Data sheet

Electronic timer CT-MKE
Multifunctional with 1 thyristor

The CT-MKE is a multifunctional electronic time relay. It is from the CT-E range.

The CT-E range is the economic range of ABB‘s time relays and offers a cost effective price-performance ratio for OEM users. This is achieved by simplified functionality and results in the simplest of setup procedures. The CT-E range is ideally suited for repeat applications.

1SVR 550 019 F0000

Characteristics

- One device includes 2 time ranges, from 0.1 to 300 s
- Rated control supply voltage range 24-240 V AC/DC
- Multifunction timer with 4 timing functions:
  ON-delay (AC/DC), impulse-ON (AC only), flasher starting with ON (AC only), flasher starting with OFF (AC only)
- 1 Thyristor
- 22.5 mm (0.89 in) width
- 1 LED for the indication of operational states

Order data

Type	Rated control supply voltage	Time range	Order code
CT-MKE	24-240 V AC/DC	0.1-10 s, 3-300s	1SVR 550 019 R0000

Functions

Operating controls

1 **Indication of operational states**

ON: red LED – Load energized

2 **Thumbwheel for the fine adjustment of the time delay**

Application

Their conception makes the CT-E range timers ideal for repeat applications. The devices CT-MKE are solid-state timers with thyristor output for 2-wire applications. They are connected directly in series with the control coil of contactors or relays. Voltage should not be applied without a load connected, because there is no current limiting in the device.

Devices with solid-state output are the perfect solution for high switching frequencies.

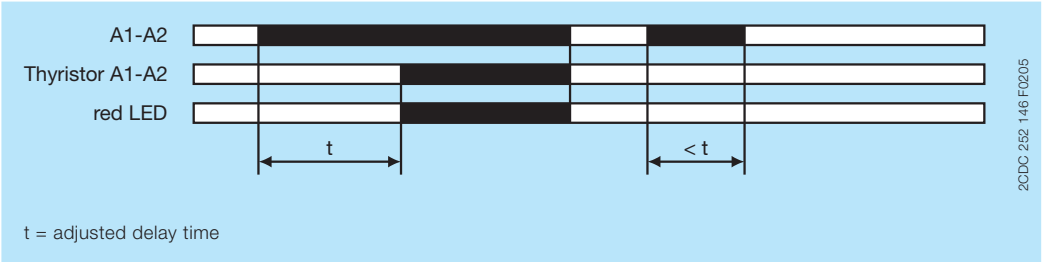
Operating mode

The CT-MKE with 1 thyristor provides 4 timing functions which are selected by corresponding wiring. One of 2 time delay ranges can be selected by an external jumper wire (X3-X4 jumpered: 0.1-10 s / X3-X4 open: 3-300 s). The fine adjustment of the time delay is made via the frontface thumbwheel.

Function diagrams

ON-delay (Delay on make)

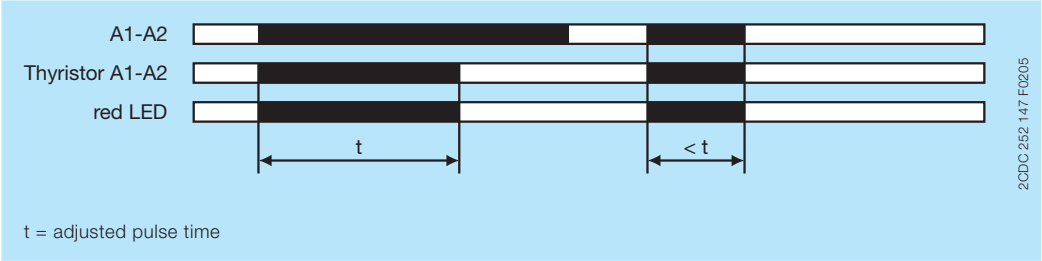
Without external connection. Timing begins when control supply voltage is applied to terminal A1 and the load connected in series with A2. When the selected time delay is complete, the load energizes. If control supply voltage is interrupted, the load de-energizes and the time delay is reset. Interrupting supply voltage before the time delay is complete, resets the time delay. The load does not energize.



t = adjusted delay time

Impulse-ON (Interval)

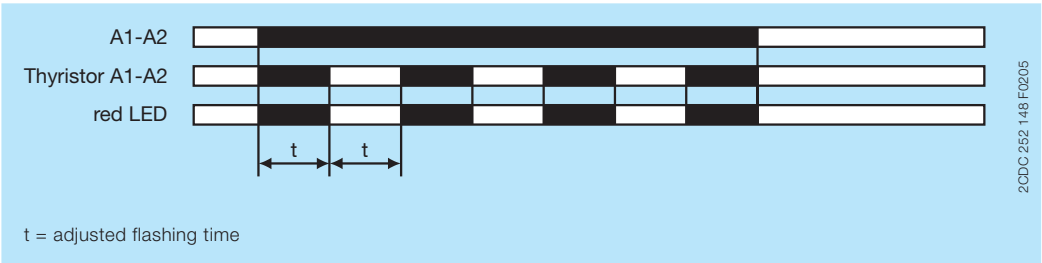
External connection X1-X4 required. The load energizes and timing starts when control supply voltage is applied to terminal A1 and the load connected in series with A2. When the selected time delay is complete, the load de-energizes. Interrupting control supply voltage before the time delay is complete, de-energizes the load and resets the time delay.



t = adjusted pulse time

Flasher, starting with the ON time

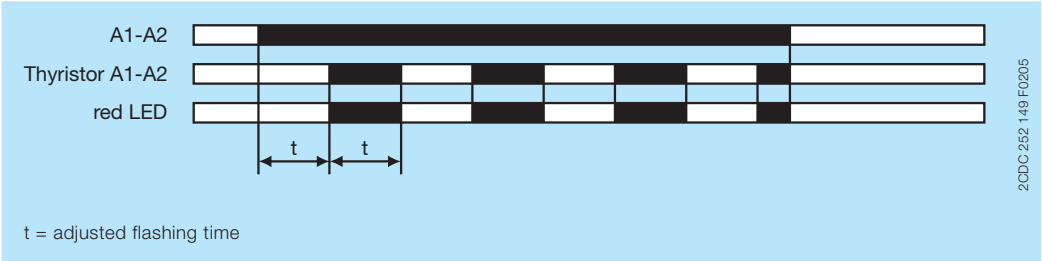
External connection X1-X4 and X2-X4 required. When control supply voltage is applied to terminal A1 and the load connected in series with A2, the load energizes and de-energizes with the selected ON & OFF times. The ON & OFF times are equal. The cycle starts with an ON time first (load energized). If control supply voltage is interrupted, the load de-energizes and the time delay is reset.



t = adjusted flashing time

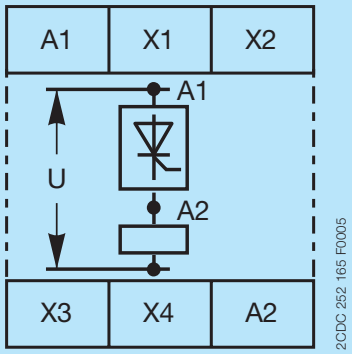
Flasher, starting with the OFF time

External connection X2-X4 required. When control supply voltage is applied to terminal A1 and the load connected in series with A2, the load energizes and de-energizes with the selected ON & OFF times. The ON & OFF times are equal. The cycle starts with an OFF time first (load de-energized). If control supply voltage is interrupted, the load de-energizes and the time delay is reset.



t = adjusted flashing time

Electrical connection



A1-A2	Rated control supply voltage U_s: 24-240 V AC/DC
ON-delay	
X1-X4	open
X2-X4	open
Impulse-On:	
X1-X4	jumpered
X2-X4	open
Flasher starting with ON:	
X1-X4	jumpered
X2-X4	jumpered
Flasher starting with OFF:	
X1-X4	open
X2-X4	jumpered
Time range:	
X3-X4	jumpered = 0.1-100 s
X3-X4	open = 3-300 s

Technical data

Data at T_a = 25 °C and rated values, unless otherwise indicated

Input circuits

Supply circuit		**A1-A2**
Rated control supply voltage U_s		24-240 V AC/DC
Rated control supply voltage U_s tolerance		-15...+10 %
Rated frequency		DC or 50/60 Hz
Typical current / power consumption		approx. 1.0-2.0 VA/W
Voltage drop in connected state		≤ 3 V
Current consumption while timing		≤ 2 mA (24-60 V AC/DC) ≤ 8 mA (60-240 V AC/DC)
Release voltage		> 10 % of the minimum control supply voltage
Cable length between solid-state timer and connected load at 50 Hz and a cable capacity of 100 pF/m	at 24 V AC at 42 V AC at 60 V AC at 110 V AC at 240 V AC	220 m / 22 nF 100 m / 10 nF 65 m / 6.5 nF 50 m / 5 nF 22 m / 2.2 nF

Timing circuit	
Time range	0.1-10 s, 3-300 s
Recovery time	< 100 ms
Repeat accuracy (constant parameters)	Δt < 1 %
Accuracy within the rated control supply voltage tolerance	Δt < 0.5 % / V
Accuracy within the temperature range	Δt < 0.1 % / °C
Setting accuracy of time delay	± 10 % of full-scale value

User interface

Indication of operational states		
Output	ON: green LED	⎍: load energized

Output circuit

Kind of output	thyristor
Min. load current	20 mA
Max. load current	0.8 A at T_a = 20 °C
Load current reduction / derating	10 mA / °C

Max. surge current		≤ 20 A for t ≤ 20 ms
Voltage drop in connected state		≤ 8 V
Discharge current with blocked solid-state output		≤ 4 mA

General data

MTBF		on request
Duty time		100 %
Dimensions		see 'Dimensional drawings'
Weight	net weight	0.059 kg (0.130 lb)
	gross weight	0.070 kg (0.154 lb)
Mounting		DIN rail (IEC/EN 60715), snap-on mounting without any tool
Mounting position		any
Minimum distance to other units		not necessary
Material of housing	lower section	UL 94 V-0
	upper section	UL 94 V-2
Degree of protection	housing	IP50
	terminals	IP20

Electrical connection

Connecting capacity	fine-strand with wire end ferrule	2 x 0.75-1.5 mm² (2 x 18-16 AWG)
	fine-strand without wire end ferrule	2 x 1-1.5 mm² (2 x 18-16 AWG)
	rigid	2 x 0.75-1.5 mm² (2 x 18-16 AWG)
Stripping length		10 mm (0.39 in)
Tightening torque		0.6-0.8 Nm (5.31-7.08 lb.in)

Environmental data

Ambient temperature ranges	operation	-20...+60 °C
	storage	-40...+85 °C
Relative humidity range		4 x 24 h cycle, 40 °C, 93 % RH
Vibration, sinusoidal	IEC/EN 60068-2-6	20 m/s², 10-58/60-150 Hz
Shock, half-sine	IEC/EN 60068-2-27	150 m/s², 11 ms, 3 shocks/direction

Isolation data

Pollution degree (IEC/EN 60664, IEC/EN 60255-5)	3
Overvoltage category (IEC/EN 60664, IEC/EN 60255-5)	III

Standards / Directives

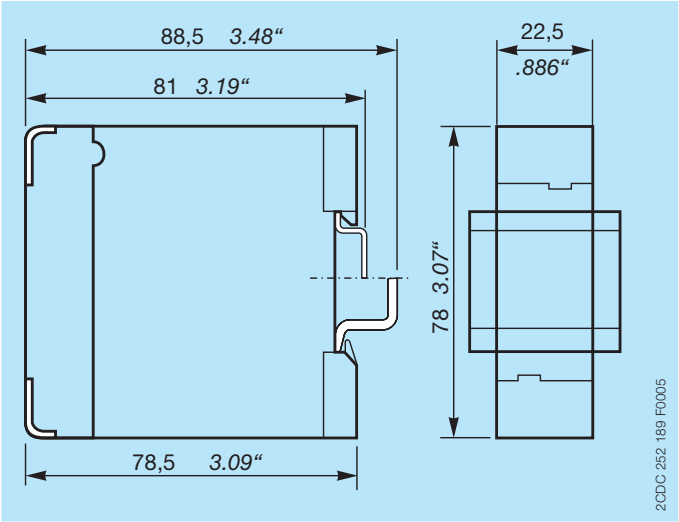
Standards	IEC/EN 61812-1
Low Voltage Directive	2014/35/EU
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

Electromagnetic compatibility

Interference immunity to		IEC/EN 61000-6-2
electrostatic discharge	IEC/EN 61000-4-2	Level 3 (6 kV / 8 kV)
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	10 V/m (1 GHz), 3 V/m (2 GHz), 1 V/m (2.7 GHz)
electrical fast transient / burst	IEC/EN 61000-4-4	Level 3 (2 kV / 5 kHz)
surge	IEC/EN 61000-4-5	Level 4 (2 kV L-L)
conducted disturbances, induced by radio-frequency fields	IEC/EN 61000-4-6	Level 3 (10 V)
Interference emission		IEC/EN 61000-6-3
high-frequency radiated	IEC/CISPR 22, EN 55022	Class B
high-frequency conducted	IEC/CISPR 22, EN 55022	Class B

Dimensions

in **mm** and *inches*



Further documentation

Document title	Document type	Document number
Electronic relays and controls	Catalog	2CDC 110 004 C02xx

You can find the documentation on the internet at www.abb.com/lowvoltage
-> Automation, control and protection -> Electronic relays and controls -> Time relays.

CAD system files

You can find the CAD files for CAD systems at http://abb-control-products.partcommunity.com
-> Low Voltage Products & Systems -> Control Products -> Electronic Relays and Controls.

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