

Content

Time delay relays pluggable

Multifunctional time delay relay	2.2
Multifunctional clock-pulse generator relay	2.8
Delay off without supply voltage	2.12
Star-delta relay	2.16
Multifunctional time delay relay (digital)	2.20
Accessories time delay relays	2.28
Plug in socket	2.28
External potentiometer	2.28
Technical safety advice	2.29
Prescriptions and standards	2.30

Multifunctional time delay relay

MFT U11S, MFT U21S, MFT U22S, MFT U31S, MFT U21P, MFT U22P, MFT U41SE



MFT U11S, MFT U21S, MFT U22S,
MFT U21P, MFT U22P

- **8 Functions, 8 time ranges**
- **Multivoltage:**
24 Vac / dc
110 ... 240 Vac
12 ... 240 Vdc
24 ... 240 Vac
- **2 output contacts**

Functions

U Multifunctions

- E** Delay on
- A** Delay off
- B2** Cycling timer starting on a pause
- S1** Stop monitoring
- I1** Pulse limitation timer voltage control
- I2** Pulse extension with control contact
- W2** Wiping on trailing edge
- E1** Delay on with control contact

Time end ranges

Multi with 1 or 2 changers

Adjustment range 0,05 s ... 10 days

Multi with immediate contact (MFT U31S)

Adjustment range 0,05 s ... 30 days

Output relay

1 or 2 changers potential free, or 1 changer and 1 immediate contact
250 Vac / 5 A units close together 8 A units not close together

Indicators

Green LED ON: indication of supply voltage

Green LED flashes: indication of time

Yellow LED ON/OFF: indication of relay output

Connecting voltage

24 Vac/dc $\pm 10\%$ and 110 ... 240 Vac -15% $+10\%$

12 ... 240 Vdc -15% $+10\%$ and 24 ... 240 Vac -30% $+10\%$

48 ... 63 Hz, 100% duration of operation, IEC class 1c

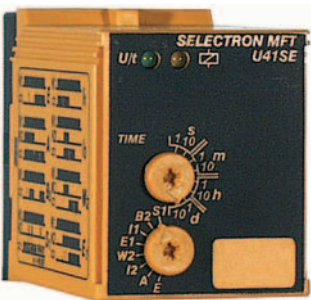
Reference data

Selectron® MFT	Article no.
MFT-U11S	41140001
MFT-U21S	41140002
MFT-U22S	41140010
MFT-U31S	41140003
MFT-U21P	41140005
MFT-U22P	41140012
MFT-U41SE	41140004

(Order data see chapter 1)



MFT U31S



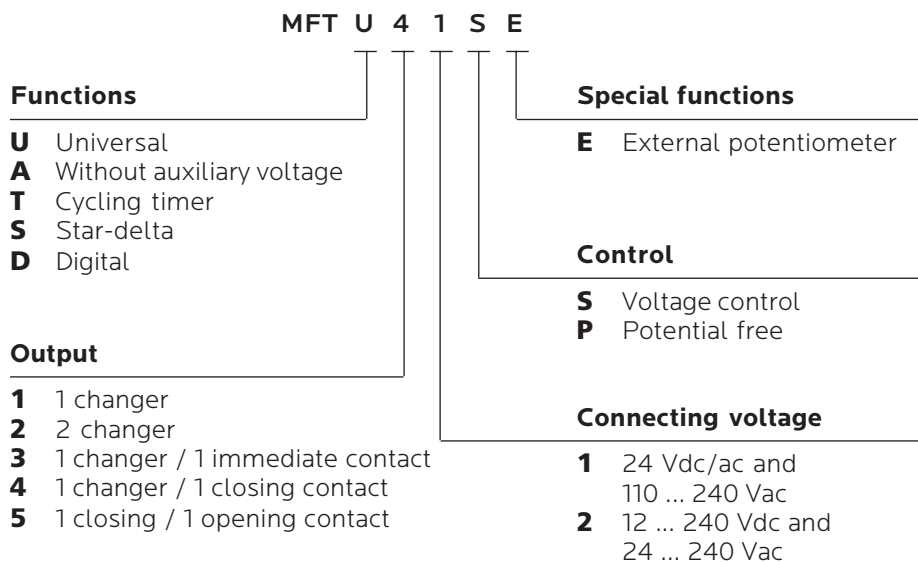
MFT U41SE

Multifunctional time delay relay

MFT U11S, MFT U21S, MFT U22S, MFT U31S, MFT U21P,
MFT U22P, MFT U41SE

Technical data	
Nominal voltage	MFT U11S, MFT U21S, MFT U21P, MFT U31S, MFT U41SE
	24 Vac/dc 1,5 VA / 1 W
	110 Vac 2 VA / 1 W
	240 Vac 11 VA / 1,4 W
	MFTU22S, MFTU22P
	24 Vac/dc 1,5 VA / 1 W
	110 Vac 4 VA / 1,5 W
	230 Vac 6 VA / 2 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
Potential free	
	Voltage between connections 6 and 7: 10 Vdc < 1 mA
Accuracy	
	Scale limit stops ±0,5%
	Repeatability
	of the scale limit at constant conditions ±5 ms or <0,5%
	Adjustment accuracy ≤5%
	Temperature influence ≤0,01% / °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 >20 ms
	Recovery time max. 90 ms

Type key



Multifunctional time delay relay

MFT U11S, MFT U21S, MFT U22S, MFT U31S, MFT U21P, MFT U22P, MFT U41SE

Function descriptions

E - Delay on

Control by Us via K1. After closing of K1, the adjusted time begins to run. After expiry of this time the output relay



switches to its active state and stays in working mode until K1 is again opened. An interruption of Us during a time t causes a reset.

A - Delay off

Us is permanently connected via K1. Control via the control contact K2. After closing of K2 the output relay switches



immediately. If K2 is again opened the adjusted time t starts to run and after expiry of the time t the relay output returns to its initial position. The closing of K2 during the time t causes a time reset and the sequence restarts after a new opening of K2 again at zero.

B2 - Cycling timer starting on a pause

Control by Us via K1. After closing the K1 the adjusted time t begins to run. After expiry of this time the output relays switch



to their active state and are activated in a 1:1 pulse/pause ratio as long as K1 stays closed.

S1 - Stop monitoring

Us is permanently connected via K1. Control via the control contact K2. The output relay switches immediately, independen-



ently of K2 and after that the first positive edge of K2 starts the time t. Each additional positive edge of K2 which arrives before the expiry of the time sequence starts the time t again and the output relay stays in active mode. After expiry of the time t the output relay returns in its initial position and the unit is interlocked against all following edges of K2 (memory). The sequence can only be restarted by a new opening and closing again of K1.

I1 - Pulse limitation timer voltage control

Control by Us via K1. After closing the K1 the output relay switches immediately and the adjusted time t begins to run.



After expiry of the time t the output relay returns to its passive state. An interruption of Us during the time t causes a reset.

I2 - Pulse extension with control contact

Us is permanently connected via K1. Control via the control contact K2. After closing the K2 the output relay switches immediately and the adjusted time t starts to run. After expiry of the time t the output relay returns to its initial position.



During this time t, K2 can be actuated as many times as required. Another cycle can only be started if the actual one is terminated.

W2 - Wiping on trailing edge

Us is permanently connected via K1. Control via the control contact K2. To set the relay in operation mode K2 has to be closed. At the opening of K2 the output relay switches immediately and the adjusted time t starts to run. After expiry



of the time t the output relay returns to its initial position. During the time t K2 can be actuated as many times as required. Another cycle can only be started if the actual one is terminated.

E1 or E - Delay on with control contact

Us is permanently connected via K1. Control via the control contact K2. After closing (E1) or opening (E) the K2 the adjusted time t starts to run. After expiry of the time t the



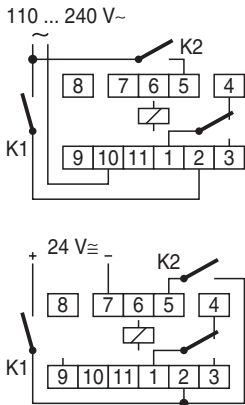
output relay switches to operation mode and stays in the position until K2 is opened again.

Multifunction time delay relay

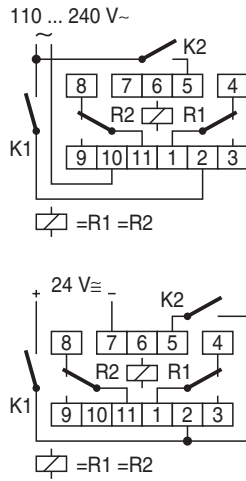
MFT U11S, MFT U21S, MFT U22S, MFT U31S, MFT U21P, MFT U22P, MFT U41SE

Connection

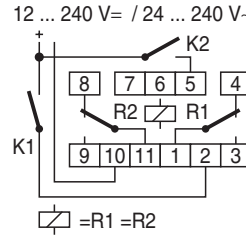
U11S



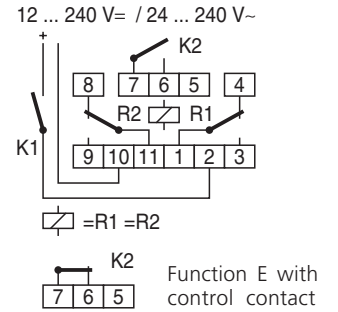
U21S



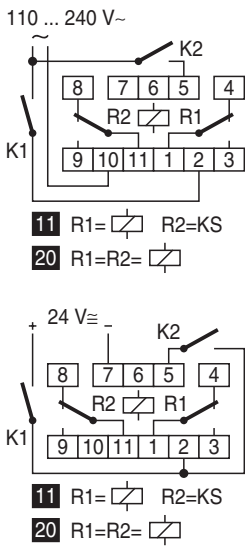
U22S



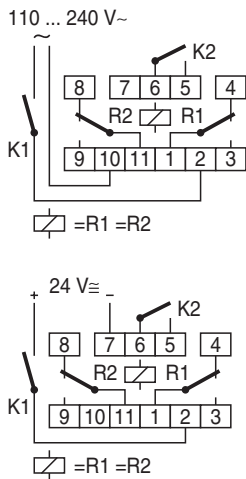
U22P



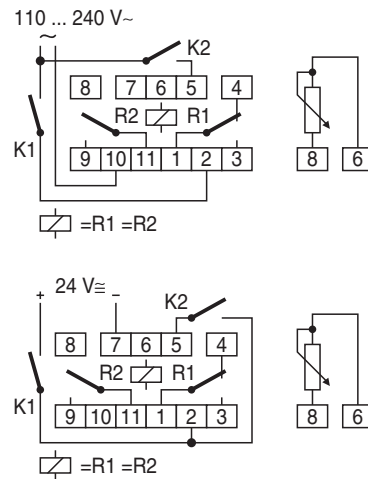
U31S



U21P



U41SE

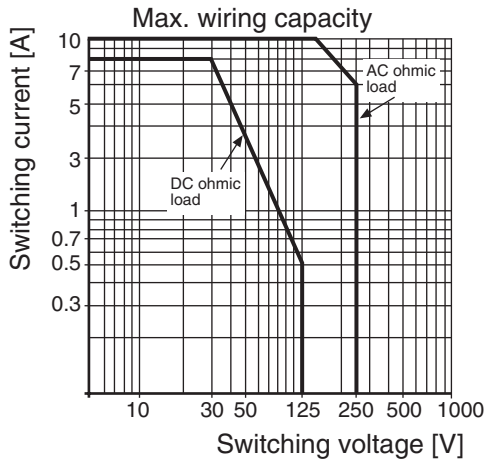


Multifunctional time delay relay

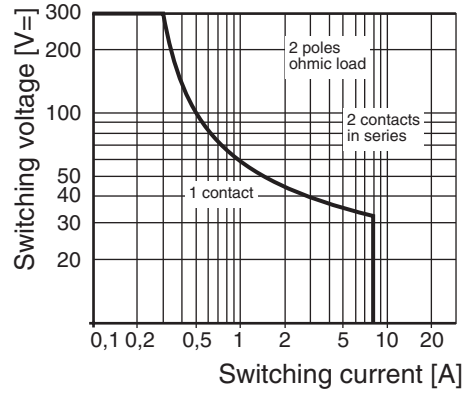
MFT U11S, MFT U21S, MFT U22S, MFT U31S, MFT U21P, MFT U22P, MFT U41SE

Load limit curves

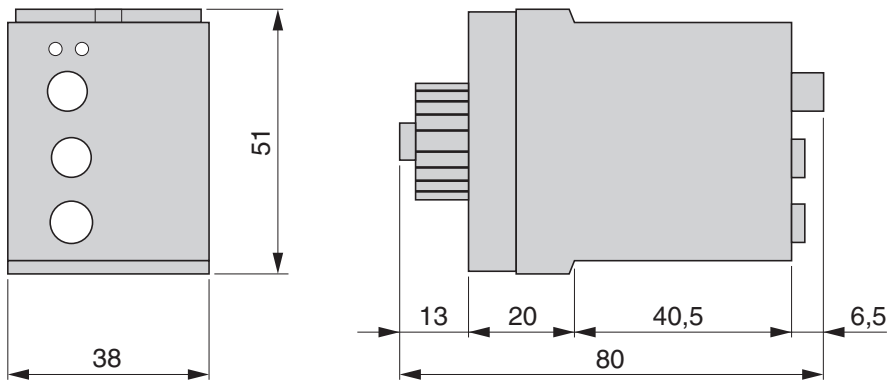
MFT U11S / MFT U21S / MFT U21P /
MFT U22S / MFT U22P / MFT U41SE



MFT U31S



Dimensions



Multifunctional clock-pulse generator relay

MFTT21S, MFTT51SE



MFT T21S

- **5 Function, 8 timer ranges**
- **Multivoltage:**
24 Vac/dc and 110 ... 240 Vac
- **2 Output contacts**

Functions

T Cycling timer

- TI** Cycling timer relay beginning on a pulse
- TP** Cycling timer relay beginning on a pause
- EA** Delay on and delay off
- EI1** Delay on with pulse limitation
- EI2** Delay on with timed pulse

Time end ranges

1 s, 10 s, 1 min, 10 min, 1 h, 10 h, 1 day, 10 days

Output relay

2 changers potential free or 1 closing contact and 1 opening contact
250 Vac / 5 A units close together 8 A units not close together

Indicators

- Green LED ON: indication of supply voltage
- Green LED flashes: indication of time
- Yellow LED ON/OFF: indication of relay output

Connecting voltage

24 Vac/dc $\pm 10\%$ and 110 ... 240 Vac -15% $+10\%$
48 ... 63 Hz, 100% duration of operation, IEC class 1c

Reference data

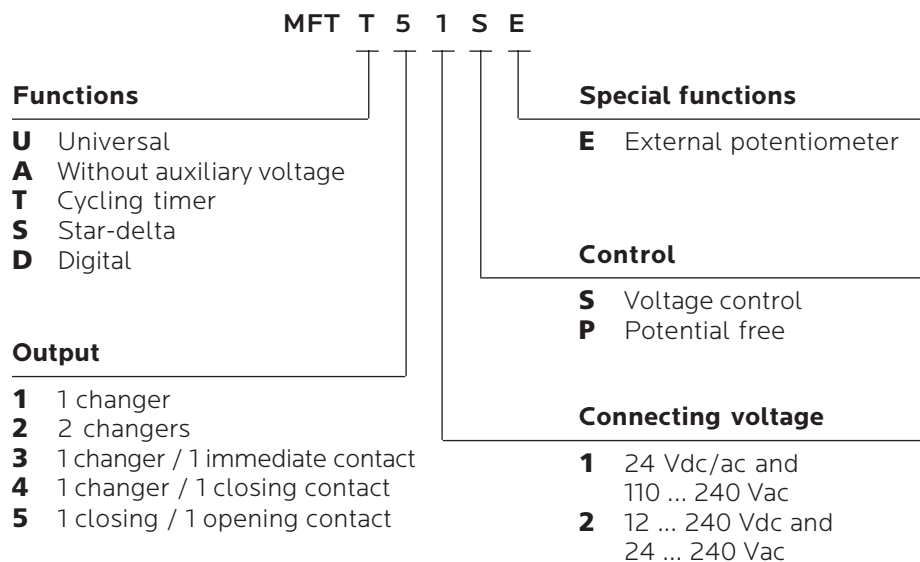
Selectron® MFT	Article no.
MFTT21S	41140006
MFTT51SE	41140007
(Order data see chapter 1)	

Multifunction clock-pulse generator relay

MFTT21S, MFTT51SE

Technical data	
Nominal voltage	
24 Vac/dc	1,5 VA / 1 W
110 Vac	2 VA / 1 W
240 Vac	11 VA / 1,4 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 MW (contact K2 open)	
Rest current at parallel load: approx. 2 mA at contact K2 open	
Accuracy	
Scale limit stops	±0,5%
Repeatability	
of the scale limit at constant conditions	±5 ms or <0,5%
Adjustment accuracy	≤5%
Temperature influence	≤0,01% / °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 >20 ms
Recovery time	max. 90 ms

Type key



Multifunction clock-pulse generator relay

MFTT21S, MFTT51SE

Function descriptions

TI/TP - Cycling timer relay beginning on a pulse / Cycling timer relay beginning on a pause

Control by Us via K1. When K1 is closed the adjusted time t1 or t2 starts to run according to the function set (pulse or pause



starting). The output relay clocks in the adjusted pulse/pause ratio as long K1 stays closed.

EA - Delay on and Delay off

Us is permanently connected via K1. Control via the control contact K2. After closing the K2 the adjusted time t1 starts to



run. After expiry of the time t1 the output relay switches on. At the opening of K2 the adjusted time starts to run and after expiry of the time t2 the output relay returns to its passive status.

EI1 - Delay on with pulse limitation

Control by Us via K1. Bridge between connections 2 and 5. If K1 is closed the adjusted time t1 starts to run. After expiry of



the time t1 the output relay switches on and the adjusted time t2 starts to run. After expiry of the time t2 the output relay returns to its passive status. An interruption of Us during the time t1 or t2 produces a time reset and the cycle restarts from the beginning.

EI2 - Delay on with timed pulse

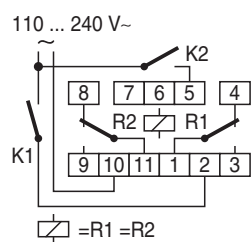
Us is permanently connected via K1. Control via the control contact K2. After closing the K2 the adjusted time t1 starts to



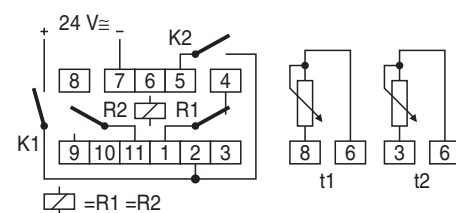
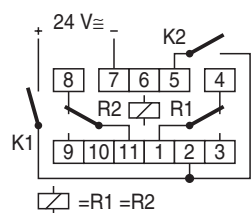
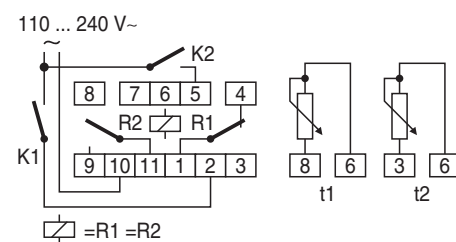
run. After expiry of the time t1 the output relay switches on and the adjusted time t2 starts to run. After expiry of the adjusted time t2 the output relay returns to its passive status. During the time t1 or t2 the contact K2 can be operated at any time. A new cycle can only be started after the actual one is finished.

Connection

MFT T21S



MFT T51SE

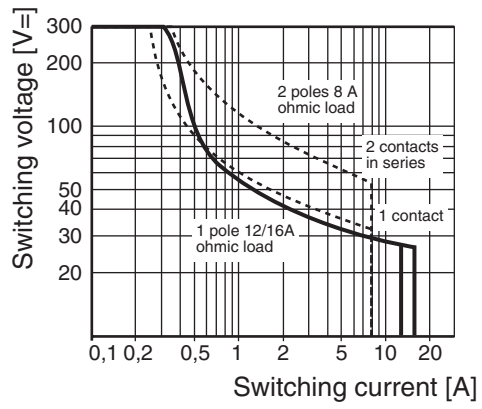


Multifunction clock-pulse generator relay

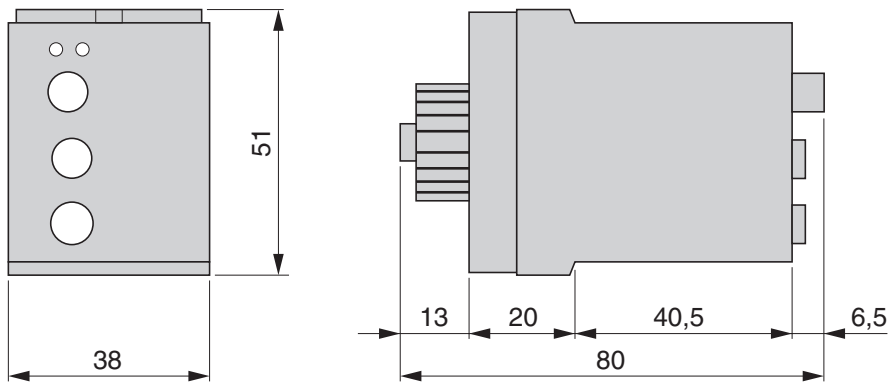
MFTT21S, MFTT51SE

Load limit curve

MFT T21S / MFT T51SE



Dimensions



Delay off without supply voltage

MFT A21S



MFT A21S

- **1 Function, 4 time ranges**
- **Multivoltage:**
24 Vac/dc and 110 ... 240 Vac
- **2 Output contacts**

Functions

A Delay off without supply voltage

A Delay off

Time end ranges

1 s, 10 s, 1 min, 3 min

Output relay

2 changers potential free
250 Vac / 5 A units close together

Indicators

Green LED ON: indication of supply voltage

Connecting voltage

24 Vac/dc $\pm 10\%$ and 110 ... 240 Vac -15% $+10\%$
48 ... 63 Hz, 100% duration of operation, IEC class 1c

Reference data

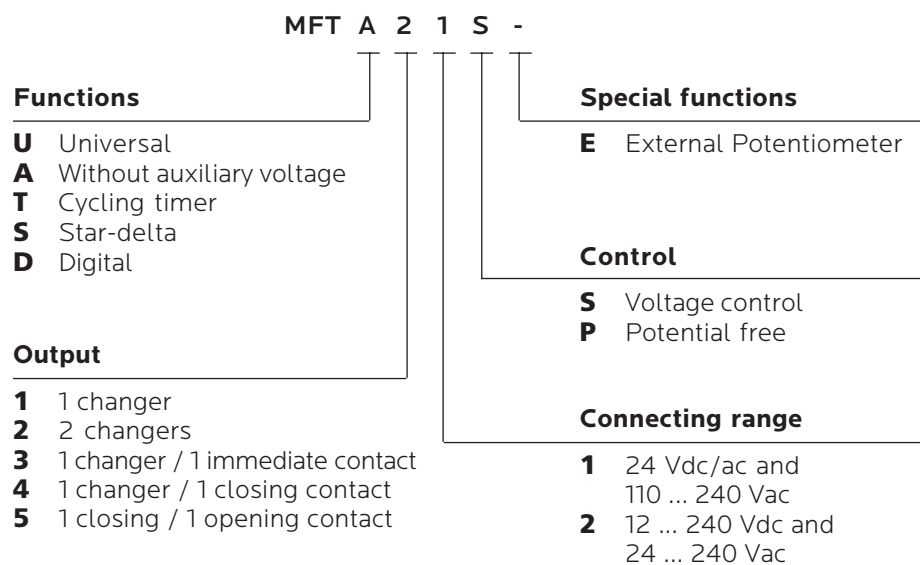
Selectron® MFT	Article no.
MFT-A21S	41140008
(Order data see chapter 1)	

Delay off without supply voltage

MFT A21S

Technical data	
Nominal voltage	
24 Vac/dc	1,5 VA / 1 W
110 Vac	2 VA / 1 W
240 Vac	11 VA / 1,4 W
Accuracy	
Scale limit stops	±0,5%
Repeatability of the scale limit at constant conditions	±5 ms or <0,5%
Adjustment accuracy	≤5%
Temperature influence	≤0,01% / °C
Reaction time	
Operating/return time K1	max. 60 ms / 30 ms
Minimum switch-on time of 110 V ... 140 V	500 ms 2 sec
Recovery time	max. 90 ms

Type key



Delay off without supply voltage

MFT A21S

Function descriptions

A - Delay off

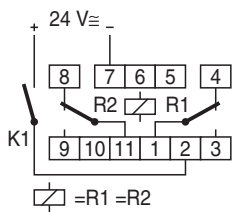
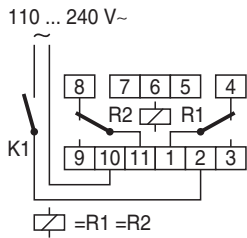
Control by U_s via K1. After closing the K1 the output relay switches on. If K1 is opened again, the adjusted time t starts to



run. After expiry of the time t the output relay returns to its passive status. An activation of K1 during the time t produces a time reset.

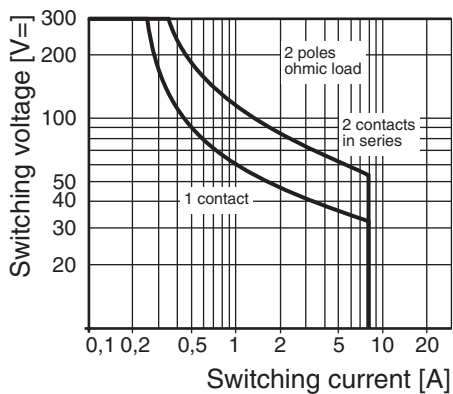
Connection

A21S



Load limit curve

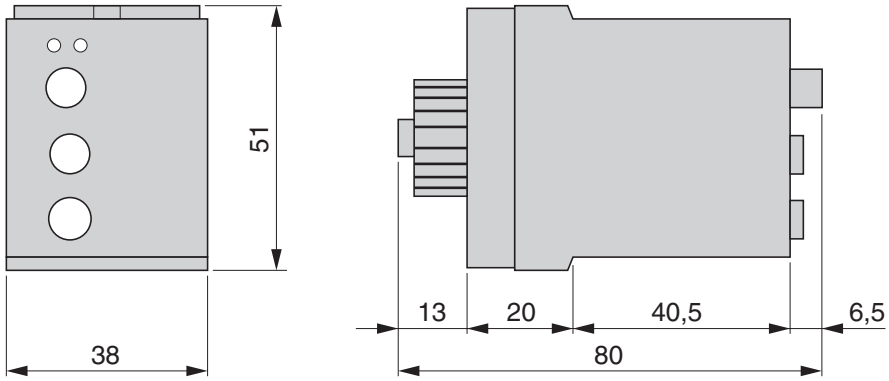
MFT A21S



Delay off without supply voltage

MFT A21S

Dimensions



Star-delta relay

MFT S21S



MFT S21S

- **1 Function, 4 time ranges**
- **Multivoltage:**
24 Vac/dc and 110 ... 240 Vac
- **2 Output controls**

Functions

S Star-delta functions

S Star-delta

Time end ranges

Star times 10 s, 30 s, 1 min, 10 min

Change over time 40 ms, 60 ms, 80 ms, 100 ms

Output relay

2 changers potential free

250 Vac / 5 A units close together 8 A units not close together

Indicators

Green LED ON: indication of supply voltage
delta-contactor in on-position
(Pins S9-S11)

Green LED flashes: indication of star-time

Yellow LED ON/OFF: indication of star-contactor
(Pins S1-S3)

Connecting voltage

24 Vac/dc $\pm 10\%$ and 110 ... 240 Vac -15% $+10\%$

48 ... 63 Hz, 100% duration of operation, IEC class 1c

Reference data

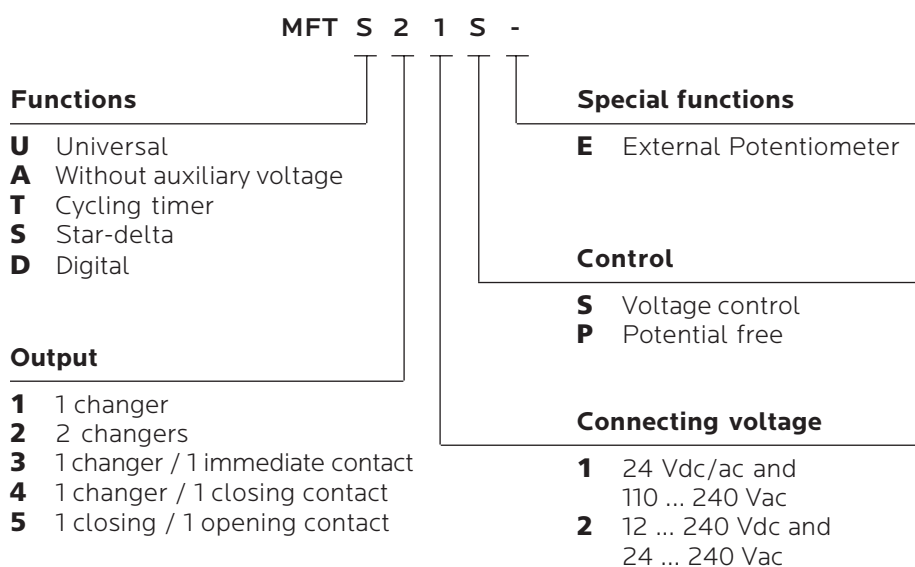
Selectron® MFT	Article no.
MFT S21S	41140009
(Order data see chapter 1)	

Star-delta relay

MFTS21S

Technical data		
Nominal voltage		
24 Vac/dc		1,5 VA / 1 W
110 Vac		2 VA / 1 W
240 Vac		11 VA / 1,4 W
Accuracy		
Scale limit stops		±0,5%
Repeatability of the scale limit		
at constant conditions		±5 ms or <0,5%
Adjustment accuracy		≤5%
Temperature influence		≤0,01% / °C
Reaction time		
Operating/return time K1		max. 60 ms / 30 ms
Reaction time K2		max. 30 ms
Min. pulse/pause time K2		ac >50 ms /
		dc >20 ms
Recovery time		max. 90 ms

Type key



Star-deltarelay

MFT S21S

Function descriptions

S - Star-delta

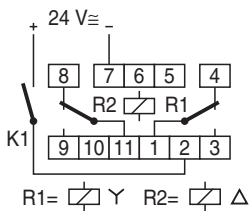
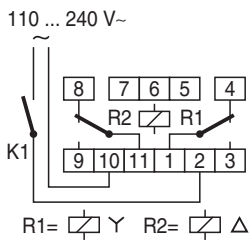
Control by U_s via K1. After closing the K1 the star output relay switches on. After expiry of the adjusted time t_{star} the star output relay returns back to its passive status and the adju-



sted time t_Y starts to run. After expiry of the time t_U the delta output relay switches on. An interruption of U_s produces a time reset and the cycle restarts from the beginning.

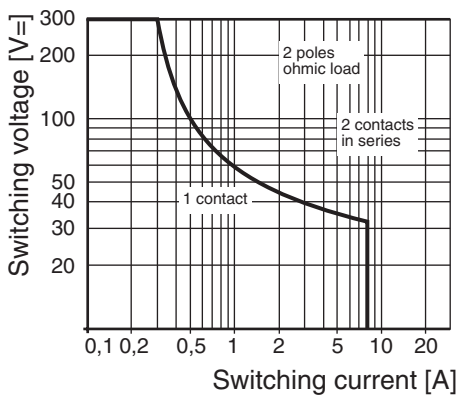
Connection

S21S



Load limit curve

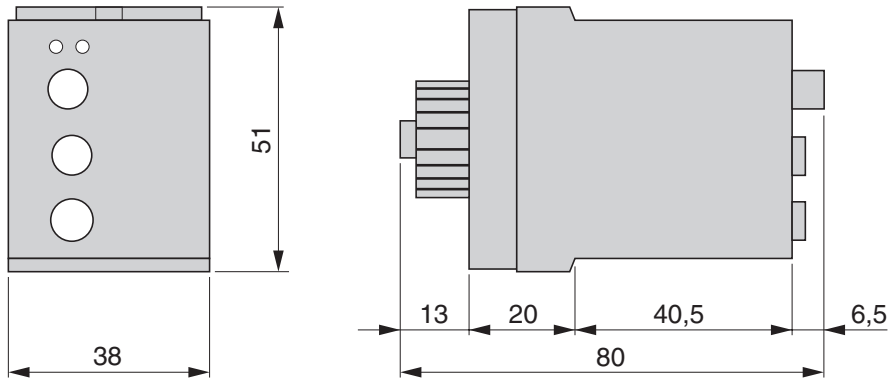
MFT S21S



Star-delta relay

MFT-S21S

Dimensions



Multifunctional time delay relay (digital)

MFT D42S



MFT D42S

- 22 Functions, time range up to 999 hours
- Multivoltage:
12 ... 240 Vdc and 24 ... 240 Vac
- 2 Output contacts

Functions

D Digital

- F00, F10** Pulse extension re-triggerable
- F01, F11** Delay on
- F02, F12** Delay off
- F03, F13** Pulse limitation with control contact
- F04, F14** Pulse extension
- F05, F15** Wiping on trailing edge
- F06, F16** Delay on and delay off
- F07, F17** Wiping on and off
- F08, F18** Input delay pulse
- F09, F19** Cycling timer pulse starting
- F09, F19** Cycling timer pause starting (bridge 2-5)
(F10-F19 with voltage failure detection)

Time ranges

switchable from 0,01 sec ... 999 h

Output relay

1 changer and 1 closing contact

250 Vac / 5 A units close together 8 A units not close together

Connecting voltage

12 ... 240 Vdc -15% +10% and 24 ... 240 Vac -30% +10%
48 ... 63 Hz, 100% duration of operation, IEC class 1c

Reference data

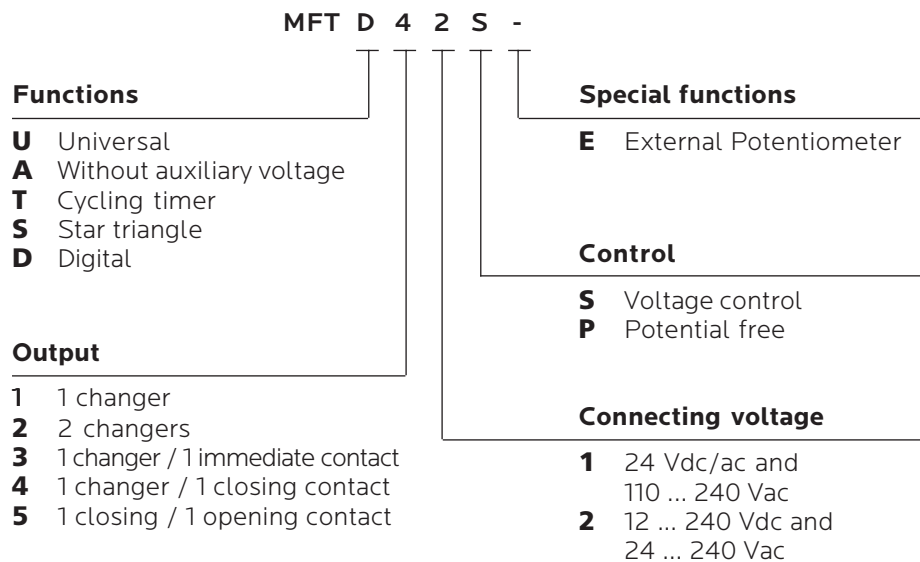
Selectron® MFT	Article no.
MFT D42S	41140011
(Order data see chapter 1)	

Multifunctional time delay relay (digital)

MFT D42S

Technical data	
Nominal voltage	
24 Vac/dc	1,5 VA / 1 W
110 Vac	4 VA / 1,5 W
230 Vac	6 VA / 2 W
Reacting thresholds	
On at >7,3 ... 8 V	
Off at <5 ... 6 V	
Control inputs	
Either as switching contact, semi conductor or sensor control.	
Parallel switching of loads possible	
Max. load of the control contacts <1 mA	
Accuracy	
Scale limit stops	±0,5%
Repeatability of scale limit	
at constant conditions	±5 ms or <0,5%
Adjustment accuracy	±5%
Temperature influence	5‰ per °C at -10 °C ... +55 °C
Reaction times	
Reaction time S	max. 40 ms
Recovery time	max. 80 ms
Program storage	via EEPROM

Type key



Multifunctional time delay relay (digital)

MFT-D42S

Function descriptions

F00, F10 - Pulse extension re-triggerable

After closing the control contact S the output relay switches immediately and the adjusted time t begins to run. After



expiry of the time t the output relay returns to its passive state. If S is actuated before expiry of the time t, the time sequence starts again. (dead man circuit)

F01, F11 - Delay on

After closing of the control contact S the adjusted time t begins to run. After expiry of the time t the output relay



switches to operation mode. If S is opened again, the output relay goes back into its initial position.

F02, F12 - Delay off

After closing the control contact S the output relay switches immediately. If S is again opened the adjusted time t starts to



run. After expiry of the time t the output relay returns to its passive state. If the control contact S is actuated before expiry of the time t, the time t is resettled and the output relay remains active.

F03, F13 - Pulse limitation

After closing the control contact S the output relay switches immediately and the adjusted time t begins to run. After



expiry of the time t the output relay releases. An activation of S during the time t causes a reset of the time.

F04, F14 - Pulse extension

After closing the control contact S the output relay switches immediately and the adjusted time t begins to run. After expiry of the time t the output relay returns to its



passive state. During the time t S can be actuated as many times as required. Another cycle can only be started if the actual one is terminated

F05, F15 - Wiping on trailing edge

To set the relay in an active state, the control contact S must be closed. At the opening of S the output relay switches immediately and the adjusted time t starts to run.



After expiry of the time t the output relay returns to its initial position. S can be actuated as many times as required. Another cycle can only be started if the actual one is terminated.

F06, F16 - Delay on and delay off



After closing the control contact S the adjusted time t_1 begins to run. After expiry of the time t_1 the output relay switches to operation mode. At the opening of S starts the adjusted time t_2 to run. After expiry of the time t_2 the output relay returns to its initial position. If the control contact S is again activated before expiry of the time t_2 , a time reset of t_2 occurs. The output relay stays active.

F07, F17 - Wiping on and off

After closing the control contact S the output relay



switches immediately and the adjusted time t_1 begins to run. After expiry of the time t_1 the output relay returns to its initial position. If S is opened again the output relay attracts immediately and the adjusted time t_2 starts to run. After expiry of the time t_2 the output relay returns to its initial position. An activation of S during the time t_1 or t_2 has no influence on the function sequence.

Multifunctional time delay relay (digital)

MFT-D42S

Function descriptions

F08, F18 - Input delay pulse

After closing the control contact S the adjusted time t1



begins to run. After expiry of the time t1 the output relay switches to operation mode and the adjusted time t2 begins to run. After expiry of the time t2 the output relay returns to its initial position. An activation of the control contact S before expiry of the time t1 produces a time reset. The activation of S during t2 has no influence. Another cycle can be started only after expiry of t2.

F09, F19 - Cycling timer pulse starting

Control by Us. After applying the voltage supply the output relay switches on immediately and clocks in the adjusted pulse/



pause ratio (t1:t2) as long as Us is applied.

F09, F19 (bridge 2-5) - Cycling timer pause starting



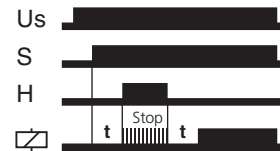
Control by Us. After applying the voltage supply the adjusted pause time t1 starts to run and the output relay clocks in the adjusted pause/pulse ratio (t1:t2) as long as Us is applied.

Functions of the additional inputs

Stop input H

at the example of the function F01

At activation of the STOP input (potential on terminal 6) the unit interrupts the sequence of the adjusted time. The output



relay stays in the position it had at the time of the interruption. If the STOP input becomes again inactive (potential on terminal 6 removed), the time sequence will continue with the remaining rest.

for interlocked operation mode at the example of the function F11



If the supply voltage fails at the functions F10-F19, the timer will remain blocked in any case after restoring the voltage. An activation of the control contact S has no influence. In the display blinks the information "-F-". This status remains as long as the RESET input (potential on terminal 7) stays active or if the keys "+" and "-" (=RESET) are actuated simultaneously. The function can be restarted only after that.

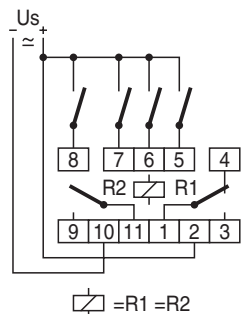
To avoid any involuntary or willful error manipulation during the service, the keyboard can be locked by means of the input KEYBOARD-LOOK (potential on terminal 8).

Multifunctional time delay relay (digital)

MFT D42S

Connection

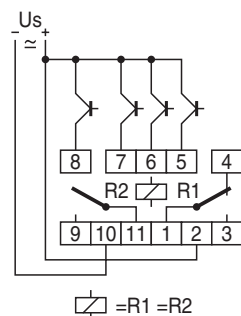
MFT D42S



Contact control

Terminal engaging

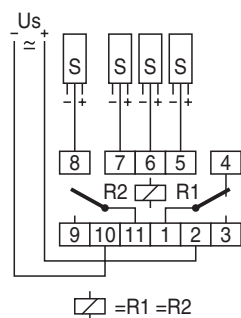
- 5 Signal = S
- 6 Stop = H
- 7 Reset = R
- 8 Key blocking



Semiconductor control

Terminal engaging

- 5 Signal = S
- 6 Stop = H
- 7 Reset = R
- 8 Key blocking



PNP sensor control

Terminal engaging

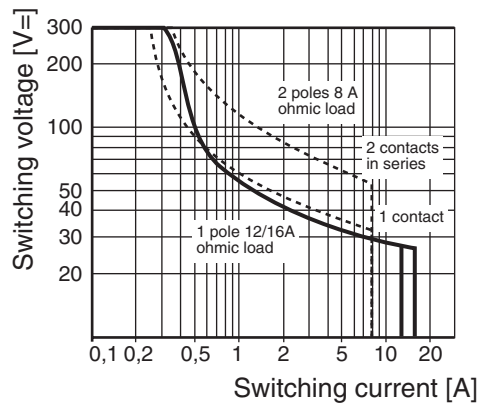
- 5 Signal = S
- 6 Stop = H
- 7 Reset = R
- 8 Key blocking

Multifunctional time delay relay (digital)

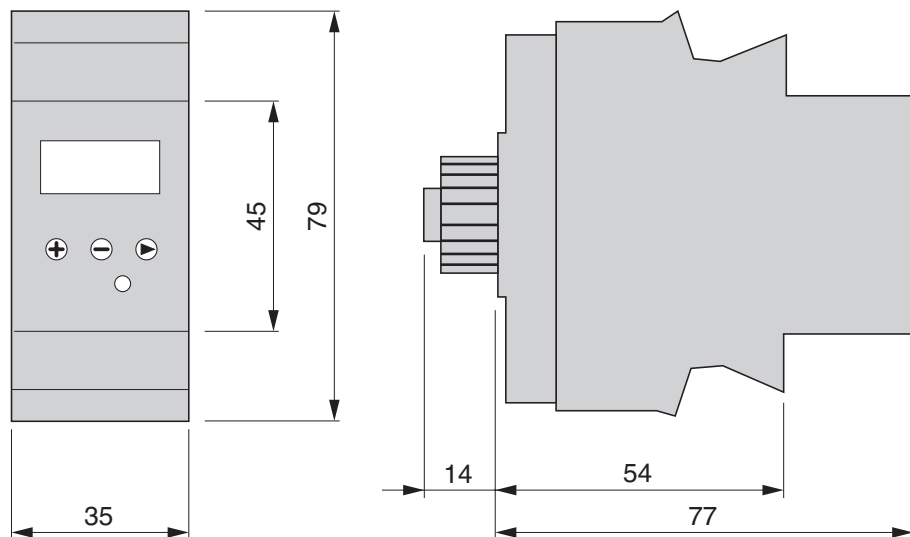
MFT-D42S

Load limit curve

MFT D42S



Dimensions



Multifunctional time delay relay (digital)

MFT D42S

Programming

- 2 Units name
- 3 LED display for active relay output .

Display

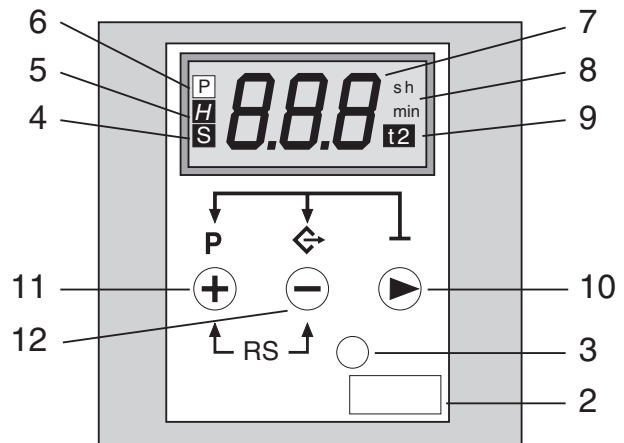
- 4 Display S in case of active SIGNAL contact
- 5 Display H in case of active HALT contact
- 6 Visible **P** in adjusting or program mode, flashing if program mode can be started
- 7 Count down time and function code
- 8 Time range (flashing during timing period)
- 9 Visible t2 in case of active 2nd time
"- - -" RESET is active
"OFF" during programming or reset with front keys, when keyboard lock is active.

Function code is flashing

- a) Unit MFT D42S is locked after power failure (functions F10-F19); clear by resetting
- b) Function F00 time 0.00 has been programmed
- c) Device is faulty
"r-", "rF-" error during self test

Keyboard functions

- 10 Switch to display mode. Each key press changes display to: function code - time - (2nd time) - return to standard mode. Auto return after 1 minute without operator action.
- 11 or 12 Flashing value will decrease/increase if program or adjusting mode is active.
- 11 and 12 simultaneously RESET, Relay de-energizes, all active functions including program and adjusting mode will be interrupted. Display shows: "- - -"
- 11 Start program/adjust mode or confirm new program by pressing this key while 10 is held down. After a concluding confirmation of a new timer function - immediate restart (display: "-F-")
At time change only, new time will be effective at subsequent timing period (display shows: "--"). In any case current timer action continuous until new programm is confirmed.



- 12 Quit program or adjusting mode without change of former adjustments by pressing this key while 10 is held down. Auto return to standard mode after 1 minute without key operation.

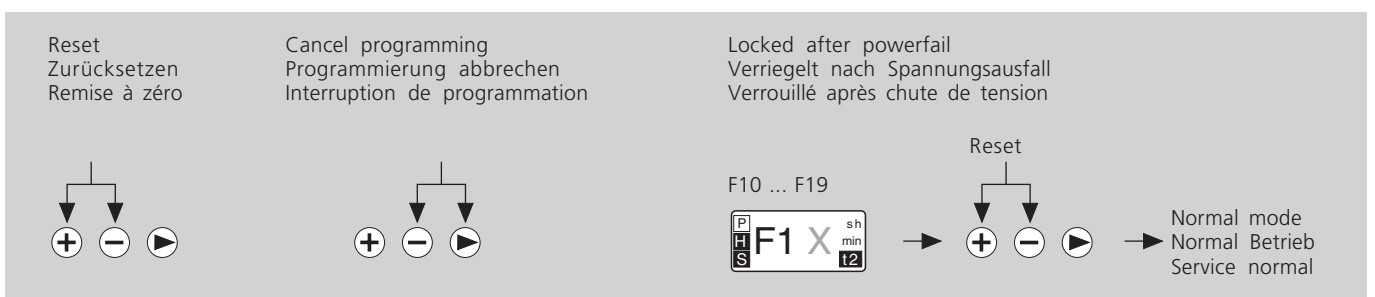
Adjustment

hold 10 and press 11 additionally; displayed time is flashing and may be adjusted by pressing + or -. Hold for fast disfiguration. At function F06-F09 and F16-F19 key 10 switch to the alternate time. Confirm adjustments by; pressing key 11 while 10 is held down.

Programming

Select program section by key 10 (Function, Time, 2nd time), "P" sign (6) is flashing. Press 11 while 10 is held down, then release both keys. Now you may change flashing section of display by + or - key. 10 switches to the next element. Confirm adjustments by; pressing key 11 while 10 is held down.

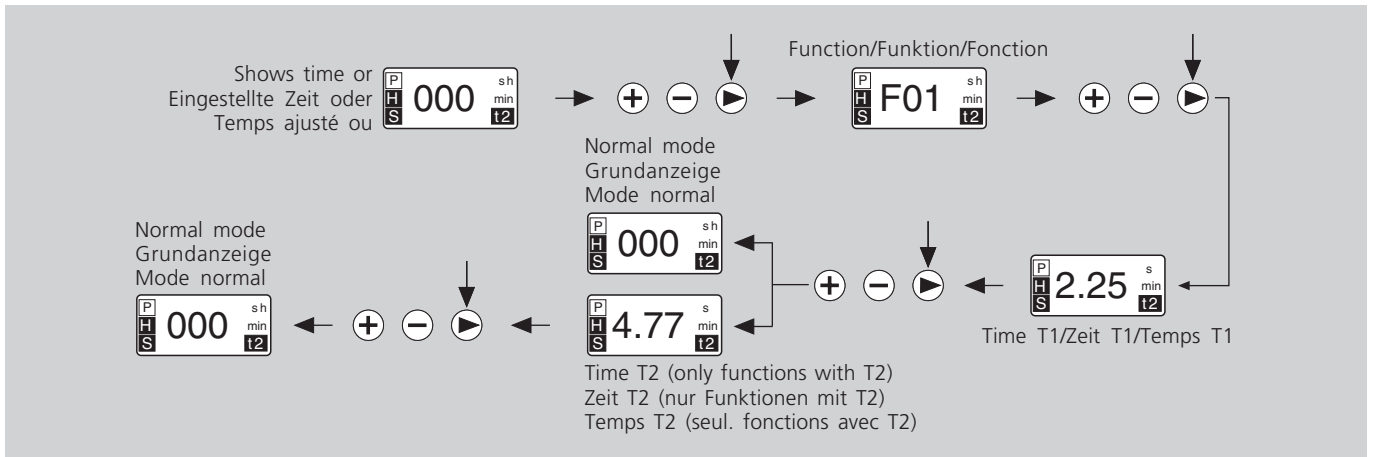
Basic functions



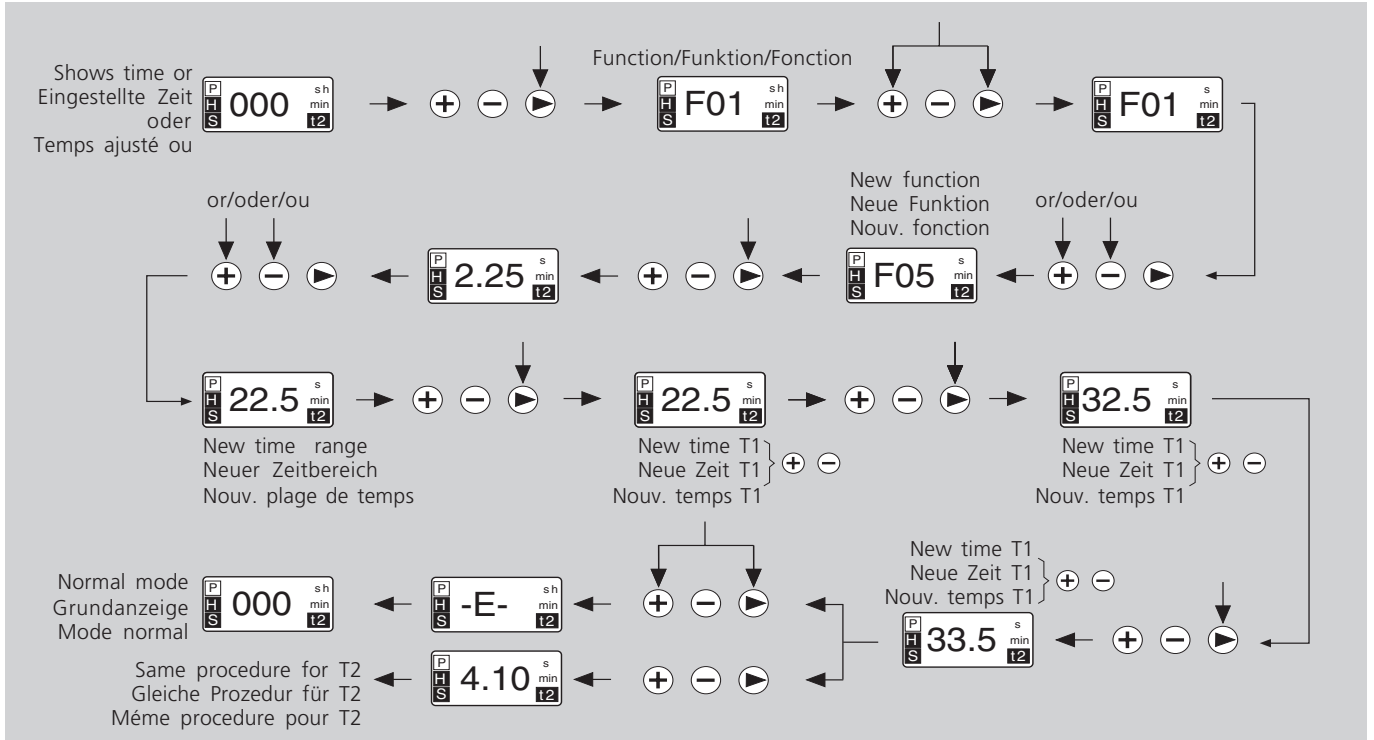
Multifunctional time delay relay (digital)

MFT-D42S

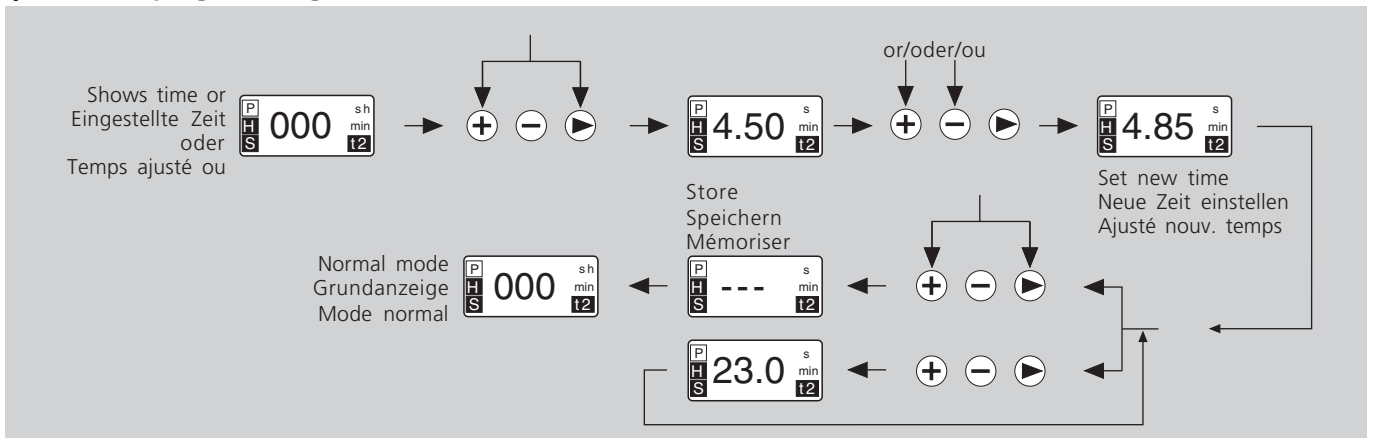
Display mode



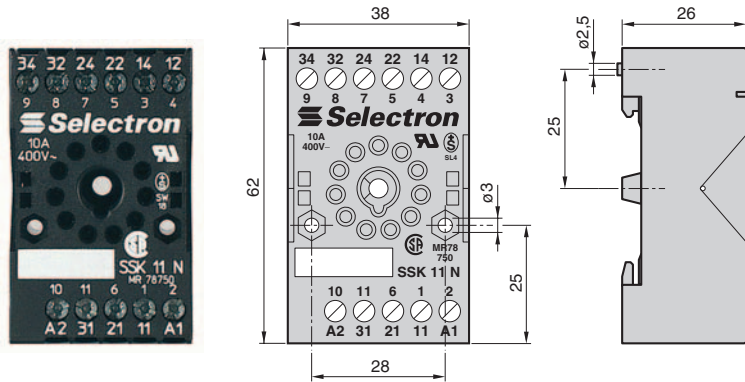
Programming mode



Quick time programming

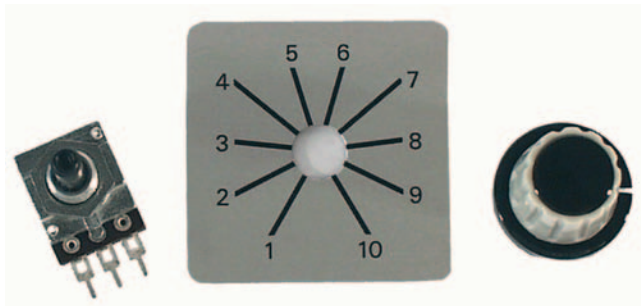


Plug in socket



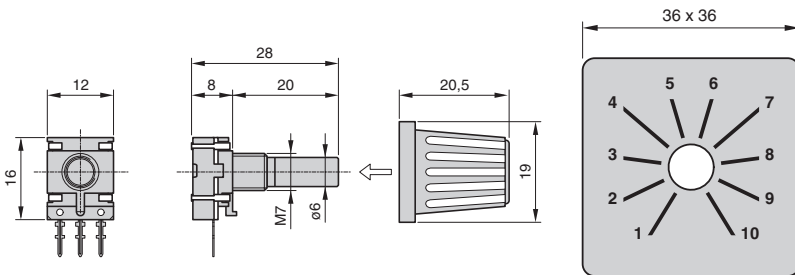
Plug in socket 11 poles	Article no.
SSK 11 N	41910006
(Order data see chapter 1)	

External potentiometer

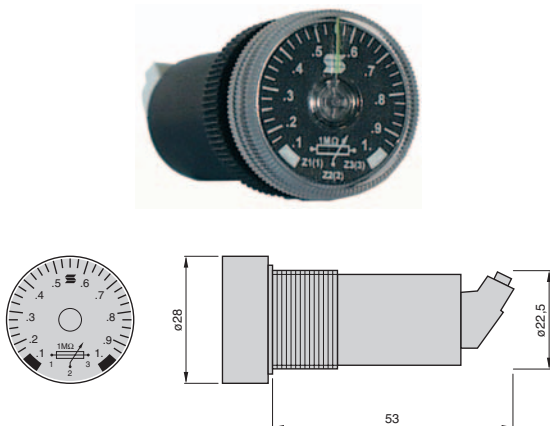


Potentiometer POTSET	
Resistor	1MΩ
Article no.	41920033
(Order data see chapter 1)	

Potentiometer, turning knob and scale are included in the delivery



Potentiometer EXPOT1	
Resistor	1MΩ
Angle of rotation	295°
Front protection	IP 64
Mounting diameter	22,5 mm
Connection	Screw terminals
Article no.	41920034
(Order data see chapter 1)	



Technical safety advice

This manual contains the information necessary for the correct utilisation of the products described therein. It is intended for technically qualified persons who are involved as either

- planning engineers familiar with the safety concepts of automation technology;
- or, operating personnel, who have been instructed in handling automation equipment and have a knowledge of the contents of this manual concerning operation;
- or, installation and servicing personnel possessing the necessary training to repair such an automation system or who have the authority to put such circuits and equipment/systems into operation, to earth or label them according to the relevant safety standards.

The products are constructed, manufactured and tested in compliance with the relevant VDE standards, VDE specifications and IEC recommendations.

Danger warning

These warnings serve both as a guide for those persons involved in a project and as safety advice to prevent damage to the products themselves or to associated equipment.

Due to advancements in technology, the wiring diagram on the actual device may be different than shown in this catalogue. In all instances where the actual device diagram is different, the wiring diagram on the device must be used when electrical connections are made.

Correct utilisation, configuration and assembly

The equipment is to be used only for the applications stated in the catalogue and technical literature, and only in conjunction with auxiliary equipment and devices that are recommended or approved by Selectron Systems Ltd.

Further, it should be noted that:

- the automation equipment must be disconnected from any power supply before it is assembled, disassembled or the configuration modified.

- Solid state electronic switches must not be tested with incandescent lamps or connected to a load that exceeds its rating.
- trouble-free and safe operation of the products requires correct transportation as well as appropriate storage, assembly and wiring.
- the systems may only be installed by trained personnel. In doing so, the relevant requirements contained in VDE 0100, VDE 0113, IEC 364, etc. must be complied with.

Prevention of material damage or personal injury

Additional external safety devices or facilities must be provided wherever significant material damage or even personal injury could result from a fault occurring in an automation system. A defined operating status must be ensured or forced by such devices or facilities (e.g. by independent limit switches, mechanical interlocks, etc.).

Advice concerning planning and installation of the products

- The safety and accident prevention measures applicable to a specific application are to be observed.
- In the case of mains-operated equipment, a check is to be made before putting it into operation to ensure that the preset mains voltage range is suitable for the local supply.
- In the case of a 24 V supply, care must be taken to ensure sufficient electrical insulation of the secondary side. Use only mains power supply units that conform to IEC 364-4-41 or HD 384.04.41 (VDE 0100 Part 410).
- Automation systems and their operating elements are to be installed in such a way that they are sufficiently protected against accidental operation.

Warranty

Selectron Systems Ltd. warrants its products to be free from defects in material and workmanship for a period of one year from the date of shipment. All claims under this warranty must be made within thirty (30) days of the discovery of the defect, and all defective products must be returned at the buyer's expense. Buyer's sole and exclusive right will be limited to, at the option of Selectron Systems Ltd., the repair or replacement by Selectron Systems Ltd., of any defective products for which a claim is made.

In all other matters please refer to the "General terms of business" concerning Selectron Systems Ltd.

Note

The information given in this documentation corresponds to the state of development at the time of going to press and is therefore not binding. Selectron Systems Ltd. reserves the right to make alterations in the interests of technical advancement or product improvement at any time without giving reasons for doing so.

Prescriptions and standards

Mechanical data	
Housings in self-extinguishing plastic material. Protection mode IP 40	
Mounting: snapping mode:	Fixing on profile rail according DIN 46277/3 (EN 50 022)
	Connection via contact protected terminals up to 4 mm ² , protecting mode IP 20
Mounting: plug-able mode:	Fixing and connection via 11 pole screw or soldering plug socket
Pin arrangement and connection mark according IEC67-1-18a	
Environmental conditions	
Admissible environmental temperatures from -25 °C ... +55 °C (corresponds IEC 68-1)	
Storage and transport temperature from -25 °C ... +70 °C	
Application class HVF according DIN 40040, pr IEC 1812-1 (1994) and IEC 721-3-3 class 3K3	
Output relay	
Electrical lifetime:	230 Vac, min. 400'000 switching cycles at 5 A ohmic.
Mechanical lifetime:	min. 30 x 10 ⁶ switching cycles
Contact material	AgNi 0,15
Supply voltage	
Frequency range	48 ... 63 Hz
Duty cycle	100%, IEC class 1c
Protection	
Protection of the unit	8 A fast
Terminals	
Contact protection according VDE 0106 and VBG 4	
Terminal arrangement and connecting mark according DIN 46199	
Terminal type:	sleeve with indirect screw pressure
Wire to connect:	rigid or flexible
Connecting limit:	4 mm ²
Terminal variants:	1 wire 0,5 mm ² ... 2,5 mm ² with/without wire end covers
	1 wire 4 mm ² without wire end covers
	2 wires 0,5 mm ² ... 1,5 mm ² with/without wire end covers
	2 wires 2,5 mm ² flexible without wire end covers
max. screw in torque: 1,0 Nm	
Terminal screw for screw driver or Pozi drive PZ-1	
Insulation	
Isolation nominal voltage:	250 Vac (corresponds to IEC 664-1)
Rating surge voltage:	4 kV, over-voltage category III, corresponds to IEC 664-1
Electromagnetic compatibility	
Electrostatic discharge: Level 3, 6 kV contact, 8 kV air (corresponds to IEC 1000-4-2)	
High frequency electromagnetic fields: Level 3, 10 V/m (corresponds to IEC 1000-4-3)	
Fast transients: Level 4, 4 kV / 2,5 kHz, 5/50 ns (corresponds to IEC 1000-4-4)	
Lightning discharge: Level 3, 2 kV com., 1 kV dif., (corresponds to IEC 1000-4-5)	
Cable running disturbances inducted by HF fields: Level 3, 10 V RMS (corresponds to IEC 1000-4-6)	
Spurious radiation net and aerial network: Class B (corresponds to CISPR 22)	
Prescriptions	
Air and leakage paces:	VDE 0110iGr. C/250
Test voltage:	VDE 0435 2000Vac
Low voltage directions according to IEC 664-1	
EMC emissions:	EN 50 081-1 and EN 55 022 class B
EMC interference stability:	Voltage impact strength according to IEC 1000-4-5
Burst:	EN 50 082-2, EN 61 812-1 (level 3)
ESD:	IEC 1000-4-2
HF over metallic circuits:	EN 50 082-2, ENPr 50141
Electro magnetic HF field according to EN 50 082-2, ENPr 50140 and ENPr 50204	
Production standard:	according to ISO 9001