 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 EC442 UP/DOWN COUNTER

Thank you for choosing ENDA EC442 COUNTER.


- * 48x48mm sized.
- * 2x4 digits display.
- * Easy to use by front panel keypad.
- * Counting up and down with a 2 channel inputs having a 90° phase shift.
- * Input frequency can be selectable.
- * Prescaler factor can be adjusted between 0.001 and 9.999.
- * Decimal point can be adjusted between 1. and 3. digits.
- * Sensor type can be selected as PNP, NPN or Encoder.
- * Single set-point control is made by a single relay output.
- * 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.
- * Having CE mark according to European Norms.



Order Code : EC442----
 1 - Supply Voltage
 230VAC...230V AC
 24VAC.....24V AC
 SM.....9-30V DC / 7-24V AC



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 Rare panel : IP20
Height	Max. 2000m
 Do not use the device in locations subject to corrosive and flammable gases.	

ELECTRICAL CHARACTERISTICS	
Supply	230VAC +10%/-20%, 50/60Hz, 24VAC±10%,50/60Hz or 24Vac/dc (9-30Vdc or 7-24Vac)
Power consumption	Max. 5VA
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 input (CP1, CP2)	2 channels (max. 9999Hz, 5V to 30V pulse)
Frequency (Hz)	25, 500, 1000, 2000, 5000, 7500Hz, 9999Hz (selectable by programming)
Minimum On and 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.

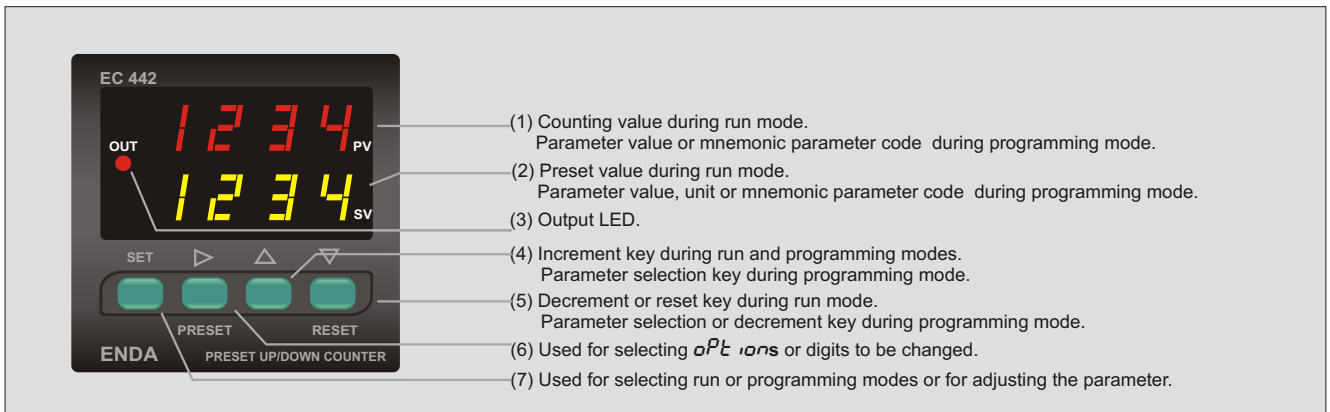
OUTPUTS	
Control output (OUT)	Relay : 250V AC, 2A (for resistive load), NO+NC Open collector output (S.S. OUT): Max. 30V DC, 100mA
Auxiliary power supply	12V DC, max. 50mA (without regulation)
Life expectancy for relay	Mechanical 30.000.000 operation; Electrical 300.000 operation
Note : Relay and S.S.OUT 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.

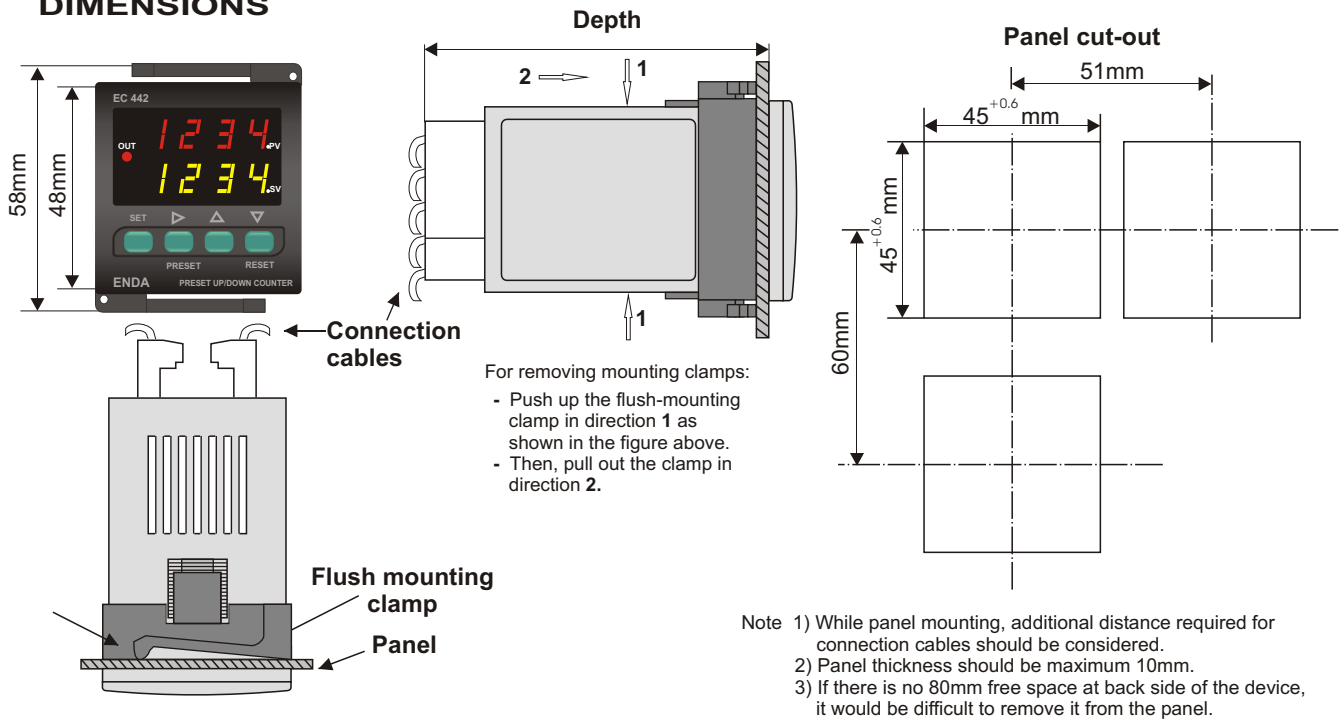
up to date: 03/07/2010, modification reserved and can be change any time previous notice !

TERMS



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

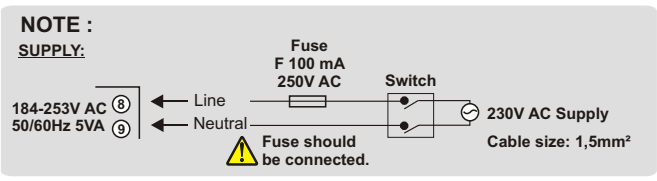
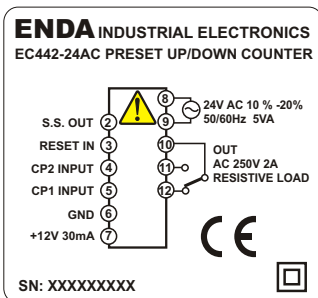
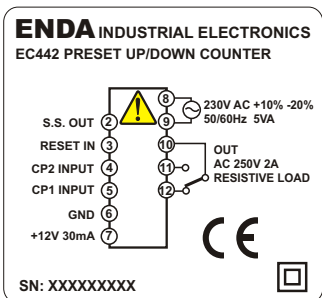
DIMENSIONS



CONNECTION DIAGRAM



ENDA EC442 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.

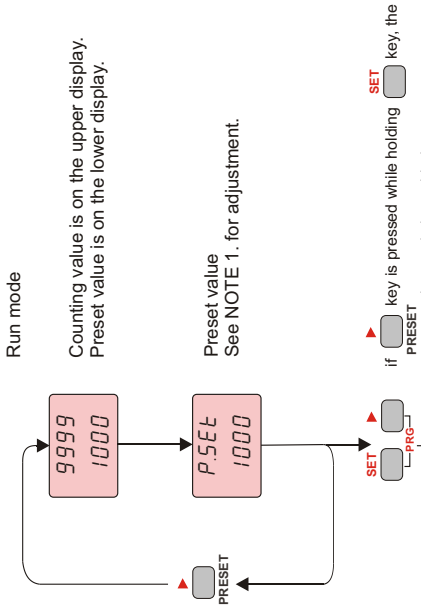


Note : 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.
2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

Holding screw 0.4-0.5Nm Equipment is protected throughout by DOUBLE INSULATION.

PARAMETER TABLE

		CP1U CP2U	CP3U CP4	CP5U CP6	CP7U CP8	CP9U CP10	UP Ph-1	UP Ph-2	UP Ph-3	UP Ph-4	UP Ph-5	UP Ph-6	UP Ph-7	UP Ph-8	UP Ph-9	UP Ph-10	UP Ph-11	UP Ph-12	UP Ph-13	UP Ph-14	UP Ph-15	UP Ph-16	UP Ph-17	UP Ph-18	UP Ph-19	UP Ph-20	
inPL TYPE	inPL TYPE	25 HErE	500 HErE	2000 HErE	5000 HErE	7500 HErE	9999 HErE																				
SEns TYPE	SEns TYPE	nonE	nonE	nonE	nonE	nonE	nonE																				
r5Et PULS	r5Et PULS	0002 SEC	0005 SEC	0010 SEC	0020 SEC	0050 SEC	0100 SEC																				
out t.i.	out t.i.	Conf. 1	Conf. 2	Conf. 3	Conf. 4	Conf. 5	Conf. 6	Conf. 7	Conf. 8	Conf. 9	Conf. 10																
inPL TYPE	inPL TYPE	0000	9999																							
inPL TYPE	inPL TYPE	0000	9999																							
inPL TYPE	inPL TYPE	0000	9999																							



inPL. OPT 1
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.
Counting direction can be selected d.r.E. or o.P.P.a. A schematic diagram of counting directions according to the selected input types is at the next page. See NOTE 2 for modification.
Input frequency can be selected. See NOTE 2 for modification.
A type of sensor can be selected. See NOTE 2 for modification.
The minimum pulse duration of the external RESET input can be selected. See NOTE 2 for modification.

outP. TYPE
There are nine different output types. A schematic diagram of output types is at the next page. See NOTE 2 for modification.
Output energizing time can be adjusted between 0.1 and 999.9 seconds. If it is made 0.0, output is energized continuously when r5Et value is reached. See NOTE 1 for modification.

dISP. OPT 1
dEtC. Pnt. - Decimal point can be adjusted between 1. and 3. digits. If desired, decimal point is not included. See NOTE 2 for modification.
dISP. CAL. - Calibration (Prescaler) value can be adjusted between 0.001 and 9.999. Counter multiplies the number of pulses by the prescaler value and the result is displayed on the screen. See NOTE 1 for modification.
oFFS. dAtA - Offset value can be adjusted between 0 and 5000. It means counter starts counting from the offset value when it is reset. See NOTE 1 for modification.

SECU. OPT 1
Access code for entering security option menu. This parameter should be 1111. See NOTE 2 for modification.
SECU. CODE - nonE = No menu is seen. Pr.oF. = Menu is seen but can not be programmed. no = Menu is seen and programming is possible. Yr5 = See NOT 2. for modification.
inP.o - nonE = No menu is seen. Pr.oF. = Menu is seen but can not be programmed. no = Menu is seen and programming is possible. Yr5 = See NOT 2. for modification.
out.o. SECU. - nonE = No menu is seen. Pr.oF. = Menu is seen but can not be programmed. no = Menu is seen and programming is possible. Yr5 = See NOT 2. for modification.
d.r.E. SECU. - nonE = No menu is seen. Pr.oF. = Menu is seen but can not be programmed. no = Menu is seen and programming is possible. Yr5 = See NOT 2. for modification.
Cntr. r5Et inP.t. - no = Counter can not be reset. Pr.oF. = Counter can be reset by key. r5Et inP.t. = Counter can be reset by the RESET input. See NOTE 2. for modification.
dEtC. SECU. - While leaving the programming mode, no = All the modifications are saved. Yr5 = 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 key, the value of the selected parameter can be changed by using keys. In order to reset all the digits, first press and hold key. And then, press both and keys together.

NOTE 2 To modify non-numerical parameters, hold key and use keys.

OUTPUT TYPES

	UP COUNTER $nPrE = CP1U, CP1U, UP$ $type = CP2U, CP2U, Ph-4$ $CPn = dirE$	DOWN COUNTER $nPrE = CP1U, CP1U, UP$ $type = CP2U, CP2U, Ph-4$ $CPn = oppo$	UP/DOWN COUNTER $nPrE = CP1U, CP1U, UP$ $type = CP2U, CP2U, Ph-4$ $CPn = Ph-2$
$Conf_1$			
$Conf_2$ (HOLD)			
$Conf_4$ (Autoreset)			
$Conf_5$ (Delayed Autoreset)			
$Conf_6$ (Delayed Autoreset and HOLD)			
$Conf_7$ (Autoreset and Display hold)			
$Conf_8$	$nPrE = CP1U, CP1U, UP$ $type = CP2U, CP2U, Ph-1, Ph-2$		
$Conf_9$			
$Conf_{10}$			

While counter value is equal to preset value, OUT becomes active.

While counter value is lower or equal to the preset value, OUT is active.

While counter value is greater or equal to the preset value, OUT is active.

INPUT TYPES

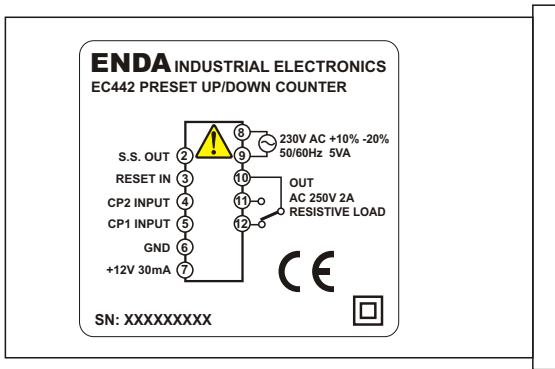
$nPrE$ $nPrE$ $type$	$dirE$	$oppo$
$CP1U, CP2U$		
$CP1U, CP2U$		
$CP1U, CP2U$		
$CP1U, CP2U$		
$UP, Ph-4$		
$UPn, Ph-1$		
$UPn, Ph-2$		

NOTE :

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.

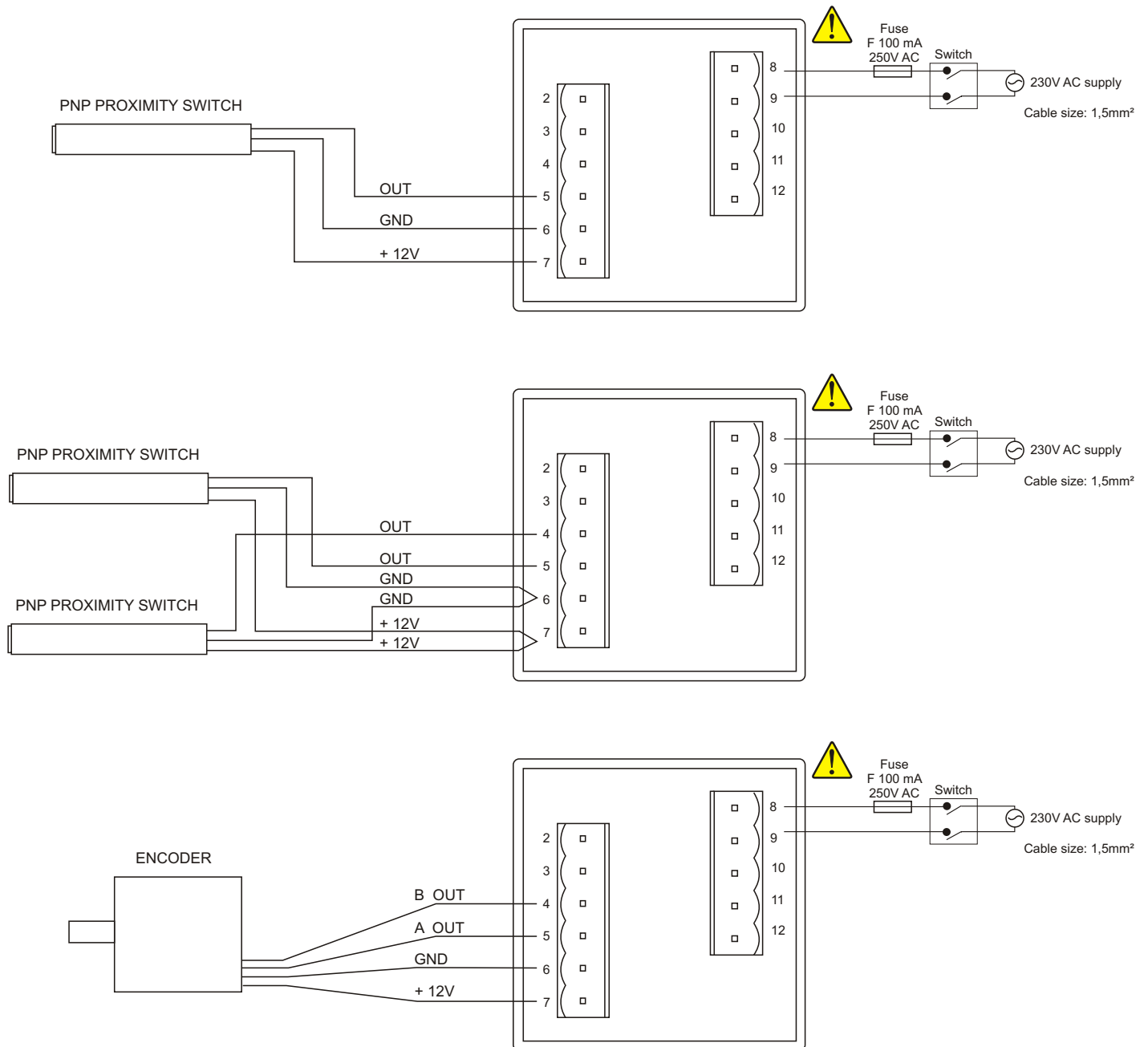
TERMINAL CONNECTIONS



Terminal descriptions

- 2 : Solid state out (Max 30V 100mA, open collector NPN).
- 3 : Reset input.
- 4 : Input for clock pulse 2 (Max 30V 7.5kHz).
- 5 : Input for clock pulse 1 (Max 30V 7.5kHz).
- 6 : GND.
- 7 : +12V 30mA auxiliary power supply output for sensors.
- 8,9 : SUPPLY inputs.
- 10,11,12 : Relay contacts (Max 2A 250V AC).

TYPICAL SENSOR CONNECTIONS



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