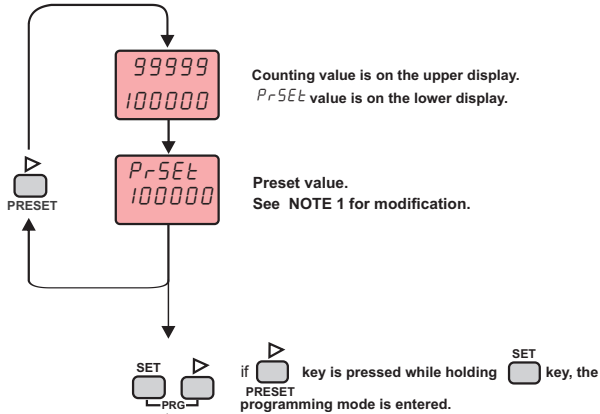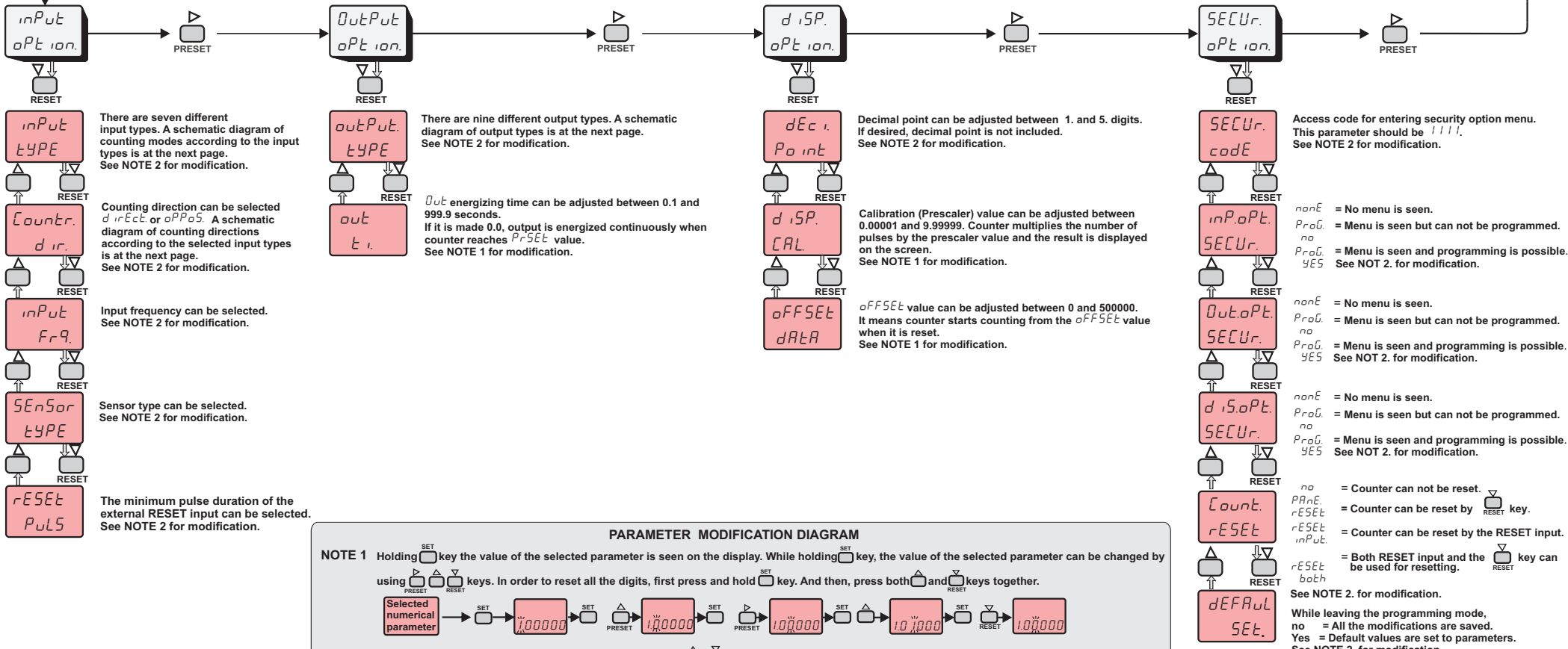See NOTE 2 for modification.

Countr. dir.
Counting direction can be selected *dirEct.* or *oPPoS.* A schematic diagram of counting directions according to the selected input types is at the next page.
See NOTE 2 for modification.

inPut Frq.
Input frequency can be selected.
See NOTE 2 for modification.

SEnSor tYPE
Sensor type can be selected.
See NOTE 2 for modification.

rESEt PulS
The minimum pulse duration of the external RESET input can be selected.
See NOTE 2 for modification.

outPut. tYPE
There are nine different output types. A schematic diagram of output types is at the next page.
See NOTE 2 for modification.

out ti.
Out energizing time can be adjusted between 0.1 and 999.9 seconds.
If it is made 0.0, output is energized continuously when counter reaches *PrSEt* value.
See NOTE 1 for modification.

dEci. Point
Decimal point can be adjusted between 1. and 5. digits. If desired, decimal point is not included.
See NOTE 2 for modification.

diSP. CAL.
Calibration (Prescaler) value can be adjusted between 0.00001 and 9.99999. Counter multiplies the number of pulses by the prescaler value and the result is displayed on the screen.
See NOTE 1 for modification.

oFFSEt dAtA
oFFSEt value can be adjusted between 0 and 500000. It means counter starts counting from the *oFFSEt* value when it is reset.
See NOTE 1 for modification.

SECUr. codE
Access code for entering security option menu. This parameter should be *1111*.
See NOTE 2 for modification.

inP.oPt. SECUr.
nonE = No menu is seen.
ProG. no = Menu is seen but can not be programmed.
ProG. YES = Menu is seen and programming is possible. See NOT 2. for modification.

Out.oPt. SECUr.
nonE = No menu is seen.
ProG. no = Menu is seen but can not be programmed.
ProG. YES = Menu is seen and programming is possible. See NOT 2. for modification.

diSoPt. SECUr.
nonE = No menu is seen.
ProG. no = Menu is seen but can not be programmed.
ProG. YES = Menu is seen and programming is possible. See NOT 2. for modification.

Count. rESEt
no = Counter can not be reset.
PAnE. rESEt = Counter can be reset by [RESET] key.
rESEt inPut. = Counter can be reset by the RESET input.
rESEt both = Both RESET input and the [RESET] key can be used for resetting.
See NOTE 2. for modification.

dEFAuL SEt.
While leaving the programming mode,
no = All the modifications are saved.
Yes = Default values are set to parameters.
See NOTE 2. for modification.

PARAMETER MODIFICATION DIAGRAM

NOTE 1 Holding [SET] key the value of the selected parameter is seen on the display. While holding [SET] key, the value of the selected parameter can be changed by using [PRESET] [RESET] keys. In order to reset all the digits, first press and hold [SET] key. And then, press both [PRESET] and [RESET] keys together.

Selected numerical parameter → `100000` → `10.0000` → `100.000` → `10.1000` → `100.000`

NOTE 2 To modify non-numerical parameters, hold [SET] key and use [PRESET] [RESET] keys.

EC762-E-06-R

INPUT TYPES

Countr. dir. / input tYPE	d irEct.	oPPoS.
CP 1-UP / CP2-dn	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n+1, n+2, n+3, n+4, n+3, n+2, n+3) Note: The maximum value of the input frequency can be one half of the selected value (inPut. Frq.)	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n-1, n-2, n-3, n-4, n-3, n-2, n-3)
CP 1-UP / CP2-UP	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n+1, n+2, n+3, n+5, n+6, n+7) Note: The maximum value of the input frequency can be one half of the selected value (inPut. Frq.)	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n-1, n-2, n-3, n-5, n-6, n-7)
CP 1-UP / CP2-Gt	Count input CP1 H L / Gate input CP2 H L / DISPLAY (n, n+1, n+2, n+3, n+4)	Count input CP1 H L / Gate input CP2 H L / DISPLAY (n, n-1, n-2, n-3, n-4)
CP 1-UP / CP2.dir	Count input CP1 H L / direction input CP2 H L / DISPLAY (n, n+1, n+2, n+3, n+4, n+3, n+2, n+3)	Count input CP1 H L / dirction input CP2 H L / DISPLAY (n, n-1, n-2, n-3, n-4, n-3, n-2)
UP / Ph-4	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n+1, n+2, n+3, n+4, n+5, n+6, n+7, n+8) Note: The maximum value of the input frequency can be 1/3 of the selected value (inPut. Frq.)	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n-1, n-2, n-3, n-4, n-5, n-6, n-7, n-8)
UP-dn / Ph-1	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n+1, n+2, n+3, n+2, n+1)	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n-1, n-2, n-2, n-1)
UP-dn / Ph-2	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n+1, n+2, n+3, n+4, n+4, n+3, n+2) Note: The maximum value of the input frequency can be 2/3 of the selected value (inPut. Frq.)	Count input CP1 H L / Count input CP2 H L / DISPLAY (n, n-1, n-2, n-3, n-4, n-4, n-3, n-2, n-5)

NOTE :

1) ⬆⎍ For PNP sensor, counter is triggered at the rising edge of the pulses.
   ⎍⬇ For NPN sensor counter is triggered at the falling edge of the pulses.

⚠ Input frequency should not exceed the values indicated above. Otherwise, counter value will be wrong.

2) For NPN sensor, if you select inPt.tYPE CP 1.U. CP2.r. , above diagram for Cntr.dir. dirEct replaces with Cntr.dir OPPo. .

OUTPUT TYPES

	UP COUNTER	DOWN COUNTER	UP / DOWN COUNTER
	input tYPE = CP 1-UP, CP 1-UP, UP, CP2-UP, CP2-Gt., Ph-4 / Countr. dir. = d irEct	input tYPE = CP 1-UP, CP 1-UP, UP, CP2-UP, CP2-Gt., Ph-4 / Countr. dir. = oPPoS.	input tYPE = CP 1-UP, CP 1-UP, UP-dn, UP-dn, CP2-dn, CP2 dir., Ph-1, Ph-2
ConF 1	Reset / 999,999 / Preset / 0 / Out		
ConF 2 (HOLD)	Reset / 999,999 / Preset / 0 / Out		
ConF 4 (Autoreset)	Reset / 999,999 / Preset / 0 / Out		
ConF 5 (Delayed Autoreset)	Reset / 999,999 / Preset / 0 / Out		
ConF 6 (Delayed Autoreset and HOLD)	Reset / 999,999 / Preset / 0 / Out		
ConF 7 (Autoreset and Display hold)	Reset / 999,999 / Preset / 0 / Out		

input tYPE = CP 1-UP, CP 1-UP, UP-dn, UP-dn, CP2-dn, CP2 dir., Ph-1, Ph-2

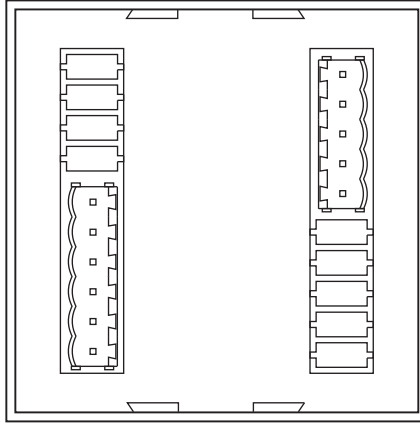|		
ConFIG 8	Reset / 999,999 / Preset / -99,999 / Out	While counter value is equal to preset value, OUT becomes active.
ConFIG 9	Reset / 999,999 / Preset / 0 / -99,999 / Out	While counter value is lower or equal to the preset value, OUT is active.
ConFIG 10	Reset / 999,999 / Preset / 0 / -99,999 / Out	While counter value is greater or equal to the preset value, OUT is active.

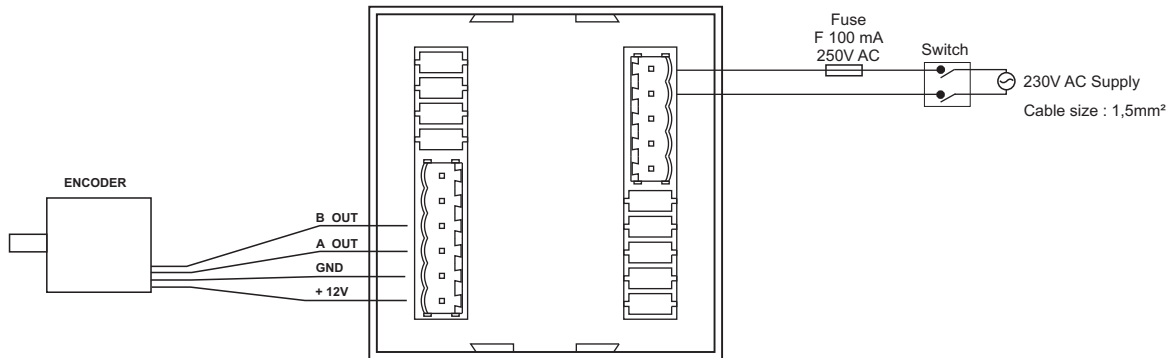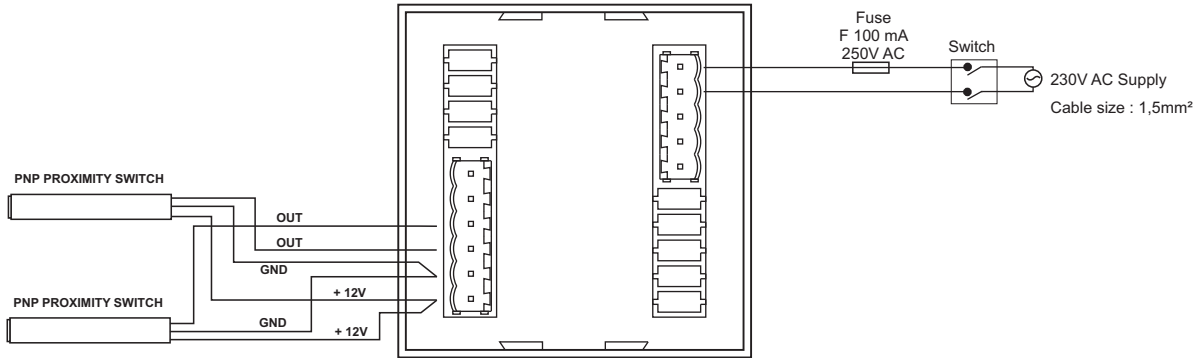■ Adjusting out t. to a value between 0.1 and 999.9 seconds, a pulse output is obtained.
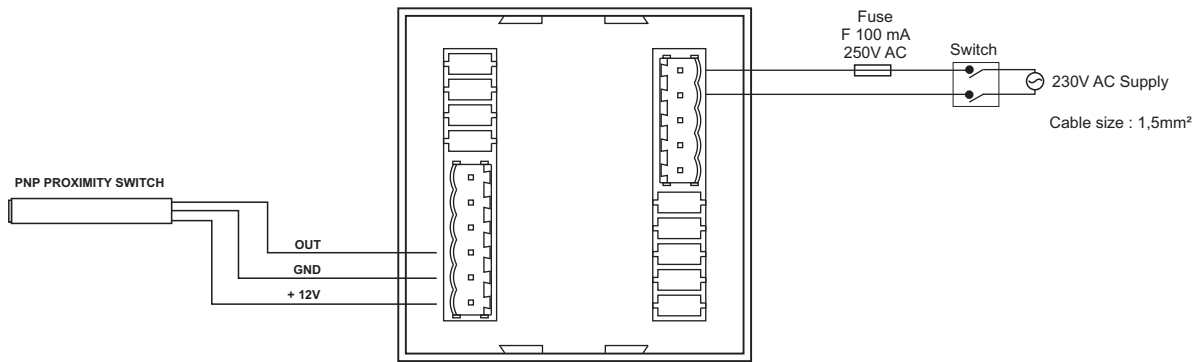
□ Adjusting out t. to 0.0, a continuous output is obtained.

EC762-E-06-R

TERMINAL CONNECTION

TYPICAL SENSOR CONNECTIONS

PNP PROXIMITY SWITCH

OUT
GND
+ 12V

Fuse
F 100 mA
250V AC

Switch

230V AC Supply

Cable size : 1,5mm²

PNP PROXIMITY SWITCH

OUT
OUT
GND
+ 12V

PNP PROXIMITY SWITCH

GND
+ 12V

Fuse
F 100 mA
250V AC

Switch

230V AC Supply

Cable size : 1,5mm²

ENCODER

B OUT
A OUT
GND
+ 12V

Fuse
F 100 mA
250V AC

Switch

230V AC Supply

Cable size : 1,5mm²

NOTE: NPN PROXIMITY SWITCH connection is the same as PNP PROXIMITY SWITCH connection.

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