Koyo Digital Timers

Overview

Koyo digital timers offer flexible features at a great price. A large, easy to read display is offered in a small 1/16 DIN size. The large, bright red LED display has a 12 mm character display height which allows it to be seen easily from a distance and at an angle. In addition, set values use a green LED display to differentiate from timing values. Basic function settings are made with digital switches. Detailed settings are selected with digital keys, so operation is easy.

Features

- Tamper-proof: key protection can be set for individual keys to prevent a malfunction or tampering
- Battery-less memory retention: EEPROM is used to retain values in memory, so there is no need for battery maintenance
- Maintenance has been reduced via removable terminals. After wiring, the terminal cover provides a safe barrier for worry-free use
- Power source for a DC sensor: you can source the power for the sensor from the built-in power source which supplies 60 mA at 24 VDC
- Wide operating AC voltage range of 85-264 VAC
- Various types of time ranges: covers ten types of time ranges with times of 0.001 second to 9999 hours
- Five types of operating modes: settings of on-delay, off-delay, one-shot, accumulation and flicker
- Flush door/panel mounting
- Display of elapsed time/remaining time
- IP65 protective structure: front cover panel is made of a clear membrane, so operation with wet or dirty hands can be worry-free
- Fully CE and UL compliant

KT-V4S-D

KT-V4S-C-D

Product Selection Guide

Part Number	Description	Number of Digits	Source Voltage	Time Range	Price
KT-V4S-D*	Digital timer with 10 types of time ranges (see specifications). Input power is 100-240 VAC. UL and CSA approved.	4	100-240 VAC	0.001 second to 9999 hours (see table on following page)	Retired
KT-V4S-C-D*	Digital timer with 10 types of time ranges (see specifications). Input power is 12-24 VDC. UL and CSA approved		12-24 VDC		Retired

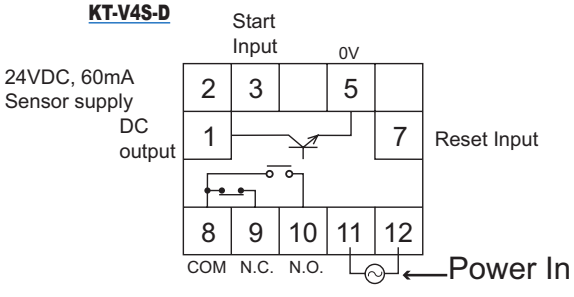
Accessories

Part Number	Description	Price
PANEL-16	Mounting clip for 1/16th DIN timers and temperature/process controllers, for door (flush) mounting. 5 clips per package	$18.00

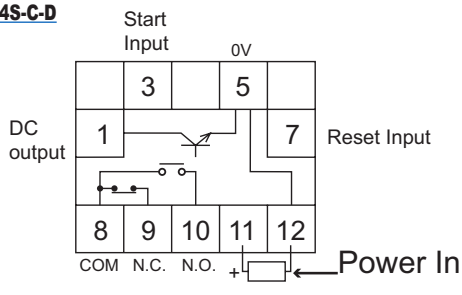
*** Units ship with a panel mounting clip for door (flush) mounting.**

Wiring Diagrams

KT-V4S-D



KT-V4S-C-D



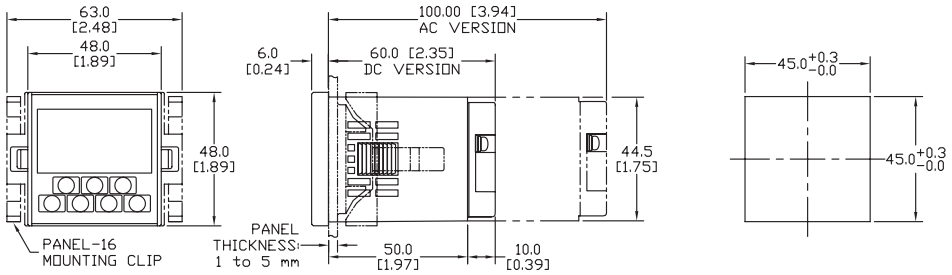
Koyo Digital Timers Specifications

General Specifications			
Part Number		***KT-V4S-D***	***KT-V4S-C-D***
Agecny Approvals and Standards		UL listed, CSA listed	UL recognized only with Class II power supply; CSA: EN61010-1 and EMI: EN55-11, EMS: EN50082-2. If product has DC power supply, an EMI/EMC filter must be installed on the power supply.
Source Voltage		100-240 VAC, 50/60 Hz	12-24 VDC
Permitted Power Fluctuation		85-264 VAC	10-26.4 VDC
Power Consumption		Approx. 11 VA	Approx. 4W
Sensor Power		24 VDC (20-28 V) 60mA (less than 10%p-p ripple noise)	N/A
Memory Backup upon Power Failure		EEPROM writing up to 100,000 times; Memory duration: 10 years	
Ambient Temperature		-10 to 50°C [14 to 122°F]	
Storage Temperature		-20 to 70°C [-4 to 158°F] (with no icing)	
Ambient Humidity		35-85% RH non-condensing	
Withstand Voltage		2 kVAC for one minute	
Vibration Resistance		Durability: Displacement amplitude 0.5mm 10-55 Hz along three axes Operating vibration: Displacement amplitude 0.35mm 10-55 Hz along three axes	
Impact Resistance		Durability: 490 m/s² along three axes Operating impact: 98 m/s² along three axes	
Noise Resistance		AC power between terminals ±1.5 kV (pulse width 1µs and rise time 1ns)	DC power between terminals ± 1.0 kV (pulse width 1 µs and rise time 1ns)
Protective Structure		IP65 (front panel only) when mounted in appropriate enclosure	
Weight		Approx. 150g [5.291 oz]	Approx. 110g [3.88 oz]
Terminals	***Conforming wiring***	0.25-1.65 mm² 24 to 16 gauge	
	Permitted Torque	0.5 N·m (0.369 ft·lb)	

Performance Specifications	
Category	Timer
Operational Format	On-delay, off-delay, one-shot, accumulator, and flicker (with alarm output)
Number of Digits	4 digits
Display	Current values: red LED, character height 12mm; Preset value: green LED, character height: 7mm
Time Range	0.001s-9.999s/0.01s-99.99s/0.1s-999.9 s/1s-9999 s/1 s-99 min 59 s/1 min-9999 min/1 h-9999 h/ 1 min-99 h 59 min/0.1 min-999.9 min/0.1h-999.9 h
Display	Elapsed time/remaining time
Timer Precision	0.013% or ±15ms (using large values)
Input	Input logic: negative logic (no voltage input) positive logic (voltage input)
	Input resistance: positive logic 15 kΩ negative logic 3.3 kΩ (AC power)/1.8 kΩ (DC power)
	Input voltage: "L" 0-3V "H" 7-30 V
Start Input Response	Less than 15ms / 5ms / 1ms (selectable - see manual)
External Reset	Min. signal amplitude 5ms
Output	DC output: NPN open collector output/24V 100mA. Withstand voltage 35V. Residual voltage less than 1.5 V
	Relay output: 1 SPDT 220VAC 2A (resistive load). 3A @ 30VDC, minimum 10mA @ 5VDC
Output Duration (flicker)	10-9990 ms variable every 10ms
Installation	1/16 DIN flush door/panel mount

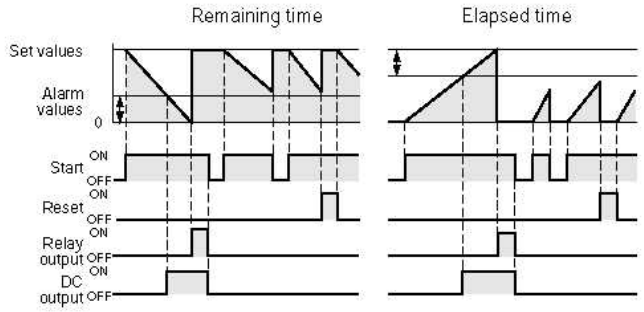
Dimensions

mm [inches]

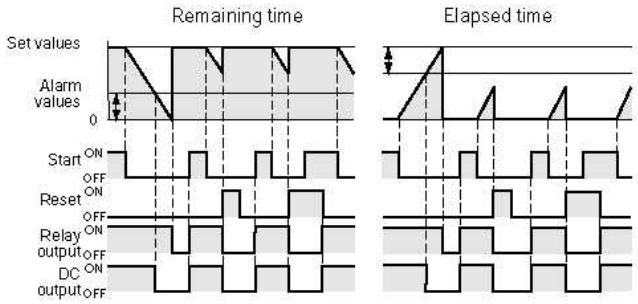


Koyo Digital Timers Timing Diagrams

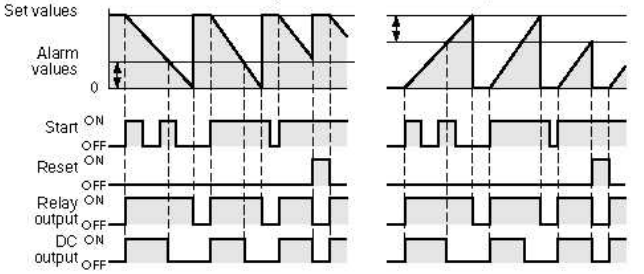
On-delay : Alarm setting SW 1 OFF 2 OFF



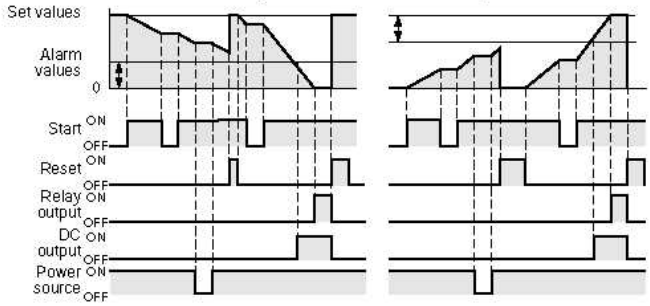
Off-delay SW 1 OFF 2 ON



One-shot SW 1 ON 2 OFF

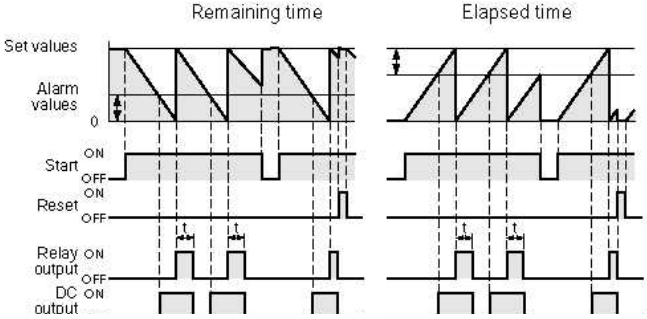


Accumulation SW 1 ON 2 ON



Note: Output duration is variable from 0-9990 ms. (Default: 100 ms)

Flicker (in Setup mode)



: Alarm settings

When alarm settings are 0, the DC output is the same as the output operations for a relay output.

Note: Alarm settings should be less than preset values. Using alarm settings with values that exceed preset values will result in measurement values of 0 and the alarm output (DC output) will come ON.

KOYO Digital Timers Modes of Operation

ON Delay: The rising edge of the Start signal initiates the Timer. When the Timer reaches the set point, the Relay Output turns ON. The Relay Output stays ON until the falling edge (OFF state) of the Start signal, then the Relay Output turns OFF.

OFF Delay: The falling edge of the Start signal initiates the Timer. When the timer reaches the set point, the Relay Output turns OFF. The Relay Output stays OFF until the rising edge (On state) of the Start signal turns the Relay Output ON.

One Shot: The Start signal works as a one-shot operation. The rising edge of the Start signal initiates the Timer. When the Timer starts timing, the Relay Output turns ON. Once the Timer starts, the Start signal is ignored. The Relay Output stays ON until the Timer reaches the set point, and then it turns OFF.

Accumulation: The rising edge of the Start signal initiates the Timer. The Timer operates as long as the Start signal is ON. When the Start signal turns OFF, the Timer value is held in the accumulator. When the Start signal turns ON again, the Timer continues to operate until it reaches the set point, at which time the Relay Output turns ON.

Flicker: The rising edge of the Start signal initiates the Timer. When the Timer reaches the set point, the Relay Output turns ON for a preset amount of time. The Relay Output continues to toggle ON and OFF at the preset amount of time as long as the Start signal remains ON.