



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.

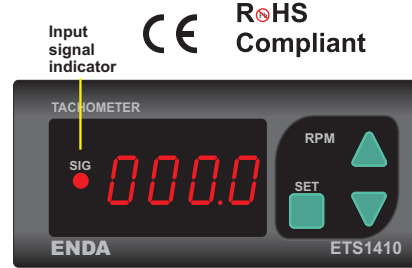
## ENDA ETS1410 PULSE INPUT TACHOMETER

Thank you for choosing ENDA ETS1410 TACHOMETER.

- \* 35x77 sized.
- \* Easy to use.
- \* Decimal point can be adjusted..
- \* Process value can be divided by a value between 1 and 999.
- \* Sampling time is selected automatically according to input frequency. Sampling time is between 1 and 16s.
- \* CE marked according to European Norms.

Order Code : ETS1410-□□□□□□

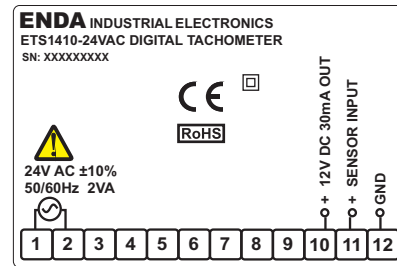
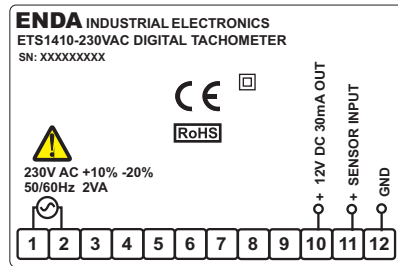
1  
Supply Voltage  
230VAC...230V AC  
24VAC.....24V AC  
SM.....9-30V DC / 7-24V AC



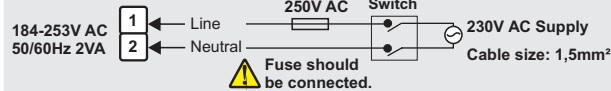
### CONNECTION DIAGRAM



ENDA ETS1410 is intended for installation in control panels. Make sure that the device is used only for intended purpose. The electrical connections must be carried on by a qualified staff and must be according to the relevant locally applicable regulations. 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. The cables should not be close to the power cables or components.



#### NOTE : SUPPLY :



Equipment is protected throughout by DOUBLE INSULATION.

Holding screw 0.4-0.5Nm

## 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	Maximum 2000m

Do not use the device in locations subject to corrosive and flammable gasses.

ELECTRICAL CHARACTERISTICS	
Supply voltage	230V AC +10% -20% or 24V AC ±10%, 50/60Hz or optional 9-30V DC / 7-24V AC ±10% SMPS module
Power consumption	Max. 2VA
Wiring	2.5mm² screw terminal connection
Display	4 digits, 9.1mm, 7 segment red display LED.
Accuracy	0,01%
EMC	EN 61326-1: 1997, A1: 1998, A2: 2001 (Performance criterion B is satisfied for EMC tests.)
Safety requirements	EN 61010-1: 2001 (pollution degree 2, over voltage category II, measurement category I)

ETS1410 must not be used in location where measurement category is II, III or IV.

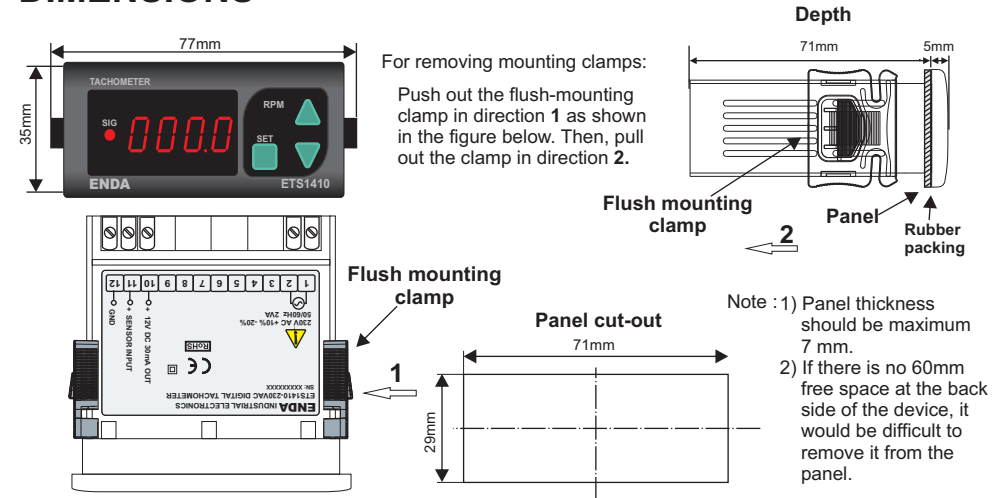
INPUTS	
Sensor input	5 to 30V pulse
Measurement frequency	The device measures frequencies between 0.07 and 3000Hz.
Sampling time	Automatically adjusted according to input frequency. Minimum: 1s, Maximum: 16s

OUTPUT	
Auxiliary supply output	12V DC, Max. 30mA (unregulated)

HOUSING	
Housing type	Suitable for flush-panel mounting.
Dimensions	W77xH35xD71mm
Weight	ETS1410 : Approx. 200g (after packing the device )
Enclosure material	Self extinguishing plastics

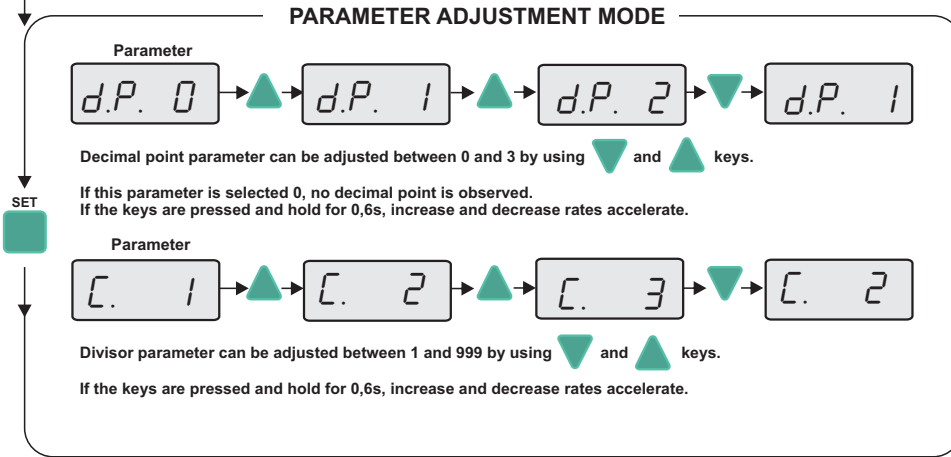
While cleaning the device, solvents (thinner, benzine, acid etc.) or corrosive materials must not be used.

### DIMENSIONS

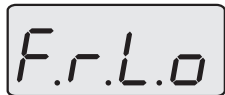


- Note : 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.  
2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

If  key is pressed for 5 seconds, parameter adjustment mode is entered.



### Error messages:



Input frequency is too low or there is no signal.



Input frequency is too high.



Measured value is greater than 9999.

## EXAMPLES FOR USING DIVISOR PARAMETER

ENDA ETS1410 Pulse Input Tachometer divides the number pulses in one minute by the calibration value and then, the result is displayed. Calibration value may be selected between 1 and 999. This feature is used for precise revolution speed, line speed or sudden flow speed measurements. Calibration value is calculated as explained below:

$$\text{CAL}(\text{divisor value}) = \frac{\text{Number of pulses per minute}}{\text{Desired value on the display}}$$

### Divisor value for line speed measurement;

Assume that a cylinder having a circumference of 25cm rotates at a speed of 3 revolutions/minutes. And the line speed of a band moving on the cylinder is going to be calculated in the unit of cm/minute. And, a 50 pulse/revolution encoder is used for measuring the revolution speed of the cylinder. Dividing value is calculated as below;

Desired value on the display: 3 revolution/minute x 25 cm/revolution = 75 cm/minute

Number of pulses per one minute: 3 revolution/minute x 50 pulse/revolution = 150 pulse/minute

$$\text{Then; CAL}(\text{divisor value}) = \frac{150 \text{ pulse/minute}}{75 \text{ cm/minute}} = 2$$