Multifunctional clock-pulse generator relay with external potentiometer

MFT ST51SE

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- **7 Function, 7 timer ranges**
- **Multivoltage:**
  24 VAC/DC and 110 ... 240 VAC
- **2 Output contacts**

Functions

TP	Cycling timer relay beginning on a pause
TI	Cycling timer relay beginning on a pulse
EA	Delay on and delay off
EI1	Input delay pulse limitation timer voltage control
EI3	Input delay pulse limitation with control contact
EI2	Wiping on leading and trailing edge with control contact
I3	Pulse detection

Time end ranges

Adjustable 0,05 s ... 100 h

Output relay

1 closing contact and 1 opening contact potential free
250 VAC 5 A units close together 8 A units not close together

Indicators

Green LED ON:	indication of supply voltage
Green LED flashes slowly:	indication of time t1
Green LED flashes fast:	indication of time t2
Yellow LED ON/OFF:	indication of relay output

Connecting voltage

24 VDC ±10%
24 VAC -15% ... +10%
110 ... 240 VAC -15% ... +10%

Reference data

Selectron® MFT	Article no.
MFT ST51SE	41140007
(Order data see chapter 1)	

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Technical data		
Nominal consumption		
	24 VAC/DC	0.8 VA / 0.6 W
	110 VAC	2.4 VA / 0.6 W
	230 VAC	19 VA / 1.1 W
Control contact / Voltage controlled		
	Parallel switching of loads possible	
	Parallel minimum load	1 VA or 0.5 W
	Voltage dependence:	The potential between connections 2 and 5, resp. 7 and 5, must cover 90% of the supply voltage.
	Connecting length between connections 10 and 5:	10 m or capacity <10 nF
	Resistance	>1 MΩ (contact K2 open)
	Rest current at parallel load:	approx. 2 mA at contact K2 open
	External Potentiometer 1 MΩ	Voltage on contact 3 and 6 resp. 6 and 8 24 VAC/DC resp. 110 ... 240 VAC Line length max. 5m (twisted pair)
Accuracy		
	Base accuracy	±1% of scale limit ±5% if external Ppoteniometer is connected
	Repeatability of the scale limit at constant conditions	±5% or ±100ms
	Adjustment accuracy	<5%
	Temperature influence	≤0.05% / °C
Reaction times		
	Operating/return time K1	max. 60 ms / 30 ms
	Reaction time K2	max. 30 ms
	Min. pulse/pause time K2	AC 50 ms / dc 50 ms
	Recovery time	max. 200 ms

Type key

MFT S U 2 2 S -

Construction

S Pluggable 11 poles

Functions

U Universal
A Without auxiliary voltage
T Cycling timer
S Star-delta
D Digital

Output

1 1 changer
2 2 changers
3 1 changer / 1 immediate contact
4 1 changer / 1 closing contact
5 1 closing / 1 opening contact

Connecting range

1 24 VDC/AC and 110 ... 240 VAC
2 12 ... 240 VAC/DC
3 24 ... 240 VAC/DC

Control

S Voltage control
P Potential free

Special functions

E External Potentiometer

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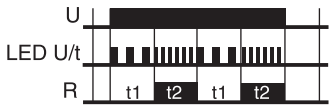
MFT ST51SE

Function descriptions

TP - Cycling timer relay beginning on a pause

When the supply voltage U (K1 closed) is applied, the set interval t1 begins (green LED U/t flashes slowly).

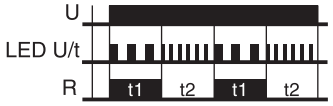


After the interval t1 has expired, the output relay switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated).

The output relay is triggered in the ratio of the two set intervals until the supply voltage U (K1 opened) is interrupted.

TI - Cycling timer relay beginning on a pulse

When the supply voltage U (K1 closed) is applied, the output relay R switches into on-position (yellow LED

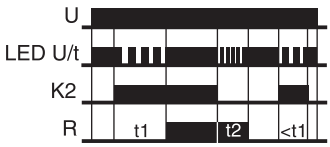


illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into on-position again (yellow LED illuminated).

The output relay is triggered in the ratio of the two set intervals until the supply U (K1 opened) voltage is interrupted.

EA - Delay on and delay off

The supply voltage U (K1 closed or permanently connected) must be constantly applied to the device

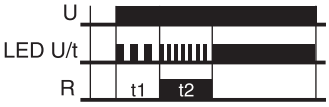


(green LED U/t illuminated). When the control contact K2 is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated). When the control contact K2 is opened, the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated).

If the control contact K2 is opened before the interval t1 has expired, the interval already expired is erased and is restarted with the next cycle.

EI1 - Input delay pulse limitation timer voltage control

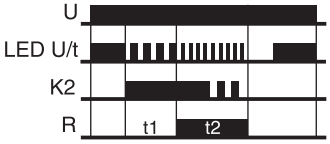
When the supply voltage U (K1 closed) is applied, the set interval t1 begins (green LED U/t flashes slowly). After the



interval t1 has expired, the output relay switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). If the supply voltage is interrupted before the interval t1+t2 has expired, the interval already expired is erased and is restarted when the supply voltage is next applied.

EI3 - Input delay pulse limitation timer with control contact

The supply voltage U (K1 closed) must be constantly applied to the device (green LED U/t illuminated). When the control



contact K2 is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact K2 can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

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MFT ST51SE

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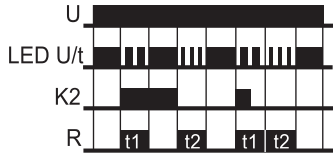
EI2 - Wiping on leading and trailing edge with control contact

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control

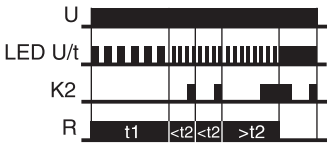


contact K2 is closed, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into off-position (yellow LED not illuminated).

If the control contact is opened, the output relay again switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times.off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times.

I3 - Pulse detection

When the supply voltage U (K1 closed) is applied, the set interval t1 begins (green LED U/t flashes slowly) and the output relay R switches into on-position (yellow LED illuminated). After



the interval t1 has expired, the set interval t2 begins (green LED U/t flashes fast). For the output relay to remain in on-position, the control contact K2 must be closed and reopened within the set interval t2. If this does not occur, the output relay R switches into off-position (yellow LED not illuminated) and all further pulses at the control contact K2 are ignored.To restart the function, the supply voltage must be interrupted and reapplied.

Connection

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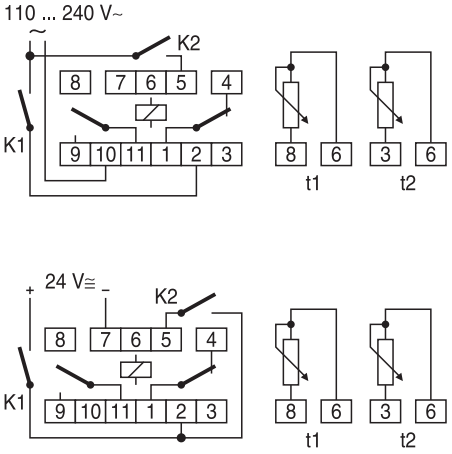

Load limit curve

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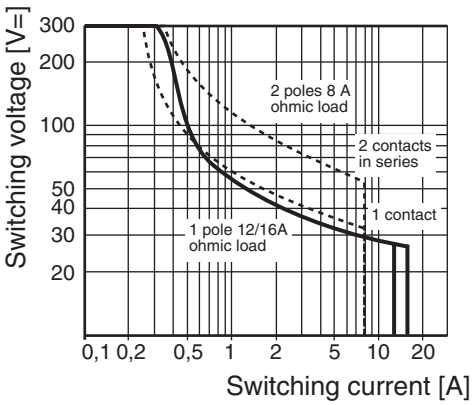

Dimensions