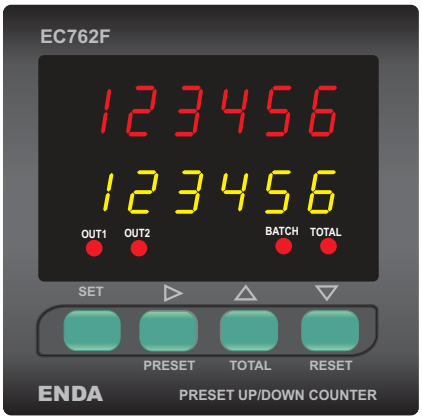
Read this document carefully before using this device. The guarantee will be expired by damaging of the device if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

ENDA EC762F UP/DOWN COUNTER

Thank you for choosing ENDA EC762F 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 99.9999.
* 6 digits Batch Counter.
* 8 digits Total Counter.
* Preset1 may depend on Preset2.
* Decimal point can be adjusted between 1. and 5. digits.
* Sensor type can be selected as PNP, NPN or Encoder.
* Double set-points control is made by 2 relays outputs.
* Output can be energized continuously or just for a time interval of 0.01 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 : EC762F-□□□□□□
1

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

CE RoHS 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. 7500Hz, 5V to 30V pulse)
Frequency (Hz)	25, 500, 1000, 2000, 5000, 7500Hz (selectable by programming)
Minimum On ans Off times for pulses	20ms for f=25Hz
	1ms for f=500Hz
	500µs for f=1kHz
	250µs for f=2kHz
	100µs for f=5kHz
	67µs for f=7,5kHz
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.

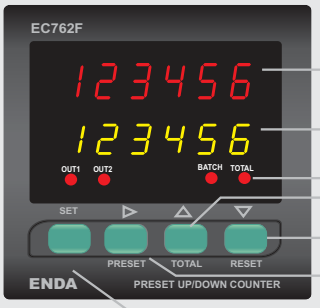
OUTPUTS	
Control output (OUT1)	Relay : 250V AC, 2A (for resistive load), NO+NC
	Open collector output (S.S. OUT1): Max. 30V DC, 100mA.
Control output (OUT2)	Relay : 250V AC, 2A (for resistive load), NO+NC
	Open collector output (S.S. OUT2): Max. 30V DC, 100mA.
Auxiliary power supply	12V DC, Max. 50mA (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 OUT1 relay is energized S.S. OUT1 transistor goes into saturation. Similarly, when OUT2 relay is energized S.S. OUT2 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



(1) The value of the parameter selected by disp / conf iG parameter during run mode.
Parameter name during programming mode.

(2) The value of the parameter selected by disp / conf iG parameter during run mode.
Parameter value during programming mode.

(3) State indicators shows the state of the counter.

(4) To see the total result press this key in the run mode.
Increment or parameter selection key during programming mode.

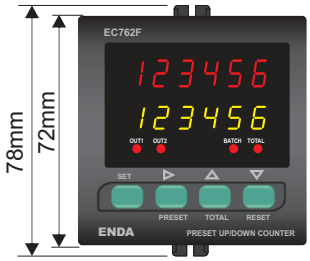
(5) Reset key in the run mode.
Decrement or parameter selection key during programming mode

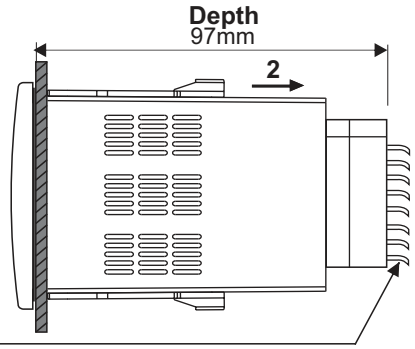
(6) Used for selecting preset value in the run mode.
Used for selecting oPt ion. s or parameter to be changed in the programming mode.

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

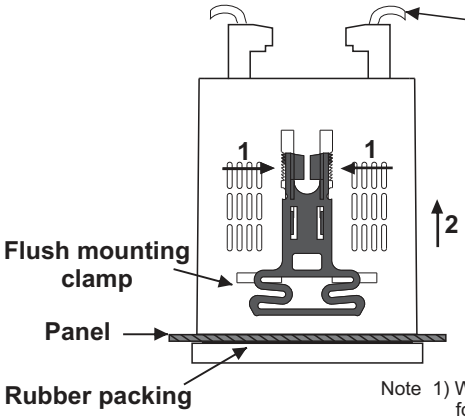
(1) Digital display	6 digits, seven segment red LED
(2) Digital display	6 digits, seven segment yellow LED
Character height	Digital display (1) : 9.1mm
	Digital display (2) : 7.1mm
(3) State indicators	4 red LEDs
(4),(5),(6),(7) Keypad	Micro switch

DIMENSIONS



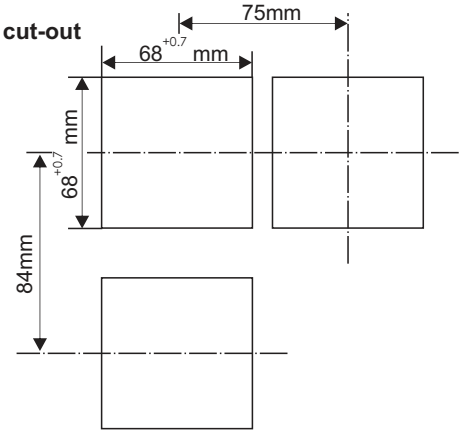


Connection cables



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.**

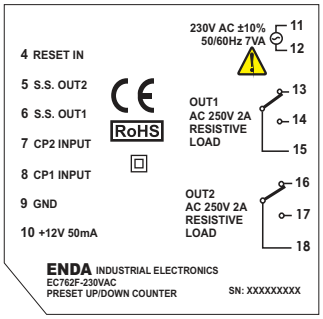
Panel cut-out

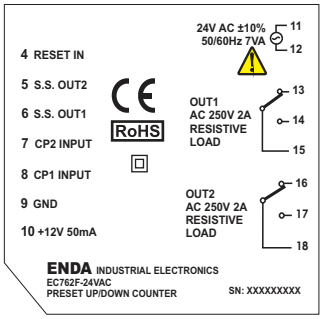


Note 1) While panel mounting, additional distance required for connection cables should be considered.
2) Panel thickness should be maximum 10mm.
3) If there is no 90mm free space at back side of the device, it would be difficult to remove it from the panel.

CONNECTION DIAGRAM

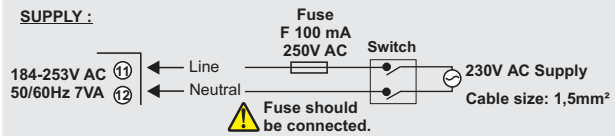
ENDA EC762F is intended for installation in control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of energy. The device must be protected 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 :

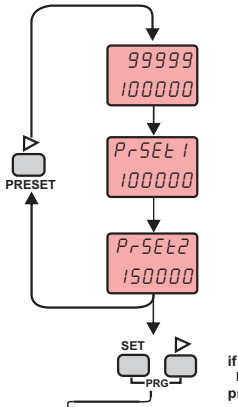


Note : 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.
2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

Holding screw 0.4-0.5Nm

Equipment is protected throughout by DOUBLE INSULATION.

Run mode



The value of the parameter selected by `diSP conFiG` parameter is on the display.

First preset value.
See NOTE 1 for modification.

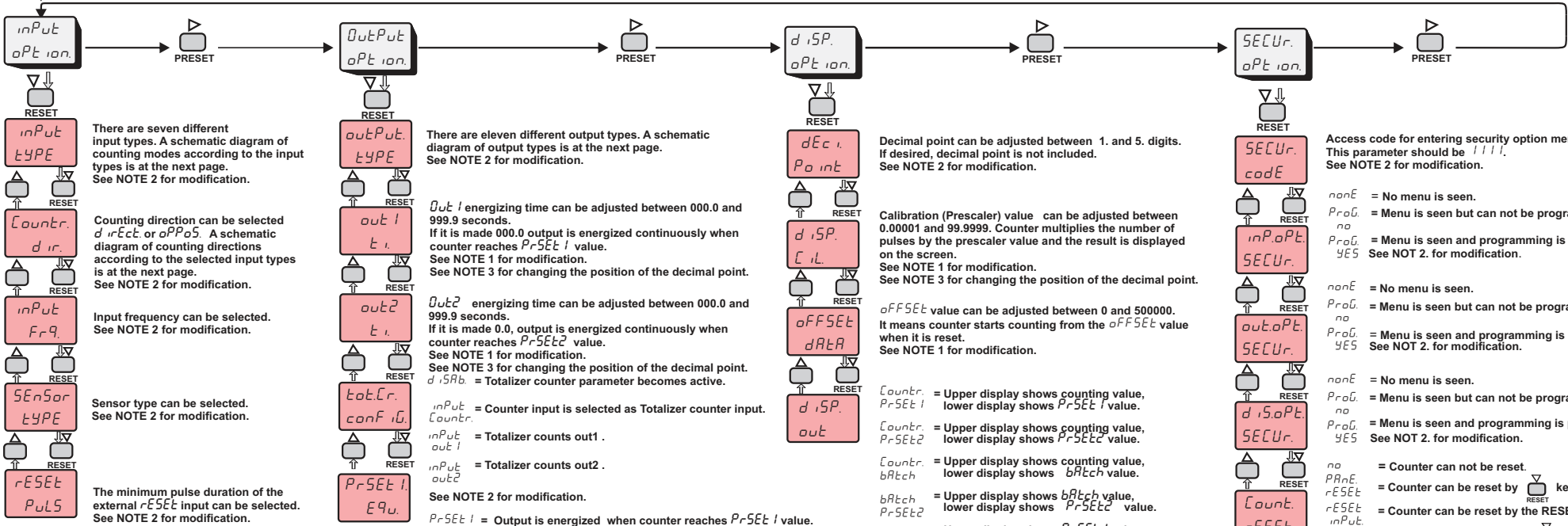
Second preset value.
See NOTE 1 for modification.

if PRESET key is pressed while holding SET key, the programming mode is entered.

PARAMETER TABLE

inPut oPtion.	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					
	Countr. dir.	dirECt.	oPPoS.										
	inPut Frq.	25 HErt.	500 HErt.	1000 HErt.	2000 HErt.	5000 HErt.	7500 HErt.						
	SEnSor tYPE	nPn	PnP	Encod.									
	rESEt PuLS	0.002 SEcond	0.005 SEcond	0.0 10 SEcond	0.020 SEcond	0.050 SEcond							
OutPut oPtion.	outPut tYPE	conFiG. 1	conFiG. 2	conFiG. 3	conFiG. 4	conFiG. 5	conFiG. 6	conFiG. 7	conFiG. 8	conFiG. 9	conFiG. 10	conFiG. bAtch	
	out 1 ti.	000.0	____	999.9									
	out2 ti.	000.0	____	999.9									
	totCr. conFiG.	diSAb.	inPut Countr.	inPut out 1	inPut out2								
	PrSEt 1. Edu.	PrSEt 1.	Pr2.Sub. Pr 1.										

diSP. oPtion.	dECi. Point	0	0.0	____	0.00000		
	diSP. CAL.	0.0000 1	_____	99.9999			
	oFFSEt dAtA	0	_____	500000			
	diSP. conFiG	Countr. PrSEt 1	Countr. PrSEt2	Countr. bAtch	bAtch PrSEt2	PrSEt 1 bAtch	totALh totALL
SECUr. oPtion.	SECUr. codE	1111					
	inP.oPt. SECUr.	nonE	ProG. no	ProG. YES			
	outoPt. SECUr.	nonE	ProG. no	ProG. YES			
	diSoPt. SECUr.	nonE	ProG. no	ProG. YES			
	Count. rESEt	no	PAnEL rESEt	rESEt inPut	rESEt both		
	totAL rESEt	no	PAnEL rESEt				
	bAtch rESEt	no	PAnEL rESEt				
	dEFAuL SEt.	no	YES				



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 `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 frequency can be selected.
See NOTE 2 for modification.

Sensor type 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.

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

`Out 1` energizing time can be adjusted between 000.0 and 999.9 seconds.
If it is made 000.0 output is energized continuously when counter reaches `PrSEt 1` value.
See NOTE 1 for modification.
See NOTE 3 for changing the position of the decimal point.

`Out2` energizing time can be adjusted between 000.0 and 999.9 seconds.
If it is made 0.0, output is energized continuously when counter reaches `PrSEt2` value.
See NOTE 1 for modification.
See NOTE 3 for changing the position of the decimal point.

`diSAb.` = Totalizer counter parameter becomes active.

`inPut Countr.` = Counter input is selected as Totalizer counter input.

`inPut out 1` = Totalizer counts out1 .

`inPut out2` = Totalizer counts out2 .

See NOTE 2 for modification.

`PrSEt 1` = Output is energized when counter reaches `PrSEt 1` value.

`Pr2.Sub. Pr 1.` = The difference between `PrSEt2` and `PrSEt 1` becomes the new value of `PrSEt 1`. It means `PrSEt 1` (new) = `PrSEt2` - `PrSEt 1`(old)
Now, output is energized when counter reaches PrSEt1(new) value.

See NOTE 2 for modification.

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

Calibration (Prescaler) value can be adjusted between 0.00001 and 99.9999. Counter multiplies the number of pulses by the prescaler value and the result is displayed on the screen.
See NOTE 1 for modification.
See NOTE 3 for changing the position of the decimal point.

`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.

`Countr. PrSEt 1` = Upper display shows counting value, lower display shows `PrSEt 1` value.

`Countr. PrSEt2` = Upper display shows counting value, lower display shows `PrSEt2` value.

`Countr. bAtch` = Upper display shows counting value, lower display shows `bAtch` value.

`bAtch PrSEt2` = Upper display shows `bAtch` value, lower display shows `PrSEt2` value.

`PrSEt 1 bAtch` = Upper display shows `PrSEt 1` value, lower display shows `bAtch` value.

`totALh totALL` = Upper display shows maximum `totAL` counter value, lower display minimum `totAL` counter value.

See NOT 2 for modification.

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.

`outoPt. 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.

`totAL rESEt`
`no` = `totAL` counter can not be reset.
`PAnEL rESEt` = `totAL` counter can be reset by RESET key.
See NOTE 2. for modification.

`bAtch rESEt`
`no` = `bAtch` counter can not be reset.
`PAnEL rESEt` = `bAtch` counter can be reset by RESET key.
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.

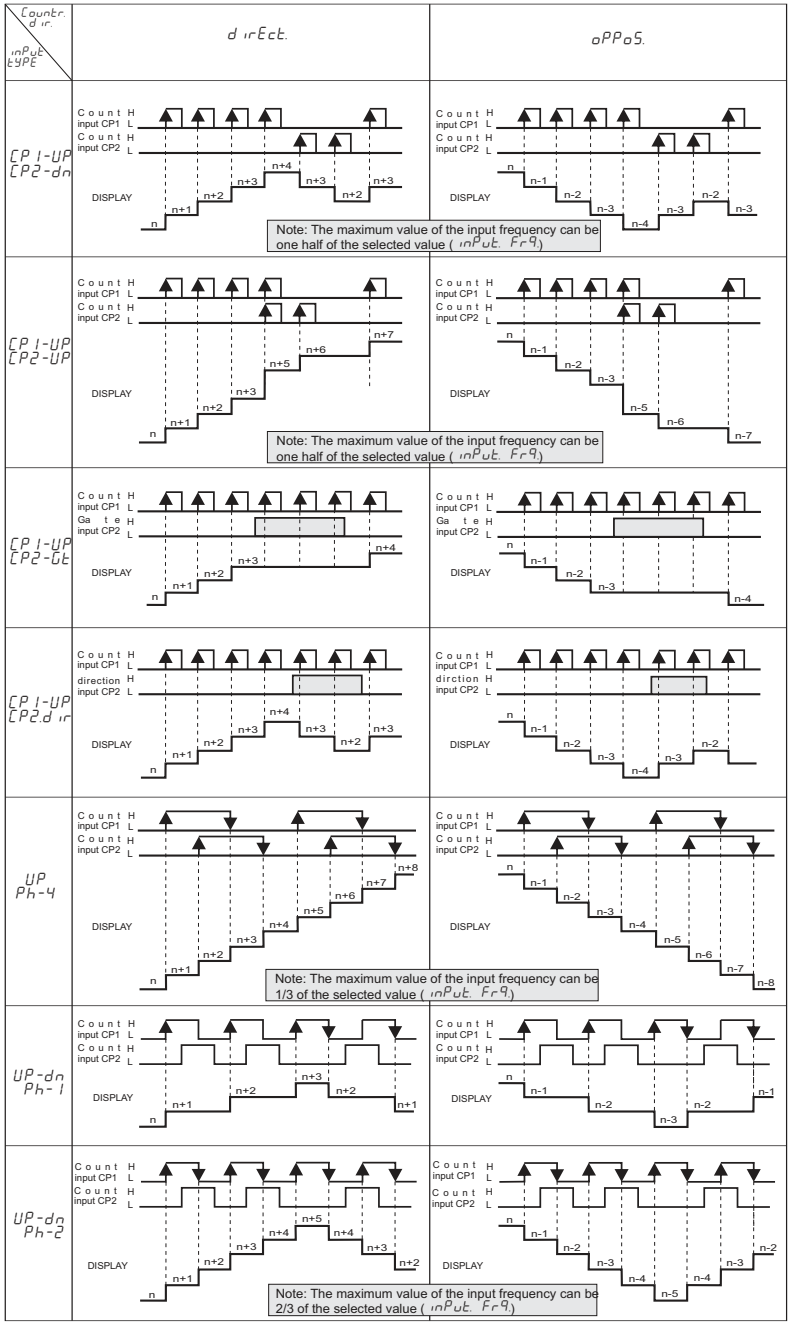
PARAMETER MODIFICATION DIAGRAM

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 and RESET keys together.

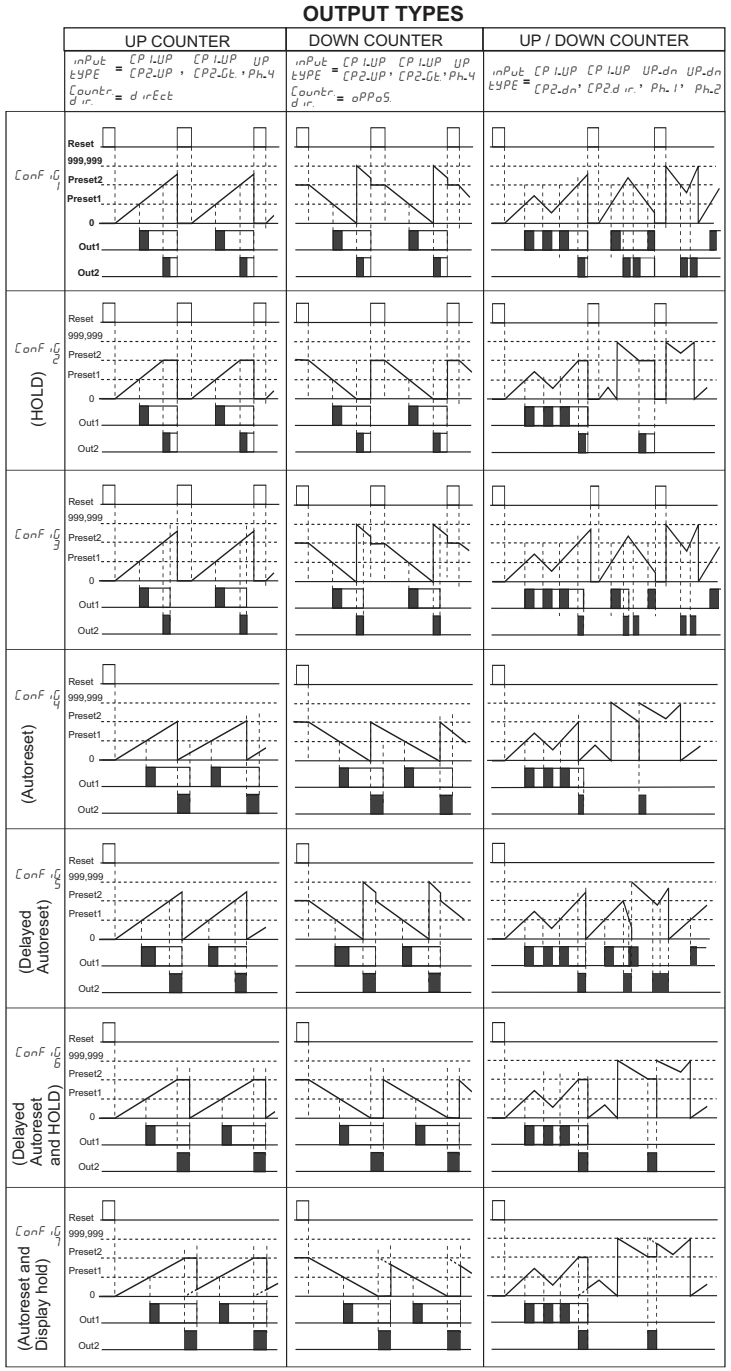
NOTE 2 To modify non-numerical parameters, hold SET key and use RESET keys.

NOTE 3 To change the position of the decimal point press and hold both SET and PRESET keys for 0.6 sec.

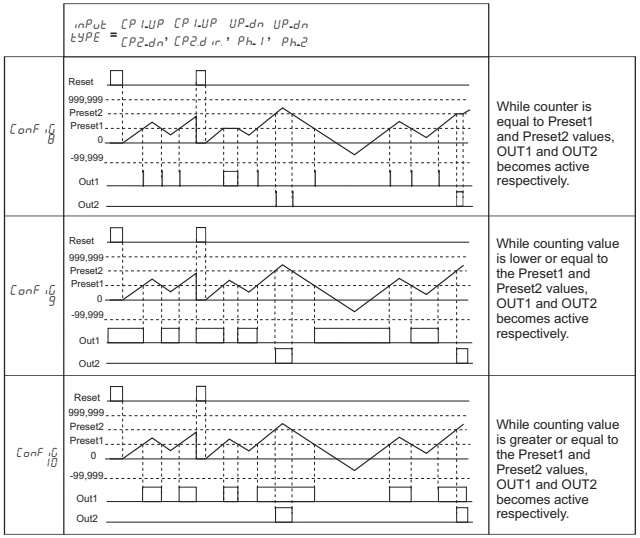
INPUT TYPES

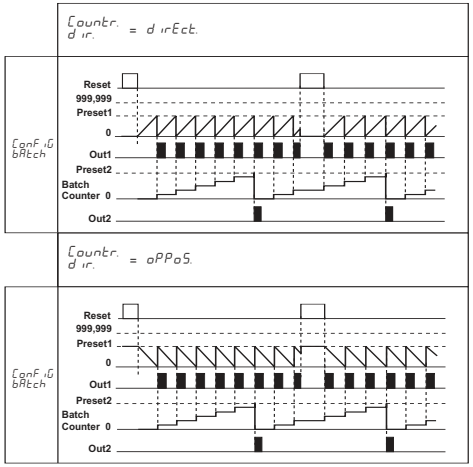


OUTPUT TYPES



OUTPUT TYPES





While Batch counter mode is selected, decimal point is not seen. Because, Prset2 and batch counting values are integer.

■ **Adjusting** out1 t. **or** out2 t. **to a value between 0.01 and 999.9 seconds, a pulse output is obtained.**

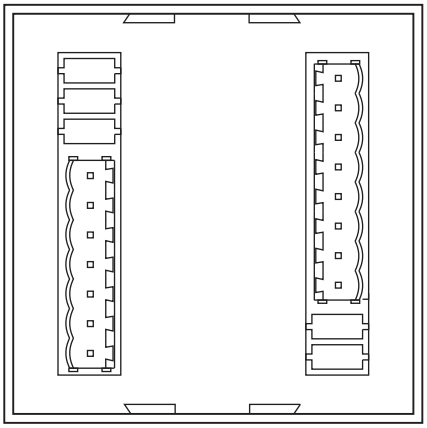
▭ **Adjusting** out1 t. **or** out2 t. **to 0.0, a continuous output is obtained.**

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.**

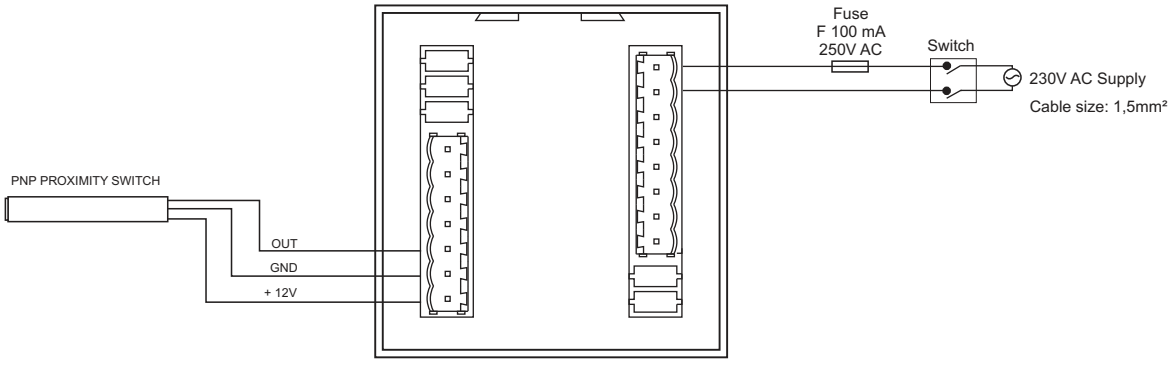
2) **For NPN sensor, if you select** inPt.tYPE CP1.U. CP2r. **, above diagram for** Cntr.dir. dirE **replaces with** Cntr.dir oPPo.

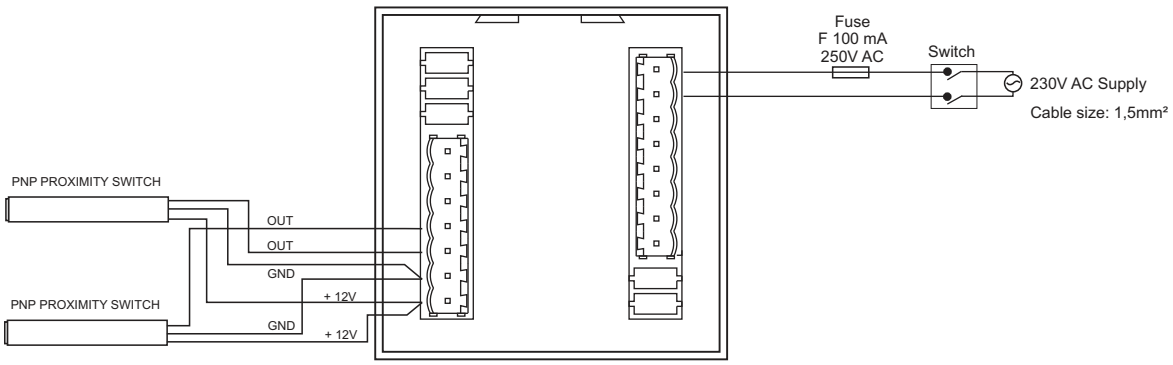
Input frequency should not exceed the values indicated above. Otherwise, counter value will be wrong.

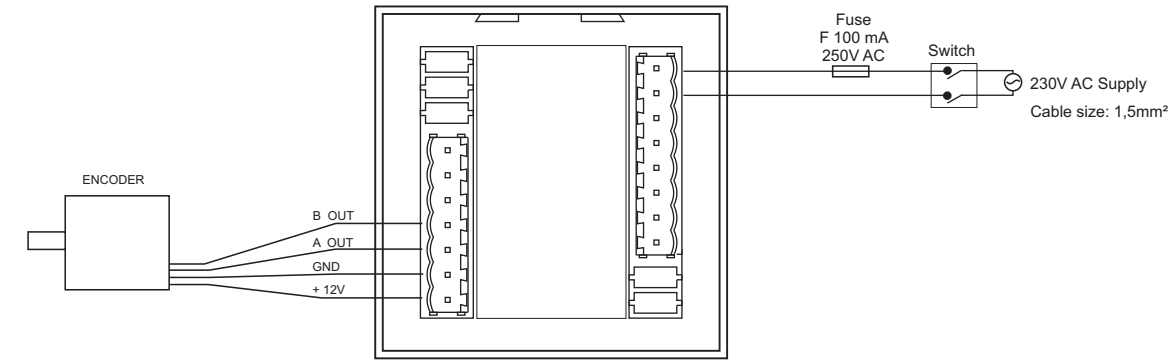
TERMINAL CONNECTIONS



TYPICAL SENSOR CONNECTIONS







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

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