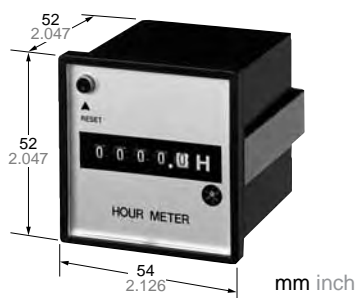


TH Hour Meters

Timers/Time Switches/Counters/Hour Meters





TH23 series (with reset function)



TH13 series (without reset function)

UL File No.: E42876
CSA File No.: LR39291



Features

- 1. High-performance compact synchronous motor**
The accurately turning motor is employed to provide for longer period of measurement.
- 2. Compact and stylish**
- 3. Easier wiring**
The flat terminals (#187) are quick and easy to connect.
- 4. Rotary indicator**
The rotary indicator makes one turn every 2 minutes for monitoring.
- 5. Compliant with UL, CSA and CE.**

Typical applications

Maintenance management of machine tools, automated machines, control panels, forming machines, medical equipment, generators, compressors, water treatment facilities, presses, motors, etc.

Specifications

Rated operating voltage	100V AC, 200V AC, 110V AC, 115 to 120V AC, 220V AC, 240V AC	
Allowable operating voltage range	85 to 115% of rated operating voltage	
Rated frequency	50 Hz, 60 Hz (other model)	
Counting range	0 to 99999.9 hours (TH13 series) 0 to 9999.9 hours (TH23 series)	
Minimum time display	0.1 hours (6 min)	
Rated power consumption	Approx. 1.5 W	
Insulation resistance (Initial value)	Min. 100 MΩ, Between live and dead metal parts (At 500V DC)	
Breakdown voltage (Initial value)	2,000 Vrms, Between live and dead metal parts	
Max. temperature rise	55°C 131°F	
Vibration resistance	Functional	10 to 55 Hz: 1 cycle/min double amplitude of 0.5 mm (10 min on 3 axes)
Shock resistance	Functional	Min. 98 m/s ² {10 G} (4 times on 3 axes)
	Destructive	Min. 980 m/s ² {100 G} (5 times on 3 axes)
Ambient temperature	-10 to +50°C +14 to 122°F	
Ambient humidity	Max. 85% RH (non-condensing)	
Weight	135 g 4.76 oz	130 g 4.59 oz

Product types

Type	Operating voltage	Part number		Operating voltage	Part number	
		50Hz	60Hz		50Hz	60Hz
TH13 types (without reset button)	100V AC	TH1345	TH1346	115V AC (115 to 120V AC)	TH1375	TH1376
	200V AC	TH1355	TH1356	220V AC	TH1385	TH1386
	110V AC	TH1365	TH1366	240V AC	TH1395	TH1396
TH23 types (with reset button)	100V AC	TH2345	TH2346	115V AC (115 to 120V AC)	TH2375	TH2376
	200V AC	TH2355	TH2356	220V AC	TH2385	TH2386
	110V AC	TH2365	TH2366	240V AC	TH2395	TH2396

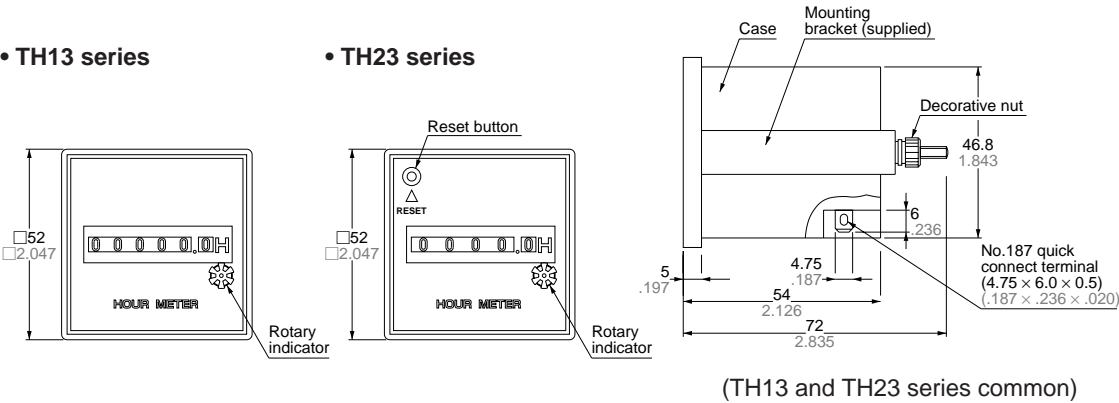
Note) The 115 to 120V AC, 220V AC and 240V AC types are UL-recognized and CSA-certified. For those products, specify "U" at the end of the part number when ordering.

Applicable standard

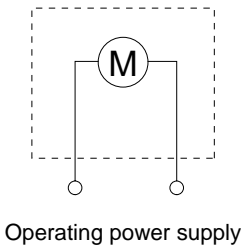
Safety standard	EN61010-1	Pollution Degree 2/Overvoltage Category II
EMC	(EMI)EN61000-6-4 Radiation interference electric field strength Noise terminal voltage (EMS)EN61000-6-2 Static discharge immunity RF electromagnetic field immunity EFT/B immunity Surge immunity Conductivity noise immunity Power frequency magnetic field immunity Voltage dip/Instantaneous stop/Voltage fluctuation immunity	EN55011 Group1 ClassA EN55011 Group1 ClassA EN61000-4-2 4 kV contact 8 kV air EN61000-4-3 10 V/m AM modulation (80 MHz to 1 GHz) 10 V/m pulse modulation (895 MHz to 905 MHz) EN61000-4-4 2 kV (power supply line) EN61000-4-5 1 kV (power line) EN61000-4-6 10 V/m AM modulation (0.15 MHz to 80 MHz) EN61000-4-8 30 A/m (50 Hz) EN61000-4-11 10 ms, 30% (rated voltage) 100 ms, 60% (rated voltage) 1,000 ms, 60% (rated voltage) 5,000 ms, 95% (rated voltage)

Dimensions

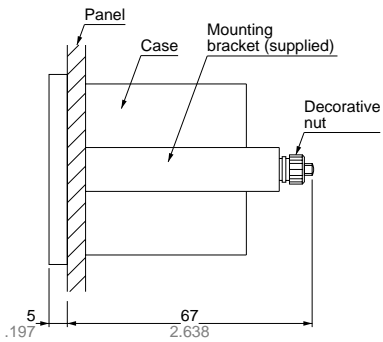
mm inch
General tolerance: $\pm 1.0 \pm .039$



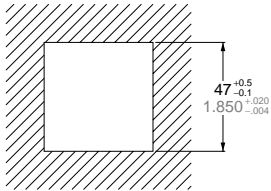
Wiring digram



Panel mounting



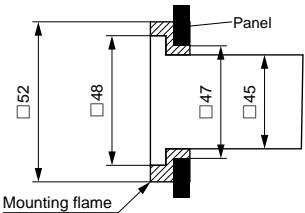
• Panel cutout dimensions



Replacing the TH13/23 series with the TH14/24 series

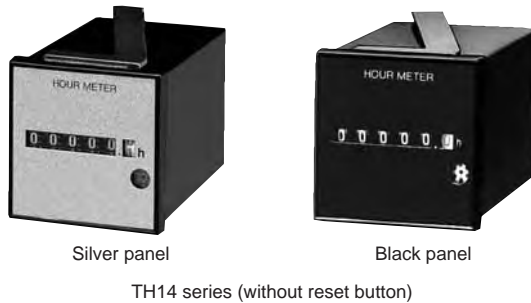
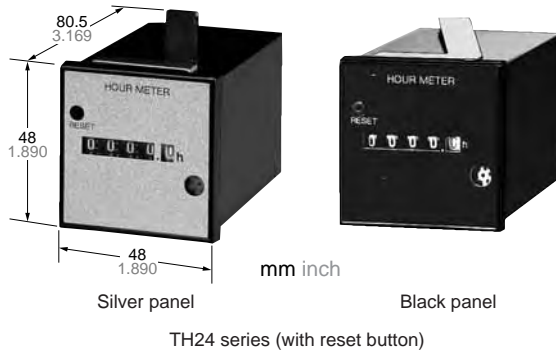
The TH13/TH23 series hour meter are interchangeable with the TH14/24 series hour meter. Use the specified mounting frame because of a different setup method. It is advisable to introduce the TH14/24 series hour meters for the first time.

DIN48 size and mounting frame setup



Mounting frame
(sold separately):
TH1400020

UL File No.: E42876
CSA File No.: LR39291



Features

1. High-performance compact synchronous motor

The accurately turning motor is employed to provide for longer period of measurement.

2. Common for 50/60 Hz power frequency

A lever is used to select 50 Hz or 60 Hz. There is no need to rearrange the control panel and other signal destinations.

3. Dimensions as per DIN 43700 standard

The units are in the 48 × 48 DIN standard size. They can be fitted in panels and give refined metallic appearance.

4. Easier wiring

The flat terminals (#187) are quick and easy to connect.

5. Rotary indicator

The rotary indicator makes one turn every 2 minutes for monitoring.

6. Compliant with UL, CSA and CE.

Typical applications

Maintenance management of machine tools, automated machines, control panels, forming machines, medical equipment, generators, compressors, water treatment facilities, presses, motors, etc.

Specifications

Rated operating voltage	12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC	
Allowable operating voltage range	85 to 115% of rated operating voltage	
Rated frequency	50/60 Hz (selectable by switch)	
Counting range	0 to 99999.9 hours (TH14 series) 0 to 9999.9 hours (TH24 series)	
Minimum time display	0.1 hours (6 min)	
Rated power consumption	Approx. 1.5 W	
Insulation resistance (Initial value)	Min. 100 MΩ; Between live and dead metal parts (At 500V DC)	
Breakdown voltage (Initial value)	2,000 Vrms Between live and dead metal parts	
Max. temperature rise	55°C 131°F	
Vibration resistance	Functional	10 to 55 Hz: 1 cycle/min double amplitude of 0.5 mm (10 min on 3 axes)
Shock resistance	Functional	Min 98 m/s ² {10 G} (4 times on 3 axes)
	Destructive	Min 980 m/s ² {100 G} (5 times on 3 axes)
Ambient temperature	-10 to +50°C +14 to +122°F	
Ambient humidity	Max. 85% RH (non-condensing)	
Weight	145 g 5.11 oz (TH14 series)	150 g 5.29 oz (TH24 series)

Product types

Type	Operating voltage	Part number		Operating voltage	Part number		Operating voltage	Part number	
		Silver panel	Black panel		Silver panel	Black panel		Silver panel	Black panel
TH14 series (without reset button)	100V AC	TH141S	TH141	24V AC	TH144S	TH144	115 to 120V AC	TH147S	TH147
	200V AC	TH142S	TH142	48V AC	TH145S	TH145	220V AC	TH148S	TH148
	12V AC	TH143S	TH143	110V AC	TH146S	TH146	240V AC	TH149S	TH149
TH24 series (with reset button)	100V AC	TH241S	TH241	24V AC	TH244S	TH244	115 to 120V AC	TH247S	TH247
	200V AC	TH242S	TH242	48V AC	TH245S	TH245	220V AC	TH248S	TH248
	12V AC	TH243S	TH243	110V AC	TH246S	TH246	240V AC	TH249S	TH249

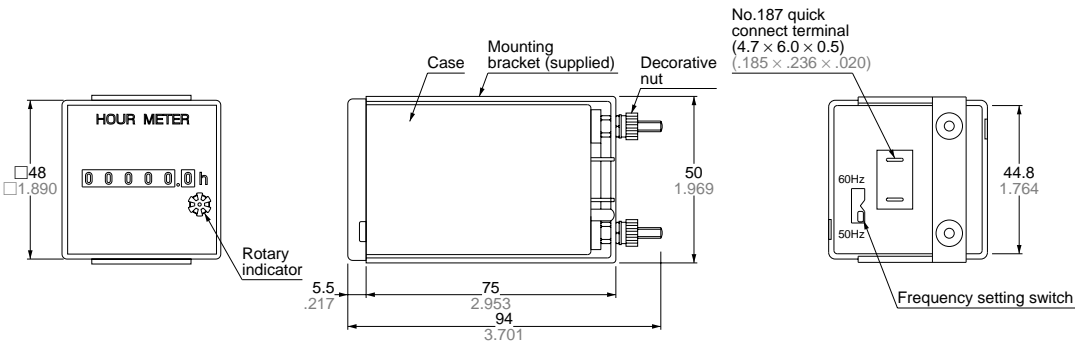
Note) Only the black-panel type is UL-recognized and CSA-certified. For this type, specify "U" at the end of the part number when ordering.

Applicable standard

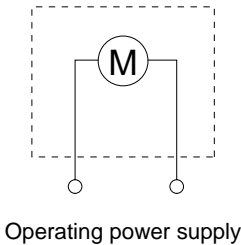
Safety standard	EN61010-1	Pollution Degree 2/Overvoltage Category II
EMC	(EMI)EN61000-6-4 Radiation interference electric field strength Noise terminal voltage (EMS)EN61000-6-2 Static discharge immunity	EN55011 Group1 ClassA EN55011 Group1 ClassA
	RF electromagnetic field immunity EFT/B immunity Surge immunity Conductivity noise immunity Power frequency magnetic field immunity Voltage dip/Instantaneous stop/Voltage fluctuation immunity	EN61000-4-2 4 kV contact 8 kV air EN61000-4-3 10 V/m AM modulation (80 MHz to 1 GHz) 10 V/m pulse modulation (895 MHz to 905 MHz) EN61000-4-4 2 kV (power supply line) EN61000-4-5 1 kV (power line) EN61000-4-6 10 V/m AM modulation (0.15 MHz to 80 MHz) EN61000-4-8 30 A/m (50 Hz) EN61000-4-11 10 ms, 30% (rated voltage) 100 ms, 60% (rated voltage) 1,000 ms, 60% (rated voltage) 5,000 ms, 95% (rated voltage)

Dimensions (TH14 and TH24 series common)

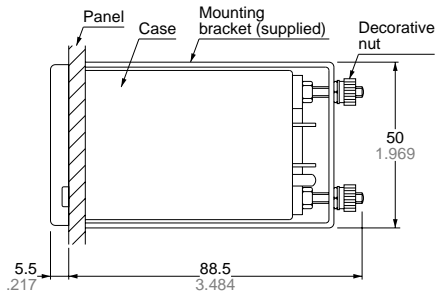
mm inch
General tolerance: ±1.0 ±.039



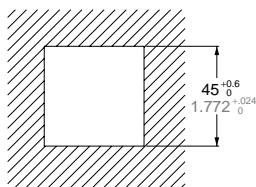
Wiring diagram

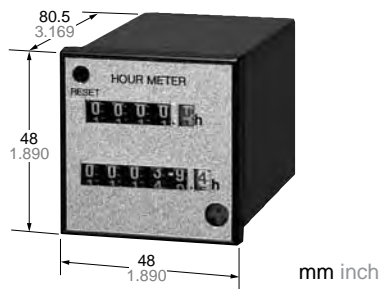


Panel mounting



• Panel cutout dimensions





Silver panel



Black panel

Features

1. Upgraded composite function

Specified-period measurement and total-time measurement can be monitored on a single hour meter.

2. High-performance compact synchronous motor

The accurately turning motor is employed to provide for longer period of measurement.

3. Common for 50/60 Hz power frequency

A lever is used to select 50 Hz or 60 Hz. There is no need to rearrange the control panel and other signal destinations.

4. Dimensions as per DIN 43700 standard

The units are in the 48 × 48 DIN standard size. They can be fitted in panels and give refined metallic appearance.

5. Easier wiring

The flat terminals (#187) are quick and easy to connect.

6. Rotary indicator

The rotary indicator makes one turn every 2 minutes for monitoring.

7. Compliant with CE.

Specifications

Rated operating voltage		12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC
Allowable operating voltage range		85 to 115% of rated operating voltage
Rated frequency		50/60 Hz (selectable by switch)
Counting range		0 to 9999.9 hours (upper side) ... with reset indicator 0 to 99999.9 hours (lower side) ... without reset indicator
Minimum time display		0.1 hours (6 min)
Rated power consumption		Approx. 1.5 W
Insulation resistance (Initial value)		Min. 100 MΩ; Between live and dead metal parts (At 500V DC)
Breakdown voltage (Initial value)		2,000 Vrms Between live and dead metal parts
Max. temperature rise		55°C 131°F
Vibration resistance	Functional	10 to 55 Hz: 1 cycle/min double amplitude of 0.5 mm (10 min on 3 axes)
Shock resistance	Functional	
	Destructive	Min 98 m/s ² {10 G} (4 times on 3 axes) Min 980 m/s ² {100 G} (5 times on 3 axes)
Ambient temperature		-10 to +50°C +14 to +122°F
Ambient humidity		Max. 85% RH (non-condensing)
Weight		160 g 5.64 oz

Product types

Type	Operating voltage	Part number		Operating voltage	Part number		Operating voltage	Part number	
		Silver panel	Black panel		Silver panel	Black panel		Silver panel	Black panel
TH40 series	100V AC	TH401S	TH401	24V AC	TH404S	TH404	115 to 120V AC	TH407S	TH407
	200V AC	TH402S	TH402	48V AC	TH405S	TH405	220V AC	TH408S	TH408
	12V AC	TH403S	TH403	110V AC	TH406S	TH406	240V AC	TH409S	TH409

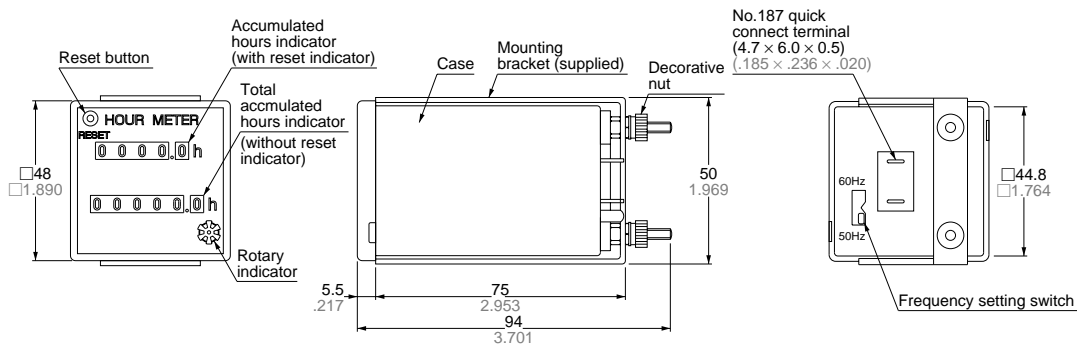
Applicable standard

Safety standard	EN61010-1	Pollution Degree 2/Overvoltage Category II
EMC	(EMI)EN61000-6-4 Radiation interference electric field strength Noise terminal voltage (EMS)EN61000-6-2 Static discharge immunity RF electromagnetic field immunity EFT/B immunity Surge immunity Conductivity noise immunity Power frequency magnetic field immunity Voltage dip/Instantaneous stop/Voltage fluctuation immunity	EN55011 Group1 ClassA EN55011 Group1 ClassA EN61000-4-2 4 kV contact 8 kV air EN61000-4-3 10 V/m AM modulation (80 MHz to 1 GHz) 10 V/m pulse modulation (895 MHz to 905 MHz) EN61000-4-4 2 kV (power supply line) EN61000-4-5 1 kV (power line) EN61000-4-6 10 V/m AM modulation (0.15 MHz to 80 MHz) EN61000-4-8 30 A/m (50 Hz) EN61000-4-11 10 ms, 30% (rated voltage) 100 ms, 60% (rated voltage) 1,000 ms, 60% (rated voltage) 5,000 ms, 95% (rated voltage)

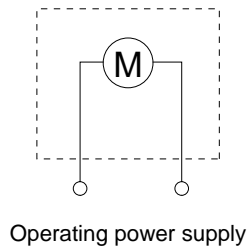
Dimensions

mm inch

General tolerance: $\pm 1.0 \pm .039$

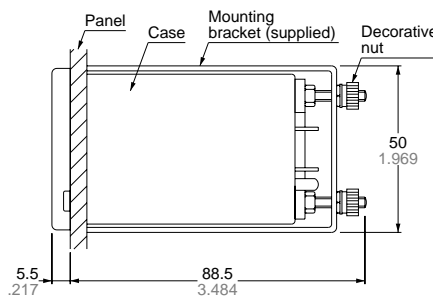


Wiring diagram

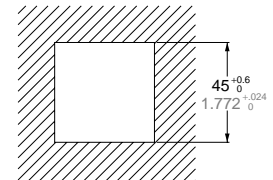


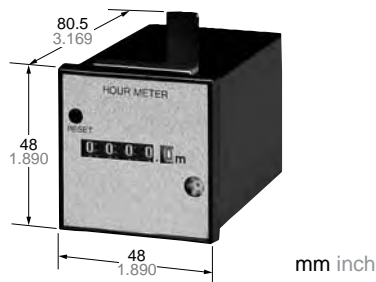
Panel mounting

mm inch



• Panel cutout dimensions





Silver panel



Black panel

Features

1. Measurement and management in units of minutes

Unlike conventional hour meters, the time can be measured and managed in minutes.

2. Reset button

The hour meters can be reset to zero for repeated measurement.

3. High-performance compact synchronous motor

The accurately turning motor is employed to provide for longer period of measurement.

4. Common for 50/60 Hz power frequency

A lever is used to select 50 Hz or 60 Hz. There is no need to rearrange the control panel and other signal destinations.

5. Dimensions as per DIN 43700 standard

The units are in the 48 × 48 DIN standard size. They can be fitted in panels and give refined metallic appearance.

6. Easier wiring

The flat terminals (#187) are quick and easy to connect.

7. Rotary indicator

The rotary indicator makes one turn every 2 seconds for monitoring.

8. Compliant with CE.

Specifications

Rated operating voltage		12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC
Allowable operating voltage range		85 to 115% of rated operating voltage
Rated frequency		50/60 Hz (selectable by switch)
Counting range		0 to 9999.9 min
Minimum time display		0.1 min (6 sec)
Rated power consumption		Approx. 1.5 W
Insulation resistance (Initial value)		Min. 100 MΩ, Between live and dead metal parts (At 500 V DC)
Breakdown voltage (Initial value)		2,000 Vrms, Between live and dead metal parts
Max. temperature rise		55°C 131°F
Vibration resistance	Functional	10 to 55 Hz: 1 cycle/min double amplitude of 0.5 mm (10 min on 3 axes)
Shock resistance	Functional	
	Destructive	Min. 980 m/s ² {100 G} (5 times on 3 axes)
Ambient temperature		−10 to +50°C +14 to +122°F
Ambient humidity		Max. 85% RH (non-condensing)
Weight		150 g 5.29 oz

Product types

Type	Operating voltage	Part number		Operating voltage	Part number		Operating voltage	Part number	
		Silver panel	Black panel		Silver panel	Black panel		Silver panel	Black panel
TH50 series	100V AC	TH501S	TH501	24V AC	TH504S	TH504	115 to 120V AC	TH507S	TH507
	200V AC	TH502S	TH502	48V AC	TH505S	TH505	220V AC	TH508S	TH508
	12V AC	TH503S	TH503	110V AC	TH506S	TH506	240V AC	TH509S	TH509

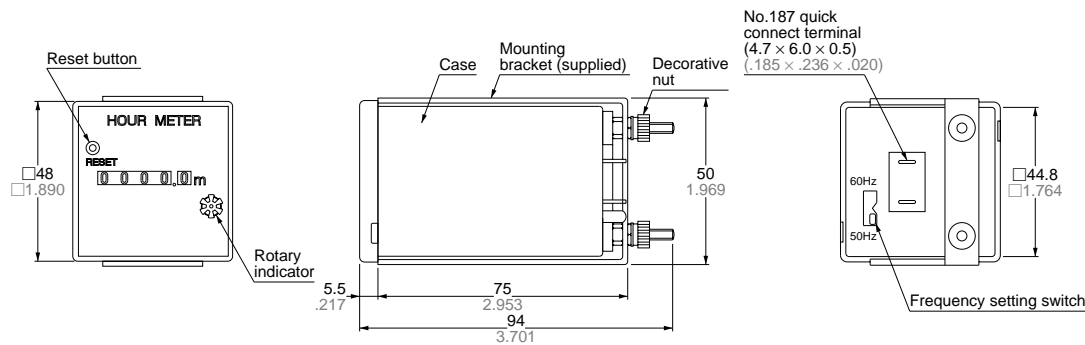
Applicable standard

Safety standard	EN61010-1	Pollution Degree 2/Overvoltage Category II
EMC	(EMI)EN61000-6-4 Radiation interference electric field strength Noise terminal voltage (EMS)EN61000-6-2 Static discharge immunity RF electromagnetic field immunity EFT/B immunity Surge immunity Conductivity noise immunity Power frequency magnetic field immunity Voltage dip/Instantaneous stop/Voltage fluctuation immunity	EN55011 Group1 ClassA EN55011 Group1 ClassA EN61000-4-2 4 kV contact 8 kV air EN61000-4-3 10 V/m AM modulation (80 MHz to 1 GHz) 10 V/m pulse modulation (895 MHz to 905 MHz) EN61000-4-4 2 kV (power supply line) EN61000-4-5 1 kV (power line) EN61000-4-6 10 V/m AM modulation (0.15 MHz to 80 MHz) EN61000-4-8 30 A/m (50 Hz) EN61000-4-11 10 ms, 30% (rated voltage) 100 ms, 60% (rated voltage) 1,000 ms, 60% (rated voltage) 5,000 ms, 95% (rated voltage)

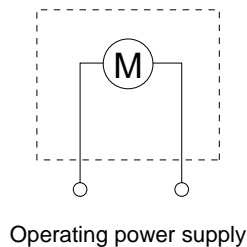
Dimensions

mm inch

General tolerance: $\pm 1.0 \pm .039$

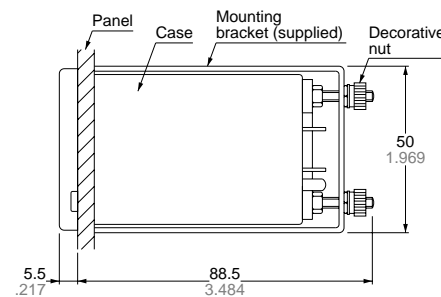


Wiring diagram

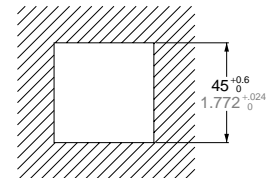


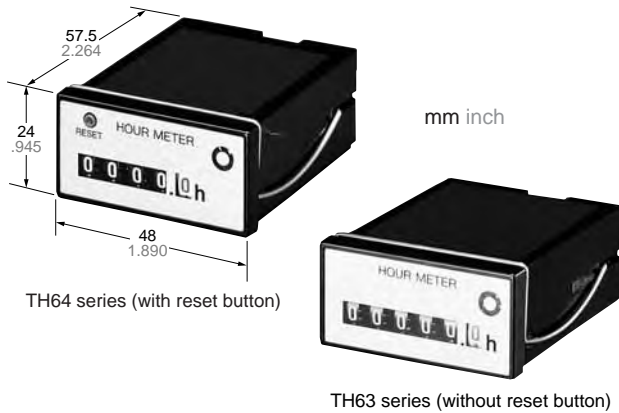
Panel mounting

mm inch



• Panel cutout dimensions





UL File No.: E42876
CSA File No.: LR39291



2. Reset button

The hour meters can be reset to zero (TH64 series).

3. Wide-ranging measurement display

The measurement can be displayed from 0.1 hour up to 99999.9 hours (TH63 series). The dial size is the same as that of 48 × 48 DIN size hour meters (TH14 and TH24 series).

4. Easy to install

The flat terminals (#187) are used for easier wiring. There is no need to undo the lock spring.

5. High-performance sync motor with 50/60 Hz selector

The noise-resistant, accurately turning motor is employed to provide for longer period of measurement. The power frequency can be selected for 50 or 60 Hz.

6. Rotary indicator

The rotary indicator makes one turn every 72 seconds for monitoring.

7. Compliant with UL, CSA and CE.

Features

1. Compact to save panel space

The 24 × 48 mm hour meters are just half the DIN 48 × 48 standard size. They help save the panel space.

Typical applications

Management of small generators and food processing machines; hour counting for leased equipment; maintenance management of various equipment, etc.

Specifications

Rated operating voltage		12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC
Allowable operating voltage range		85 to 115% of rated operating voltage
Rated frequency		50/60 Hz (selectable by switch)
Counting range		0 to 99999.9 hours (TH63 series) 0 to 9999.9 hours (TH64 series)
Minimum time display		0.1 hours (6 min)
Rated power consumption		Approx. 1.5 W
Insulation resistance (Initial value)		Min. 100 MΩ, Between live and dead metal parts (At 500 V DC)
Breakdown voltage (Initial value)		2,000 Vrms, Between live and dead metal parts
Max. temperature rise		55°C 131°F
Vibration resistance	Functional	10 to 55 Hz: 1 cycle/min double amplitude of 0.5 mm (10 min on 3 axes)
Shock resistance	Functional	Min 98 m/s ² {10 G} (4 times on 3 axes)
	Destructive	Min 980 m/s ² {100 G} (5 times on 3 axes)
Ambient temperature		-10 to +50°C +14 to +122°F
Ambient humidity		Max. 85% RH (non-condensing)
Weight		Approx. 80 g 2.82 oz

Product types

Type	Operating voltage	Part number	Operating voltage	Part number	Operating voltage	Part number
TH63 series (without reset button)	100V AC	TH631	24V AC	TH634	115 to 120V AC	TH637
	200V AC	TH632	48V AC	TH635	220V AC	TH638
	12V AC	TH633	110V AC	TH636	240V AC	TH639
TH64 series (with reset button)	100V AC	TH641	24V AC	TH644	115 to 120V AC	TH647
	200V AC	TH642	48V AC	TH645	220V AC	TH648
	12V AC	TH643	110V AC	TH646	240V AC	TH649

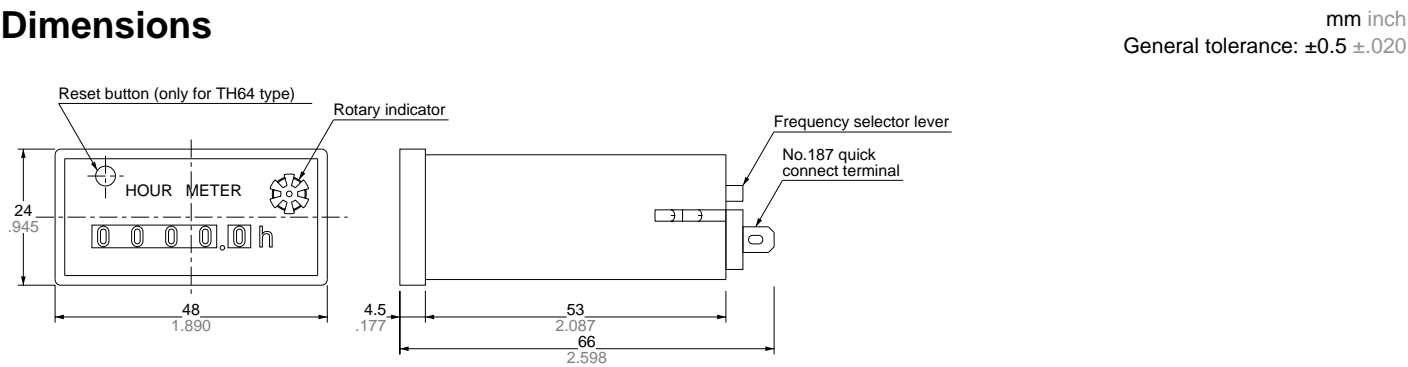
Notes) 1. Only the metallic-looking (silver) panel mounting type is available.

2. Standard products are UL-recognized as well as CSA-certified. There is no need to add "U" at the end of the part number. Just specify the standard part number when ordering.

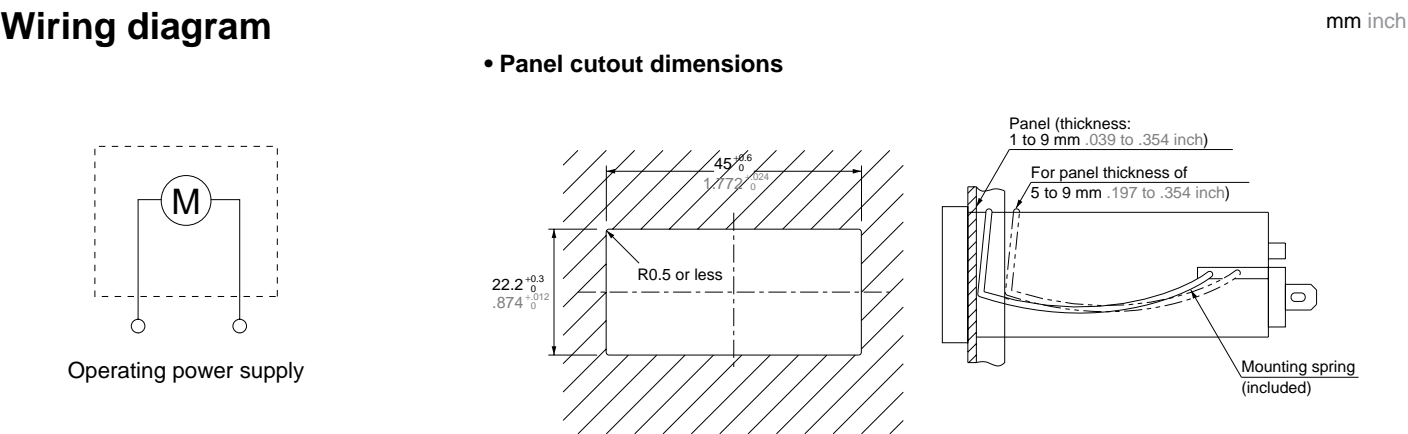
Applicable standard

Safety standard	EN61010-1	Pollution Degree 2/Overvoltage Category II
EMC	(EMI)EN61000-6-4 Radiation interference electric field strength Noise terminal voltage (EMS)EN61000-6-2 Static discharge immunity RF electromagnetic field immunity EFT/B immunity Surge immunity Conductivity noise immunity Power frequency magnetic field immunity Voltage dip/Instantaneous stop/Voltage fluctuation immunity	EN55011 Group1 ClassA EN55011 Group1 ClassA EN61000-4-2 4 kV contact 8 kV air EN61000-4-3 10 V/m AM modulation (80 MHz to 1 GHz) 10 V/m pulse modulation (895 MHz to 905 MHz) EN61000-4-4 2 kV (power supply line) EN61000-4-5 1 kV (power line) EN61000-4-6 10 V/m AM modulation (0.15 MHz to 80 MHz) EN61000-4-8 30 A/m (50 Hz) EN61000-4-11 10 ms, 30% (rated voltage) 100 ms, 60% (rated voltage) 1,000 ms, 60% (rated voltage) 5,000 ms, 95% (rated voltage)

Dimensions

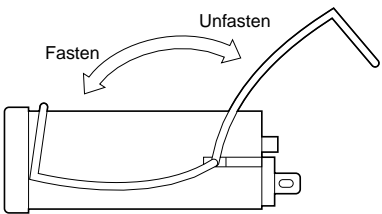


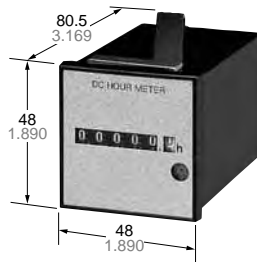
Wiring diagram



Mounting

1. Cut a $22.2^{+0.3}_{-0} \times 45^{+0.6}_{-0}$ mm ($.874^{+0.12}_{-0} \times 1.772^{+0.024}_{-0}$ inch) opening in the panel.
2. Swing the mounting spring to the rear of the hour meter and fit the hour meter into the panel opening. (There is no need to detach the mounting spring from the hour meter.) If the panel is 5 to 9 mm .197 to .354 inch thick, move the mounting spring to the other hole toward the rear of the hour meter.
3. Swing the mounting spring to the front of the hour meter to secure the hour meter to the panel.
4. Wire the supplied quick connectors and connect to the hour meter. Be sure to use the supplied insulating sleeves to cover the connectors.





mm inch

Silver panel



Black panel

Features

1. Driven on DC power

The hour meters can be built in DC-powered control panels. Machine tools and similar machinery are monitored from the control panel for added safety.

2. High-performance compact sync motor with ultra-accurate quartz oscillator

The quartz oscillator helps keep the monthly error shorter than 15 seconds (for 720 hours). The accurately turning motor is employed to provide for longer period of measurement.

3. Dimensions as per DIN 43700 standard

The units are in the 48 × 48 DIN standard size. They can be fitted in panels and give refined metallic appearance.

4. Rotary indicator

The rotary indicator makes one turn every 2 minutes for monitoring.

Specifications

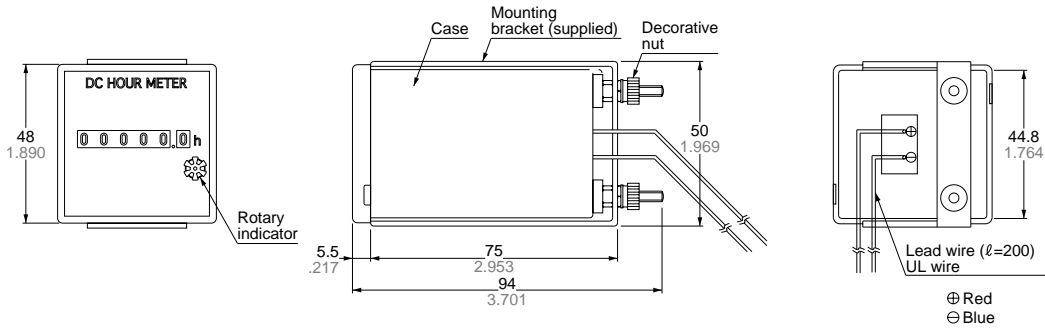
Rated operating voltage		12 V DC, 24 V DC
Allowable operating voltage range		80 to 120% of rated operating voltage
Counting range		0 to 9999.9 hours
Minimum time display		0.1 hours (6 min)
Rated power consumption		Approx. 1.5 W
Insulation resistance (Initial value)		Min. 100 MΩ Between live and dead metal parts (At 500 V DC)
Breakdown voltage (Initial value)		2,000 Vrms Between live and dead metal parts
Max. temperature rise		55°C 131°F
Vibration resistance	Functional	10 to 55 Hz: 1 cycle/min double amplitude of 0.5 mm (10 min on 3 axes)
Shock resistance	Functional	Min 98 m/s ² {10 G} (4 times on 3 axes)
	Destructive	Min 980 m/s ² {100 G} (5 times on 3 axes)
Ambient temperature		-10 to +50°C +14 to +122°F
Ambient humidity		Max. 85% RH (non-condensing)
Power supply ripple		Approx. 48% or less (single phase all-wave rectification)
Weight		170 g 6.00 oz

Product types

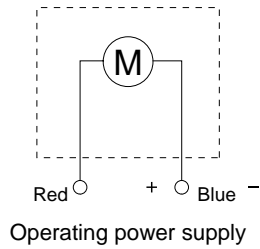
Type	Operating voltage	Part number	
		Silver panel	Black panel
TH70 series	12V DC	TH703S	TH703
	24V DC	TH704S	TH704

Dimensions

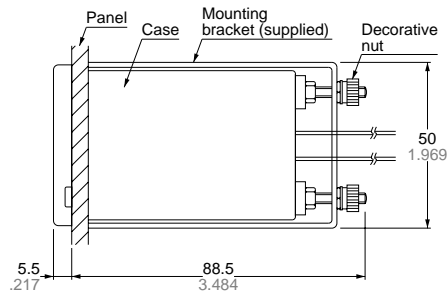
mm inch
General tolerance: $\pm 1.0 \pm .039$



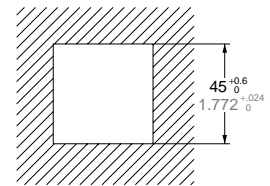
Wiring diagram



Panel mounting



• Panel cutout dimensions





Features

1. IP66 waterproof construction

The front panel surface keeps water and dust out. Perfect for use in rough conditions.

2. Includes operation light (LED)

The operation LED illuminates so you can quickly verify operation status.

3. Compliant with UL, c-UL and CE.

RoHS Directive compatibility information

Product type

Installation	Measurement time	Operation light	Rated voltage	Part No.
Panel installation	0 to 9999.9 hours	LED illuminates while operating.	12 V DC	TH833C
			24 V DC	TH834C

Note: Products are UL and c-UL certified as standard. (Suffix "U" is not required ON part numbers when ordering.)

Specifications

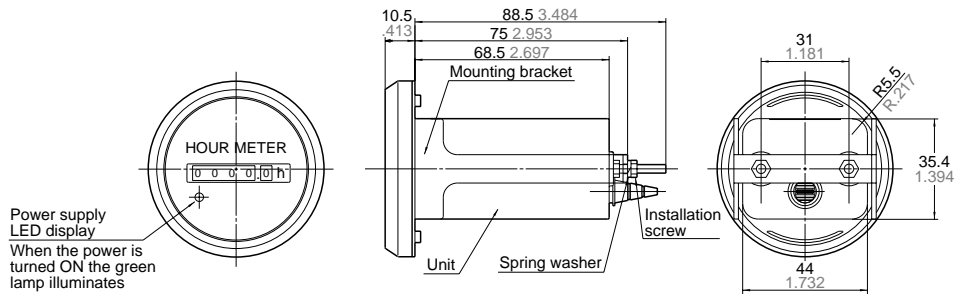
Item		Type	TH833C	TH834C
Rating	Rated voltage		12 V DC	24 V DC
	Usage voltage range		10.2 to 15.6 V DC	20.4 to 31.2 V DC
	Measurement time		0 to 9999.9 hours	
	Min. measurement time		0.1 hour (6 min.)	
	Power consumption		Approx. 1.5 W (With rated voltage applied at 25°C 77°F)	
Electrical characteristics	Insulation resistance (initial)		Min. 100 MΩ between charged and uncharged parts (measured at 500 V DC)	
	Breakdown voltage (initial)		Between charged and uncharged parts: 2,000 V AC for 1 minute.	
	Temperature rise		Max. 55°C 131°F (measured at rated voltage and resistance law)	
Mechanical characteristics	Functional vibration resistance		10 to 55 Hz (1 cycle/min.) Single amplitude: 0.35 mm (10 min. ON 3 axes)	
	Functional shock resistance		Min. 98 m/s ² (4 times ON 3 axes)	
	Destructive vibration resistance		Min. 980 m/s ² (5 times ON 3 axes)	
Usage conditions	Operation temperature		-20°C to +60°C -4°F to +140°F (Without due and frost)	
	Ambient humidity		35 to 85% RH (relative humidity) (non-condensing)	
	Power supply ripple		Approx. 48% or less (single phase, all-wave rectification)	
Protective construction			IP66 (front panel with a rubber gasket)	

Applicable standard

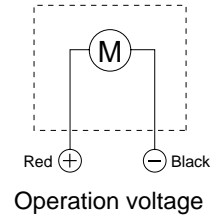
EMC	(EMI)EN61000-6-4 Radiation interference electric field strength Noise terminal voltage (EMS)EN61000-6-2 Static discharge immunity	EN55011 Group1 ClassA EN55011 Group1 ClassA
	RF electromagnetic field immunity EFT/B immunity Conductivity noise immunity Power frequency magnetic field immunity	EN61000-4-2 4 kV contact 8 kV air EN61000-4-3 10 V/m AM modulation (80 MHz to 1 GHz) EN61000-4-4 2 kV (power supply line) EN61000-4-6 10 V/m AM modulation (0.15 MHz to 80 MHz) EN61000-4-8 30 A/m (50 Hz)

Dimensions and part names (unit: mm inch)

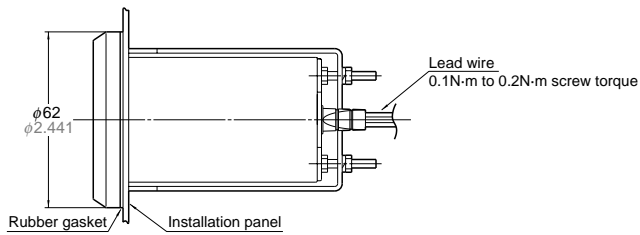
Tolerance: $\pm 1.0 \pm .039$



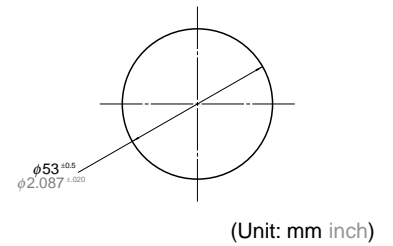
Wiring diagram








Panel installation diagram







Panel cutout dimensions






HOUR METERS SELECTOR CHART

Types		DIN 48 × 48 size Hour Meters				
Name of product		TH14 Hour Meters	TH24 Hour Meters	TH40 Hour Meters	TH50 Hour Meters	TH70 Hour Meters
Appearance						
		TH14 series	TH24 series	TH40 series	TH50 series	TH70 series
Counting range		0 to 99999.9 hours	0 to 9999.9 hours	Reset side 0 to 9999.9 hours Without reset side 0 to 99999.9 hours	0 to 9999.9 min	0 to 99999.9 hours
Features		For controlling total integrated hours	With zero reset function For controlling measured integrated hours	Composite function for total accumulated hours monitoring and measuring each zero reset	Zero reset for minute unit time monitoring	For monitoring accumulated hours on DC line
Driving method		AC motor	AC motor	AC motor	AC motor	DC quartz motor
Counting direction		Addition (UP)	Addition (UP)	Addition (UP)	Addition (UP)	Addition (UP)
Power	Voltage	12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC	12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC	12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC	12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC	12 V DC, 24 V DC
	Frequency	50/60Hz (common)	50/60Hz (common)	50/60Hz (common)	50/60Hz (common)	—
Counting integral/ Counting max. speed		Synchronizing with power supply frequency	Synchronizing with power supply frequency	Synchronizing with power supply frequency	Synchronizing with power supply frequency	According to quartz oscillation frequency
Min. counting unit		0.1 h	0.1 h	0.1 h	0.1 min	0.1 h
Reset input		—	Manual reset	Manual reset	Manual reset	—
Max. power consumption		Approx. 1.5 W	Approx. 1.5 W	Approx. 1.5 W	Approx. 1.5 W	Approx. 1.5 W
Weight		145 g 5.115 oz	150 g 5.291 oz	160 g 5.644 oz	150 g 5.291 oz	170 g 5.997 oz
Remarks		—	The TH50 series displays time in minute.	—	—	The unit with a reset function is also available. (Manufacturing after receiving an order)
		The TH14, 24, 40, 50, 63, and 64 series have numbers at the end of the part number that indicate the voltage required as follows: 1:100 V, 2:200 V, 3:12 V, 4:24 V, 5:48 V, 6:110 V, 7:115 to 120 V, 8:220 V, 9:240 V, Ex.) The part number of the TH24 series with 220 V is TH248. When "S" is specified at the end of the part number, a silver panel is equipped at the front.				
Page		P. 168	P. 168	P. 170	P. 172	P. 176

Types		DIN 24 × 48 size Hour Meters		DIN 24 × 48 size Hour Meters	
Name of product		TH63 Hour Meters	TH64 Hour Meters	LH2H Hour Meters	LH2H Preset Hour Meters
Appearance					
	Front section of part number	TH63 series	TH64 series	Panel mounting type PC board mounting type	ATH3
Counting range		0 to 99999.9 hours	0 to 9999.9 hours	Flush mounting type: 0 to 99999.9 hours/0 to 3999 days 23.9 hours (selectable) 0 to 999 hours 59 min 59 sec/0 to 9999 hours 59.9 min (selectable) PC board mounting type: 0 to 99999.9 hours/9999 hours 59.9 min (different type)	0 to 99999.9 hours/ 0 to 3999 days 23.9 hours (selectable) 0 to 999 hours 59 min 59 sec/ 0 to 9999 hours 59.9 min (selectable)
Features		For controlling total integrated hours	With zero reset function For controlling measured integrated hours	Big 7-digit display, 8.7 mm tall display Bright, 2-color back light (voltage input type) Plenty of input methods • Non-voltage input, Voltage input, free voltage input	Preset function equipped in half size
Driving method		AC motor	AC motor	Quartz oscillation type	Quartz oscillation type
Counting direction		Addition (UP)	Addition (UP)	Addition (UP)	Addition or subtraction
Power	Voltage	12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC	12 V AC, 24 V AC, 48 V AC, 100 V AC, 110 V AC, 115 to 120 V AC, 200 V AC, 220 V AC, 240 V AC	Flush mounting type: Unnecessary (Built-in battery) PC board mounting type: 3 V DC (Battery is externally installed.)	24 V DC
	Frequency	50/60Hz (common)	50/60Hz (common)	—	—
Counting integral/ Counting max. speed		Synchronizing with power supply frequency	Synchronizing with power supply frequency	±100 ppm (25°C)	±0.01% ±50 ms in case of power on start ±0.01% ±30 ms in case of input signal start
Min. counting unit		0.1 h	0.1 h	0.1 h, 0.1 min, 1 s	0.1 h, 0.1 min, 1 s
Reset input		—	Manual reset	Push button and external reset input terminal	Push button and external reset input terminal
Max. power consumption		Approx. 1.5 W	Approx. 1.5 W	—	Max. 1.5 W
Weight		80 g 2.822 oz	90 g 3.174 oz	Flush mounting type: 55 g 1.940 oz PC board mounting type: 15 g .529 oz	50 g 1.764 oz
Remarks		The numbers at the end of the part number indicate voltage. (See the remarks above.)		—	—
Page		P. 174	P. 174	P. 148	P. 156

HOUR METERS SELECTOR CHART

Types		DIN 52 × 52 size Hour Meters		TH Hour Meter: Round type
Name of product		TH13 Hour Meter	TH23 Hour Meter	DC Hour Meter
Appearance				
		TH13 series	TH23 series	TH8 series
Counting range		0 to 99999.9 hours	0 to 9999.9 hours	0 to 9999.9 hours
Features		For controlling total integrated hours	With zero reset function For controlling measured integrated hours	Driven on DC power
Driving method		AC motor	AC motor	Ceramic oscillation + AC motor
Counting direction		Addition (UP)	Addition (UP)	Addition (UP)
Power	Voltage	100 V AC, 200 V AC, 110 V AC, 115 to 120 V AC, 220 V AC, 240 V AC	100 V AC, 200 V AC, 110 V AC, 115 to 120 V AC, 220 V AC, 240 V AC	12 V DC, 24 V DC
	Frequency	50 Hz or 60 Hz	50 Hz or 60 Hz	—
Counting integral/ Counting max. speed		Synchronizing with power supply frequency	Synchronizing with power supply frequency	±0.2% (25°C)
Min. counting unit		0.1 h	0.1 h	0.1 h
Reset input		—	Manual reset	—
Max. power consumption		Approx. 1.5 W	Approx. 1.5 W	Approx. 1.5 W
Weight		130 g 4.586 oz	135 g 4.762 oz	170 g 5.997 oz
Remarks		Both the TH13 and 23 series have numbers at the end of the part number that indicate the voltage and frequency required. The third number from the front of the part number indicates the required voltage as follows: 4:100 V, 5:200 V, 6:110 V, 7:115 V (for 50 Hz only) or 115 V to 120 V (for 60 Hz only), 8:220 V, 9:240 V The fourth number from the front of the part number indicates the required frequency as follows: 5:50 Hz, 6:60 Hz Ex.) The part number for the TH13 series of 220 V & 50 Hz specification is TH1385.		—
Page		P. 166	P. 166	P. 178

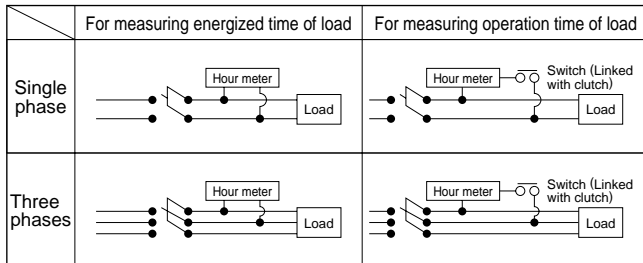
PRECAUTIONS IN USING THE HOUR METERS

1. Frequency setting

Frequency is specified for AC motor-driven hour meters. Before installing, be sure to check your local power frequency.

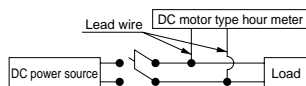
2. Connections

- TH13, 23, 14, 24, 40, 50, 63, 64



Note) Make the connection with the accompanying flat connector first and then with the hour meter's terminal (#187). In such case, be sure to cover the connection with the accompanying insulating sleeve.

- TH70, TH8



Note) Solder the lead wires in position.

3. Safety precautions

Do not use the hour meters in the following places.

- Where ambient temperature is below -10°C or above $+50^{\circ}\text{C}$
- In wet, dusty or gaseous environments
- Where exposed to vibrations and shocks
- Outdoors, or where exposed to rain or direct sunlight

4. Compliant with CE.

- LH2H

Ambient conditions:

Overvoltage category III, contamination factor 2, indoor use.

Ambient temperature and humidity -10 and $+55^{\circ}\text{C}$ and 35% to 85%RH respectively.

- TH13, 23, 14, 24, 40, 50, 63, 64

Ambient conditions:

Overvoltage category II, contamination factor 2, indoor use.

Ambient temperature and humidity -10 and $+50^{\circ}\text{C}$ and below 85%RH respectively.

5. Reset-type hour meter

- Precautions for use

If the number indications are off before use, press the reset button and confirm that all zeroes ("0") are displayed.

- Resetting caution

Exercise due caution as an insufficient amount of pressure on the reset button may result in abnormal readings.

6. Acquisition of CE marking

Please abide by the conditions below when using in applications that comply with EN 61010-1/IEC 61010-1

1) Ambient conditions

- Overvoltage category II, pollution level 2
- Indoor use
- Acceptable temperature and humidity range: -10 to $+55^{\circ}\text{C}$, 35 to 85%RH (with no condensation at 20°C)
- Under 2000 m elevation

2) Use the main unit in a location that matches the following conditions.

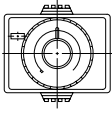



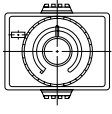























- There is minimal dust and no corrosive gas.
- There is no combustible or explosive gas.
- There is no mechanical vibration or impacts.
- There is no exposure to direct sunlight.
- Located away from large-volume electromagnetic switches and power lines with large electrical currents.

3) Connect a breaker that conforms to EN60947-1 or EN60947-3 to the voltage input section.























4) Applied voltage should be protected with an overcurrent protection device (example: T 1A, 250 V AC time lag fuse) that conforms to the EN/IEC standards. (Free voltage input type)

DISCONTINUED MODELS AND RECOMMENDED SUBSTITUTES

Timers
















Discontinued models	Recommended substitutes	Attachment	Discontinued models	Recommended substitutes	Attachment
MHP-NS (Exposed type Square plug-in/ horizontal type)  MHP-NS-	MHP-N (Exposed type Round plug-in/ vertical type)  MHP-N-	Terminal base AT8-RFD should be used.	CHP-NF (Exposed type Round plug-in/ vertical type)  CHP-NF	PM4H-F  PM4HF-	Attachment frame AT7821 should be used. * External dimensions, however, differ. In addition, the reset method changes from voltage input to non-voltage input.
MHP-M (Exposed type Round plug-in/ horizontal type)  MHP-M-	MHP-NM (Exposed type Round plug-in/ vertical type)  MHP-NM-	Terminal base AT8-RFD should be used.	CHP-SD  CHP-SD-	PM4H-SD  PM4HSD-	With exposed attachment, terminal base ATC180041 should be used. * External dimensions and contact capacity, however, differ. In addition, with the PM4H-SD: 1) (1) to (8) have no internal connection, and 2) the input (star) changes to 1a.
MHP-YC (Embedded type With attachment frame)  MHP-YC-	MHP-N (Exposed type Without attachment frame)  MHP-N-	Attachment frame AT7821 should be used.	PM48A  PM48A-	PM4H-A  PM4HA-	With exposed attachment, terminal base ATC180041 should be used.
MHP-YM (Embedded type With attachment frame)  MHP-YM-	MHP-NM (Exposed type Without attachment frame)  MHP-NM-	Attachment frame AT7831 should be used.	PM48  PM48	PM4H-S  PM4HS-	With exposed attachment, terminal base ATC180031 should be used.
CHP-N (Exposed type with attachment frame type)  CHP-N-	PM4H-S PMH  PM4HS- PMH-	The external dimension and contact capacity are different.	PM48M  PM48M-	PM4H-M  PM4HM-	With exposed attachment, terminal base ATC180031 for F8 type and F8R type ATC180041 for F11R type.
CHP-N (Exposed type without attachment frame type)  CHP-N-	PM4H-S PMH  PM4HS- PMH-	The external dimension and contact capacity are different.	PM48F  PM48F-	PM4H-F  PM4HF-	With exposed attachment, terminal base ATC180031 for F8 type and F8R type ATC180041 for F11R type.
CHP-NF (Exposed type without attachment frame type)  CHP-NF-	PM4H-F  PM4HF-	* External dimensions, however, differ. In addition, the reset method changes from voltage input to non-voltage input.	PM48SD  PM48SD	PM4H-SD  PM4HSD	With exposed attachment, terminal base ATC180031 should be used.

Timers













Discontinued models	Recommended substitutes	Attachment	Discontinued models	Recommended substitutes	Attachment
PM48W 	PM4H-W 	With exposed attachment, terminal base ATC180031 should be used.	LT48 (8-pin) 	LT4H (8-pin) 	
PM48W PMH-M 	PM4H-W- PM4H-M/PM4S 	The external dimension and contact capacity are different.	LT48 LT48W (8-pin) 	LT4H LT4H-L LT4H-W (8-pin) 	
PMH-M- CDX Time relay 	PM4H-M-/PM4S- S1DXM-A Timer/ S1DX Timer 		LT48W LT48W (8-pin) DIN rail socket (8-pin) 	LT4HW LT4H-W DIN rail socket (8-pin) 	
PDX Timer 	S1DXM-A Timer/ S1DX Timer 		ATC18003 DIN rail socket (11-pin) 	ATC18004 DIN rail socket (11-pin) 	
VHP digital high-power timer 	QM4H digital timer 	The size is different. Compact size ↓ DIN48	ATC18004 ATC180041		
QM48S (8-pin) 	QM4H (8-pin) 				
QM48S QM72S (Screw terminal) 	QM4H QM4H (8-pin) 	The size is different. □72 ↓ □48			
QM72S	QM4H				

In some cases, the specifications of the recommended substitutes are not exactly the same as those of the discontinued model. Please confirm the specifications before using the recommended substitutes.

Counters

Discontinued models	Recommended substitutes	Attachment
MC electromagnetic counters  MC6	LC4H  LC4H LC4H-L	The size and attachment method are different. The input method is different. (Voltage input → non-voltage input)
LC48 (Relay type: 8-pin Tr type: 11-pin)  LC48	LC4H (Relay type: 8-pin Tr type: 11-pin)  LC4H LC4H-L	
LC48W (11-pin)  LC48W	LC4H-W (11-pin)  LC4H-W	
EM48S (8-pin)  EM48S	LC4H (8-pin)  LC4H LC4H-L	
EM72S (Screw terminal)  EM72S	LC4H (Screw terminal)  LC4H LC4H-L	The size is different. □72 ↓ □48
LC24 Panel-mounting type  • One-touch installation type LC24	LC2H Panel-mounting type  • One-touch installation type  • Installation frame type LC2H	The both one-touch installation type and installation frame type are available.
LC24 PC board mounting type  LC24	LC2H PC board mounting type  LC2H	

Hour meters

Discontinued models	Recommended substitutes	Attachment
 TH11* TH12*	 TH141S TH142S	Body Round type (attachment hole φ45) ↓ Square type (attachment hole □45)
 TH21* TH22*	 TH241S TH242S	Body Square type (attachment hole □47) ↓ Square type (attachment hole □45)
TH30 	LT4H (~999.9 h)  LT4H LT4H-W (~9999 h)  LT4HW	The size and attachment method are different. The input method is different. (Voltage input → non-voltage input)
LH24 Panel-mounting type  • One-touch installation type LH24	LH2H Panel-mounting type  • One-touch installation type  • Installation frame type LH2H	The both one-touch installation type and installation frame type are available.
LH24 PC board mounting type  LH24	LH2H PC board mounting type  LH2H	

In some cases, the specifications of the recommended substitutes are not exactly the same as those of the discontinued model. Please confirm the specifications before using the recommended substitutes.

FOREIGN SPECIFICATIONS OVERVIEW

1. International Standards

IEC standard

International Electrotechnical Commission

By promoting international cooperation toward all problems and related issues regarding standardization in the electrical and electronic technology fields, the IEC, a non-governmental organization, was started in October, 1908, for the purpose of realizing mutual understanding on an international level. To this end, the IEC standard was enacted for the purpose of promoting international standardization.

2. North America

UL (Underwriters Laboratories Inc.)

This is a non-profit testing organization formed in 1894 by a coalition of U.S. fire insurance firms, which tests and approves industrial products (finished products). When electrical products are marketed in the U.S., UL approval is mandated in many states, by state law and city ordinances. In order to obtain UL approval, the principal parts contained in industrial products must also be UL-approved parts.

UL approval is divided into two general types. One is called "listing" (Fig. 1), and applies to industrial products (finished products). Under this type of approval, products must be approved unconditionally. The other type is called "recognition" (Fig. 2), and is a conditional approval which applies to parts and materials.

LISTING MARK



Fig. 1

RECOGNITION MARK



Fig. 2

Certification



Fig. 3

Component Acceptance



Fig. 4



Fig. 5



Fig. 6

CSA (Canadian Standards Association)

This was established in 1919 as a non-profit, non-governmental organization aimed at promoting standards. It sets standards for industrial products, parts, and materials, and has the authority to judge electrical products to determine whether they conform to those standards. The CSA is the ultimate authority in the eyes of both the government and the people in terms of credibility and respect. Almost all states and provinces in Canada require CSA approval by law, in order to sell electrical products. As a result, electrical products exported from Japan to Canada are not approved under Canadian laws unless they have received CSA approval and display the CSA mark. Approval is called "certification", and products and parts which have been approved are called "certified equipment", and display the mark shown in Fig. 3. The mark shown in Fig. 4 is called the "Component Acceptance" mark, and indicates conditional approval which is applicable to parts. The C-UL mark shown in Fig. 5 (finished products) and Fig. 6 (parts) indicates that the product has been tested and approved in UL laboratories, based on UL and CSA standards, through mutual approval activities.

3. Europe

EN standard

European Standards/Norme Europeennee (France)/Europaishe Norm (Germany)

Abbreviation for European Standards. A unified standard enacted by CEN/CENELEC (European Standards Committee/European Electrical Standards Committee). EU and EFTA member nations employ the content of the EN standards into their own national standards and are obligated to abolish those national standards that do not agree with the EN standards.

(1) Germany



VDE (Verband Deutscher Elektrotechniker)

The VDE laboratory was established mainly by the German Electric Technology Alliance, which was formed in 1893. It carries out safety experiments and passes approval for electrical devices and parts. Although VDE certification is not enforced under German law, punishment is severe should electrical shock or fire occur; therefore, it is, in fact, like an enforcement.



TÜV (Technischer Überwachungs-Verein)

TÜV is a civilian, non-profit, independent organization that has its roots in the German Boiler Surveillance Association, which was started in 1875 for the purpose of preventing boiler accidents. A major characteristic of TÜV is that it exists as a combination of 14 independent organizations (TÜV Rheinland, TÜV Bayern, etc.) throughout Germany. TÜV carries out inspection on a wide variety of industrial devices and equipment, and has been entrusted to handle electrical products, as well, by the government. TÜV inspection and certification is based mainly on the VDE standard. TÜV certification can be obtained from any of the 14 TÜVs throughout Germany and has the same effectiveness as obtaining VDE certification.

4. Shipping Standards

(1) Lloyd's Register of Shipping



Standards from the Lloyd's Register shipping association based in England. These standards are safety standards for environmental testing of the temperature and vibration tolerances of electrical components used for UMS (unmanned machine rooms in marine vessels) applications. These standards have become international standards for control equipment in all marine vessel applications. No particular action is taken to display the conformation to these standards on the products.

5. Pilot Duty

One of the specifications in the “UL508 Industrial Control Equipment” regulations at UL (Underwriters Laboratories Inc.), has to do with the grade of contact control capacity by NEMA (National Electrical Manufacturers Association) standards. By obtaining both UL and CSA approval for this grade, the product becomes authorized publicly.

Pilot Duty A300

AC applied voltage [V]	Electrification current [A]	Input power [A]	Breaker power [A]	[VA]	
				During input	During breaker
120	10	60	6	7,200	720
240		30	3	7,200	720

Pilot Duty B300

AC applied voltage [V]	Electrification current [A]	Input power [A]	Breaker power [A]	[VA]	
				During input	During breaker
120	5	30	3	3,600	360
240		15	1.5	3,600	360

Pilot Duty C300

AC applied voltage [V]	Electrification current [A]	Input power [A]	Breaker power [A]	[VA]	
				During input	During breaker
120	2.5	15	1.5	1,800	180
240		7.5	0.7	1,800	180

FOREIGN SPECIFICATIONS

TIMER

Products Name		Recognized by UL Standards		Certified by CSA Standards		Lloyd's Register Standards		Remarks
		File No.	Recognized rating	File No.	Certified rating	File No.	Certified rating	
PM4S		E43149	5A250VAC PILOT DUTY C300	E43149 (C-UL)	5A250VAC PILOT DUTY C300	—	—	
PM4H-A PM4H-S PM4H-M PM4H-SD PM4H-W		E122222	5A250VAC PILOT DUTY C300	LR39291	5A250VAC PILOT DUTY C300	98/10004	5A 250V AC (resistive)	
PM4H-F		E122222	3A250VAC PILOT DUTY C300	LR39291	3A250VAC PILOT DUTY C300	98/10004	3A 250V AC (resistive)	
LT4H LT4H-L LT4H-W		E122222	5A250VAC PILOT DUTY C300	E122222 (C-UL)	5A250VAC PILOT DUTY C300	—	—	
			100mA30VDC		100mA30VDC			
QM4H		E43149	5A250VAC PILOT DUTY C300	E43149 (C-UL)	5A250VAC PILOT DUTY C300	—	—	
PMH		E59504	7A1/6HP125VAC 7A1/6HP250VAC 3A30VDC PILOT DUTY C300	LR39291	7A1/6HP125VAC 7A1/6HP250VAC 3A30VDC PILOT DUTY C300	88/10123	125V3.5A (COS $\phi \approx 0.4$) 250V2A (COS $\phi \approx 0.4$) 250V7A (COS $\phi \approx 1.0$)	"The standard models conform to the UL/CSA standard. (To place an order, you do not need to specify the tailing character [9] of each item number.)" The standard models conform to the LLOYD standard.
MHP MHP-M		E59504	5A250VAC	LR39291	5A250VAC	88/10123	250V5A (COS $\phi \approx 1.0$)	"The standard models conform to the UL/CSA standard. (To place an order, you do not need to specify the tailing character [9] of each item number.)"
S1DXM-A/M (Relay output)	2C	E122222	7A125VAC 6A250VAC 1/6HP125, 250VAC PILOT DUTY C300	LR39291	7A125VAC 6A250VAC 1/6HP125, 250VAC PILOT DUTY C300	98/10004	7A 250V AC (resistive)	
	4C	E122222	5A250VAC 1/10HP125, 250VAC PILOT DUTY C300	LR39291	5A250VAC 1/10HP125, 250VAC PILOT DUTY C300	98/10004	5A 250V AC (resistive)	
S1DX (Relay output)	2C	E122222	7A125VAC 6A250VAC 1/6HP125, 250VAC PILOT DUTY C300	LR39291	7A125VAC 6A250VAC 1/6HP125, 250VAC PILOT DUTY C300	98/10004	7A 250V AC (resistive)	
	4C	E122222	5A250VAC 1/10HP125, 250VAC PILOT DUTY C300	LR39291	5A250VAC 1/10HP125, 250VAC PILOT DUTY C300	98/10004	5A 250V AC (resistive)	
PM5S-A PM5S-S PM5S-M		E59504 (C-UL)	5A250VAC PILOT DUTY C300	E59504 (C-UL)	5A250VAC PILOT DUTY C300	—	—	

Accessories

Products Name		Recognized by UL Standards		Certified by CSA Standards		Lloyd's Register Standards		Remarks
		File No.	Recognized rating	File No.	Certified rating	File No.	Certified rating	
Common mounting tracks for timers		E59504	10A250VAC AT8-RFD (AT78039) 7A250VAC AT8-DF8L (ATA48211) 8P cap was an approved as an option. AD8-RC (AD8013)	LR39291	10A250VAC AT8-RFD (AT78039) 7A250VAC AT8-DF8L (ATA48211) 8P cap was an approved as an option. AD8-RC (AD8013)	—	—	
		E148103	AT8-DF8K (ATC180031) AT8-DF11K (ATC180041) AT8-R8K (AT78041) AT8- R11K (AT78051)	E148103 (C-UL)	AT8-DF8K (ATC180031) AT8-DF11K (ATC180041) AT8-R8K (AT78041) AT8- R11K (AT78051)	—	—	

FOREIGN SPECIFICATIONS

Counters

Product name	UL recognized		CSA certified		Remarks
	File No.	Approved ratings	File No.	Approved ratings	
LC4H LC4H-L LC4H-S	E122222	5A250V AC PILOT DUTY C300 100mA 30V DC	E122222 (C-UL)	5A250V AC PILOT DUTY C300 100mA 30V DC	
LC4H-W	E122222	3A250V AC PILOT DUTY C300 100mA 30V DC	E122222 (C-UL)	3A250V AC PILOT DUTY C300 100mA 30V DC	
LC2H	E122222	24-240 V AC/DC 4.5-30 V DC 3 V DC	E122222 (C-UL)	24-240 V AC/DC 4.5-30 V DC 3 V DC	
LC2H preset	E122222	24-240 V AC/DC 4.5-30 V DC 3 V DC	E122222 (C-UL)	24-240 V AC/DC 4.5-30 V DC 3 V DC	

Hour Meters

Product name	UL recognized		CSA certified		Remarks
	File No.	Approved ratings	File No.	Approved ratings	
TH13 · TH23 series	E42876	115-120, 220, 240V AC	LR39291	115-120, 220, 240V AC	• For UL-recognized and CSA-certified products, specify "U" at the end of the part No.
TH14 · TH24 series	E42876	12, 24, 48, 100, 110, 115-120, 200, 220, 240V AC	LR39291	12, 24, 48, 100, 110, 115-120, 200, 220, 240V AC	• Only black panel-mounting type UL-recognized and CSA-certified. • For UL-recognized and CSA-certified products, specify "U" at the end of the product code. • Panel-mounting silver type not UL-recognized nor CSA-certified.
TH63 · 64 series	E42876	12, 24, 48, 100, 110, 115-120, 200, 220, 240V AC	LR39291	12, 24, 48, 100, 110, 115-120, 200, 220, 240V AC	• Standard products are UL-recognized and CSA-certified.
LH2H	E122222	24-240 V AC/DC 4.5-30 V DC 3 V DC	E122222 (C-UL)	24-240 V AC/DC 4.5-30 V DC 3 V DC	• Standard products are UL-recognized and CSA-certified.
LH2H preset	E122222	24-240 V AC/DC 4.5-30 V DC 3 V DC	E122222 (C-UL)	24-240 V AC/DC 4.5-30 V DC 3 V DC	• Standard products are UL-recognized and CSA-certified.
TH8 series	E42876	12 V DC 24 V DC	E42876 (C-UL)	12 V DC 24 V DC	• Standard products are UL-recognized and CSA-certified.

Accessories

Product name	UL-recognized		CSA certified		Remarks
	File No.	Rating	File No.	Rating	
Common counter fixtures	E59504	10A250V AC AT8-RFD (AT78039) 7A250V AC AT8-DF8L (ATA48211) 8P cap CSA-certified as option. AD8-RC (AD8013)	LR26550	10A250V AC AT8-RFD (AT78039) 7A250V AC AT8-DF8L (ATA48211) 8P cap UL-listed as option. AD8-RC(AD8013)	
	E148103	AT8-DF8K (ATC180031) AT8-DF11K (ATC180041) AT8-R8K (AT78041) AT8- R11K (AT78051)	E148103 (C-UL)	AT8-DF8K (ATC180031) AT8-DF11K (ATC180041) AT8-R8K (AT78041) AT8- R11K (AT78051)	

CE MARKINGS OVERVIEW

Counter, Hour Meter conforming to EN/IEC standards

The Timer, Counter, Hour Meter shown below conform to both EN and IEC standards, and may display the CE markings.

Product classification	Product name	EMC directives	Low-voltage directives
Timers	LT4H	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	LT4H-L	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	LT4H-W	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	PM4H	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	S1DX	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	S1DXM-A/M	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	PM4S	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	PM5S	EN 61000-6-4/EN 61000-6-2	EN 61812-1
Time Switch	QM4H	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	A-TB72	EN 61000-6-4/EN 61000-6-2	EN 61812-1
Counters	A-TB72Q	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	LC4H	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	LC4H-L	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	LC4H-S	EN 61000-6-4/EN 61000-6-2	EN 61812-1
	LC4H-W	EN 61000-6-4/EN 61000-6-2	EN 61812-1
Hour Meters	LC2H	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	LC2H preset	EN 61000-6-4/EN 61000-6-2	—
	TH13	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	TH23	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	TH14	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	TH24	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	TH40	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	TH50	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	TH63	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	TH64	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	LH2H	EN 61000-6-4/EN 61000-6-2	EN 61010-1
	LH2H preset	EN 61000-6-4/EN 61000-6-2	—
	TH8	EN 61000-6-4/EN 61000-6-2	—

What are EN standards?

An abbreviation of Norme Europeenne (in French), and called European Standards in English. Approval is by vote among the CEN/CENELEC member countries, and is a unified standards limited to EU member countries, but the contents conform to the international ISO/IEC standards.

If the relevant EN standard does not exist, it is necessary to obtain approval based on the relevant IEC standard or, if the relevant IEC standard does not exist, the relevant standard from each country, such as VDE, BS, SEMKO, and so forth.

CE markings and EC directives

The world's largest single market, the European Community (EC) was born on 1 January 1993 (changing its name to EU in November 1993. It is now always expressed as EU, apart from EC directives.) EU member country products have always had their quality and safety guaranteed according to the individual standards of each member country. However, the standards of each country being different prevented the free flow of goods within the EU. For this reason, in order to eliminate non-tariff barriers due to these standards, and to maximize the merits of EU unification, the EC directives were issued concomitant to the birth of the EU.

The EN standards were established as universal EU standards in order to facilitate EU directives. These standards were merged with the international IEC standards and henceforth reflect the standards in all countries. Also, the CE markings show that products conform to EC directives, and guarantee the free flow of products within the EC.

Appropriate EC directives for control equipment products

The main EC directives that are to do with machinery and electrical equipment are the machinery directive, the EMC directive, the low voltage directive, and the telecom directive. Although these directives have already been issued, the date of their enactment is different for each one. The machinery directive was 1 January 1995. The EMC directive was 1 January 1996, and the low voltage directive was enacted from 1 January 1997. The telecom directive was established by the separate CTR (Common Technology References.)