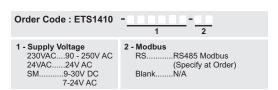


Read this document carefully before using this device. The guarantee will be expired by damaging of the device if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

ENDA ETS1410 PULSE INPUT TACHOMETER

Thank you for choosing **ENDA ETS1410** Tachometer devices.

- ▶ 35x77 Sized.
- Easy to use.
- Decimal place can be set.
- Divider value assignment between 1 and 999.
- Automatic sampling time according to input frequency. (Sampling time will performed between 1 to 16 automatically).
- ▶ CE Marked according to European Norms.



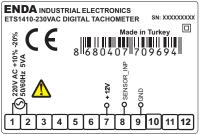




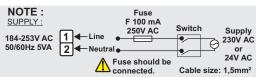
CONNECTION DIAGRAM



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 out 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 electrical power. 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.

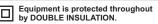


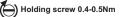


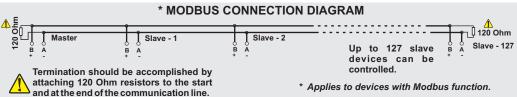


A Note:

- 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 instrurment and it should be easily accessible by the operator.











TECHNICAL SPECIFICATIONS

ENVIRONMENTAL CONDITIONS

Ambient / Storage Temperature 0 ... +50°C/-25 ... +70°C (with no icing) **Relative Humidity** 80% Relative humidity for temperatures up to 31°C, decreasing linearly to 50% at 40°C. **Protection Class** According to EN 60529: Front Panel: IP65. Rear Panel: IP20 Height Max.2000m

KEEP AWAY device from exposed to corrosive, volatile and flammable gases or liquids and DO NOT USE the device in similar hazardous locations.

FLECTRICAL CHARACTERISTICS

| Supply | 90-250V AC +%10-%20, 50/60Hz ; 24V AC/DC ±%10 or 9-30VDC / 7-24VAC ±%10 SMPS | | | | | |
|---------------------|--|--|--|--|--|--|
| Power Consumption | Max. 5VA | | | | | |
| Wiring | 2.5mm² screw-terminal connections | | | | | |
| Scale | 4 Digits, 9.1mm, 7 Segment Red Display LED. | | | | | |
| Accuracy | %0,01 | | | | | |
| EMC | EN 61326-1: 2013 (Performance criteria B has been satisfied for EN 61000-4-3 standard). | | | | | |
| Safety Requirements | EN 61010-1: 2010 (Pollution degree 2, overvoltage category II). ETS1410 should not be used when measurement categories II. III or IV are required. | | | | | |

| Sensor input | 5 to 50 v puises |
|-----------------------|--|
| Measurement Frequency | Measures frequencies between 0.07Hz and 3000Hz. |
| Sampling Time | Automatically adjusted according to input frequency. Minimum: 1s, Maximum: 16s |

OUTPUT

Sensor Supply Output 12V DC, Max. 30mA (unregulated)

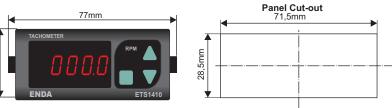
HOUSING

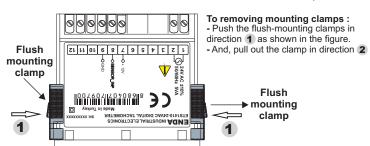
Housing Type Suitable for flush-panel mounting. **Dimensions** W77xH35xD61mm Weight Approx. 190g (after packing the device **Enclosure Material** Self extinguishing plastics

Avoid any liquid contact when the device is switched on.

DO NOT clean the device with solvent (thinner, gasoline, acid etc.) and / or abrasive cleaning agents.

DIMENSIONS





additional distance required for connection cables should

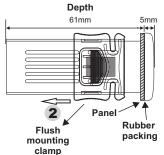
Note:

be considered. 2) Panel thickness should be

7mm maximum 3) If there is no free space at

1) While panel mounting,

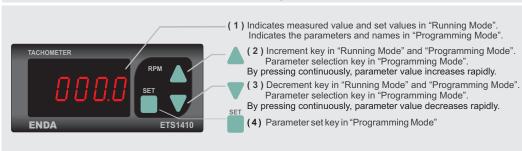
back side of the device, it would be difficult to remove it from the panel. 60mm clearance should be left behind the device.





SİSEL MÜHENDİSLİK ELEKTRONİK SAN. VE TİC. A.Ş. Serifali Mah. Barbaros Cad. No:18 Y.Dudullu. 34775 ÎMRANÎYE/ÎSTANBUL-TURKEY Tel : +90 216 499 46 64 Pbx. Fax : +90 216 365 74 01

TERMS



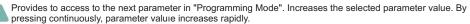
(1) PV Göstergesi 7 Segment, 4 Digits Red LED display **Character Heights** 12.5 mm

(2),(3),(4) Keypad Micro switch

SETTING UP THE PARAMETERS

By pressing A weys together for 2 seconds, "Programming Mode" is enterd.

During a selected parameter, by pressing key, parameter value can be displayed. Parameter value can be changed with keys. If no operation performed for 3 seconds or during this time, if they is pressed while the parameter value displayed, parameter name will be displayed again. While parameter name displayed, if by pressing together keys, "Running Mode" is entered.



Provides to access to the previous parameter in "Programming Mode". Decreases the selected parameter value. By pressing continuously, parameter value decreases rapidly.

| DEVICE PARAMETERS | | | | | | | | |
|-------------------|--------------------------|------|------|------|------------------|--|--|--|
| Parameter Name | Description | Min. | Max. | Unit | Default Value | | | |
| С | Dividing parameter value | 1 | 999 | | 10 | | | |
| dР | Decimal place parameter | Π | 3 | | Π | | | |

| MODBUS PARAMETERS | | | | | | | |
|-------------------|---|------|-------|------|------------------|--|--|
| Parametre Adı | Description | Min. | Max. | Unit | Default Value | | |
| Phnq | Modbus Baudrate. 0 : oFF, 1 : I200 , 2 : 2400, 3 : 4800 , 4 : 9600, 5 : I9200) | oFF | 19.20 | Bps | 9600 | | |
| RdrS | Modbus, slave device address. | - 1 | 247 | | - 1 | | |

EXAMPLES FOR USING DIVISOR PARAMETER

ENDA ETS1410 Pulse Input Tachometer divides the pulses from the input to the display by dividing it with the calibration value. The divisor value can be selected between 1 and 999. This feature allows the device to be used in precise speed measurements, instantaneous flow measurements and speed measurement applications. According to this, 1 as the divisor value must be entered for the one-to-one flow rate measurement. Calculation of dividing information can be formulated as follows:

Number of pulses per minute CAL(divider value) = -Desired value on the display





DIVISOR VALUE FOR LINE SPEED MEASUREMENT

25cm circumference of cylinder has 3 rpm turn. Speed of the belt passing over this cylinder will be measured in meter/min.

To measure the rotation of the cylinder, 50 pulse/cycle encoder will be used.

The dividing value is calculated as follows;

Display value: 3cycles/min X 25cm/rpm = 75cm/min

Number of pulses per minute: 3cycles/minute X 50pulses/rpm = 150 pulses/minute

Then:

ERROR MESSAGES



Input frequency too low or no signal



Measured value is higher than 9999



High input frequency

ENDA ETS1410 TACHOMETER MODBUS PROTOCOL ADDRESS MAP

| 1. HOLDING REGISTERS | | | | | | | | |
|-------------------------------|--------|------|---|-------------------|----------------------------|--|--|--|
| Holding Register Addresses | | Data | Parameter Description | Parameter Name | Read / Write Permission | | | |
| Decimal | Hex | Type | | Name | Permission | | | |
| 0000d | 0x0000 | | ModBus device address (Can be adjusted between 1 and 247) | Rdr5 | R/W | | | |
| 0001d | 0x0001 | word | Modbus communication speed (Baudrate) (0 = Modbus cancel, 1 = 2400 bps, 2 = 4800 bps, 3 = 9600 bps, 4 = 19200 bps, 5 = 38400 bps) | Pug | R/W | | | |
| 0002d | 0x0002 | word | Decimal place parameter | dР | R/W | | | |
| 0003d | 0x0003 | word | Divider parameter | C | R/W | | | |

| 1. INPUT REGISTERS | | | | | | | | |
|--------------------|------------------------|-------------------------------------|--|---|--|--|--|--|
| gister esses | Data | Parameter Description | | Read / Write Permission | | | | |
| Hex | Type | | Name | remission | | | | |
| 0x0000 | word | Measured frequency | | R | | | | |
| | gister esses Hex | gister esses Hex Data Type | gister esses Hex Data Parameter Description | gister esses Data Type Parameter Description Parameter Name | | | | |

