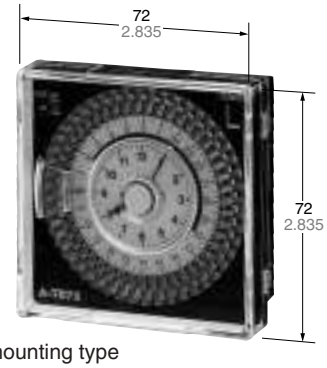
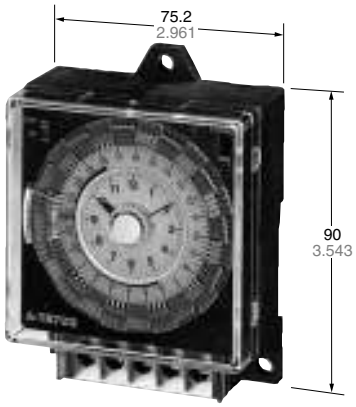
Panasonic
ideas for life

A-TB72
FLAT TIME SWITCHES

A-TB72·72Q



Flush mounting type



Surface mounting type

mm inch

RoHS Directive compatibility information
http://www.nais-e.com/

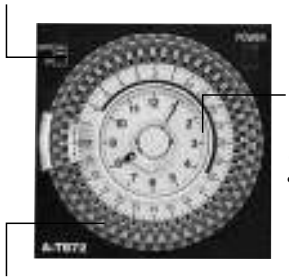
Features

1. DIN72 size smart time switch
Flush mounting type is as thin as 32mm 1.260inch and depth in the box is less than 21.7mm .854inch.
2. Easy to read directly readable clock.
3. Load can be turned on and off every 15 minutes with the 96 setting elements.
4. Quartz power-failure compensation type commonly usable over 100 to 240V AC.
5. Complies with CE marking

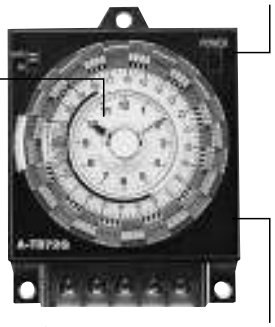
Part names

Manural switch
• Auto and manual modes are selectable for control.

Power status indicator: quartz power-failure compensation type.
Frequency switchable: AC motor types.



Easy-to-read. Directly readable clock.
• Present time is trimmable every 1 minute.



Setting elements integrated at 15 minute intervals throughout the clock circumference.
• Load can be turned on and off every 15 minutes (maximum 48 ON and OFF actions per day), allowing minute daily time control.

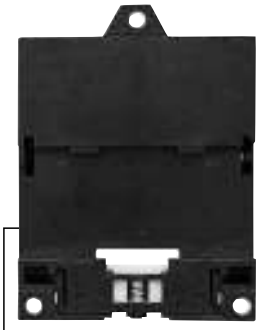
ON settings are colored on the dial.
• Operation setting times are found at a glance with red indicator.

Complies with CE marking

Quick mountable.

Space-saving.
Depth in the box is less than 21.7mm .854inch.
(including the panel thickness.)

Power supply terminals
Load terminals



DIN rail mounting possible

Product types

Type	Rated operating voltage	Flush mounting type	Surface mounting type
AC motor type	100V AC	A-TB72-D-HR1A-100V	A-TB72-DD-HR1C-100V
	110V AC	A-TB72-D-HR1A-110V	A-TB72-DD-HR1C-110V
	120V AC	A-TB72-D-HR1A-120V	A-TB72-DD-HR1C-120V
	200V AC	A-TB72-D-HR1A-200V	A-TB72-DD-HR1C-200V
	220V AC	A-TB72-D-HR1A-220V	A-TB72-DD-HR1C-220V
	240V AC	A-TB72-D-HR1A-240V	A-TB72-DD-HR1C-240V
Quartz power-failure compensation type	100 to 240V AC	A-TB72-Q-HR1A-ACF	A-TB72-QD-HR1C-ACF

Specifications

Types	**Drive system**		AC motor type	Quartz power-failure compensation quartz motor type
	Voltage		100V AC, 110V AC, 120V AC 200V AC, 220V AC, 240V AC	100 to 240V AC
Rating	**Frequency**		50/60Hz (Switchable)	50/60Hz (Common)
	Power consumption		1.5W or less	1W or less
	Load	**Circuit**	Input/output separate circuit	
		Manual ON/AUTO	Manual switch provided	
		Capacity (Resistive load)	15A 250V AC	
	Setting	**System**	Built-in setting element swing type	
		Minimum unit	15-minute intervals	
		Ninimum range	15 minutes	
		No. of setting	Max. 48 (ON/OFF)	
	Power failure compensation		—	200 hours or more (at 25°C)
Time accuracy	**Clock accuracy**		Synchronous with power supply frequency	Monthly error: Within ±15 seconds (at 25°C)
	ON clock accuracy		±5 min. (at 25°C), not including time synchronization errors	
Contact specifications	**Contact arrangement**		Flush mounting type: 1 Form A, Surface mounting type: 1 Form C	
	Contact type		Solder/tab common terminal: Flush mounting type, Crimp terminal or bare wires: Surface mounting type	
	Contact material		Silver alloy	
Life	**Mechanical life (contact)**		10^5 times or more	
	Electrical life (at rated load)		2×10^4 times or more (ON/OFF)	
Electrical characteristics	**Allowable operating voltage range**		85 to 115% of rated voltage	80 to 110% of rated voltage
	Insulation resistance (initial)		More than 100MΩ between charged and uncharged sections More than 100MΩ between contacts (at 500V DC megger)	
	Dielectric strength (initial)		Between charged and uncharged sections: 1,500V AC/1 min. Between contacts : 1,000V AC/1 min.	
	Surge resistance		Surge voltage 7,000V (±1.2×50μs one time)	
	Noise resistance		Noise simulator 2,000V	Noise simulator 1,000V
	Temperature rise		60°C or less (at 25°C)	
Mechanical characteristics	**Malfunctional vibration**		10 to 55Hz (amplitude: 0.3mm) for 10 minutes in each vertical, horizontal and lateral direction	
	Destructive vibration		16.7Hz (amplitude: 4.0mm) for 1 hour in each vertical, horizontal and lateral direction	
	Malfunctional shock		49m/s² {5G} or more, 4 times in each vertical, horizontal and lateral direction	
	Destructive shock		490m/s² {50G} or more, 5 times in each vertical, horizontal and lateral direction	
Ambient conditions	**Ambient operating temperature**		–10°C to +50°C +14°F to +122°F	
	Ambient operating humidity		45 to 85% RH (non-condensing)	
Weight ( ) denotes Surface mounting type			120g 4.23oz (190g 6.70oz)	100g 3.53oz (170g 6.00oz)

Note) Protective cover is provided on A-TB72.

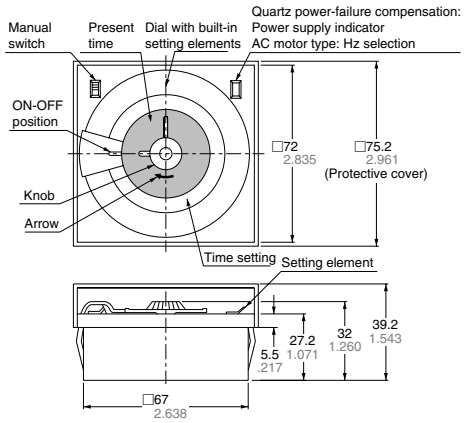
Applicable standard

Safety standard	EN61812-1	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) 1 kV (signal 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)

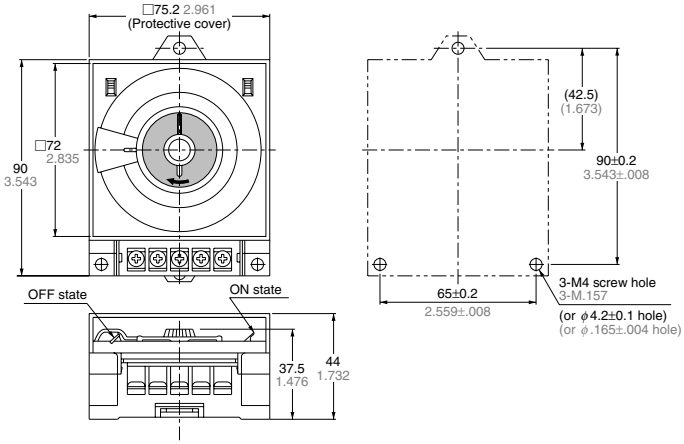
Dimensions

mm inch

• Flush mounting type

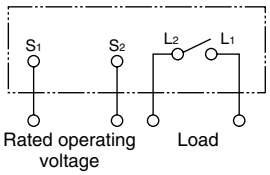


• Surface mounting type: M3.5

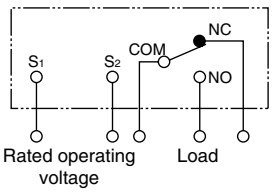


Terminal layouts and Wiring diagrams

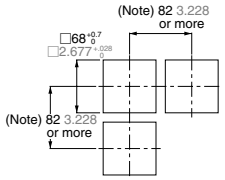
• Flush mounting type (1 Form A)



• Surface mounting type (1 Form C)



• Panel cutout dimensions



Panel thickness: 1.0 to 4.5mm .039 to .177inch
(Note) Minimum pitch for close mounting

Precautions during usage

1. Output setting

• ON setting: Turn the setting element inward, and red mark appear around the dial.

• OFF setting: Turn the setting element outward, and the above red mark will disappear.

• Turn the setting element sufficiently until the click action is felt.

2. Clock setting

• Be sure to turn the knob at the clock center in the arrow direction to set the clock to the present time. (The dial also turns together with the clock.) Be sure to prevent reverse turning.

• do not turn the dial to set the clock.

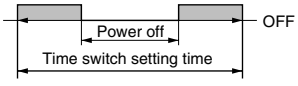
3. Attachment

• Insert the time switch from the front of the attachment panel.
(One-touch system: Panel attachment model)

• Either use 3.8 or M4 wood screws for attachment, or use DIN rails with a width of 35 mm (ATA48011). (Direct-attachment model)

4. Contact relay operation if the power fails

• Contact relays remain closed while the power is off.



5. Power failure compensation (ATB75 series)

• An internal Ni-NH battery is provided to compensate for power failures, but the power supply should be left on as much as possible. Turning the power supply on and off shortens the service life of the battery.

• After continuous charging for 48 hours, the battery provides 200 hours of power failure compensation. The internal battery is fully charged, but if the battery capacitance has dropped because of natural discharging, or if the battery has discharged completely, there may be times when the switch does not operate immediately when the power is turned on. If this happens, set the clock to the proper time after the power has been back on for three to four hours.

• Secondary batteries are a valuable commodity which can be recharged. They cannot be replaced, but if being discarded after use, please make sure they are recycled if possible.
When discarding the battery, turn off the power supply to the time switches, and use radio pliers to disassemble the overall connections and remove the battery.

6. Precautions concerning wiring

With panel attachment models, wiring should be connected by soldering it directly, or using the #187 flat connecting probe provided as an accessory.

7. Compliance with the CE marking

Abide by the following installation conditions and cautions in order to satisfy EN61812-1 requirements.

• Overvoltage category II, pollution level 2

• Wiring
The voltage applied to the timer should be protected with an overcurrent protection device (example: T 1A, 250 V AC time lag fuse) that conforms to the EN/IEC standards.

• Installation and removal
(1) Panel-mounted models are timers for installing on the surface of the control panel. Store the terminal section inside the control panel.
(2) Direct-mounted models are timers for installing inside the control panel. Do not touch the terminal section or other parts of the timer unit while an electric current is applied.
(3) Before installation or removal, confirm that there is no voltage being applied to any of the terminals.

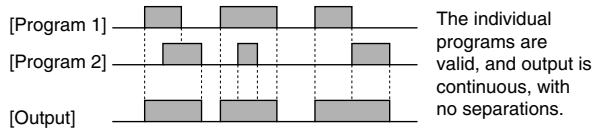
• Do not use this timer with a safety circuit. For example, when using a timer in a heater circuit, etc., provide a protection circuit on the machine side.

8. Refer to page 91 for information on other matters.

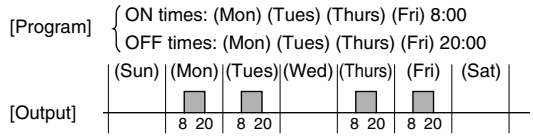
PRECAUTIONS IN USING THE A-TB TIME SWITCHES

Precautions when setting the program

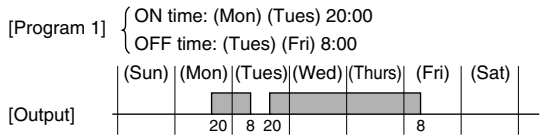
1) If two or more programs are set so that they overlap



2) If the same program is specified for multiple days, specifying multiple days when the ON time is specified the same time setting to be entered for multiple days, at one time.



3) When setting a program that extends over two or more days (multi-day program), setting the ON and OFF times separately for all of the days to which that time applies enables multiple days to be specified at one time.



4) In the pulse setting mode, if a pulse width of 61 or more seconds is set for 23 : 59, the output will be cut off at 0 : 00.00", and operation will not be carried over to subsequent days. If a separate program has been specified for 0 : 00, however, output will be continuous, without interruption.
5) When the "Mode Change" switch is set to the "TIMER1 (2)" mode, no output operation is carried out based on the program; instead, the previous status is maintained. For this reason, the "Mode Change" switch should always be returned to the "TIME" mode when operation has been completed.
6) Entering any one of the settings listed below will cause a setting error, and no writing will be carried out even when the [WRITE] button is pressed. The location in error will flash.
If this happens, correct the setting for the location where the problem has occurred, and press the [WRITE] button again.

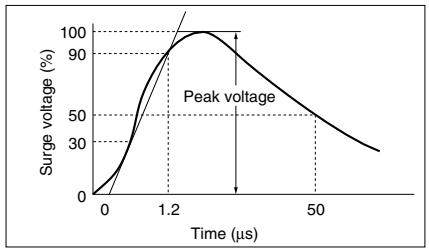
- A setting has not been entered for the day, time, minute, or another parameter.
- The day, time, and minute settings entered for the ON and OFF times are exactly the same.
- The number of days is different for the ON and OFF times.

Precautions concerning handling methods and usage

1) Use the time switch in ambient temperatures of –10°C to +50°C 14°F to 122°F.
2) Use the time switch in ambient humidities of 85% R.H. or less.
3) Prevent using the time switch in such places where inflammable or corrosive gas is generated, much dust exists, oil is splashed and considerable shock and vibration occur.

4) Since the main body cover is made of polycarbonate resin, prevent contact with organic solvents such as methyl alchohol, benzine and thinner, or strong alkali materials such as ammonia and caustic soda.
5) External surge protection may be required if the following values are exceeded. Otherwise, the internal circuit will be damaged.

Surge waveform
[Unipolar full wave voltage of ±(1.2×50) μs]

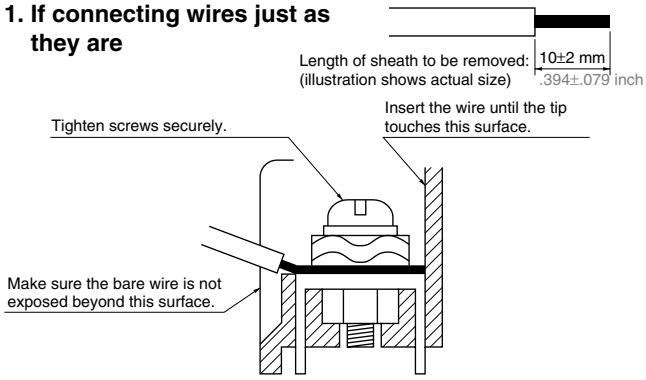


6) Provide chattering absorbing circuit to control the circuit in which chattering is a problem.
7) Provide circuit breaker, fuse or other protective devices for the side of power supply.
8) The power failure compensation function provides compensation if power is supplied continuously to the time switches. The internal battery is fully charged, but if the battery capacitance has dropped because of natural discharging, or if the battery has discharged completely, there may be times when the switch does not operate immediately when the power is turned on. If this happens, check to make sure that the clock is operating normally immediately after the power is turned on, and then set the clock to the proper time.

Precautions concerning wiring

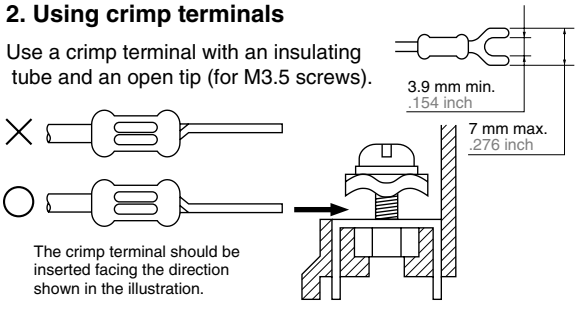
Connections should be made using wiring of ϕ1 to ϕ1.6, or 1.25 to 2 mm^2, with a 600V vinyl insulating sheath.

1. If connecting wires just as they are



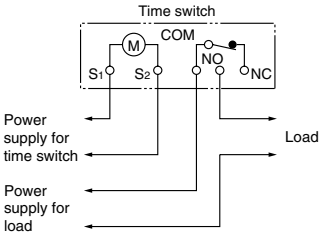
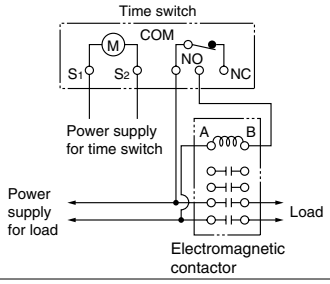
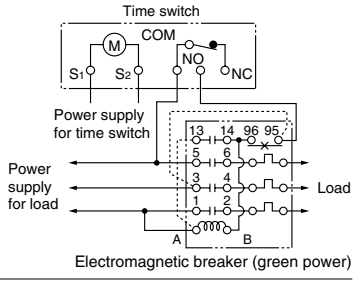
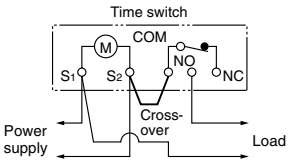
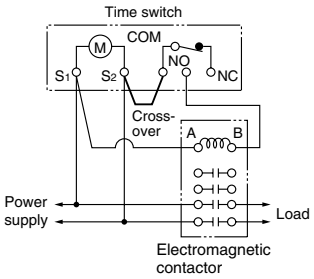
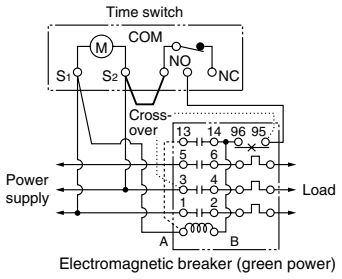
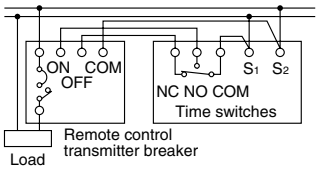
2. Using crimp terminals

Use a crimp terminal with an insulating tube and an open tip (for M3.5 screws).



PRECAUTIONS IN USING THE A-TB TIME SWITCHES

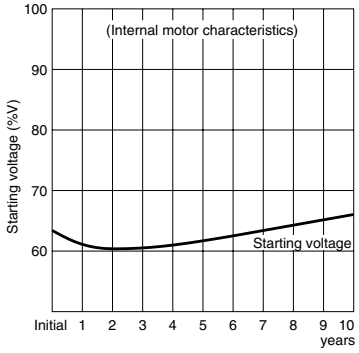
Connection Methods

	When time switches are directly controlled	When the electromagnetic breaker and contactor are used in combination	
		Single-phase	3-phase
If the power supplies for the time switches and the load are separate			
If the same power supply is used for the time switches and the load (Connect a crossover between S2 and COM.)			
Example of connecting the time switches and remote control transmitter breaker (The output from the time switches is a stand-alone circuit, and is applied to 1C.)			

Data

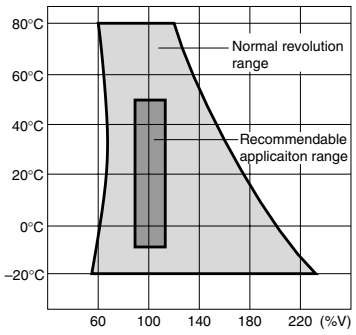
1. Life characteristics

Applied for AC motor type.



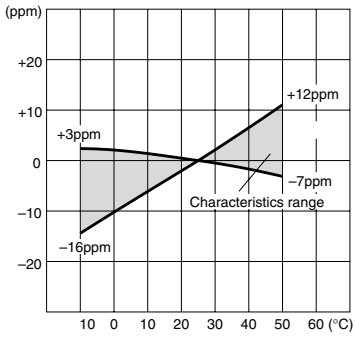
2. Normal motor reyolution characteristics

Applied for AC motor type.



3. Temperature characteristics of quartz oscillation accuracy

Applied for quartz power-failure compensation type.

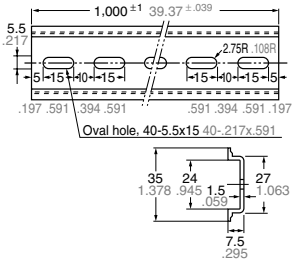


A-TB TIME SWITCHES COMMON OPTIONS

Mounting parts (Unit: mm inch, Tolerance: ±1 ±.039)

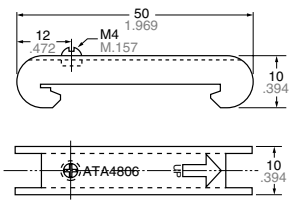
• Mounting rails (Applicable for DIN and IEC standards)

AT8-DLA1
Length: 1 m
aluminum



• Fastening plate

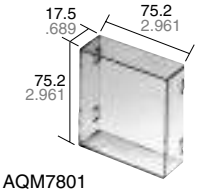
ATA4806



For holding DIN rails

• Protective cover for DIN 72 size

For ATB72



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