Timers
Digital Multi-function Type S 1331


## Product Description

Plug-in, $\mu$ P-based, multifunction time relay with 10 selectable modes of operation and time ranges from 10 ms to 99 h. Function and time range setting by 3 rotary switches in
the front. Time setting by two digital thumb-wheel switches in the front. Time controlled by contact, open collector output (NPN) or power supply.

- $\mu$ P-based digital multi-function timer
- 10 functions within delay on operate, interval timer, symmetrical recycler, recycler with fixed ON time, time period multiplier
- Time ranges: 0.01 s to 99 h
- Digital trigger input for time start and reset
- Time stop input
- Four yellow LEDs each indicating $25 \%$ of remaining time
- Connection for NPN sensor
- Plug-in module, S-housing
- Output: 5 A SPDT relay
- LED-indication for relay and power supply ON
- AC or DC power supply


## Ordering Key

 S 1331156230Housing
Type/function
Output
Power supply


## Type Selection

| Plug | Output | Supply: 24 VAC | Supply: 115 VAC | Supply: 230 VAC | Supply: 24 VDC |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Circular | SPDT | S 1331156024 | S 1331156115 | S 1331156230 | S 1331156724 |

## Time Specifications

| Time ranges |  |  |
| :--- | :--- | :--- |
| Selectable by rotary switches | $0.01-0.99 \mathrm{~s}$ |  |
|  | $0.1-9.9 \mathrm{~s}$ |  |
|  | 1 | -99 |

## Output Specifications

| Output | SPDT |
| :---: | :---: |
| Rated insulation voltage | 250 VAC (rms) (cont./elect.) |
| Contact ratings (AgCdO) | $\mu$ (micro gap) <br> (IEC 60947-5-1/IEC 60337) |
| Resistive loads AC 1 | 5 A, 250 VAC |
| DC 1 | 5 A, 24 VDC |
| Small inductive loads AC 15 | $2 \mathrm{~A}, 250$ VAC |
| DC 13 | $3 \mathrm{~A}, 24 \mathrm{VDC}$ |
| Mechanical life | $\geq 40 \times 10^{6}$ operations |
| Electrical life | $10^{5}$ operations (at max. load) |
| Operating frequency <br> Operating time <br> Release time (at nom. supply) | $\begin{aligned} & \leq \text { typ. } 50 \mathrm{~Hz} \\ & <10 \mathrm{~ms} \\ & <6 \mathrm{~ms} \end{aligned}$ |
| Dielectric strength Dielectric (AC rms) test voltage Rated impulse withstand voltage | $\geq 2.0 \mathrm{kVAC}$ (rms) (cont./elect.) <br> $4 \mathrm{kV}(1.2 / 50 \mu \mathrm{~s})$ (cont./elect.) <br> (IEC 60664) |

## Supply Specifications

| Power supply AC types Rated operational voltage | Ove |
| :---: | :---: |
|  |  |
| through pins 2 \& 10230 | 230 VAC $\pm 15 \%$, 45 to 65 Hz |
| 115 | 115 VAC $\pm 15 \%$, 45 to 65 Hz |
| 024 | $24 \mathrm{VAC} \pm 15 \%, 45$ to 65 Hz |
| Voltage interruption | $\leq 40 \mathrm{~ms}$ |
| Rated insulation voltage | $\geq 250$ VAC (rms) |
| Rated operational power | 3.0 VA |
| Rated impulse withstand voltage | $4 \mathrm{kV} \mathrm{(1.2/50} \mu \mathrm{~s}$ ) (line/neutral) |
| Power supply DC type | Overvoltage cat. III (IEC 60664) |
| Rated operational volt. 724 | $24 \mathrm{VDC} \pm 15 \%$ (pin 2 pos.) |
| Rated insulation voltage | None |
| Rated operational power | 1.5 W |
| Rated impulse withstand voltage | $800 \mathrm{~V}(1.2 / 50 \mu \mathrm{~s})$ |

## Mode of Operation

In connection with all functions automatic start is possible by permanent interconnection of pins 5 \& 7 .

Function 0: Delay on operate, leading edge, man. start, man. restart, man. time reset.

Function 1: Interval timer, leading edge, man. start, man. restart, man. time reset.

Function 2: Symmetrical recycler, OFF-time first, leading edge, man. start, man. restart, no time reset.

Function 3: Symmetrical recycler, ON-time first, leading edge, man. start, man. restart, no time reset.

Function 4: Delay on operate, trailing edge, man. start, man. restart, man. time reset.

Function 5: Interval timer, trailing edge, man. start, man. restart, man. time reset.

Note: The output relay only operates when the time period is running.

Function 6: Interval timer, trailing edge, man. start, man. restart, man. time reset.

Function 7: Delay on operate, leading edge, man. start, man. restart, man. time reset.
Note: The relay releases on trailing edge, which means the trigger pulse must be of longer duration than the time period.

Function 8: Recycler with fixed ON-time, leading edge, man. start, man. restart, no time reset. Fixed ON-time: approx. 0.5 sec .

Function 9: Time period multiplier, leading edge, man. start, man. restart, man. time reset.

Note: Each pulse input adds the set time the total timing period. Max. time period memory is 256 pulses.

Time stop function: By interconnection of pins $7 \& 8$ the time function stops, and the output relay remains either released or operated. By disconnection of pins $7 \& 8$ the remaining time continues to elapse.

## Function and Time Setting

Adjustable time setting by two
digital thumb-wheel switches
(1-99)

[^0]
## Centre knob:

Selection of time range
(seconds, minutes and hours).

## Lower knob:

Selection of function.

Wiring Diagrams


## Operation Diagrams



Pulse/time
multiplier (5-7) , $\quad$ _
F 9 Relay ON $\quad$-T-T$\stackrel{\mathrm{T}}{\mathrm{L}} \mathrm{-} \mathrm{~T}-1-\mathrm{T}-1-\mathrm{T}-1$


[^0]:    Upper knob:
    Time period multiplier $\times 0.01$, $\times 0.1$ and $\times 1.0$.

