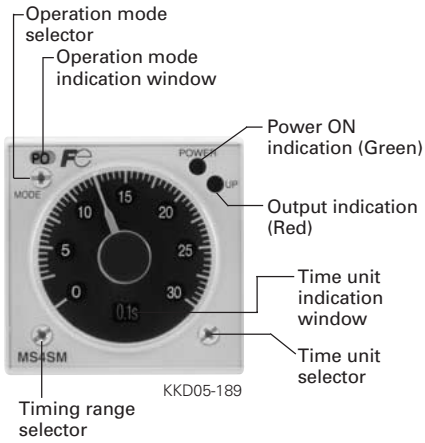
Direct-reading time-scale and compact body MS4S Super Timer

MS4S series Super Timers feature an easy setting and direct-reading system of four time-scale.
MS4SM timer is multimode operation type and MS4SA and MS4SC timers are on-delay operation type.

■ Features

- Time-scale indication window and time-scale selector
  By turning a time-scale selector, the timing-scales appear in the indication windows one set a time.
  Although this is a multimode timer, the optional times such as 56 or 27 minutes can be easily set with the direct-reading time-scale.
- Compact timer with instantaneous contact
  On-delay timers with instantaneous contact, as well as multimode and on-delay timers, are compact.
  The front to back length of the timers is only 66.5mm.
- Operation mode indication window and operation mode selector
  Four operation modes are provided (MS4SM type only).
  By turning the operation mode selector, the on-delay, flicker, one-shot, or signal off-delay operation mode can be selected. The present mode is shown in the operation mode indication window with the marks PO, FL, OS or SF.
- LED power ON and output indicator
  The power-source lamp (Green) is lit when power is on and flickers during timer operation.
  The output lamp (Red) is lit when the timed NO contact is on.
- Wide range of AC supply voltage
  Supply voltages of 100 to 240V AC are commonly available (ordering code: AP type only).
- Instantaneous operation function with 0 indication
  When the timer dial is set at 0, output is given instantaneously, allowing sequence checks to be performed easily.
- Time unit indication window and time unit selector
  By turning the time selector, time units of 0.1 sec., sec., min, and hours. can be selected and made to appear in the indication window.
- Improvement of resistance to waveform distortion
  The resistance to distortion of secondary voltage waveform of the power supply caused by inverters and uninterruptible power supplies (UPS) is improved.

MS4SM KKD05-126



- UL, c UL us and TÜV approved

■ Timing range/16 ranges

Time-scale	Time unit indication window			
	0.1s	sec	min	hrs
0 1 2 3 4 5 6	0.05 – 0.6s	0.05 – 6s	0.5 – 6min	0.5 – 6h
0 2 4 6 8 10 12	0.1 – 1.2s	1 – 12s	1 – 12min	1 – 12h
0 5 10 15 20 25 30	0.25 – 3s	2.5 – 30s	2.5 – 30min	2.5 – 30h
0 10 20 30 40 50 60	0.5 – 6s	5 – 60s	5 – 60min	5 – 60h

■ Type number nomenclature

MS 4 S M – AP 1T R N

Super Timer

DIN 48mm square size

Compact type

Operation mode
- M: Multimode
- A: On-delay Timed contact 2PDT
- C: On-delay Timed contact SPDT, Inst. contact SPDT
- F: Off-delay
- Y: Star-delta
- R: Repeat timer

Input voltage code
- AP: 100 – 240V AC
- CE: 24V AC/DC
- DL: 48 – 127V DC

Timing range code
- 1T: 0.6–12s (MS4SF, R)
- 1N: 0.6–12min (MS4SF, R)

Contact arrangement
- R: With reset

Operation type (MS4SR only)
- N: ON start
- Blank: OFF start

■ Ordering information

Specify the following
1. Ordering code or type number of body and socket.

■ Specifications (MS4SM, MS4SA, MS4SC)

Type	Ordering code	Input voltage	Operation	Contact	Timing range	Socket *
MS4SM	MS4SM-AP MS4SM-CE MS4SM-DL	100 – 240V AC 24V AC/DC 48 – 127V DC	On-delay Flicker One-shot Signal off-delay	Timed: 2PDT 5A	Total 16 ranges 0.05 – 0.6s 0.1 – 1.2s 0.25 – 3s 0.05 – 6s 0.5 – 6 (s, min, h) 1 – 12 (s, min, h) 2.5 – 30 (s, min, h) 5 – 60 (s, min, h)	Surface mounting: TP411X 11GB(RX1G)+FX3(MZ24) Flush mounting: TP411SBA ATX2NS(MX41NS)
MS4SA	MS4SA-AP MS4SA-CE MS4SA-DL	100 – 240V AC 24V AC/DC 48 – 127V DC	On-delay	Timed: 2PDT 5A		Surface mounting: TP48X(MX48X2) 8GB(RX8G)+FX3(MZ24) Flush mounting: TP48SB(MX48N1) ATX1NS(MX48NS)
MS4SC	MS4SC-AP MS4SC-CE MS4SC-DL	100 – 240V AC 24V AC/DC 48 – 127V DC	On-delay	Timed: SPDT Instant: SPDT 5A		

* ( ): Ordering code

■ Technical data (MS4SM, MS4SA, MS4SC)

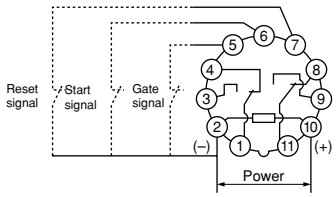
Repeat accuracy	±0.3% at max. setting time
Reset time	0.1s or less
Operating voltage range	0.85 to 1.1 times rated input voltage
Operating temperature range	–10 to +55°C (No icing)
Humidity	35 to 85% (No condensation)
Contact ratings	5A at 250V AC resistive load
Power consumption	Approx. 10VA at AC, Approx. 1W at DC,
Insulation resistance	100MΩ at 500 DC megger
Dielectric strength	2000V AC 1min. between current carrying part and non-current carrying part 2000V AC 1min. between output contact and control circuit 1000V AC 1min. between open contacts
Vibration	Malfunction durability: 10 to 55Hz, 0.5mm double amplitude Mechanical durability: 10 to 55Hz, 0.75mm double amplitude
Shock	Malfunction durability: 100m/s^2 Mechanical durability: 500m/s^2
Durability	Mechanical: 20 million operations Electrical: 100000 operations at 240V AC 5A resistive load
Mass	Approx. 100g

■ Standards

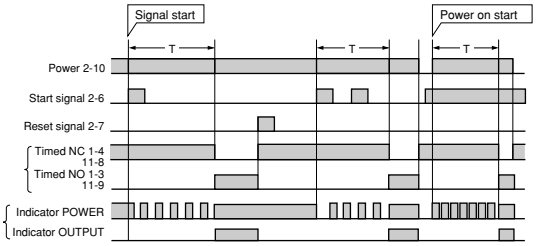
UL file No.: E44592
TÜV License No.: R50007315 (MS4SM)
R50006667 (MS4SA, MS4SC)

■ Timing and wiring diagrams

MS4SM

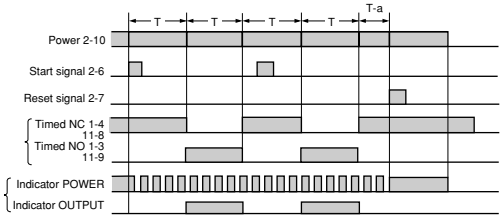


1. On-delay PO



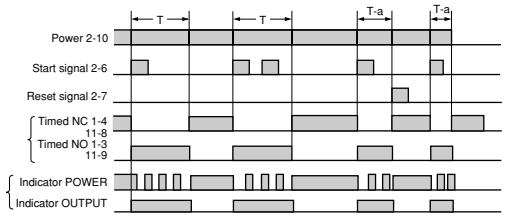
- Turn the mode selector until PO is displayed.
- When power is on, applying the start signal turns the timed NO (Normally open) contact on after the set time has elapsed.
- For the power-on start, the start signal pins (2 and 6) must be connected in advance.

2. Flicker FL



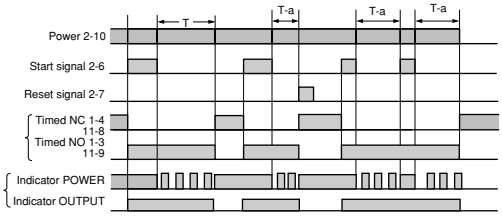
- Turn the mode selector until FL is displayed.
- When power is on, applying the start signal turns the timed contact on and off repeatedly at the set time intervals.

3. One-shot OS



- Turn the mode selector until OS is displayed.
- When power is on, applying the start signal instantly turns the timed NO contact on and turns it off after the set time has elapsed.

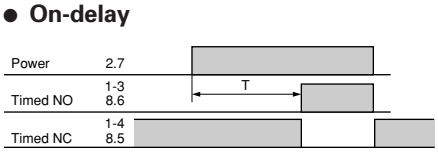
4. Signal off-delay SF

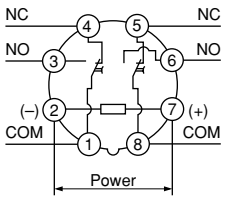


- Turn the mode selector until SF is displayed.
- When power is on, applying the start signal instantly turns the timed NO contact on. Removing the start signal turns the contact off after the set time has elapsed.

MS4SA

● **On-delay**

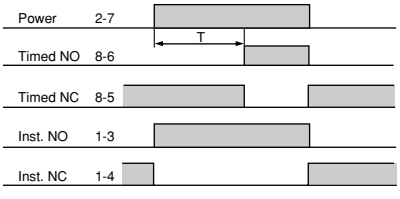


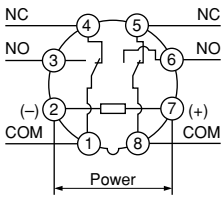


- When power is applied, the timed NO contacts make after the set time has elapsed.
- When power is removed, the contacts reset.

MS4SC

● **On-delay**





- Timed contact
  When power is applied, the NO contact makes after the set time has elapsed. When power is removed, the contacts reset.
- Instantaneous contact
  When power is applied, the NO contact makes instantly. When power is removed, the contacts reset.

Notes: • T=Set time. T-a=Time period within the set time
• The gate signal is used to interrupt the elapsing of timing operation.

■ Specifications (MS4SF, MS4SF-R, MS4SY)

Type	Ordering Code	Input voltage	Operation	Contact	Timing range	
MS4SF	MS4SF-AP■ MS4SF-CE■ MS4SF-DL■	100-240V AC 24V AC/DC 48-127V DC	OFF-delay	Timed: 2PDT 5A	0.05-0.6 (s, min) 0.1-1.2 (s, min) 0.5-6 (s, min) 1-12 (s, min)	
	MS4SF-AP■R MS4SF-CE■R MS4SP-DL■R	100-240V AC 24V AC/DC 48-127V DC		Timed: SPDT with inst. reset: SPDT		
MS4SY	MS4SY-AP	100-240V AC	Star-delta	Timed 1 NO (star output) Timed 1 NO (delta output) + Instant 1NO	Star starting time 0.5-6s, 1-12s, 5-60s, 10-120s	Star-delta chengeover time 0.05s, 0.1s, 0.25s, 0.5s

Note: Enter the timing range code in the ■ mark, see page *03/50*.

■ Technical data

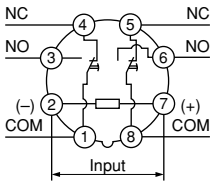
Type		MS4SF	MS4SF-R	MS4SY
Repeat accuracy		±0.3% at max. setting time		
Reset time		–		0.5s or less
Operating voltage range Operating temperature range Humidity		0.85 to 1.1 times rated input voltage -10 to +55°C(No icing) 35 to 85% RH (No condensation)		
Contact ratings		3A at 250V AC resistive load	5A at 250V AC resistive load	
Power consumption Insulation resistance Dielectric strength Vibration Shock		Approx. 1VA at AC, Approx. 1W at DC 100MΩ at 500V DC megger 2000V AC 1min. between current carrying part and non-current currying part 2000V AC 1min. between output contact and control circuit 1000V AC 1min. between open contacts Malfunction durability: 10 to 55Hz, 0.5mm double amplitude Mechanical durability: 10 to 55Hz, 0.75mm double amplitude Malfunction durability: 100m/s^2 Mechanical durability: 500m/s^2		
Durability	Mechanical	10 million operations		20 million operations
	Electrical	100000 operations at 250V AC 3A res. load	80000 operations at 250V AC 5A res. load	
Mass		Approx. 100g		

■ Standards

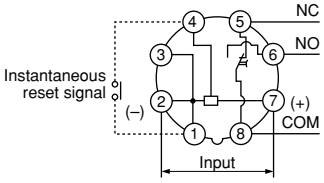
UL file No. : E44592

■ Timing and wiring diagrams

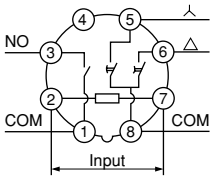
● MS4SF type off-delay timer



MS4SF-R type off-delay timer

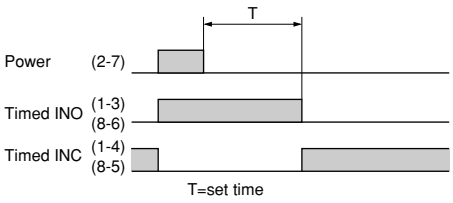


MS4SY type star-delta timer

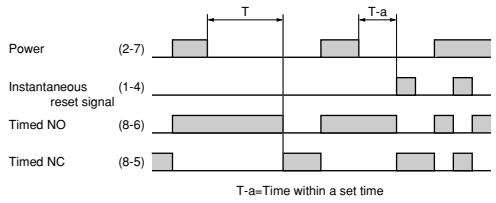


Note: Do not use terminal ③ of the MS4SF-R as a relay terminal because it is connected to terminals ① and ② in the timer.

● MS4SF type

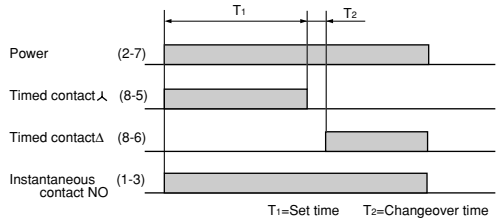
Operation	Operation pattern	Remarks
Off-delay (Timed 2PDT contacts)		• When power is on, timed NO contact on. • When power is off, timed NO contact off after the set time has elapsed.

● MS4FSF-R type

Operation	Operation pattern	Remarks
Off-delay (Timed SPDT contact)		• When power is on, timed NO contact on. • When power is off, timed NO contact off after the set time has elapsed. • When the instantaneous reset signal is on, timed NO contact immediately off.

Notes: • T-a indicates some time within a set time.
• Each signal can be input by shorting the terminals.
• For the MS4SF-R, apply the instantaneous reset signal for 100 ms or longer.

● MS4SY type

Operation	Operation pattern	Remarks
人-Δ (with instantaneous contact 1NO)		• Timed contact Timed contact 人 on when the power is on, and off after a set time. Timed contact Δ on after a changeover time has elapsed and opens when the power turns off. • Instantaneous contact When the power is turned on, instantaneous NO contact on. It opens when the power turns off.

■ Specifications (MS4SR)

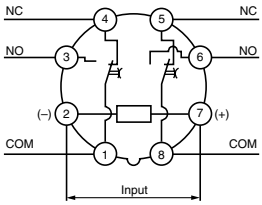
Type	Ordering code	Input voltage	Operation mode		Contact	Timing range
MS4SR	MS4SR-AP	100-240V AC	Off-start	On-off repetitive operation	Timed: 2PDT 5A	0.5-6 (×0.1s, s, min, h) 1-12 (×0.1s, s, min, h) 2.5-30 (×0.1s, s, min, h) 5-60 (×0.1s, s, min, h)
	MS4SR-CE	24V AC/DC				
	MS4SR-DL	48-127V DC				
	MS4SR-APN	100-240V AC	On-start			
	MS4SR-CEN	24V AC/DC				
	MS4SR-DLN	48-127V DC				

03

■ Technical data (MS4SR)

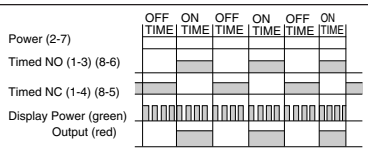
Repeat accuracy	±0.3%±0.01s at max. setting time
Reset time	0.1s or less
Operating voltage range	0.85 to 1.1 times rated input voltage
Operating temperature range	-10 to +55°C(No icing)
Humidity	35 to 85% RH (No condensation)
Contact ratings	5A at 250V AC resistive load
Power consumption	Approx. 10VA at AC, Approx. 1W at DC
Insulation resistance	100MΩ at 500V DC megger
Dielectric strength	2000V AC 1min. between current carrying part and non-current currying part
	2000V AC 1min. between output contact and control circuit
	1000V AC 1min. between open contacts
Vibration	Malfunction durability: 10 to 55Hz, 0.5mm double amplitude
	Mechanical durability: 10 to 55Hz, 0.75 mm double amplitude
Shock	Malfunction durability: 100m/s^2
	Mechanical durability: 500m/s^2
Durability	Mechanical: 20 million operations
	Electrical: 100000 operations at 250V AC 5A resistive load
Mass	Approx. 100g

■ Wiring diagram

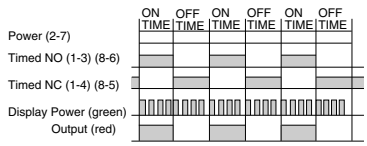


■ Operation pattern

MS4SR

Operation	Operation pattern	Remarks
Repeat (Off-start)		• When power is on, timed contacts on and off every set time interval. • The contacts reset when the power is removed.

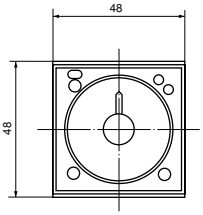
MS4SR-N

Operation	Operation pattern	Remarks
Repeat (On-start)		• When powe is on, timed contacts on and off every set time interval. • The contacts reset when the power is removed.

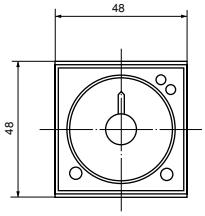
■ Dimensions, mm

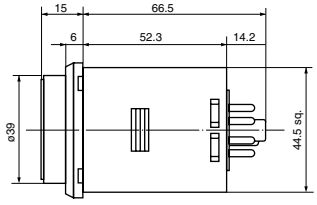
● Bodies

MS4SM



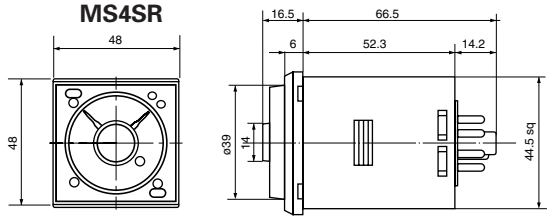
MS4SA, C, F, Y





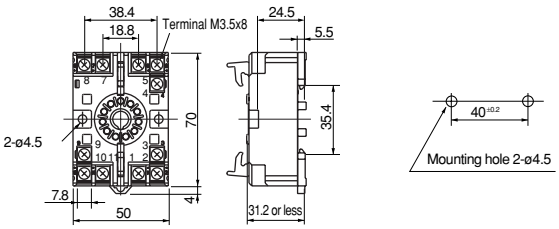
Mass : Approx. 100g

MS4SR



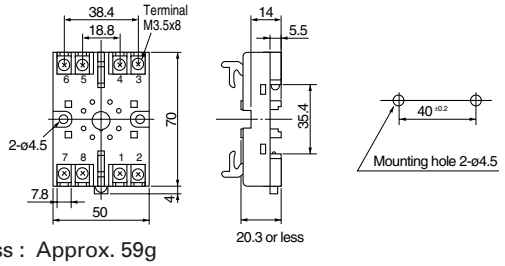
● Sockets for surface mounting

TP411X (11-pin) for MS4SM



Mass : Approx. 70g

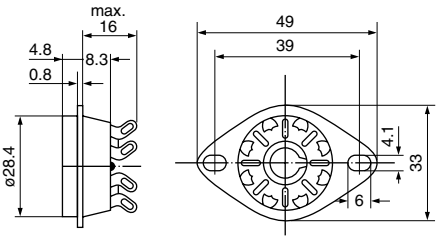
TP48X (8-pin) for MS4S□



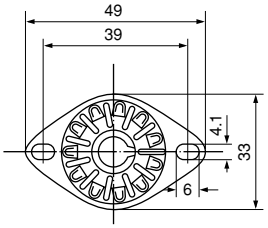
Mass : Approx. 59g

8GB, 11GB (Soldering sockets)

8GB

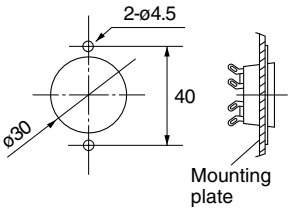


11GB

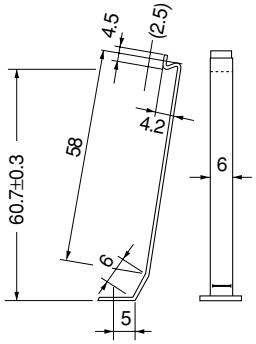


Where mounted from back side of mounting plate

Panel cutting



Hold-down spring/FX3



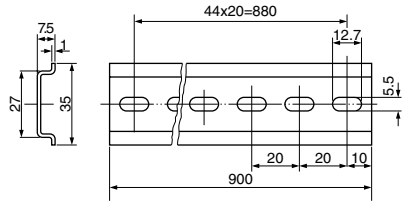
Mass : Approx. 13g

Approx. 13g

Note: Where ordering the 8GB and 11GB types of surface mounting socket, specify hold-down spring FX3 separately.

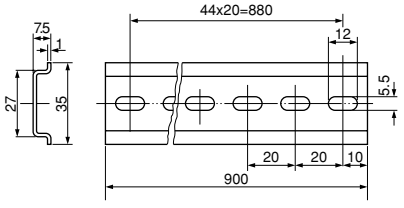
Mounting rails

TH35-7.5
Steel



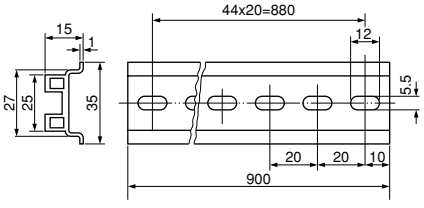
Mass : 290g

TH35-7.5AL
Aluminum



Mass : 145g

TH35-15AL
Aluminum

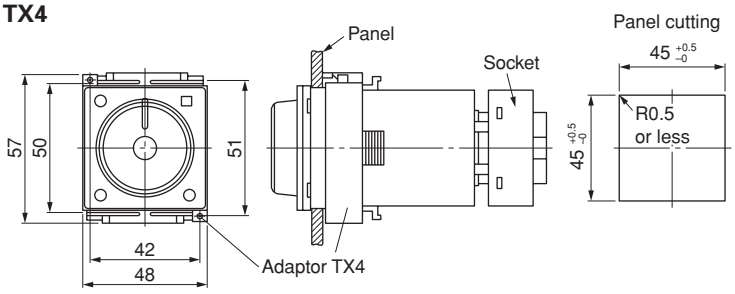


Mass : 320g

■ Dimensions, mm

● Sockets for flush mounting

TX4

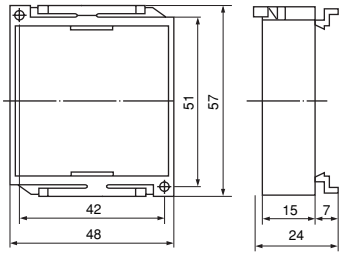


Mass : Approx. 15g

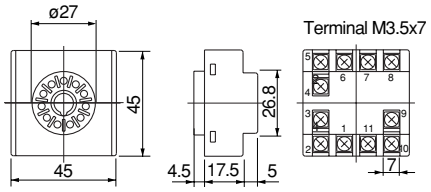
For flush mounting, an adaptor TX4 (sold separately) is required to fix the timer to the panel.
The illustration shows a timer being fixed to a panel, using the adapter TX4.

● Accessories (supplied)

TX4 adaptor

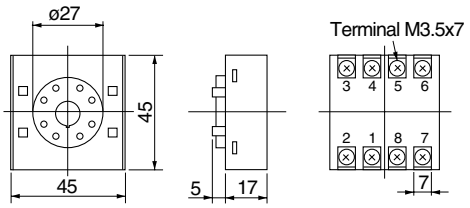


TP411SBA (11-pin) for MS4SM



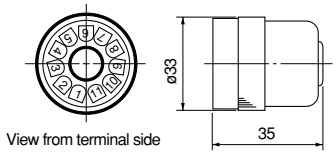
Mass : Approx. 43g

TP48SB (8-pin) for MS4SA, MS4SC



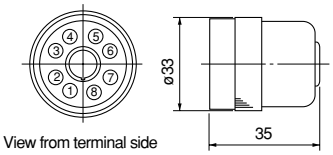
Mass : Approx. 38g

ATX2NS (Soldering socket)



Mass : Approx. 20g

ATX1NS (Soldering socket)



Mass : Approx. 18g

■ Notes on use

Refer to the instruction manual.