> ⚠️ 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.
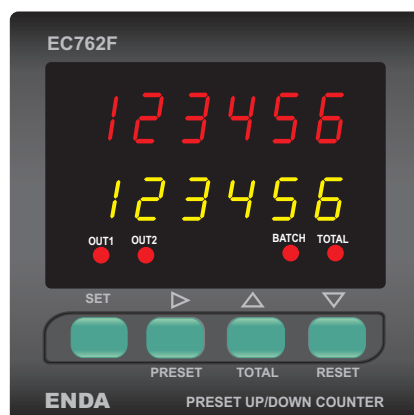
Order Code : EC762F-☐☐☐☐☐
1
Supply Voltage
230VAC...230V AC
24VAC.....24V AC
SM...........9-30V DC / 7-24V AC

CE   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. 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
	500 s for f=1kHz
	250 s for f=2kHz
	100 s for f=5kHz
	67 s 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

EC762F

123456
123456

OUT1 OUT2 BATCH TOTAL

SET ▷ △ ▽

PRESET TOTAL RESET

ENDA
PRESET UP/DOWN COUNTER

(1) The value of the parameter selected by $d \, iSP.$ / $conF \, iG$ parameter during run mode.
    Parameter name during programming mode.

(2) The value of the parameter selected by $d \, iSP.$ / $conF \, iG$ 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

Depth
97mm

2

78mm
72mm

Connection cables

Panel cut-out

75mm
68 +0.7 mm
68 +0.7 mm
84mm
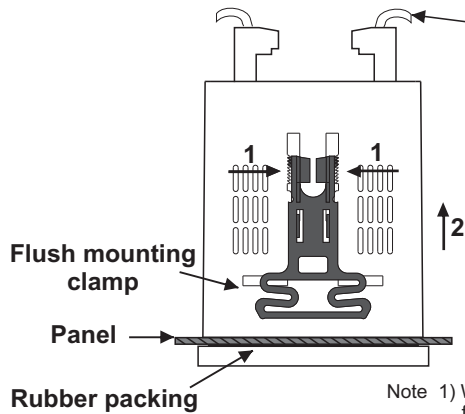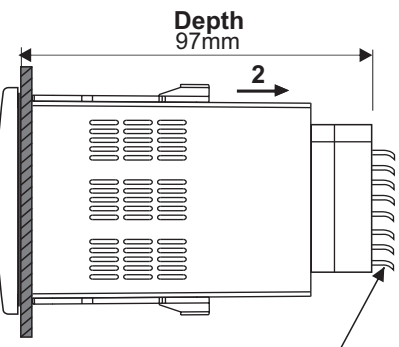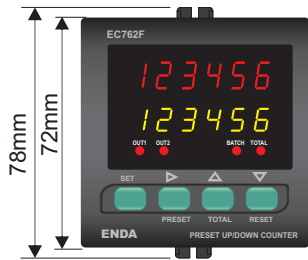
Flush mounting clamp

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

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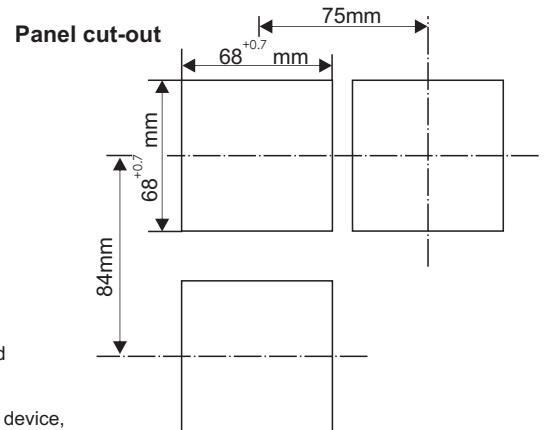
Note 1) While panel mounting, additional distance required for connection cables should be considered.
2) Panel thickness should be maximum 10mm.
3) If there is no 90mm free space at back side of the device, it would be difficult to remove it from the panel.

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.

4 RESET IN
5 S.S. OUT2
6 S.S. OUT1
7 CP2 INPUT
8 CP1 INPUT
9 GND
10 +12V 50mA

230V AC ±10%
50/60Hz 7VA

11
12
13
14
15
16
17
18

OUT1 AC 250V 2A RESISTIVE LOAD

OUT2 AC 250V 2A RESISTIVE LOAD

CE RoHS □

ENDA INDUSTRIAL ELECTRONICS
EC762F-230VAC
PRESET UP/DOWN COUNTER   SN: XXXXXXXXX

4 RESET IN
5 S.S. OUT2
6 S.S. OUT1
7 CP2 INPUT
8 CP1 INPUT
9 GND
10 +12V 50mA

24V AC ±10%
50/60Hz 7VA

11
12
13
14
15
16
17
18

OUT1 AC 250V 2A RESISTIVE LOAD

OUT2 AC 250V 2A RESISTIVE LOAD

CE RoHS □

ENDA INDUSTRIAL ELECTRONICS
EC762F-24VAC
PRESET UP/DOWN COUNTER   SN: XXXXXXXXX

NOTE :
SUPPLY :

184-253V AC 11
50/60Hz 7VA 12

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.

PARAMETER TABLE

inPut oPtion												diSP. 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					dEci. Point	0	0.0	___	0.00000	
Countr. dir.	dirEct	oPPoS.										diSP. CAL.	0.00001	___	99.9999		
inPut Frq.	25 HErt.	500 HErt.	1000 HErt.	2000 HErt.	5000 HErt.	7500 HErt.						oFFSEt dAtA	0	___	500000		
SEnSor tYPE	nPn	PnP	Encod.									diSP. conFiG.	Countr. PrSEt1	Countr. PrSEt2	Countr. bAtch	bAtch PrSEt2	PrSEt1 bAtch	totALh totALL
rESEt PulS	0.002 SEcond	0.005 SEcond	0.010 SEcond	0.020 SEcond	0.050 SEcond							SECUr. codE	1111				
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	inP.oPt. SECUr.	nonE	ProG. no	ProG. YES		
out1 ti.	000.0	___	999.9									out.oPt. SECUr.	nonE	ProG. no	ProG. YES		
out2 ti.	000.0	___	999.9									diSoPt. SECUr.	nonE	ProG. no	ProG. YES		
totCr. conFiG.	diSAb.	inPut Countr.	inPut out1	inPut out2								Count. rESEt	no	PAnEL rESEt	rESEt inPut	rESEt both	
PrSEt1. Equ.	PrSEt1.	Pr2.Sub. Pr1.										totAL rESEt	no	PAnEL rESEt			
												bAtch rESEt	no	PAnEL rESEt			
												dEFAuL SEt	no	YES			

Run mode

99999 / 100000 — The value of the parameter selected by diSP conFiG parameter is on the display.

PrSEt1 / 100000 — First preset value. See NOTE 1 for modification.

PrSEt2 / 150000 — Second preset value. See NOTE 1 for modification.

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

inPut 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.

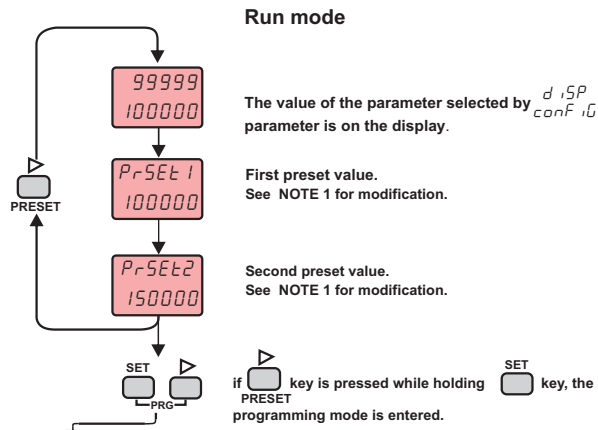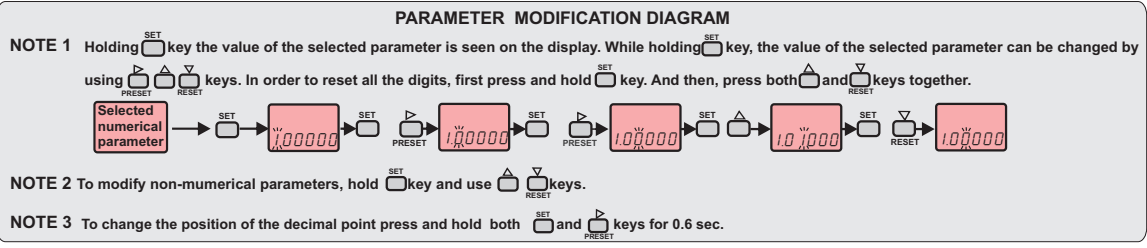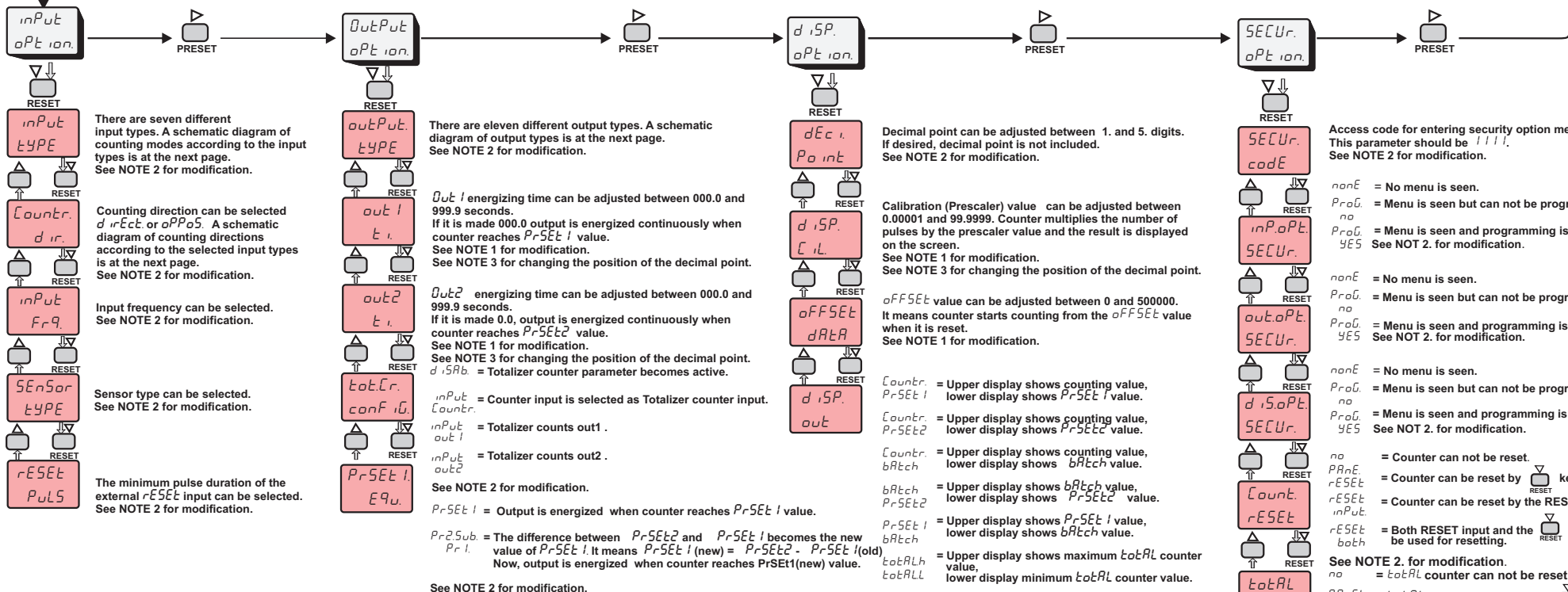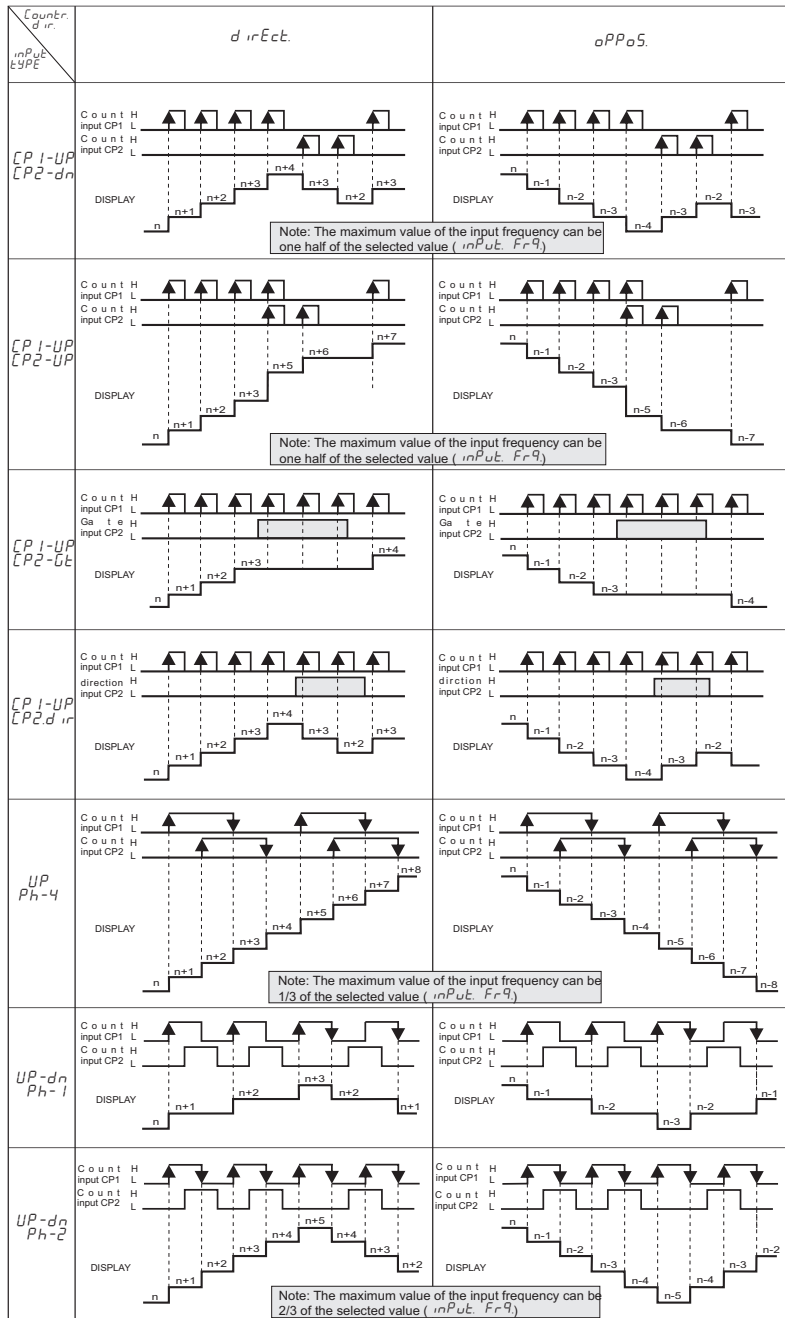**SEnSor tYPE** — Sensor type can be selected. See NOTE 2 for modification.

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

OutPut oPtion

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

out1 ti. — Out1 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 PrSEt1 value. See NOTE 1 for modification. See NOTE 3 for changing the position of the decimal point.

out2 ti. — 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.

totCr. conFiG.
- diSAb. = Totalizer counter parameter becomes active.
- inPut Countr. = Counter input is selected as Totalizer counter input.
- inPut out1 = Totalizer counts out1.
- inPut out2 = Totalizer counts out2.

See NOTE 2 for modification.

PrSEt1. Equ.
- PrSEt1 = Output is energized when counter reaches PrSEt1 value.
- Pr2.Sub. Pr1. = The difference between PrSEt2 and PrSEt1 becomes the new value of PrSEt1. It means PrSEt1 (new) = PrSEt2 - PrSEt1 (old) Now, output is energized when counter reaches PrSEt1(new) value.

See NOTE 2 for modification.

diSP. oPtion

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 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 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.

diSP. out
- Countr. PrSEt1 = Upper display shows counting value, lower display shows PrSEt1 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.
- PrSEt1 bAtch = Upper display shows PrSEt1 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.

SECUr. oPtion

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 key.
- rESEt inPut. = Counter can be reset by the RESET input.
- rESEt both = Both RESET input and the 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 key.

See NOTE 2. for modification.

bAtch rESEt
- no = bAtch counter can not be reset.
- PAnEL rESEt = bAtch counter can be reset by 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 ▽ keys together.

Selected numerical parameter → 1.00000 → 1.00000 → 1.00000 → 1.00000 → 1.00000

NOTE 2 To modify non-mumerical parameters, hold SET key and use △ ▽ keys.

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

3/5

EC762F-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)	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.)
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)	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.)
CP 1-UP CP2-Gt	Count input CP1 H/L, Gate input CP2 H/L, DISPLAY (n, n+1, 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+3, n+4, n+3, n+2, n+3)	Count input CP1 H/L, direction 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)	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.)
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-3)
UP-dn Ph-2	Count input CP1 H/L, Count input CP2 H/L, DISPLAY (n, n+1, n+2, n+4, n+5, n+4, n+3, n+2)	Count input CP1 H/L, Count input CP2 H/L, DISPLAY (n, n-1, n-2, n-3, n-4, n-5, n-4, n-3, n-2) — Note: The maximum value of the input frequency can be 2/3 of the selected value (inPut. Frq.)

OUTPUT TYPES

	UP COUNTER — inPut TYPE = CP1.UP CP2.UP, CP1.UP CP2.Gt.Ph.4, Countr.dir.= dirEct	DOWN COUNTER — inPut TYPE = CP1.UP CP1.UP UP CP2.UP, CP2.Gt.Ph.4, Countr.dir.= oPPoS.	UP / DOWN COUNTER — inPut TYPE= CP1.UP CP1.UP UP-dn UP-dn CP2.dn CP2.dir.Ph.1 Ph.2
ConFiG 1	Reset, 999,999, Preset2, Preset1, 0, Out1, Out2		
ConFiG 2 (HOLD)			
ConFiG 3			
ConFiG 4 (Autoreset)			
ConFiG 5 (Delayed Autoreset)			
ConFiG 6 (Delayed Autoreset and HOLD)			
ConFiG 7 (Autoreset and Display hold)			

OUTPUT TYPES

	inPut TYPE = CP1.UP CP1.UP UP-dn UP-dn CP2.dn CP2.dir.Ph.1 Ph.2	
ConFiG 8	Reset, 999,999, Preset2, Preset1, 0, -99,999, Out1, Out2	While counter is equal to Preset1 and Preset2 values, OUT1 and OUT2 becomes active respectively.
ConFiG 9		While counting value is lower or equal to the Preset1 and Preset2 values, OUT1 and OUT2 becomes active respectively.
ConFiG 10		While counting value is greater or equal to the Preset1 and Preset2 values, OUT1 and OUT2 becomes active respectively.

ConFiG bAtch — Countr. dir. = dirEct.
Reset, 999,999, Preset1, 0, Out1, Preset2, Batch Counter 0, Out2

ConFiG bAtch — Countr. dir. = oPPoS.
Reset, 999,999, Preset1, 0, Out1, Preset2, Batch Counter 0, Out2

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

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

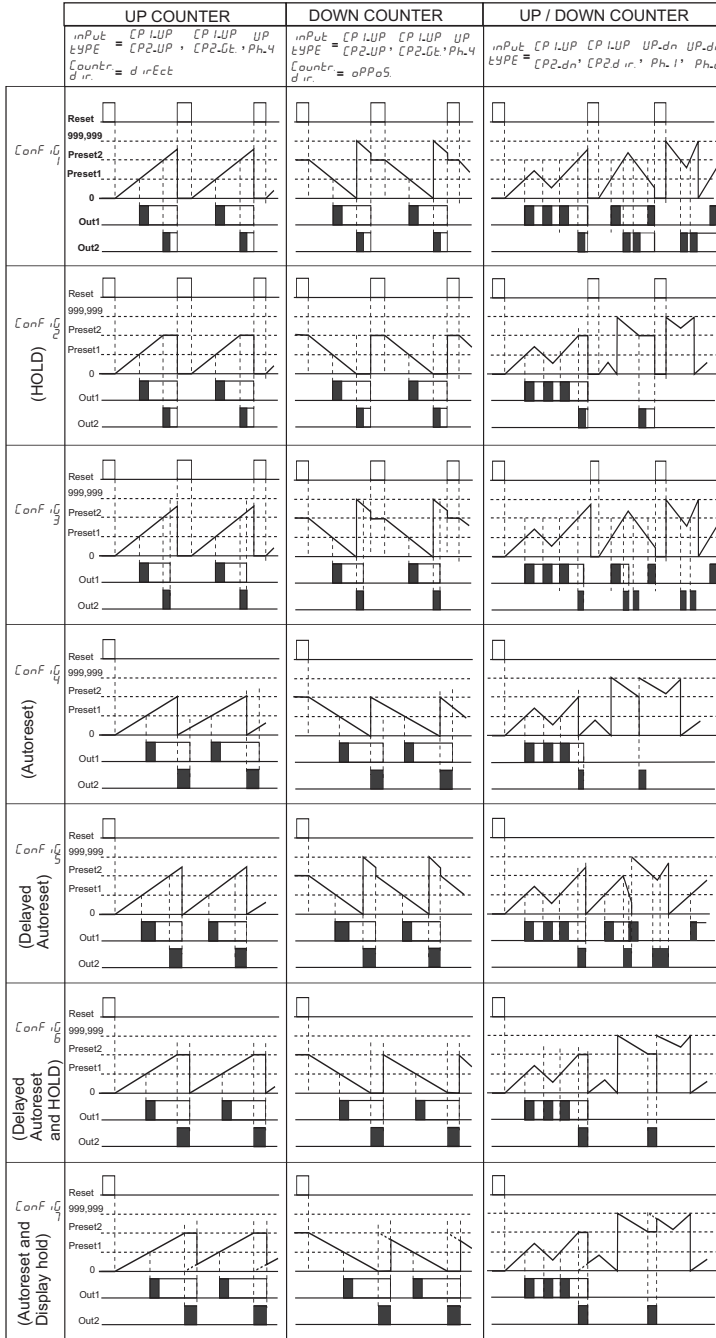□ Adjusting out1 or out2 ti ti to 0.0, a continuous output is obtained.

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 inPtTYPE CP1.U. CP2.r., above diagram for Cntr.d ir. d irE replaces with Cntr.d ir OPPo.

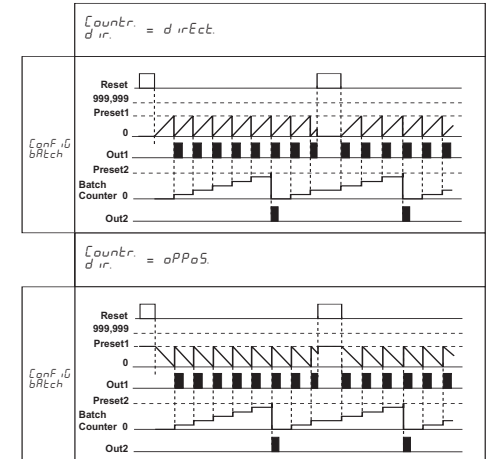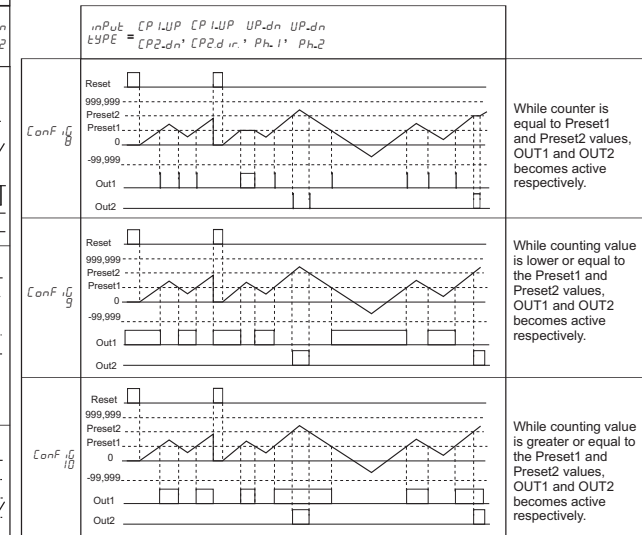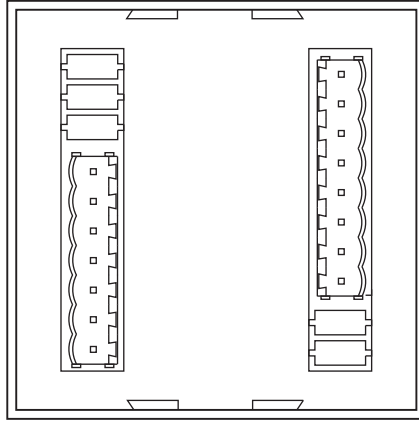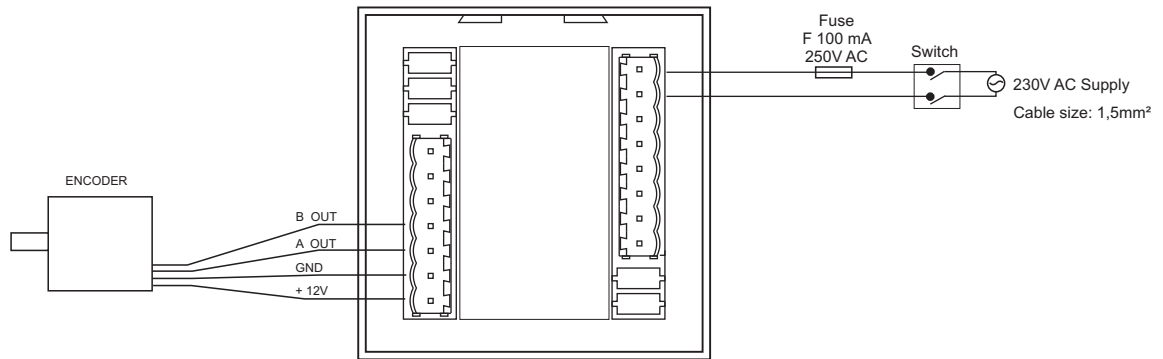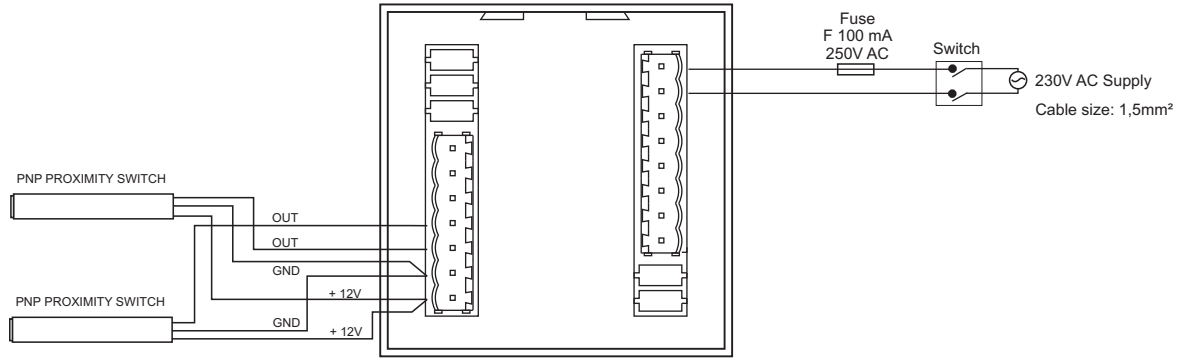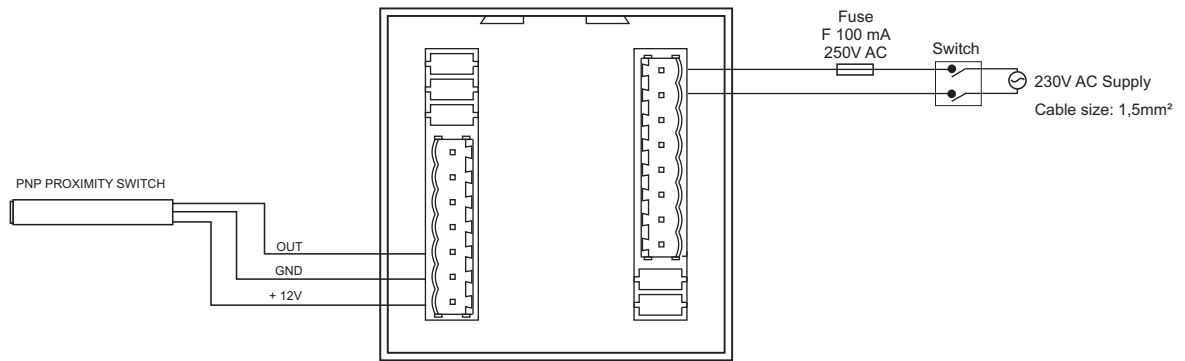⚠ Input frequency should not exceed the values indicated above. Otherwise, counter value will be wrong.

EC762F-E-06-R

TERMINAL CONNECTIONS

TYPICAL SENSOR CONNECTIONS

Fuse
F 100 mA
250V AC

Switch

230V AC Supply

Cable size: 1,5mm²

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

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

EC762F-E-06-R