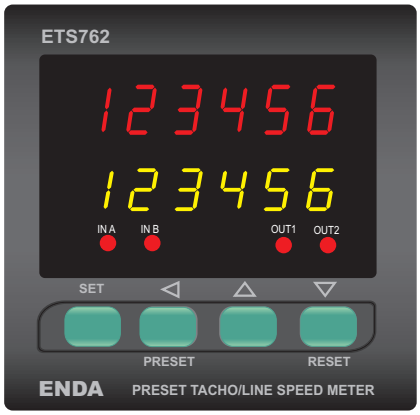
Read this document carefully before using this device. The guarantee will be expired by damaging of the device if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

ENDA ETS762 TACHO LINE/SPEED METER

Thank you for choosing ENDA ETS762 TACHOMETER.

* 72x72mm sized.
* 2x6 digits display.
* Easy to use by front panel keypad.
* On and Off times of the input pulses can be selected.
* Sensor type can be selected as PNP or NPN.
* Sampling time can be adjusted between 0.2s and 16.0s.
* Selectable functional reset.
* Double set-points control is made by 2 relays outputs.
* Output can be energized while process value is greater or lower than the preset value.
* Time delay can be included to the output operation.
* Output can be energized continuously or just for a time interval of 0.1 to 999.9 seconds.
* Decimal point can be adjusted between 1. and 5. digits.
* Prescaler factor can be adjusted between 0.00001 and 999.999 for calibration.
* Display configuration can be adjusted.
* Parameter access protection on 3 levels.
* Easy connection by removable screw terminals.
* CE marked according to European Norms.



Order Code : ETS762-□□□□□□
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%, 50/60Hz or 24V AC ±10%, 50/60Hz or optional 9-30V DC / 7-24V AC ±10% SMPS
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	
Counting inputs (INA, INB)	3 channels (5V to 30V pulses)
Minimum On and Off times for pulses	40ms, 20ms, 10ms, 1ms, 0.5ms, 0.1ms, 50 s (selectable by programming)
Sampling time	Adjustable between 0.2s and 16.0s.
RESET and HOLD inputs	PNP: 5V to 30V pulse with adjustable pulse time between 2ms and 50ms. NPN: GND terminal is connected to the RESET IN or HOLD IN terminal.

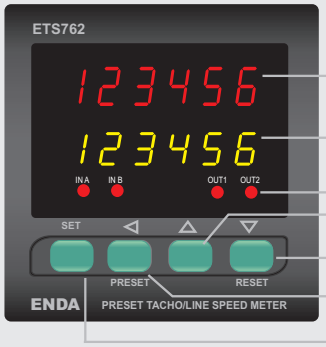
OUTPUTS	
Control output (OUT1)	Relay : 250V AC, 2A (for resistive load), NO+NC
	Open collector output (S.S. OUT1): Max. 30V DC, 100mA.
Control output (OUT2)	Relay : 250V AC, 2A (for resistive load), NO+NC
	Open collector output (S.S. OUT2): Max. 30V DC, 100mA.
Auxiliary power supply	12V DC, Max. 50mA (without regulation)
Accuracy	±0.1%
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 measurement selected by inPut tYPE parameter during run mode.
Parameter name during programming mode.

(2) The value of the parameter selected by SEt.dSP conF iG parameter during run mode.
Parameter value during programming mode.

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

(4) Used for adjusting the preset values in the run mode.
Increment or parameter selection key during programming mode.

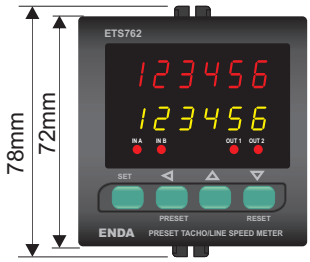
(5) Decrement or reset key in the run mode.
Decrement or parameter selection key during programming mode

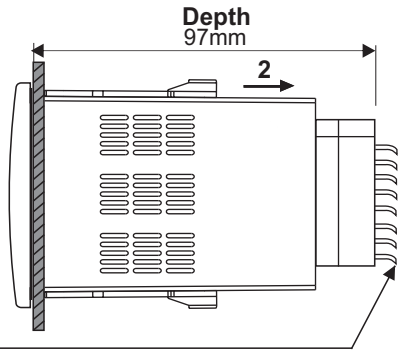
(6) Used for selecting preset1, preset2 or user defined message in the run mode.
Used for selecting oPt ion. s or parameter to be changed in the programming mode.

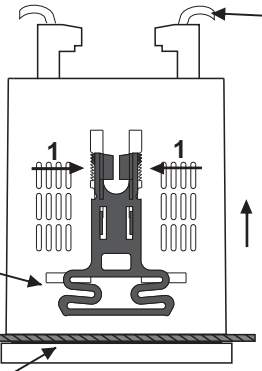
(7) Used for selecting run or programming modes or for adjusting parameters.

(1) Digital display	6 digits, 7 segment red LED
(2) Digital display	6 digits, 7 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

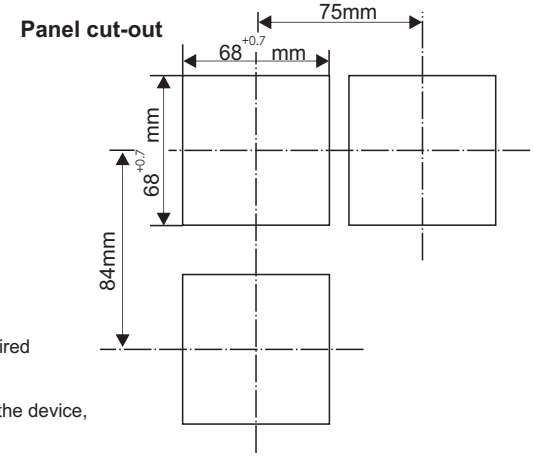
DIMENSIONS







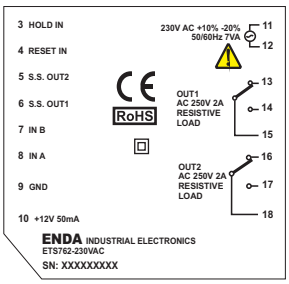
For removing mounting clamps:
- Push the flush-mounting clamp in direction **1** as shown in the figure left.
- Then, pull out the clamp in direction **2.**

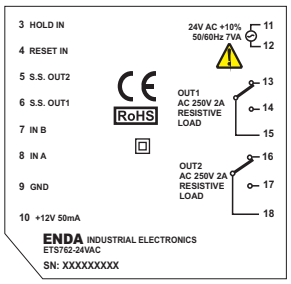


Note 1) While panel mounting, additional distance required for connection cables should be considered.
2) Panel thickness should be maximum 10mm.
3) If there is no 90mm free space at back side of the device, it would be difficult to remove it from the panel.

CONNECTION DIAGRAM

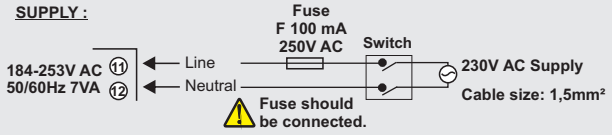
ENDA ETS762 is intended for installation in control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of energy. The device must be protected 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.

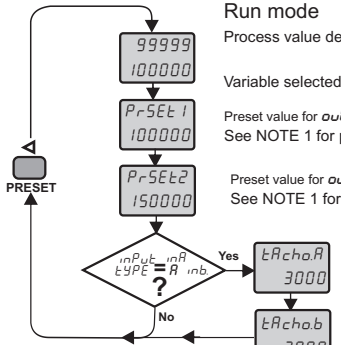
Run mode

Process value defined by the inPut tYPE parameter is shown on the top display.

Variable selected by the SEtdSP conF iG. parameter is shown on the bottom

Preset value for out 1.
See NOTE 1 for programming.

Preset value for out2.
See NOTE 1 for programming.



If input type inA - inb. is selected, revolution of input A appears.

If input type inA - inb. is selected, revolution of input B appears.

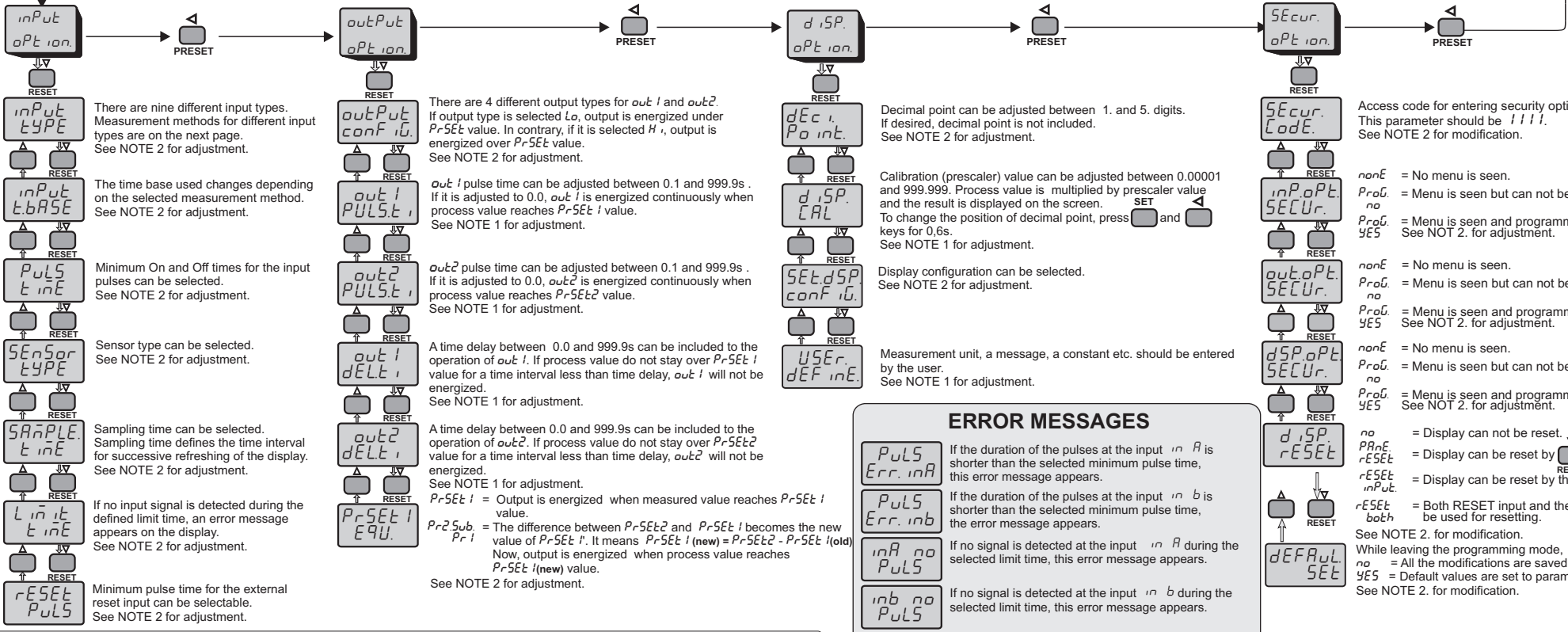
WARNING!!!! First, The machine must be switched on if it's needed to be programmed when mode tAcho.A or tAcho.b display mode is chosen.

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

PARAMETER TABLE

inPut oPt ion.	inPut tYPE	tAcho.	inA- inb. rAt io	L inE SPEEd.	PEr iod	t inE intEr	PULS t inE	Count. PErPLS.	Count. PErtYc.	inA - inb.	
	inPut tbASE	rotAtE PErSEc.	rotAtE PEr in.	rotAtE PEr hr.	This menu appears, if tAcho., in1-in2. or inA - inb. is selected as input type.			rAt io			
		nEtEr PErSEc.	nEtEr PEr in.	nEtEr PEr hr.	This menu appears, if L inE SPEEd. is selected as input type.						
		micro SEcond	mi LL i SEcond	0.1 SEcond	This menu appears, If PEr iod , t inE or inter selected as input type.			PULS t inE			
	PULS t inE	0.04 SEcond	0.02 SEcond	0.01 SEcond	0.001 SEcond	0.0005 SEcond	0.0001 SEcond	0.00005 SEcond			
	SEnSor tYPE	nPn	PnP								
	SAMPLE t inE	0.2	16.0								
	L iMit t inE	1	100								
	rESEt PULS	0.002 SEcond	0.005 SEcond	0.010 SEcond	0.020 SEcond	0.050 SEcond					
diSP. oPt ion.	dEc i. Po int	0	0.0	0.00	0.000	0.0000	0.00000				
	diSP. CAL	0.0000 1	_____	999.999							
	SEtdSP. conF iG.	PrSEt 1	PrSEt2	USEr dEF inE							
	USEr dEF inE.	Measurement unit, a message, a constant etc. entered by the user appears.									

outPut oPt ion.	outPut conF iG	out 1Lo. out2Lo.	out 1H i. out2H i.	out 1H i. out2Lo.	out 1Lo. out2H i.		
	out 1 PULSt i.	000.0	_____	999.9			
	out2 PULSt2	000.0	_____	999.9			
	out 1 dELt i.	000.0	_____	999.9			
	out2 dELt i.	000.0	_____	999.9			
	PrSEt 1 EqU.	PrSEt 1	Pr2Sub Pr 1				
SEcur. oPt ion.	SEcur. codE	1111					
	inPoPt SECUr.	nonE	ProG. no	ProG. YES			
	outoPt. SECUr.	nonE	ProG. no	ProG. YES			
	dSPoPt. SECUr.	nonE	ProG. no	ProG. YES			
	diSP. rESEt.	no	PAnEL rESEt	rESEt inPut	rESEt both		
	dEFAuL. SEt.	no	YES				



ERROR MESSAGES

PULS Err. inA	If the duration of the pulses at the input in A is shorter than the selected minimum pulse time, this error message appears.
PULS Err. inb	If the duration of the pulses at the input in b is shorter than the selected minimum pulse time, the error message appears.
inA no PULS	If no signal is detected at the input in A during the selected limit time, this error message appears.
inb no PULS	If no signal is detected at the input in b during the selected limit time, this error message appears.
inA. inb. no.PULS	If both in A and in b are required in a measurement methods and no signal is detected at the both inputs during the selected limit time, this error message appears.
HiGH. inPut	Overflow error. Indicates that process value was greater than 999 999.
inPut.b HiGh	If input type inA - inb is selected and revolution of input A is smaller than revolution of input B, this error message appears.

PARAMETER ADJUSTMENT METHOD

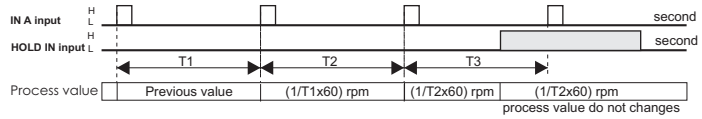
NOTE 1 Holding SET key the value of the selected parameter is seen on the display. While holding SET key, the value of the selected parameter can be changed by using PRESET RESET keys. In order to reset all the digits, first press and hold SET key. And then, press both and RESET keys together.

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

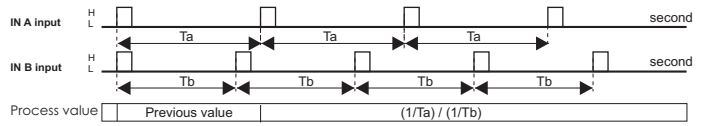
MEASUREMENT METHODS ACCORDING TO INPUT TYPES

`inPut tyPE`

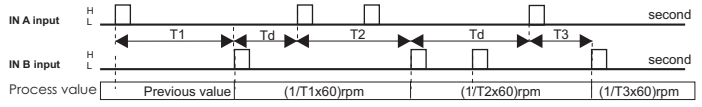
1 — tAcho — Revolution measurement method (rpm: revolution/minute)



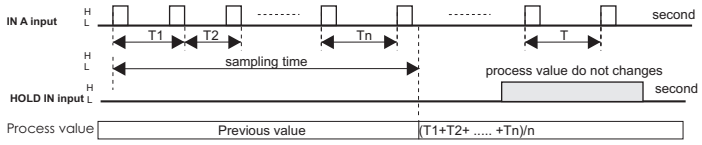
2 — inA inb rAt io — Ratio of the revolutions of IN A and IN B



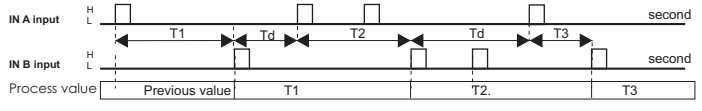
3 — LinE SPEEd — Speed measurement method



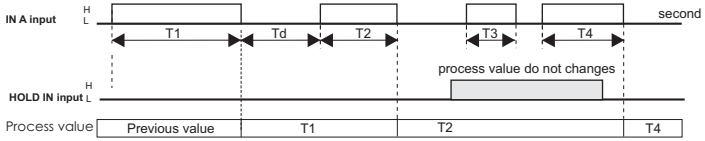
4 — PEr iod — Period measurement method



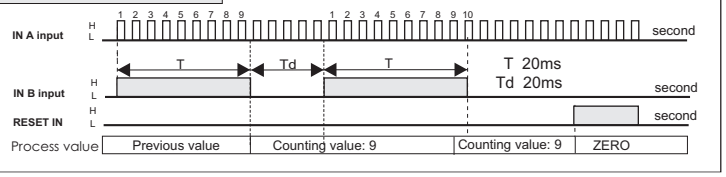
5 — t inE interr. — Time difference measurement method



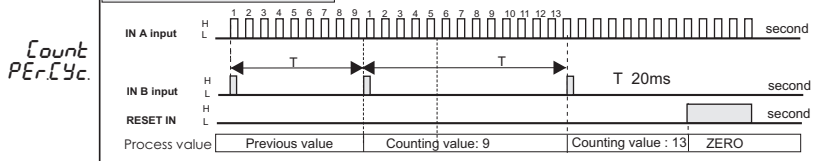
6 — PULS t inE. — Pulse duration measurement method



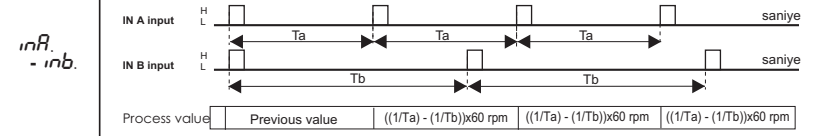
7 — Count PEr.PLS. — Pulse counting method



8 — Count PEr.CYc. — Pulse counting method



9 — inA. - inb. — Difference of the revolutions of IN A and IN B



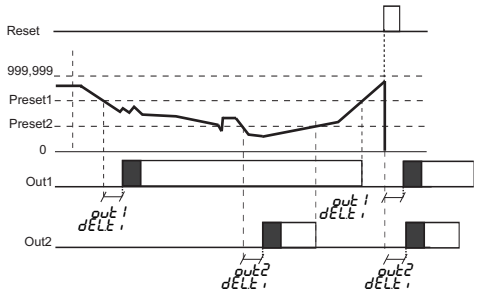
Note: When this method is selected, revolution of IN A must be equal or bigger than revolution of IN B.

If revolution of IN A is smaller than revolution of IN B, `inPut.b H iGh` error message appears.

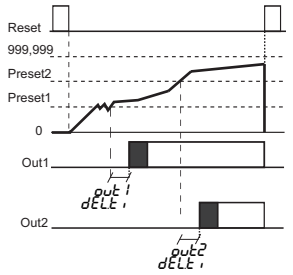
Note: `PuLS t inE` should be selected according to the minimum On and Off times of the input pulses.

OUTPUT TYPES

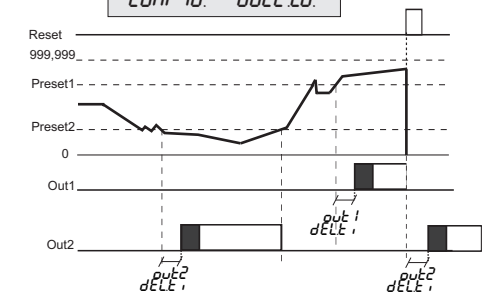
`outPut conF iG. = out1.Lo out2.Lo`



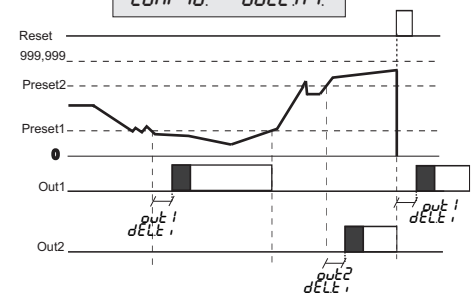
`outPut conF iG. = out1.H out2.H`



`outPut conF iG. = out1.H. out2.Lo.`



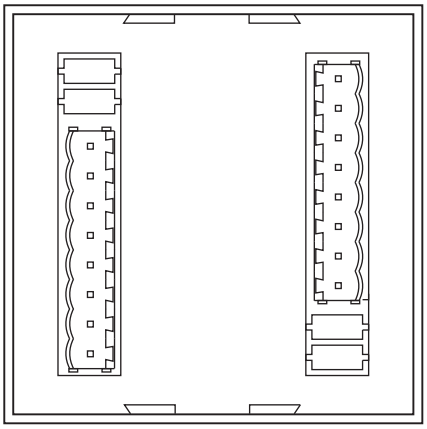
`outPut conF iG. = out1.Lo. out2.H.`



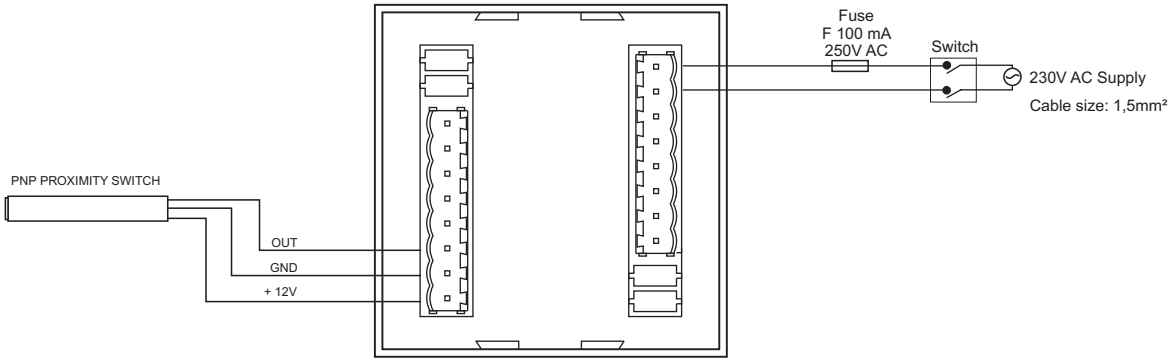
■ Adjusting `out1 PuLSt` or `out2 PuLSt` to a value between 0.1 and 999.9 seconds, a pulse output is obtained.

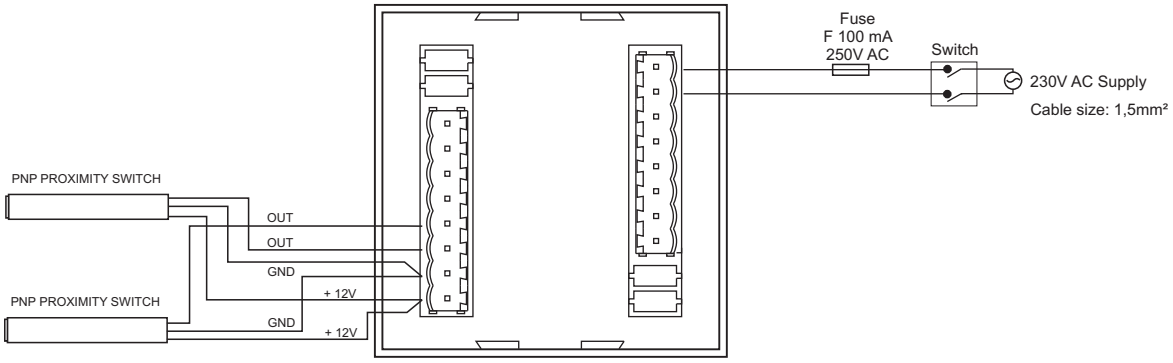
□ Adjusting `out1 PuLSt` or `out2 PuLSt` to 0.0, a continuous output is obtained.

TERMINAL CONNECTIONS



TYPICAL SENSOR CONNECTIONS





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

SİSEL MÜHENDİSLİK ELEKTRONİK SAN. VE TİC. A.Ş.
Yukarı Dudullu Barbaros Cad. Kutup Sok. No:20 34775 - ÜMRANİYE/İSTANBUL-TÜRKİYE
Tel : +90 216 499 46 64 Pbx. Fax : +90 216 365 74 01
url : www.enda.com.tr