

## Multi-Function Timer Relays

### Features

- Space saving (17.5mm width)
- Compact design with 35mm DIN mounting
- Flexibility with 10 different functions
- Wide voltage range in both AC & DC
- Wide timing range 0.1 sec to 100 hours
- LED indication for power & relay status
- Forward reverse with pause time
- IEC 61812 compliant

### Product Images



### Product Details

Part No.	Description	Contact Arrangement	Input Voltage
MFTR1CO	Multi-Function Timer Relay 0.1s-100h	1 C/O	12-240V AC / DC
MFTR2CO	Multi-Function Timer Relay 0.1s-100h	2 C/O	12-240V AC / DC

### Certifications





### Specifications

Parameters	
Supply Voltage (⎓)	12 - 240 VAC / DC (-15% to +10% of ⎓)
Frequency	50/60 Hz
Power Consumption	5 VA

Relay Characteristics	
Contact Arrangement	2 C/O
Contact Rating	8A (Res.) @ 240 VAC, 5A at 24 VDC, Contact Material: AgNi
Relay Life	Electrical Life: 50,000 Min. Operations, Mechanical Life: 10,000,000 Min. Operations

Timing Function	
Set Time	0.1 sec to 100 hrs
On Time	NA
Pause Time	NA
Accuracy	Setting Accuracy: +/-5 % of Full scale, Repeat Accuracy: +/-1 %
LED Indication	Green LED-Power, Yellow LED-Relay
Mounting	Din-Rail
Dimensions	18 x 90 x 66 (in mm)
Humidity	95 % Rh Non Condensing
Operating Temperature	-20°C to +60°C
Storage Temperature	-25°C to +70°C
Housing	Flame retardant (UL 94-V0)
Degree of Protection	IP20 for Terminal, IP40 for Housing

### Terminal Details

 Ø3.5...3.8 mm	0.4 N.m (3.6 Lb.in)
	1 x 2.5 mm <sup>2</sup> Solid / Stranded Wire
AWG	1 x 24 to 12

Use Cu wire of 75°C only.

AWG	Sq.mm.	Max. Current (A)
12	2.5	16*
14	2.0	15
16	1.5	10
18	1.0	7
20	0.75	5
22	0.5	3
24	0.2	2

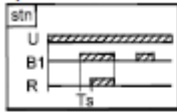
**Technical Specifications**

Part No.	MFTR1CO	MFTR2CO
<b>SUPPLY CHARACTERISTIC:</b>		
Supply Voltage $\square$	12 - 240 VAC / DC	
Supply Variation	-15 % to +10 % of $\square$	
Frequency	50 to 60 Hz, ( $\pm$ 3 Hz)	
Power Consumption (Typical)	5 VA	
<b>SIGNAL CHARACTERISTICS:</b>		
Signal sensing time	60 ms (For both High and Low Signal Detection)	
Signal impedance	>6K@10VAC/DC; >70K@110VAC/DC; >150K@240VAC/DC	
Signal switch current requirement	Switching capacity of the switch or contact should be>10mA	
<b>RELAY O/P CHARACTERISTICS:</b>		
Contact Arrangement	1 C/O Potential free contacts	2 C/O Potential free contacts
Contact Rating (Resistive Load)	8A (Res.) @ 240 V AC, 5A at 24 VDC	
Contact Material	AgNi	
Electrical Life	50,000 Operations min.	
Mechanical Life	10,000,000 Operations min.	
<b>FEATURE CHARACTERISTICS:</b>		
Set Time (Ts)	0.1 seconds to 100 hrs	
Setting Accuracy	+/- 5% of full scale	
Repeat Accuracy	+/- 1%	
Mode Adjustment	Refer "Timing diagrams of Functions"	
Range Adjustment(T)	1s-10s; 10s-1m; 1m-10m; 10m-1h; 1h-10h; 10h-100h **	
Multiplier Adjustment(t)	0.1-0.3; 0.3-0.5; 0.5-0.7; 0.7-0.9; 0.9-1 **	
LED Indication on front panel	Green LED for Power, Yellow LED for Relay.	
Mounting	Din-Rail	
Dimensions ( W X H X D )	18 x 90 x 66 ( in mm)	
Weight (Unpacked)	72 gms.	
Humidity	95% Rh Non Condensing	
Operating Temperature	-20° C to + 60° C	
Storage Temperature	-25° C to + 70° C	
Housing Color	Dark Gray	
Max. Operating Altitude	2000 m	
Housing	Flame retardant (UL 94-V0)	
Degree & Protection	IP - 20 for Terminal, IP - 40 for Housing.	
Pollution Degree	II	
Isolation ( I/P and O/P)	2 KV	
Isolation (Terminal and Casing )	2.5 KV	
Type of Insulation	Reinforced	
Certifications	CE, RoHS	
Initiate Time	Max. 100 ms	
Reset Time	Max. 200 ms	
<b>EMI / EMC:</b>		
Harmonic Current Emissions	IEC 61000-3-2 Class A	
ESD	IEC 61000-4-2 Air Discharge-Level III, Contact Discharge-Level II	
Radiated Susceptibility	IEC 61000-4-3 Level III	
Electrical Fast Transient	IEC 61000-4-4 Level IV	
Surge	IEC 61000-4-5 Level III	
Conducted Susceptibility	IEC 61000-4-6 Level III	
Voltage Dips & Interruptions (AC)	Level as per IEC 61812-1	
Voltage Dips & Interruptions (DC)	Level as per IEC 61812-1	
Conducted Emission	CISPR 11	Class B
Radiated Emission	CISPR 11	Class B

**Function Diagrams**

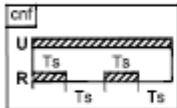
**stn) Signal On Delay:**

Timing starts when Switch (S) is closed. R energizes at end of period  $T_s$  and de-energizes when Switch (S) is opened.



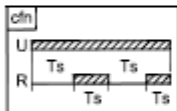
**cnf) Cyclic On/Off: On start**

Initially the relay (R) is On for period  $T_s$  after the power is applied. The relay (R) keeps on changing its status till power is removed with On and period =  $T_s$ .



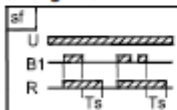
**cnf) Cyclic Off/ On : Off start**

Initially the relay (R) is Off for period  $T_s$  after the power is applied. The relay (R) keeps on changing its status till power is removed with On and Off period =  $T_s$ .



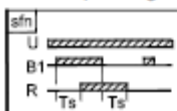
**sf) OFF Delay, Constant Supply (Signal Off Delay)**

R energizes when Switch (S) is closed. Timing commences after Switch (S) is opened and then the relay de-energizes.



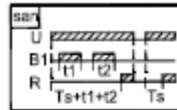
**sfn) Signal Off/On**

When Switch (S) is closed or opened for preset time  $T_s$ , the relay changes its state after time duration  $T_s$ .



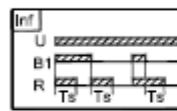
**san) Accumulative Delay On Signal**

Time commences as supply is present and Switch (S) is open. Closing Switch (S) pauses timing. Timing resumes when Switch (S) opened again R energizes at the end of timing.



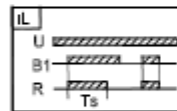
**inf) Impulse On/Off**

R energizes for the period  $T_s$  when Switch (S) is opened or closed. When timing commences, changing state of Switch (S) does not affect R but resets timer.



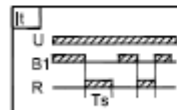
**il) ON Impulse, Constant Supply**

When switch (S) is closed and remains closed output relay energizes until timing is over. If Switch (S) is Opened during period  $T_s$ , R resets.



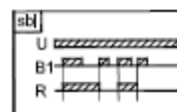
**it) OFF Impulse, Constant Supply**

When Switch (S) is opened, R energizes and de-energizes when timing is over. If Switch (S) is closed during period  $T_s$  R resets.



**sbi) Leading Edge Bi-stable or Step relay**

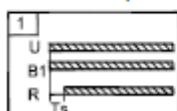
After every Signal, the output contact changes state, alternately switching from open to closed & vice versa.



**Derived Modes**

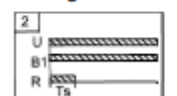
**1) ON Delay**

1. Select mode signal On Delay (stn) and close Switch (S) or short A1-B1 before power ON, it will work as ON Delay.
2. Select mode Accumulative On Delay (san) keeping signal open before power ON and during execution of time as well, it will work as ON Delay.

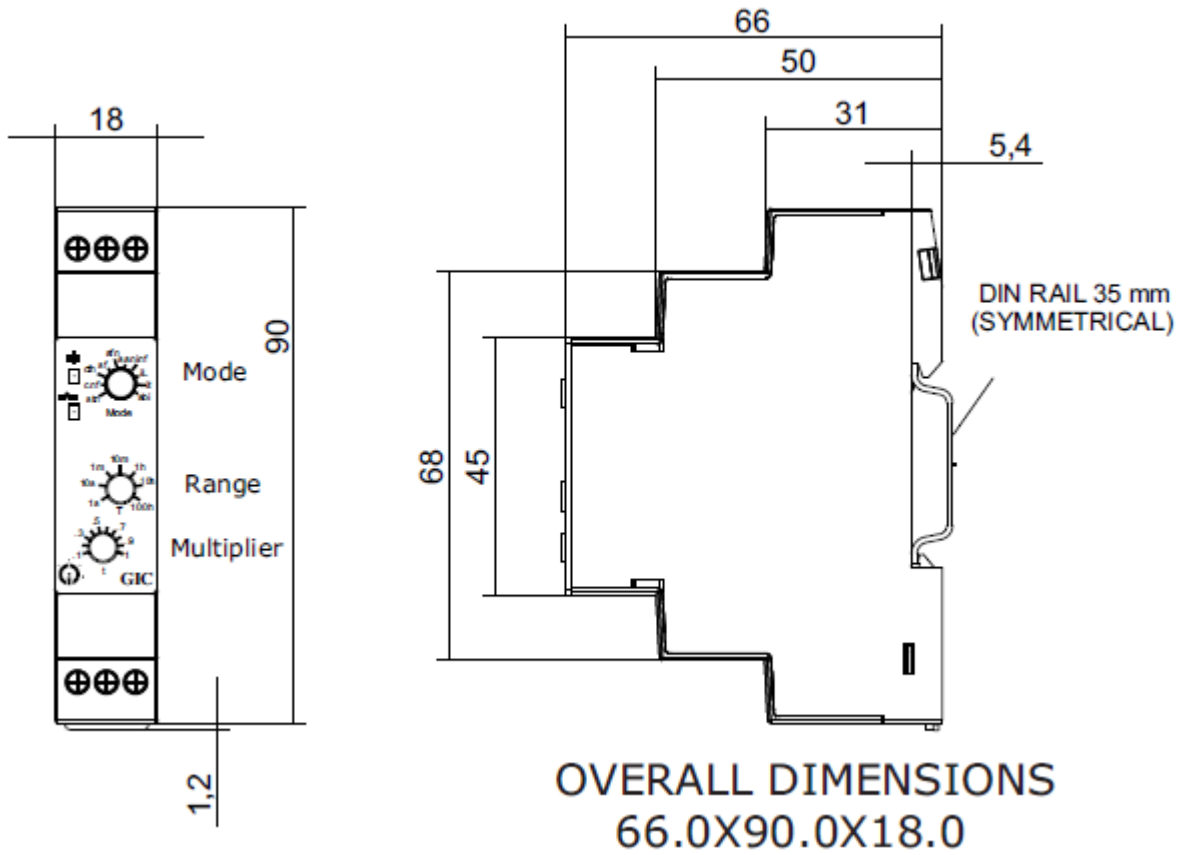


**2) INTERVAL**

2. Select mode (il) ON Impulse. If Switch (S) is closed between A1-B1 before making power supply ON and during execution of timing, it will work as Interval.

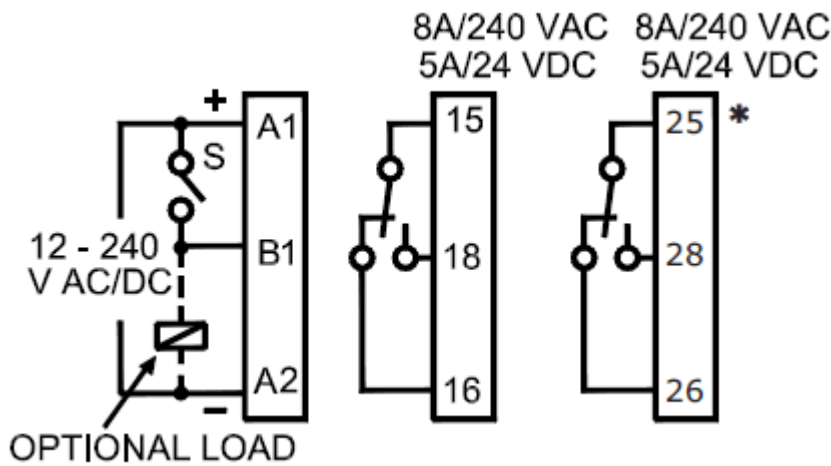


**Product and Mounting Dimensions**



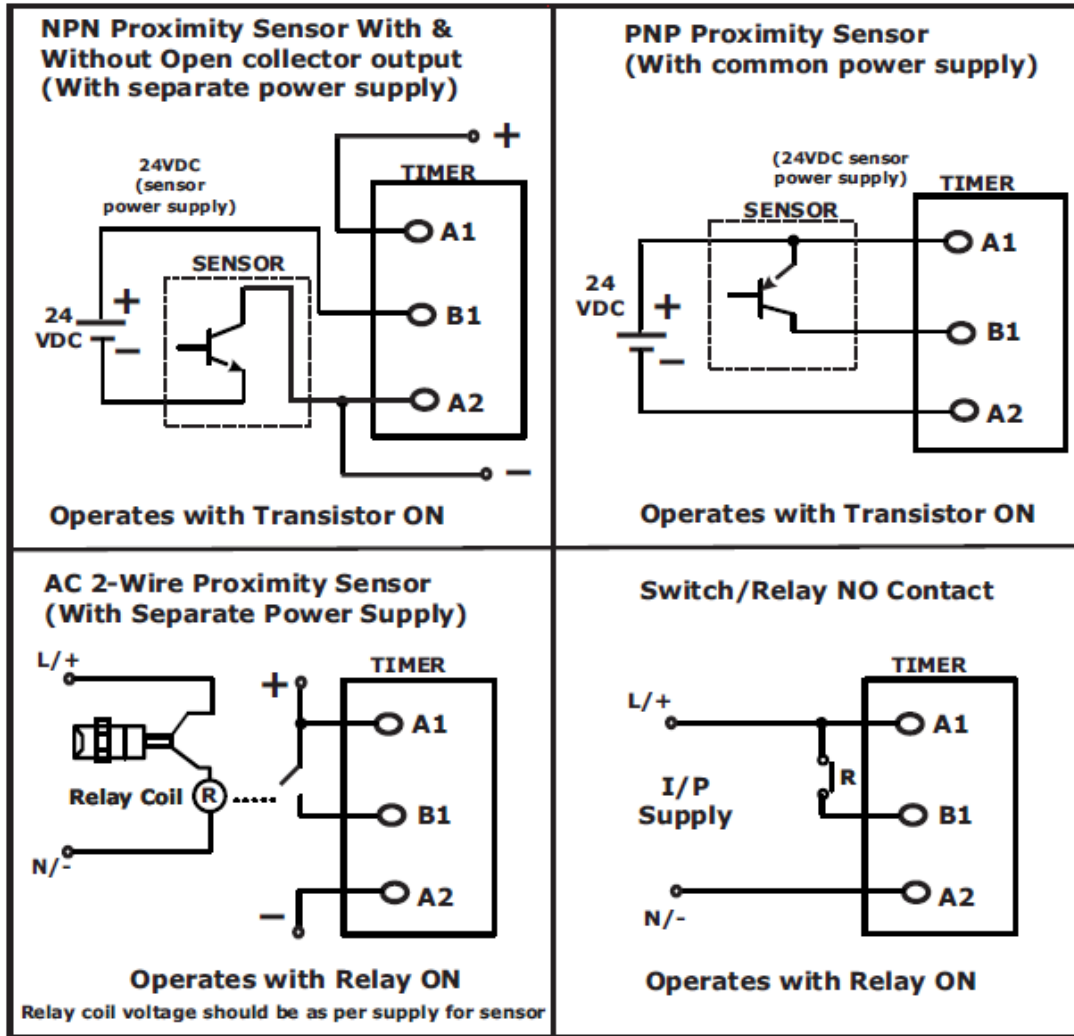
All dimensions are in mm

**Wiring Diagram**



\*Only for MFTR2CO

**Sensor Connection Diagram**



**Safety**

Test Voltage between I/P and O/P	IEC 60947-5-1/UL 508	2 KV
Test Voltage between all terminals and enclosure	IEC 60947-5-1/UL 508	2.5 KV
Impulse Voltage between I/P and o/p	IEC 60947-5-1	4 KV
Single Fault	IEC 61010-1	
Insulation Resistance	UL 508	> 50 kΩ
Leakage Current	UL 508	< 3.5 mA

**Environmental**

Cold Heat	IEC 60068-2-1
Dry Heat	IEC 60068-2-2

Subject to change without notice