

Electronic timer CT-AKE

OFF-delayed with 1 thyristor

The CT-AKE is an electronic time relay with OFF-delay. 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.



Characteristics

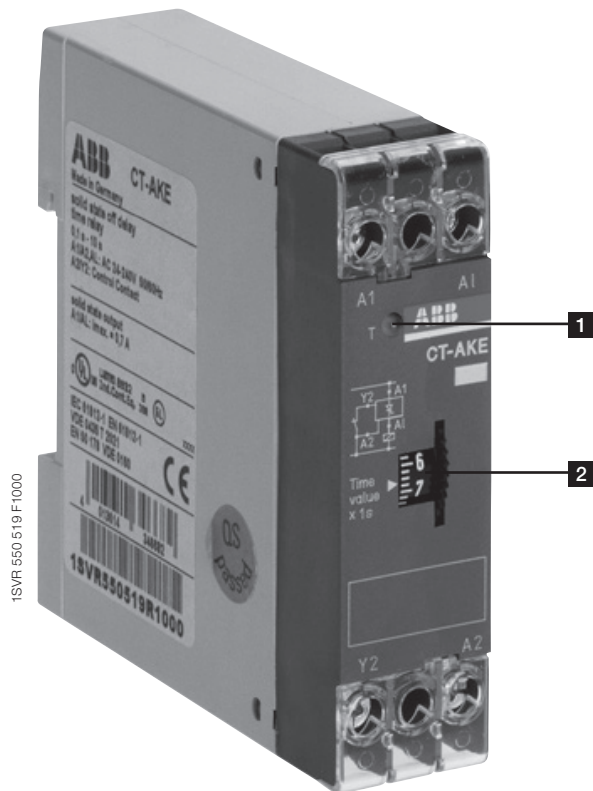
- 3 versions with different single time ranges: 0.1-10 s, 0.3-30 s and 3-300 s
- Rated control supply voltage range 24-240 V AC
- Single-function OFF-delay timer
- Timing can be started via an external, voltage-related control input
- 1 Thyristor
- 22.5 mm (0.89 in) width
- 1 LED for the indication of operational state

Order data

Type	Rated control supply voltage	Time range	Order code
CT-AKE	24-240 V AC	0.1-10 s	1SVR 550 519 R1000
		0.3-30 s	1SVR 550 519 R4000
		3-300 s	1SVR 550 519 R2000

Functions

Operating controls



1 Indication of operational states

T: green 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-AKE 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

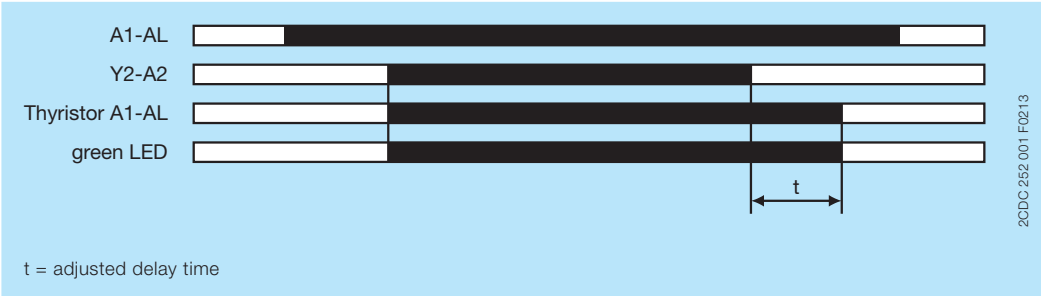
The fine adjustment of the time delay is made via the front-face thumbwheel.

Function diagram

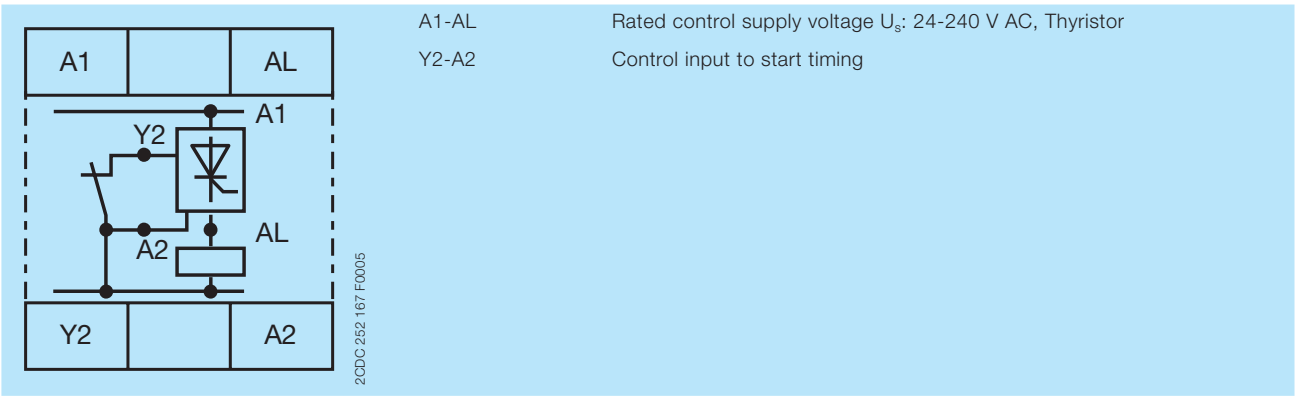
OFF-delay with auxiliary voltage (Delay on break)

The OFF-delay function with auxiliary voltage requires continuous control supply voltage at terminal A1, and the load connected in series with AL, for timing.

Timing is controlled by control input Y2-A2. When the control input is closed, the load energizes. If the control input is opened, the selected time delay starts (minimum control pulse length is 20 ms). The green LED glows as long as the load is energized. When the selected time delay is complete, the load de-energizes. If control input Y2-A2 is closed before the time delay is complete, the time delay is reset and the load remains energized. Timing starts again when the control input is re-opened. Interrupting control supply voltage resets the time delay and de-energizes the load.



Electrical connection



Connection diagram


Technical data

Data at $T_a = 25\text{ °C}$ and rated values, unless otherwise indicated

Input circuits

Supply circuit		A1-AL
Rated control supply voltage U_s		24-240 V AC
Rated control supply voltage U_s tolerance		-15...+10 %
Rated frequency		50/60 Hz
Typical current / power consumption		approx. 1.0-2.0 VA/W
Voltage drop in connected state		$\leq 3\text{ V}$
Current consumption while timing		$\leq 2\text{ mA}$ (24-60 V AC) $\leq 8\text{ mA}$ (60-240 V AC)
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	220 m / 22 nF
	at 42 V AC	100 m / 10 nF
	at 60 V AC	65 m / 6.5 nF
	at 110 V AC	50 m / 5 nF
	at 240 V AC	22 m / 2.2 nF
Control circuit		
Control input, control function	Y2-A2	start timing external
Kind of triggering		voltage-related
Timing circuit		
Time range		depending on device: 0.1-10 s, 0.3-30 s or 3-300 s
Recovery time		< 300 ms
Repeat accuracy (constant parameters)		$\Delta t < 1\text{ %}$
Accuracy within the rated control supply voltage tolerance		$\Delta t < 0.5\text{ %} / \text{V}$
Accuracy within the temperature range		$\Delta t < 0.1\text{ %} / \text{°C}$
Setting accuracy of time delay		$\pm 10\text{ %}$ of full-scale value

User interface

Indication of operational states		
Output	T: green LED	 L: load energized

Output circuit

Kind of output		thyristor
Min. load current		10 mA
Max. load current		0.7 A
Load current reduction / derating		10 mA / °C
Max. surge current		$\leq 15\text{ A}$
Voltage drop in connected state		$\leq 8\text{ V}$
Discharge current with blocked solid-state output		$\leq 4\text{ mA}$

General data

MTBF			on request
Duty time			100 %
Dimensions			see 'Dimensional drawings'
Weight	net weight	1SVR550519R1000	0.059 kg (0.130 lb)
		1SVR550519R4000	0.055 kg (0.121 lb)
		1SVR550519R2000	0.057 kg (0.126 lb)
	gross weight	1SVR550519R1000	0.070 kg (0.154 lb)
		1SVR550519R4000	0.066 kg (0.146 lb)
		1SVR550519R2000	0.069 kg (0.152 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 mm ² (2 x 18-16 AWG)
	fine-strand without wire end ferrule	2 x 1-1.5 mm ² (2 x 18-16 AWG)
	rigid	2 x 0.75-1.5 mm ² (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/s ² , 10-58/60-150 Hz
Shock, half-sine	IEC/EN 60068-2-27	150 m/s ² , 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

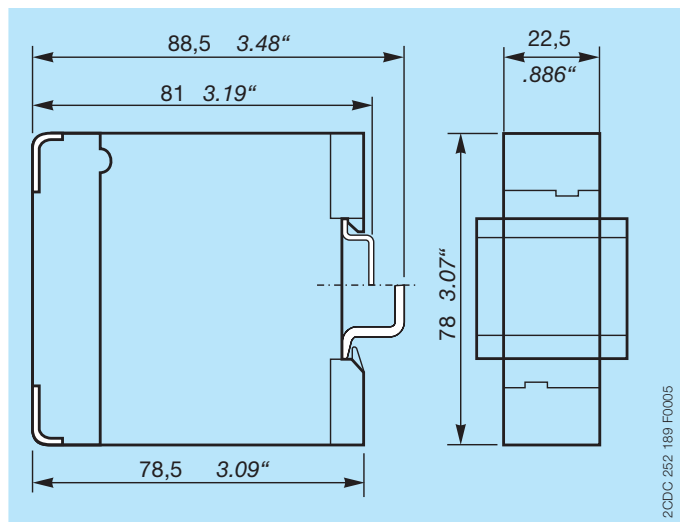
Standards	IEC/EN 61812-1
Low Voltage Directive	2014/35/EU
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

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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