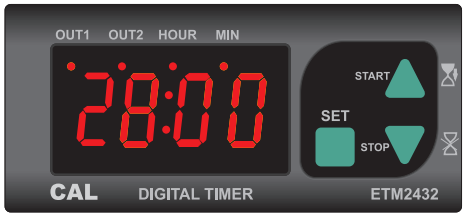
Read this document carefully before using this device. The guarantee will be expired by device demages if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

CAL ETM2432 DIGITAL TIMER

Thank you for choosing **CAL ETM2432** digital timer.

* 77 x 35mm sized.
* Dual contact output for timing control.
* External start, reset, and gate inputs.
* Hours - minutes and minutes - seconds indications can be selected.
* Scale 0:01 .... 99:59 minutes
  0:01 .... 99:59 hours
* Time increasing and decrement steps can be adjusted.
* Counting in downward direction.
* Start and stop process can be controlled by the front panel.
* 8 different warning tones.
* Upper and lower limits can be adjusted to setpoint value.
* CE marked according to European Norms.



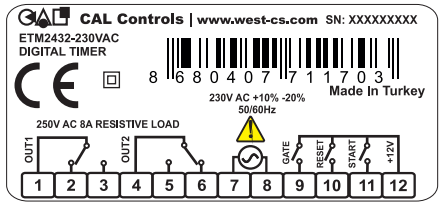
Order Code : ETM2432 - □□□□□□
1

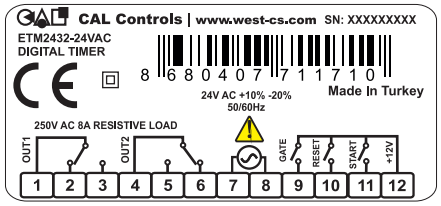
1 - Supply Voltage
230VAC...230V AC
110VAC...110V AC
24VAC.....24V AC
SM.....10-30V DC / 8-24V AC

CE **RoHS Compliant**

CONNECTION DIAGRAM

CAL ETM2432 is intended for installation within 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 electrical power. 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 out by a qualified staff and must be according to the relevant locally applicable regulations.

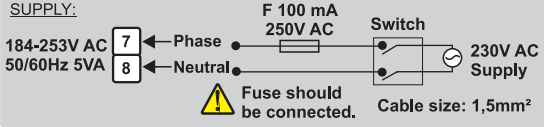




Equipment is protected throughout by DOUBLE INSULATION

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
Relative Humidity	Max. humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.
Protection Class	According to EN60529; Front panel: IP65 Rear panel : IP20
Height	Max. 2000m

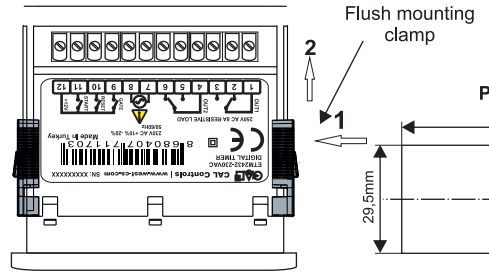
Do not use the device in locations subject to corrosive and flammable gasses.

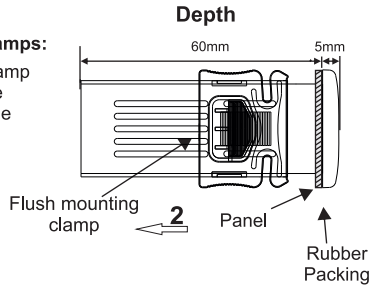
ELECTRICAL CHARACTERISTICS	
Supply	230V AC / 110V AC ±%10, 50/60Hz or 24V AC ±%10, 50/60Hz or 10-30V DC/ 8-24V AC, 50/60Hz
Power Consumption	Max. 7VA
Wiring	2.5mm² screw-terminal
Scale	Selectable 99:59 min. or hour.
Sensitivity	1 second.
Time Accuracy	±%1
Indicator	4 digits, 12.5mm, 7 segment red LED
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

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

Dimensions

For removing 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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OUT1 LED : Specifies the output OUT1.

OUT2 LED : Specifies the output OUT2.

HOUR LED : Selected time unit is **HOUR.**

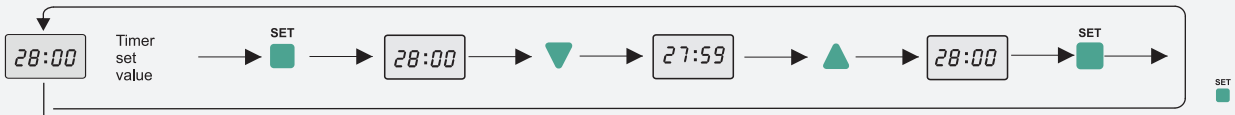
MIN LED : Selected time unit is **MINUTE.**

SET Timer value can be set in Running Mode , Parameter values can be set in Programming Mode and newly assigned parameter values can be saved . After parameter values are changed , new values are saved to memory and Running Mode is returned either by pressing SET button or by waiting 10 seconds.

▲ Timer is started by pressing ▲ button for 1 second , when Str.2 is selected (Except,either parameter or time set value changing) . Menu parameters can be accessed in Programming Mode. Parameter set values can be increased. Timer set value can be increased in Time Config Mode. Timer set value increases gradually accelerated by pressing continuously.

▼ Timer and audible warning are stopped by pressing ▼ button for 1 second. when Str.2 is selected (Except,either parameter or time set value changing) . Menu parameters can be accessed in Programming mode. Parameter set values can be decreased. Timer set value can be decreased in Time Config Mode. Timer set value decreases gradually accelerated by pressing continuously.

TIME CONFIG MODE

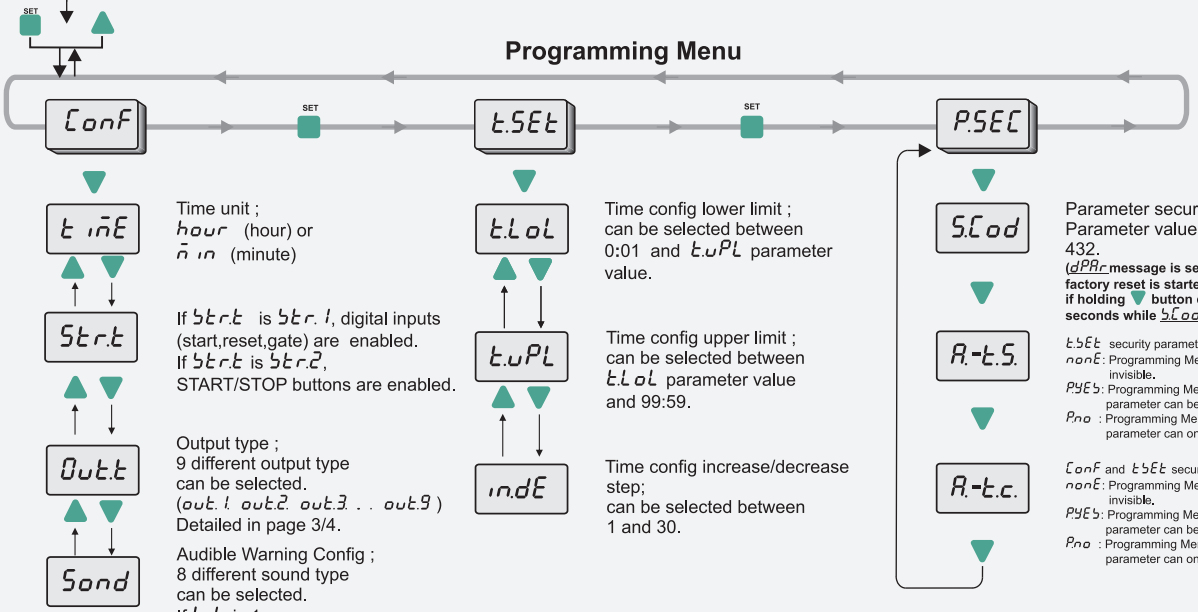


Running Mode switches to Time Config Mode by pressing SET button. Display indicates configuration mode is opened by flashing. Desired timer set value can be set by pressing ▼▲ buttons. After desired timer value set, new timer set value is saved to memory and Running Mode is returned either by pressing SET button or by waiting 10 seconds.

Programing Menu is opened and ConF parameter is seen by pressing SET and ▲ buttons at same time. Switching between menu parameters is done by pressing SET button. While one of menu parameter is seen, sub-menu parameter is opened when pressing ▼ button.

In order to change sub-menu parameters value, press ▼▲ buttons while holding SET button down.When SET button is released , all changes will be saved to memory and related sub-menu parameter is returned. Programming Menu is returned from sub-menu parameters by pressing ▼▲ buttons at same time. In the sub-menu , all changes will be saved to memory and Running Mode is returned from sub-menu if no key is pressed for 10 seconds. In programming menu , all changes can be saved to memory and Running Mode can be returned from programming menu either by pressing SET ▲ buttons at same time or if no key is pressed for 10 seconds.

Programming Menu



Parameter Configuration Diagram

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

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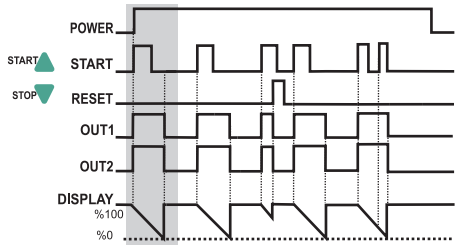
ENDA ETM 2432 DIGITAL TIMER OUTPUT TYPES

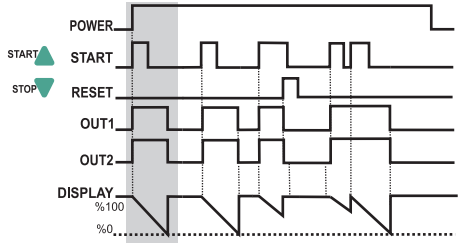
NOTE : Selected area indicates the moment of power-up, if the external "START" input is active.

Out.1



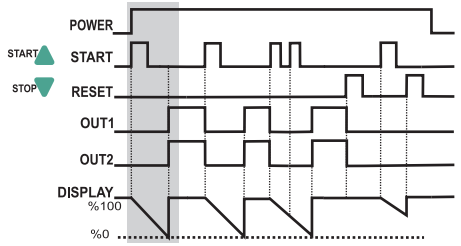
When device is powered, If START input is set OUT1 and OUT2 relays are turned on.
When timer set value is expired , OUT1 and OUT2 relays are turned off.
If RESET input is set before timer set value expires OUT1 and OUT2 relays are turned off and timer set value is renewed.

Out.2



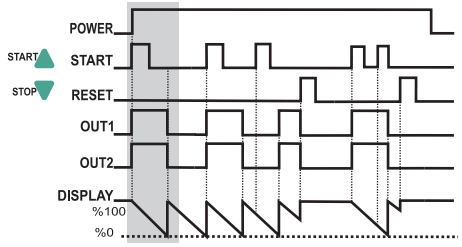
When device is powered, If START input is set OUT1 and OUT2 relays are turned on.
When timer set value is expired, OUT1 and OUT2 relays are turned off.
If RESET input is set before timer set value is expired OUT1 and OUT2 relays are turned off and timer set value is renewed.
If START input is set before timer set value is expired , relays remain turned-on and timer set value is renewed and timer starts counting down.

Out.3



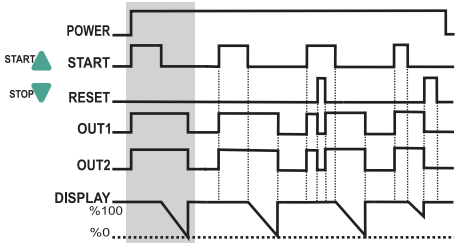
When device is powered , If START input is set timer starts counting down.
When timer set value is expired, OUT1 and OUT2 relays are turned on and timer set value is renewed. If START input is set again, OUT1 and OUT2 relays are turned off and timer starts counting down.
If RESET input is set OUT1 and OUT2 relays are turned off and timer stops counting down.

Out.4



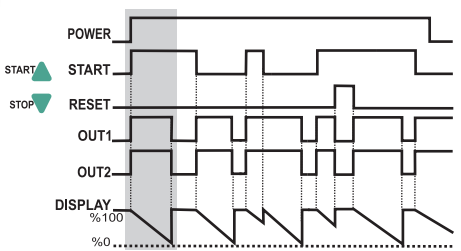
When device is powered, If START input is set OUT1 and OUT2 relays are turned on.
When timer set value is expired, OUT1 and OUT2 relays are turned off , timer set value is renewed and timer starts counting down again.This process periodically continues.
If RESET input is set OUT1 and OUT2 relays are turnef off and timer stops counting down.

Out.5



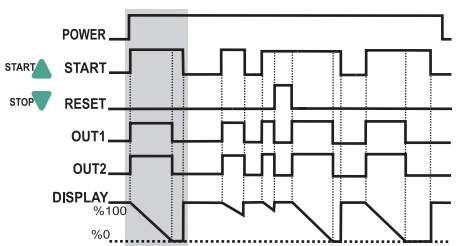
When device is powered, If START input is set OUT1 and OUT2 relays are turned on.When START input is reset timer starts to counting down.
When timer set value is expired, OUT1 and OUT2 relays are turned off and timer set value is renewed.
If START input is set while timer counts down, timer set value 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.

Out.6



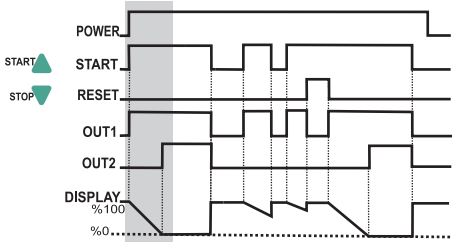
When device is powered, If START input is set OUT1 and OUT2 relays are turned on and timer starts counting down.
If START input is reset , timer value is renewed to timer set value and timer starts to counting down.
If START input is set again , timer value is renewed to timer set value.When timer set 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.

Out.7



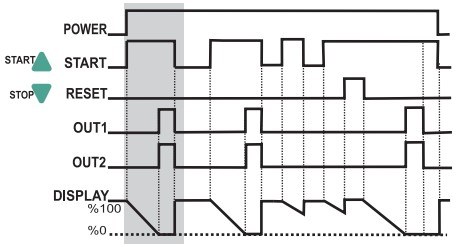
When device is powered, If START input is set OUT1 and OUT2 relays are turned on and timer starts counting down from timer set value .When timer set value is expired,OUT1 and OUT2 relays are turned off.If START input is reset after an timer set value is expired,timer value is renewed to timer set value.If 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

Out.8



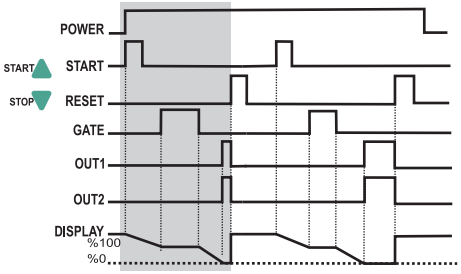
When device is powered, If START input is set OUT1 relay is turned on and timer starts counting down from timer set value.When timer set value is expired, OUT2 relay is turned on.If START input is reset when timer set value is expried, timer value is renewed to timer set value . If START input is reset 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.

Out.9



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.

GATE USAGE



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.

CAL ETM2432 DIGITAL TIMER PARAMETERS

CONFIGURATION PARAMETERS

Parameter Name	Functional Specification	Min.	Max.	Unit	Factory Settings
t inE	Device time config	00:01	99:59	hr:min / min:sec	min
Str.t	Device input control parameter	Str.1	Str.2		Str.1
Out.t	Device output control parameter	Out.1	out.9		Out.1
Sond	Device audible warning control parameter	Sd.1	Sd.8		Sd.1
TIMER CONFIGURATION PARAMETERS					
t.LoL	Time config lower limit define parameter	00:01	99:59		00:01
t.uPL	Time config upper limit define parameter	00:02	99:59		99:59
indE	Time config increase/decrease coefficient parameter				
SECURITY PARAMETERS					
S.Cod	Security code parameter	0	9999		0
A.t.S.	Time config security parameter				PYES
A.t.c.	Menu security parameter				PYES

Note 1: If Str.t selected Str.1, Control is provided with START - RESET - GATE inputs.

Note 2: If Str.t selected Str.2 ,Control is provided with device front panel START (▲) - STOP (▼) buttons.

Note 3: GATE input can be used for all Str.t and Out.t types.

Note 4: When Str.t parameter switched from Str.1 to Str.2 , device continue to work with present Out.t 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 Str.t parameter switched from Str.2 to Str.1, digital RESET input can be used instead of STOP button.

Note 6: In Running Mode, if the SET , ▲ and ▼ keys are pressed together, revision number appears on display. (In order to show the revision number, Str.t parameter must be set to Str.1 in ConF menu).