

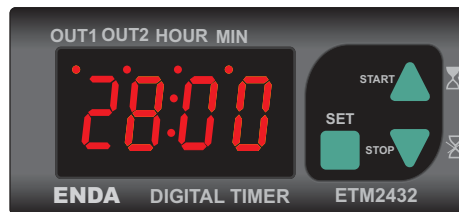


Read this document carefully before using this device. The guarantee will be expired by device damages if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

## ENDA ETM2432 DIGITAL TIMER

Thank you for choosing ENDA ETM2432 Digital Timer.

- ▶ 35x77mm sized.
- ▶ Dual contact output for timing control.
- ▶ External start, reset, and gate inputs.
- ▶ Hours/Minutes and Minutes/Seconds indication..
- ▶ Scale 0:01 .... 99:59 Minutes  
0:01 .... 99:59 Hours
- ▶ Increment - Decrement timing step settings.
- ▶ Countdown timing.
- ▶ Start/Stop control from the front panel.
- ▶ 8 Different warning tones.
- ▶ Upper and Lower limits can be adjusted to setpoint value.
- ▶ CE marked according to European Norms.



Order Code : ETM2432 -

1 - Supply Voltage  
230.....230V AC

LV.....10-30V DC /  
8-24V AC

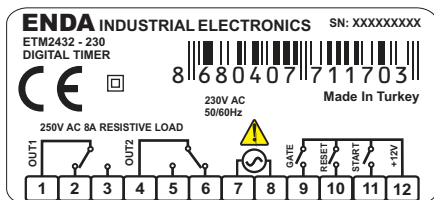
R<sup>OH</sup>S  
Compliant



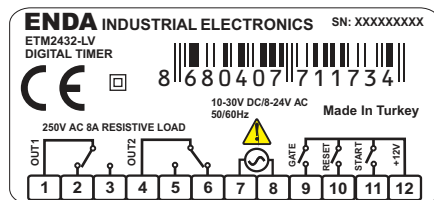
### Connection Diagram



ENDA ETM2432 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. 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.

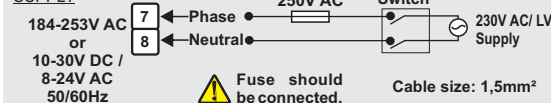


Equipment is protected throughout by  
**DOUBLE INSULATION**



Holding screw  
0.4-0.5Nm.

#### 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.

### 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 EN60529; 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.**

| ELECTRICAL CHARACTERISTICS |  |
|----------------------------|--|
| Supply                     | 230V AC +%-10%-20 50/60Hz ; 10-30V DC/8-24V AC 50/60Hz                   |
| Power Consumption          | Max. 7VA   |
| Wiring                     | 2.5mm <sup>2</sup> screw-terminal  |
| Scale                      | Selectable 99:59 min. or hour.   |
| Sensitivity                | 1 Second.  |
| Time Accuracy              | ±%1  |
| Indicator                  | 4 Digits, 12.5mm, 7 Segment Red LED                                      |
| EMC                        | EN 61326-1: 2013 (Performance criterion B is satisfied for EN 61000-4-3) |
| Safety Requirements        | EN 61010-1: 2010 (Pollution degree 2, overvoltage category II)           |

| OUTPUT                    |  |
|---------------------------|--|
| Out                       | 2 Relays: 250V AC, 8A (for resistive load), NO and NC control output.                          |
| Life Expectancy for Relay | 30.000.000 Switching for no-load operation; 300.000 switching for 8A resistive load at 250VAC. |

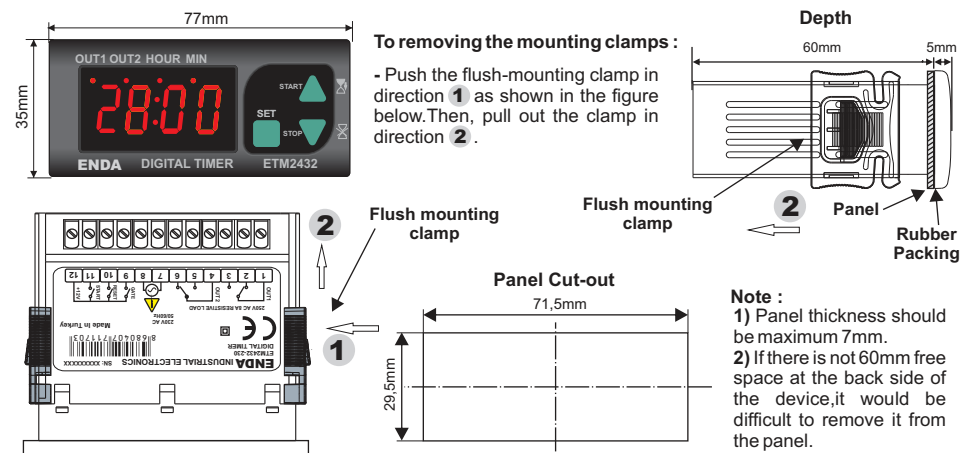
| START INPUT |                                     |
|-------------|-------------------------------------|
| Input Type  | Mechanical contact (Minimum = 50ms) |
| RESET INPUT |                                     |
| Input Type  | Mechanical contact (Minimum = 50ms) |
| GATE INPUT  |                                     |
| Input Type  | Mechanical contact (Minimum = 50ms) |

| HOUSING             |  |
|---------------------|--|
| Housing Type        | Suitable for flush-panel mounting according to DIN 43 700. |
| Dimensions          | W77xH35xD71mm  |
| Weight              | Approx. 198g (After packing)                               |
| Enclosure Materials | 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



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

**Note :**  
1) Panel thickness should be maximum 7mm.  
2) If there is not 60mm free space at the back side of the device, it would be difficult to remove it from the panel.



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ETM2432-EN-03-220103



Related indication LEDs provides to monitoring the current status of OUT1, OUT2, HOUR and MINUTE (MIN) information and each LED refers to status information when it is illuminated.

- SET key provide to set time value in "Running Mode". Also, provide to set parameter value and is used for saving the adjusted new parameter value in "Programming Mode". If no operation is performed during "Programming Mode" for 10 seconds, the latest adjusted parameter value (if any) is stored and returned to the "Running Mode" (to the main display).
- The timer starts when pressing to key for 1 second if the *St.r.2* is set (except during setting up the timer and parameter value(s)).
- Allows to transition between menus and is used for increasing to the parameter value in "Programming Mode". And, provides to set timing value in timer settings. If pressed continuously, the adjusted value increases rapidly.
- The timer stops and the buzzer is silenced when pressing to key for 1 second if the *St.r.2* is set (except during setting up the timer and parameter value(s)).
- Allows to transition between menus and is used for decreasing to the parameter value in "Programming Mode". And, provides to set timing value in timer settings. If pressed continuously, the adjusted value decreases rapidly.

### Time Configuration

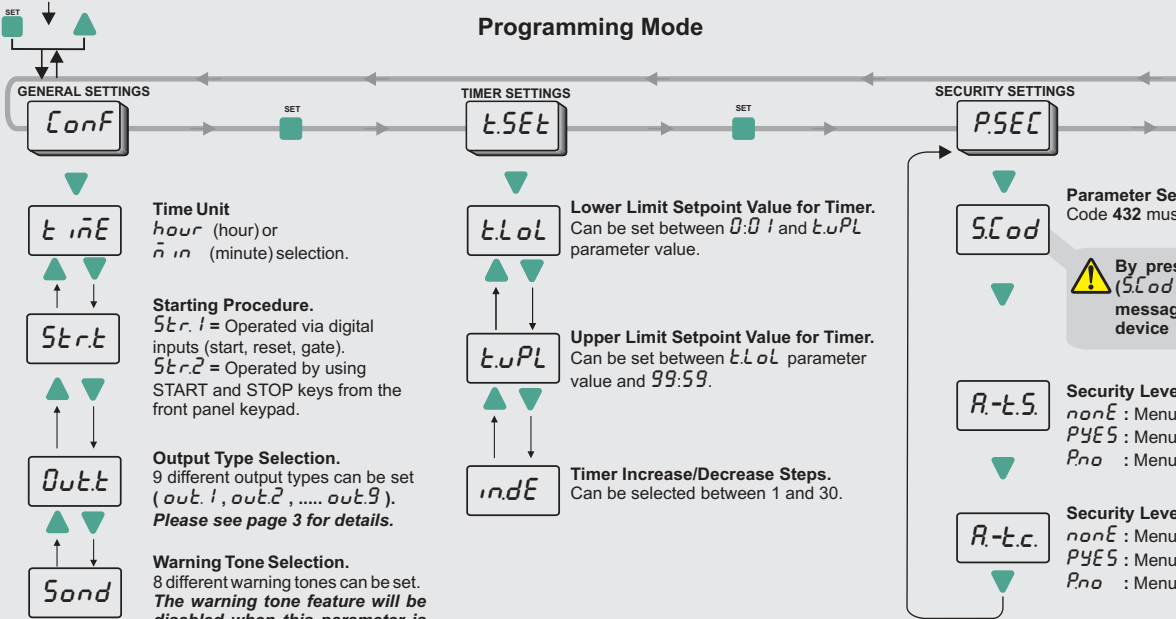


Timer is set by pressing to key and the time value flashes on display. Time value can be adjusted by using and navigation keys. Adjusting time value increases or decreases rapidly, if the one of the navigation key is pressed continuously. Adjusted value is stored by pressing to key and returned to the "Running Mode" (to main display). Also, if no key is pressed for 10 seconds during time settings, adjusted value is stored and returned to the "Running Mode" (to main display).

If and key is pressed together during "Running Mode", "Programming Mode" is entered and first menu tab of the "General Settings" is displayed as *Conf* parameter. Key provides to transition between main menus. key is used for access to sub menus while in main menu. To adjusting a sub menu parameter, by holding down to key and then, which is required one of the or key is pressed. At the end of the action, by releasing to key, adjusted value is stored and returned to the "Running Mode" (to main display).

If and keys are pressed together while in sub menus, returned to the "Programming Mode". If no key is pressed for 10 seconds, adjusted value (if any) is stored and returned to the "Running Mode" (to main display). Or, if holding down to key and key is pressed, adjusted value (if any) is stored and returned to the "Running Mode" (to main display).

### Programming Mode



**Time Unit**  
*hour* (hour) or *min* (minute) selection.

**Starting Procedure.**  
*St.r.1* = Operated via digital inputs (start, reset, gate).  
*St.r.2* = Operated by using START and STOP keys from the front panel keypad.

**Output Type Selection.**  
9 different output types can be set (*out.1, out.2, ..., out.9*).  
*Please see page 3 for details.*

**Warning Tone Selection.**  
8 different warning tones can be set.  
*The warning tone feature will be disabled when this parameter is set to *5d.1*.*

**Lower Limit Setpoint Value for Timer.**  
Can be set between *0:01* and *t.uPL* parameter value.

**Upper Limit Setpoint Value for Timer.**  
Can be set between *t.LoL* parameter value and *99:59*.

**Timer Increase/Decrease Steps.**  
Can be selected between 1 and 30.

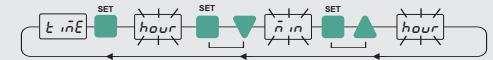
**Parameter Security Code.**  
Code 432 must be entered to accessing.

By pressing to key for 4 seconds (*SLod* parameter must be set to 0), *dPAR* message appears on display and the device is reset to factory default settings.

**Security Level for General Settings (*Conf*).**  
*nonE* : Menu invisible.  
*PYES* : Menu parameters can be changed.  
*Pno* : Menu parameters visible only.

**Security Level for Timer Settings (*R-SEt*).**  
*nonE* : Menu invisible.  
*PYES* : Menu parameters can be changed.  
*Pno* : Menu parameters visible only.

### Parameter Configuration Diagram



In order to set related parameter to desired value, hold button down, when display is started to flash use buttons.  
Value increases/decreases gradually accelerated by pressing buttons continuously.

|  |   |
|--|---|
| <p><b>out.1</b></p> <p>POWER<br/>▲ START<br/>▼ RESET<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>OUT1 and OUT2 relay contacts attracts when the START input is triggered. OUT1 and OUT2 relay contacts are releases at the end of the adjusted time value and the adjusted time value is also shown on the display.</p> <p>OUT1 and OUT2 relay contacts are released and returned to the adjusted time value if its terminated before the adjusted time is not completed via RESET input triggering.</p>  | <p><b>out.6</b></p> <p>POWER<br/>▲ START<br/>▼ RESET<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>When device is powered, If START input is set OUT1 and OUT2 relays are turned on and timer starts counting down. If START input is reset , timer value is renewed to timer set value and timer starts counting down. If START input is set again , timer value is renewed to timer set value. When timer set value is expired, OUT1 and OUT2 relays are turned off and timer value is renewed to timer set value. If RESET input is set, OUT1 and OUT2 relays are turned off and timer value is renewed to timer set value.</p>   |
| <p><b>out.2</b></p> <p>POWER<br/>▲ START<br/>▼ RESET<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>When device is powered, If START input is set OUT1 and OUT2 relays are turned on. When timer set value is expired, OUT1 and OUT2 relays are turned off. If RESET input is set before timer set value is expired OUT1 and OUT2 relays are turned off and timer set value is renewed. If START input is set before timer set value is expired, relays remain turned-on and timer set value is renewed and timer starts counting down.</p>  | <p><b>out.7</b></p> <p>POWER<br/>▲ START<br/>▼ RESET<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>When device is powered, If START input is set OUT1 and OUT2 relays are turned on and timer starts counting down from timer set value .When timer set value is expired, OUT1 and OUT2 relays are turned off. If START input is reset after an timer set value is expired, timer value is renewed to timer set value. If START input is reset while timer counts down ,OUT1 and OUT2 relays are turned off. If RESET input is set while START input is set, OUT1 and OUT2 relays are turned off and timer value is renewed to timer set value. If RESET input is reset while START input is set, OUT1 and OUT2 relays are turned on and timer starts counting down.</p> |
| <p><b>out.3</b></p> <p>POWER<br/>▲ START<br/>▼ RESET<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>The timer starts counting when START input is triggered, OUT1 and OUT2 relay contacts are attracted at the end of the adjusted time value. OUT1 and OUT2 relay contacts are released if the START input is triggered after the adjusted time is over and the timer starts counting. Time value returns to initial value when the RESET input is triggered and relay contacts are released if the relay contacts are attracted position. Timer starts counting when the RESET input is triggered while the START input is active.</p> | <p><b>out.8</b></p> <p>POWER<br/>▲ START<br/>▼ RESET<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>When device is powered, If START input is set OUT1 relay is turned on and timer starts counting down from timer set value. When timer set value is expired, OUT2 relay is turned on. If START input is reset when timer set value is expired, timer value is renewed to timer set value . If START input is reset while timer counts down OUT1 and OUT2 relays are turned off. If RESET input is set while START input is set, OUT1 and OUT2 relays are turned off and timer value is renewed to timer set value. If RESET input is reset while START input is set, OUT1 relay is turned on and timer starts counting down.</p>                                       |
| <p><b>out.4</b></p> <p>POWER<br/>▲ START<br/>▼ RESET<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>When device is powered, If START input is set OUT1 and OUT2 relays are turned on. When timer set value is expired, OUT1 and OUT2 relays are turned off , timer set value is renewed and timer starts counting down again. This process periodically continues. If RESET input is set OUT1 and OUT2 relays are turned off and timer stops counting down.</p>  | <p><b>out.9</b></p> <p>POWER<br/>▲ START<br/>▼ RESET<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>When device is powered, If START input is set, timer starts counting down. When timer set value is expired, OUT1 and OUT2 relays are turned on. If START input reset when timer set value is expired, OUT1 and OUT2 relays are turned off and timer value is renewed to timer set value. If START input is reset while timer counts down, timer value is renewed to timer set value. If RESET input is set while START input is set, timer value is renewed to timer set value. If RESET input is reset while START input is set, timer value is renewed to timer set value. and starts counting down.</p>  |
| <p><b>out.5</b></p> <p>POWER<br/>▲ START<br/>▼ RESET<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>When device is powered, If START input is set OUT1 and OUT2 relays are turned on. When START input is reset timer starts to counting down. When timer set value is expired, OUT1 and OUT2 relays are turned off and timer set value is renewed. If START input is set while timer counts down, timer set value is renewed. When START input is reset timer starts to counting down. If RESET input is set OUT1 and OUT2 relays are turned off and timer stops counting down.</p>   | <p><b>GATE USAGE</b></p> <p>POWER<br/>START<br/>RESET<br/>GATE<br/>OUT1<br/>OUT2<br/>DISPLAY %100 %0</p> <p>When device is powered, If GATE input is set, timer set value is seen on display and timer stops counting down. If GATE input is reset , timer continue where it remains. If RESET input is set while GATE input is reset, OUT1 and OUT2 relays are turned off and timer value is renewed to timer set value.</p>   |

## ENDA ETM2432 DIGITAL TIMER PARAMETERS

### CONFIGURATION PARAMETERS

| Parameter Name         | Functional Specification                 | Min.                    | Max.                    | Unit              | Factory Settings        |
|------------------------|--|-------------------------|-------------------------|-------------------|-------------------------|
| <i>t<sub>in</sub>E</i> | Device time config                       | 00:01                   | 99:59                   | hr:min<br>min:sec | <i>t<sub>in</sub></i>   |
| <i>St<sub>r</sub>t</i> | Device input control parameter           | <i>St<sub>r</sub>.1</i> | <i>St<sub>r</sub>.2</i> |                   | <i>St<sub>r</sub>.1</i> |
| <i>Out<sub>t</sub></i> | Device output control parameter          | <i>Out.1</i>            | <i>Out.9</i>            |                   | <i>Out.1</i>            |
| <i>Sond</i>            | Device audible warning control parameter | <i>Sd.1</i>             | <i>Sd.8</i>             |                   | <i>Sd.1</i>             |

### TIMER CONFIGURATION PARAMETERS

|                                   |   |       |       |  |       |
|-----------------------------------|---|-------|-------|--|-------|
| <i>t<sub>L</sub>oL</i>            | Time config lower limit define parameter            | 00:01 | 99:59 |  | 00:01 |
| <i>t<sub>U</sub>P<sub>L</sub></i> | Time config upper limit define parameter            | 00:02 | 99:59 |  | 99:59 |
| <i>in<sub>d</sub>E</i>            | Time config increase/decrease coefficient parameter |       |       |  |       |

### SECURITY PARAMETERS

|              |                                |   |      |  |      |
|--------------|--------------------------------|---|------|--|------|
| <i>SCod</i>  | Security code parameter        | 0 | 9999 |  | 0    |
| <i>R-t.S</i> | Time config security parameter |   |      |  | PYES |
| <i>R-t.c</i> | Menu security parameter        |   |      |  | PYES |


**Note 1:** If *St<sub>r</sub>t* selected *St<sub>r</sub>.1*, Control is provided with START - RESET - GATE inputs.

**Note 2:** If *St<sub>r</sub>t* selected *St<sub>r</sub>.2*, Control is provided with device front panel START (▲) - STOP (▼) buttons.

**Note 3:** GATE input can be used for all *St<sub>r</sub>t* and *Out<sub>t</sub>* types.

**Note 4:** When *St<sub>r</sub>t* parameter switched from *St<sub>r</sub>.1* to *St<sub>r</sub>.2*, device continue to work with present *Out<sub>t</sub>* output setting. Timer can be stopped with device front panel STOP (▼) button in case of need.

**Note 5:** Cases in **Note 4** also valid for *St<sub>r</sub>t* parameter switched from *St<sub>r</sub>.2* to *St<sub>r</sub>.1*, digital RESET input can be used instead of STOP button.

**Note 6:** In Running Mode, if the , ▲ and ▼ keys are pressed together, revision number appears on display. (In order to show the revision number, *St<sub>r</sub>t* parameter must be set to *St<sub>r</sub>.1* in *CONF* menu).