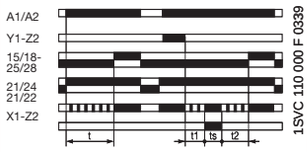
Electronic timers CT-S range

Function diagrams

= ON- delay
CT-ERS, CT-MBS, CT-MFS



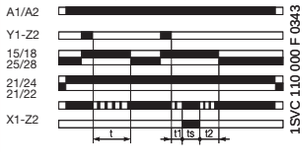
t = set delay time / ts = storing time;
t = t1 + t2

ON-delay / Delay on make

Timer is started when the supply voltage is applied, control contact **Y1/Z2** is being open. The green LED flashes while timing. The output relay is energized and the flashing light turns steady after the set delay time has elapsed. If the supply is disconnected, the output relay resets and the elapsed time is reset. Timing can also be started by opening control contact **Y1/Z2** with the supply voltage applied.
If the control contact **Y1/Z2** closes after the supply voltage has been applied, all the internal functions are reset. By closing the control contact **X1/Z2** the timer can be stopped. The elapsed time is stored.

Timing continues by opening the contact. This can be repeated as often as required.
By setting the slide switch to position Inst., the 2nd c/o contact operates instanteously when the supply voltage is applied.
Both c/o contacts reset if the supply is disconnected.
By connecting a remote potentiometer at the **Z1/Z2** terminals the time can be set externally. When connecting an external potentiometer the internal potentiometer is automatically switched off.

= OFF-delay
CT-AHS, CT-MBS, CT-MFS



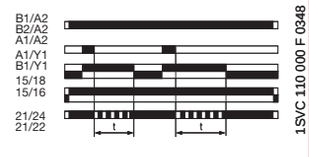
t = set delay time / ts = storing time;
t = t1 + t2

OFF-delay / Delay on break volt free (dry contact) control input

This function needs a permanent supply at the **A1/A2** terminals for timing. Timing is controlled by a potential-free contact at the **Y1/Z2** terminals. If the contact is closed, the output relay is energized.
If the contact is opened, the set time starts to elapse (control pulse length 20 ms min.). The green LED flashes while timing. The LED turns steady and the output relay is opened if the timer has elapsed.
By closing the control contact **X1/Z2** the timer can be stopped.

The elapsed time is stored. Timing continues by opening the contact. This can be repeated as often as required.
By connecting a remote potentiometer at the **Z1/Z2** terminals, the time can be set externally. When connecting an external potentiometer the internal potentiometer is automatically switched off.
Both c/o contacts reset if the supply is disconnected.

= OFF-delay
CT-APS



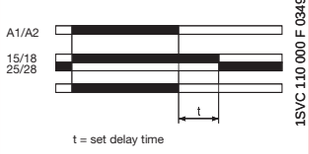
t = set delay time

OFF-delay / Delay on break volt controlled input contact

The OFF-delay time relay CT-APS needs a permanent supply at the terminals **A1/A2, B2/A2 or B1/A2**. Timing is controlled by supply voltage related control contact at the **Y1** terminal.
If the control contact is closed the output relay energizes.
If the control contact is opened, the set time starts to elapse (control pulse length 20ms min.). The green LED flashes while timing.

The LED turns steady and the output relay is de-energized if the timer has elapsed. By setting the slide switch to position Inst., the 2nd c/o contact operates as an instantaneous contact.
If supply is disconnected while timing both outputs are de-energized.

= OFF-delay, without aux. voltage
CT-ARS



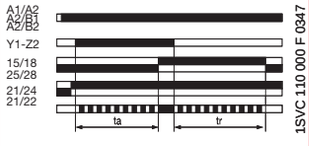
t = set delay time

OFF-delay, without auxiliary voltage / True OFF-delay

CT-ARS is an OFF-delay timer which does not require supply power at the **A1/A2** terminals while timing.
After a storage time of several months, a charging time of about 5 minutes is necessary. For this, voltage must be applied to the unit.
When applying the voltage the output relay is energized and after disconnecting the supply, the preset time starts to elapse.
By connecting a remote potentiometer at the **Z1/Z2** terminals, the time can be set externally.

When connecting a remote potentiometer the factory-mounted jumper on the **Z1/Z2** terminals must be removed and the internal potentiometer must be set on the smallest possible value.
For correct functioning of the unit, it is necessary to observe the minimum energizing time.
As soon as the timer starts to elapse, both LEDs will turn off.

= ON- and OFF-delay
CT-EAS, CT-EVS



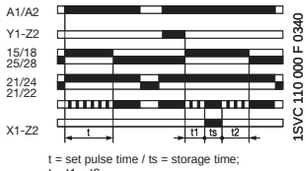
ta = timer delay on "ON"/ tr = timer delay on "OFF"
CT-EAS - ta = tr
CT-EVS - ta and tr independently adjustable

ON and OFF-delay, symmetrical times (CT-EAS), asymmetrical times (CT-EVS)

The time relay needs a continuous supply voltage at the **B1** and **A2**, **B2** and **A2** or **A1** and **A2** respectively.
The ON-delay function starts by closing the control contact **Y1-Z2**.
After the timer has elapsed and is opened the control contact **Y1-Z2**, the OFF-delay is started.

The green LED flashes during timing of both functions.
If the slide switch is set to the Inst. position, the 2nd c/o contact is energized immediately, and the 1st c/o contact, after the delay time has elapsed.
Both c/o contacts reset if the supply is disconnected.

1 = Impulse-ON
CT-VWS, CT-MBS, CT-MFS



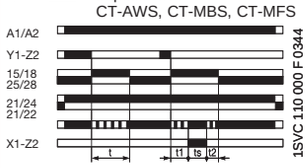
t = set pulse time / ts = storage time;
t = t1 + t2

Impulse-ON / Interval

The output relay is energized without delay when the supply voltage is applied to the **A1** and **A2** terminals and is de-energized after the set time has elapsed.
The green LED flashes while timing. The flashing LED turns steady as soon as the set time has elapsed. Timing can also be started by opening control contact **Y1/Z2** with the supply voltage applied.
By closing the control contact **X1/Z2,** the timer can be stopped.
The elapsed time is stored.

Timing continues by opening the contact. This can be repeated as often as required.
By setting the slide switch to position Inst., the 2nd c/o contact is.
The 2nd c/o contact resets if the supply is disconnected.
By connecting a remote potentiometer at the **Z1/Z2** terminals, the time can be set externally. When connecting an external potentiometer the internal potentiometer is automatically switched off.
Both c/o contacts reset if the supply is disconnected.

1 = Impulse-OFF
CT-AWS, CT-MBS, CT-MFS



t = set pulse time / ts = storage time;
t = t1 + t2

Impulse-OFF / Trailing edge interval

The supply voltage must be applied continuously.
By opening control contact **Y1/Z2,** the output relay is energized immediately and timing starts.
The green LED flashes while timing. The flashing LED turns steady and the output relay resets after the set time has elapsed.
Timing can be stopped by closing control contact **X1/Z2**.
The elapsed time is stored. Timing continues by opening the contact.

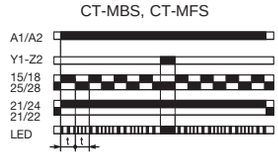
This function can be repeated as often as required.
If the slide switch is set to Inst. position, the 2nd c/o contact is energized immediately as supply voltage is connected.
If de-energized when supply voltage is disconnected.
By connecting a remote potentiometer at the **Z1/Z2** terminals the time can be set externally. When connecting an external potentiometer the built-in one is automatically switched off.
Both c/o contacts reset if the supply is disconnected.

Remark: 1c/o = SPDT; 2c/o = DPDT

Electronic timers CT-S range

Function diagrams

=Flasher, starting with "ON"
CT-MBS, CT-MFS



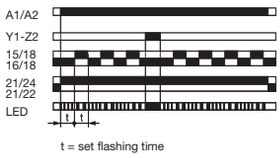
t = set flashing time

Flasher, starting with "ON" / Recycling equal times-ON first

After connecting the supply power to the **A1** and **A2,** the timer will start to pulse in a symmetrical ON/ OFF cycle. This cycle will be displayed by the flashing green LED, which flashes twice as fast in the OFF cycle. When closing the control contact **Y1/Z2** at applied supply voltage, the output relay will open.

Opening the control contact again, restarts the pulse again in the preset cycle.
If the slide switch is set to the Inst. position, the 2nd c/o contact is energized immediately when supply voltage is applied.
Both c/o contacts reset if supply voltage is disconnected.

=Flasher, starting with "OFF"
CT-EBS, CT-MBS, CT-MFS

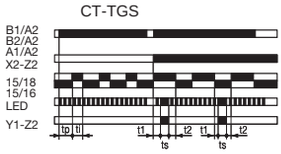


t = set flashing time

Flasher, starting with "OFF" / Recycling equal times-OFF first

After applying the supply power to the **A1** and **A2** terminals, the timer will start to pulse in a symmetrical OFF/ON cycle. This cycle will be displayed by the flashing green LED which flashes twice as fast in the OFF cycle.
When closing the control contact **Y1/Z2** at applied supply voltage, the output relay will be de-energized. By opening the control contact again, the relay will start to flash in the preset cycle.
If the slide switch is set to the Inst. position, the 2nd c/o contact will be energized immediately as an instantaneous contact after applying the supply. When disconnecting the supply, it will be de-energized.
By connecting a remote potentiometer at the **Z1/Z2** terminals the timer can be set externally, the built-in potentiometer is automatically switched off.
Both c/o contacts reset if supply voltage is disconnected.

= Pulse generator
CT-TGS



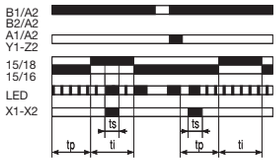
tp =OFF time/ ti = ON time
ts = Storage time / tp/ti = t1 + t2

Pulse generator / Recycling unequal times

ON and OFF times ranging from 0.05s ... 300 h can be set independently of each other.
Time ranges are set using two turn-switches. The desired time values are set using built-in potentiometers with direct reading scales.
Time ranges can also be set by remote potentiometers. The built-in potentiometers are switched off automatically when remote potentiometers are connected.
The function can be changed from “OFF” cycle to “ON” cycle using X2/Z2 terminals as an external link. The relationship of the internal and external potentiometers remain unchanged.

By closing the control contact **X1/Z2**, the timer for ON/OFF cycle can be stopped.
The actual time value is stored. By opening the contact again, the timer continues timing from this point.
This function can be repeated as often as required.
After applying the supply to the **B2/A2** or respectively to the **A1/A2** terminals, the CT-TGS starts - as selected - to work with an "ON" or an "OFF" cycle. The "ON"/ "OFF" cycle is displayed with the flashing green LED.

= Single pulse generator
CT-PGS



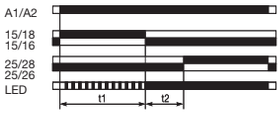
tp=OFF time / ti = ON time
ts = Storage time / tp/ti = t1 + t2

Single pulse generator (impulse) / Delay on make interval

When applying the supply voltage at the terminals **B1/A2**, **B2/A2**, **A1/A2**, the output relay will be energized after the preset delay on operate time and will then be de-energized after the delay on release time has elapsed.
Timing can be stopped by closing the control contact **X1/Z2**.
When opening the contact again, the timer will continue at the stored time value.

Timing can also be started by opening the control contact **Y1/Z2** and applied supply.
If the control contact **Y1/Z2** is closed after applying the supply voltage, the internal function is reset.
With the PGS, a single pulse can be produced with a delay.

1 = Star-delta changeover with wiper function
CT-YDEW, CT-MFS, CT-MBS

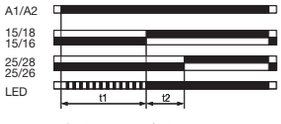


Star-delta changeover with impulse

CT-YDEW is designed especially for starting-up squirrel cage motors by a star-delta starter.
It uses two separate timing circuits: a variable timing circuit for the start-up time in star-mode, and a fixed timing circuit with 50ms for the transit time from star contactor to delta contactor.
If the supply is applied to the **A1/A2** terminals,
the first output relay will close.

After the first output relay has opened, the second timer with 50 ms will start to elapse.
After this timer has elapsed, the second output relay will close and stay closed until the supply is disconnected.
Timing is displayed by the flashing green LED.

= Star-delta changeover twice delayed on "ON"
CT-YDAV, CT-MFS, CT-MBS



t1 = set start-up time
t2 = changeover time (approx. 50 ms)

Star-delta changeover twice ON-delayed

CT-YDAV is designed especially for starting-up squirrel cage motors by a star-delta starter.
It uses two separate timing circuits: a variable timing circuit for the start-up time star-mode and a fixed timing circuit with 50 ms for the transit time from star contactor to delta contactor.

If the supply is applied to the **A1/A2** terminals,
the first output relay will close after the preset time.
The second output relay will close after another 50 ms and stay closed until the supply is disconnected.
Timing is displayed by the flashing green LED.

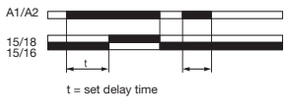
Remark: 1c/o = SPDT; 2c/o = DPDT

Electronic timers CT-E range

Function diagrams

⊠ = ON-delay

CT-MFE, CT-MKE, CT-EKE, CT-ERE



1SVC 110 000 F 0352

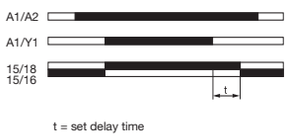
ON-delay / Delay on make

Timing starts when the supply voltage is applied at the **A1** and **A2** terminals. After the set time has elapsed, the output relay is energized.
If the supply voltage is disconnected, the output relay resets and the elapsed time is cancelled.

If the supply is disconnected before the set time has elapsed, the output relay is not energized.

■ = OFF-delay

CT-MFE, CT-AKE, CT-AHE



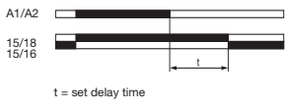
1SVC 110 000 F 0353

OFF-delay, with auxiliary voltage / Delay on break

Continuous presence of a supply voltage at the **A1/B1-A2** terminals is required while timing.
Timing is controlled by a control input **Y1** (supply power potential). If this input contact is closed, the output relay is energized.
By opening the control contact, the timer is started, and the set time begins to elapse.

After the delay time has elapsed,the output relay is de-energized. If the control contact is closed once more while the timer is energized, the time delay is reset. If the control contact is opened again, the timer restarts.

■ = OFF-delay
without auxiliary voltage
CT-ARE



1SVC 110 000 F 0358

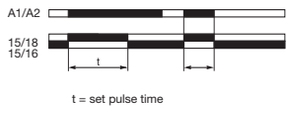
OFF-delay, without auxiliary voltage / True OFF-delay

The OFF-delay function does not need an auxiliary voltage; it is controlled by the supply voltage.
After applying the supply at the **A1-A2** terminals the output relay is energized. If the supply is disconnected, the set time value starts to elapse.

After the set time has elapsed, the output relay is de-energized.
If the supply is connected again before the set time has elapsed, the time is reset and the output relay stays energized until the time has elapsed anew.

1 ⎍ ⊠ = Impulse-on

CT-MFE, CT-MKE, CT-VWE



1SVC 110 000 F 0354

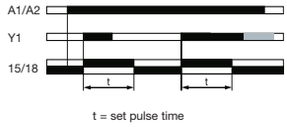
Impulse-ON / Interval

When applying the supply voltage at the **A1** and **A2** terminals, the output relay is energized without delay and is de-energized after the set pulse time has elapsed.

If the supply voltage is disconnected before the set pulse time has elapsed, the output relay is de-energized without delay.

1 ⎍ = Pulse former

CT-MFE



1SVC 110 000 F 0362

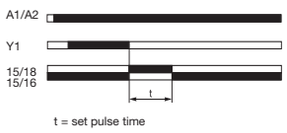
Pulse former / Single shot

If the control contact **Y1** is closed when supply voltage is applied, the output relay is energized for the set pulse time. If the control contact **Y1** is then opened, the output relay remains energized for the set pulse time.

When the power supply is disconnected, the output relay is de-energized without delay.
After the pulse has elapsed, the next pulse defined by the set time, can be activated by closing the control contact **Y1.**

1 ⎍ ■ = Impulse-off

CT-AWE



1SVC 110 000 F 0359

Impulse-off, with auxiliary voltage / Trailing edge interval

The single pulse on release function requires a continuous presence of a supply voltage at the **A1/B1-A2** terminals. If the control contact **Y1** (supply power potential) is opened, the output relay is energized without delay and the timer is started.

The output relay stays energized for the set pulse time and is de-energized after this time has elapsed.
By disconnecting the supply or by closing the controller contact the time delay is reset and the output relay is de-energized.

Remark: 1c/o = SPDT; 2c/o = DPDT

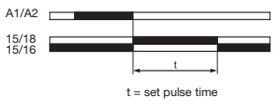
Electronic timers CT-E range

Function diagrams

Impulse-OFF, without auxiliary voltage / True trailing edge interval

1 = Impulse-off, without auxiliary voltage

CT-AWE



t = set pulse time

1SVC 110 000 F 0355

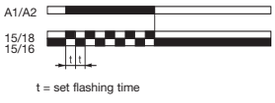
The impulse-off function does not need an auxiliary supply at the **A1** and **A2** terminals for timing.
This is controlled by the supply voltage.
By disconnecting the supply voltage, the output relay is energized and the set impulse time starts to elapse.

After the impulse time has elapsed, the output relay is de-energized.
If the supply power is applied again while the timer is active, the output relay is de- energized at once and the time delay is reset.

Flasher, starting with "ON" / Recycling equal times-ON first

= Flasher, starting with "ON"

CT-MFE, CT-MKE



t = set flashing time

1SVC 110 000 F 0356

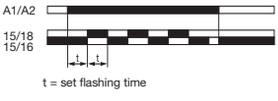
When the supply power is applied at the **A1/B1-A2** terminals, the output relay starts to cycle in symmetrical ON/ OFF intervals.
The time delay can be modified by a potentiometer at the front of the timer.

If the supply power is disconnected, the output relay will be de-energized.

Flasher, starting with "OFF" / Recycling equal times-OFF first

= Flasher, starting with "OFF"

CT-MFE, CT-MKE, CT-EBE



t = set flashing time

1SVC 110 000 F 0357

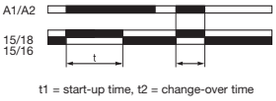
When applying the supply power at the **A1/B1-A2** terminals, the output relay starts to cycle in symmetrical OFF/ON intervals.
The cycle starts with an OFF cycle.

The OFF/ON cycle can be adjusted by a potentiometer at the front of the timer.
If the supply is disconnected, the output relay will be de-energized.

Star-delta change-over (CT-YDE)

= Star-delta change-over

CT-YDE



t1 = start-up time, t2 = change-over time

1SVC 110 000 F 0354

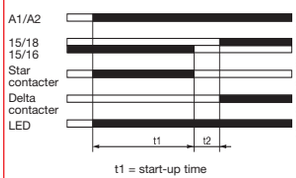
The CT-YDE is designed for starting-up squirrel cage motors with a star-delta starter.
It uses two separate timing circuits: an adjustable timing circuit, settable at the front of the timer, for the start-up time of the star contactor and a fixed timing circuit of 50 ms for star-delta change-over.

After the delay time has elapsed, the relay interrupts the voltage to the star contactor, and, after another 50ms, activates the delta contactor.
Application examples see page 23.

Star-delta change-over

= Star-delta change-over

CT-SDE



t1 = start-up time
t2 = change-over time

1SVC 110 000 F 0361

The CT-SDE is designed especially for starting-up squirrel cage motors with a star-delta starter.
It uses two separate timing circuits: an adjustable timing circuit, settable at the front of the timer, for the start-up time of the star contactor and a fixed timing circuit of 30 ms for star-delta change-over.
If the supply is applied to the **A1-A2** terminals, and after the set time has elapsed, the contact **15-16** will open.
After another 30 ms the contact **15-18** closes.
The internal wiring combination of two relays greatly reduces the amount of external wiring required.
Application examples see page 23.

Switching relay / Interface relay

= Switching relay

CT-IRE

1SVC 110 000 F 0360

The switching relay may be used to increase the number of available contacts or as a coupling/ decoupling interface.
If the supply is applied to the **A1-A2** terminals, the output relay will be energized immediately.

If the supply is interrupted, the output relay will be de-energized.

Remark: 1c/o = SPDT; 2c/o = DPDT

Electronic timers CT-S range

Technical data

	Terminals used	CT-S range
Input circuits		
Supply voltage - power consumption	**A1-A2**	24-240VAC/DC - approx. 2-2.5VA/W [5]
	A1-A2	12-40VAC - approx. 0.6-1.8VA
	A1-A2	12-60VDC - approx. 0.6-2.5VA
	B1-A2	24VAC/DC - approx. 0.5VA/W
	B2-A2	42-48VAC/DC - approx. 1.8VA/W
	A1-A2	110-240VAC - approx. 2-3VA[1] / approx. 2.5-12VA
	A1-A2	380-440VAC - approx. 3VA
Tolerance of the supply voltage		-15%...+10%
Supply voltage frequency	AC/DC versions	DC (0Hz), 50/60Hz
	AC versions	50/60Hz
Control contact connections, volt-free[2]	**Y1-Z2**	external timer start
	X1-Z2	timer stop, time storage
Minimum control pulse length		20ms
Floating voltage at the control contacts[3]		10-40VDC
Max. current in the control circuit		1mA
Max. cable length to the control inputs		50m
Remote potentiometer connection	**Z1-Z2**	50kΩ
Max. cable length to remote potentiometer		2x25m, shield to Z2 potential
Duty time		100%
Timing circuit		
Time ranges		10 time ranges 0.05s-300h 1.) 0.05-1s 2.) 0.15-3s 3.) 0.5-10s 4.) 1.5-30s 5.) 5-100s 6.) 15-300s 7.) 1.5-30min 8.) 15-300min 9.) 1.5-30h 10.) 15-300h
Recovery time		<50ms
Repeat accuracy (constant parameters)		<0.2%
Timing error within the tolerance of supply voltage		<0.008% / % Δ U
Timing error within temperature range		<0.07% / °C
Display of operational states		
Supply voltage / timer		green LED steady / flashing while timing
1. Output relay energized		red LED
2. Output relay energized		red LED
Output circuits		**15-16/18, 25(21)-26(22)/28(24)**
No. of contacts		Relays, 1 or 2c/o (2nd c/o with selectable instant. function)
Contact material		AgCdo
Rated voltage acc. to VDE0110, IEC947-1		250V
Max. switching voltage		250VAC, 250VDC
Rated switching current acc. to IEC941-x AC12 (resistive)	230V	4A
Rated switching current acc. to IEC941-x AC15 (inductive)	230V	3A
Rated switching current acc. to IEC941-x DC12 (resistive)	24V	4A
Rated switching current acc. to IEC941-x DC13 (inductive)	24V	2A
Maximum mechanical life		$30x10^6$
Maximum electrical life (acc. to AC12, 230V, 4A)		$0.1x10^6$
Short circuit proof, max. fuse rating	n/c	10A fast, operating class gL
	n/o	10A fast, operating class gL

Remark: 1c/o = SPDT; 2c/o = DPDT

Electronic timers CT-S range

Technical data, standards, load limit curves

	CT-S range
General data	
Width of the enclosure	22.5mm
Wire size	2x2.5mm² (2x14AWG) stranded with wire end ferrule
Weight	approx. 150g/5.3oz
Mounting position	any
Degree of protection enclosure / terminals	IP50/IP20
Operating temperature	-20°C...+60°C
Storage temperature	-40°C...+85°C
Mounting	DIN rail (EN50022)
Mechanical shock resistance acc. to IEC68-2-6	6G
Standards / directives	
Product standard	parts of IEC 255 , IEC 1812-1
Electromagnetic compatibility	93/68/EWG
EMC-tests acc. to EN50082-2	
ESD acc. to IEC1000-4-2, EN61000-4-2	level 3-6kV/8kV
HF radiation resistance acc. to IEC1000-4-3, EN61000-4-3	level 3-10V/m
Burst acc. to IEC1000-4-4, EN61000-4-4	level 3-2 kV/5 kHz
Surge acc. to IEC1000-4-5, EN61000-4-5	level 4-2kV L-L
HF line emission acc. to IEC1000-4-6, EN61000-4-6	level 3-10V
Low voltage directive	93/68/EWG
Resistance to vibration	10G, f = 55Hz, a = 0.95mm, t = 2h per level
Approvals	**cULus, GL, GOST**
Isolation data	
Rated Isolation voltage to VDE0110, IEC947-1 between supply-, control- and output circuit	Supply 240V-300V Supply 440V-500V
Rated impulse withstand voltage to VDE0110, IEC664 -between all isolated circuits	4kV/1.2-50µs
Test voltage between all isolated circuits	2.5kV, 50Hz, 1min. [4]
Pollution category acc. to VDE0110, IEC664/IEC255-5	III/C
Overvoltage category acc. to VDE0110, IEC664/IEC255-5	III/C
Environmental tests acc. to IEC68-2-30	24h cycle, 55°C, 93% rel., 96h

[1] CT-MBS 1c/o, CT-MBS 2c/o, CT-ERS 1c/o, CT-EVS, CT-APS, CT-EBS 1c/o

[2] see connection example page 23, 24

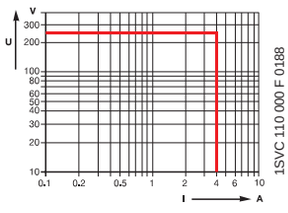
[3] no galvanic isolation to supply circuit

[4] 2kV, 50Hz, 1min. for CT-ARS

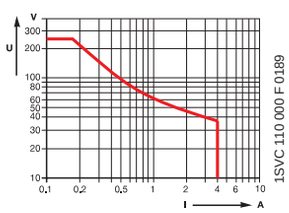
[5] CT-ARS: 24VAC/DC - approx. 1A for 30ms
18VAC/DC - approx. 1A for 20ms
110-130VAC - approx. 1A for 15ms
220-240VAC - approx. 1A for 10ms

Load limit curves

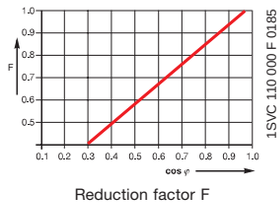
AC load (resistive)



DC load (resistive)

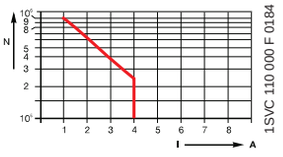


Reduction factor for inductive AC load



Reduction factor F
for inductive load

Contact life



Contact life/number of operations N
220 V 50 Hz 1 AC
360 operations/h

Electronic timers CT-E range

Technical data

	Terminals used	CT-E range
Input circuits		
Supply voltage - power consumption	**A1-A2**	24-240VAC/DC - approx. 1.0-2.0VA/W
	A1-A2	110-130VAC - approx. 2.0VA
	A1-A2	220-240VAC - approx. 2.0VA
	B1-A2	24VAC/DC - approx. 1.0VA/W
Tolerance of the supply voltage		-15%...+10%
Supply voltage frequency	AC/DC version	DC (0Hz), 50/60Hz
	AC version	50/60Hz
Control contact connections, non-volt free[1)]	**Y1**	external timer start-up
Control contact potential		Supply voltage
Minimum controller pulse length		20ms
Duty time		100%
Minimum energizing time (CT-ARE)		200ms
Solid-state devices CT-MKE, CT-EKE, CT-AKE		
Voltage drop in closed state		≤ 3V
Power consumption while timing		≤ 2mA (24-60VAC/DC) ≤ 8mA (60-240VAC/DC)
Cable length CT-MKE, CT-EKE, CT-AKE		
Between solid-state timer and connected load at 50Hz and a cable capacity of 100pF/m:		at 24VAC-220m/22nF at 42VAC-100m/10nF at 60VAC-65m/6.5nF at 110VAC-50m/5 nF at 240VAC-22m/2.2nF
Timing circuit		
Time ranges		
Single function timers		1 time range per unit 0.05-1s, 0.1-10s, 0.3-30s, 3-300s, 0.3-30min
Multifunction timers	**CT-MFE** **CT-MKE**	8 time ranges 0.05s-100h 2 time ranges 0.1-10s and 3-300s
Stardelta changeover time		CT-YDE-50ms, CT-SDE-30ms
Recovery time		<50ms (<100ms CT-MKE, <300ms CT-AKE, <200ms CT-ARE, <400ms CT-AWE, CT-SDE, <500ms CT-YDE)
Repeat accuracy (constant parameters)		<1%
Timing error within the tolerance of the supply voltage		<0.5% / % Δ U
Timing error within temperature range		<0.1% (<0.06% / °C CT-MFE)
Display of operational states		
Supply voltage		green LED
Output relay energized		red LED
Output circuit, relay devices		**15-16/18**
No. of contacts		Relay, 1c/o
Contact material		AgCdo
Rated voltage acc. to VDE0110, IEC947-1		250V
Switching voltage max.		250VAC, 250VDC
Rated switching current acc. to IEC941-x AC12 (resistive)	230V	4A
Rated switching current acc. to IEC941-x AC15 (inductive)	230V	3A
Rated switching current acc. to IEC941-x DC12 (resistive)	24V	4A
Rated switching current acc. to IEC941-x DC13 (inductive)	24V	2A
Maximum mechanical life		$30x10^6$
Maximum electrical life (acc. to AC12, 230V, 4A)		$0.1x10^6$
Short circuit proof, max. fuse rating	n/c	10A fast, operating class gL (5A CT-ARE)
	n/o	10A fast, operating class gL (5A CT-ARE)

Remark: 1c/o = SPDT

Electronic timers CT-E range

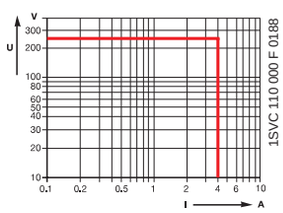
Technical data, standards, load limit curves

	CT-E range
Output circuits solid-state devices CT-MKE, CT-EKE, CT-AKE	**A1-A2, A1-AL**
	Thyristor (CT-MKE, CT-EKE, CT-AKE)
Rated voltage acc. to VDE0110, IEC947-1	250V
Switching voltage max.	240V
Load current min.	20mA (10mA CT-EKE, CT-AKE)
Load current max.	0.8A at TA=20°C (0.7A CT-EKE, CT-AKE)
Load current reduced / derating	10mA/°C
Surge current max.	≤ 20A for t ≤ 20ms (≤ 15A CT-EKE, CT-AKE)
General data	
Width of the enclosure	22.5mm
Wire size	2x1.5mm²(2x16AWG) stranded with wire end ferrule
Weight	approx. 80g / approx. 2.8oz
Mounting position	any
Degree of protection enclosure / terminals	IP50/IP20
Operating temperature	-20°C...+60°C
Storage temperature	-40°C...+85°C
Mounting of	DIN rail (EN50022)
Mechanical shock resistance acc. to IEC68-2-6	10G
Standards / directives	
Product standard	parts of IEC255, IEC 1812-1
Electromagnetic compatibility	93/68/EWG
EMC-tests acc. to EN50082-2	
ESD acc. to IEC1000-4-2, EN61000-4-2	level 3-6kV/8 kV
HF radiation resistance acc. to IEC1000-4-3, EN61000-4-3	level 3-10V/m
Burst acc. to IEC1000-4-4, EN61000-4-4	level 3-2kV/5kHz
Surge acc. to IEC1000-4-5, EN61000-4-5	level 4-2kV L-L
HF line emission acc. to IEC1000-4-6, EN61000-4-6	level 3-10V
Low voltage directive	93/68/EWG
Resistance to vibration	10G, f = 55Hz, a = 0.95mm, t = 2h per level
Approvals	**cULus, GL, GOST**
Isolation data	
Rated isolation voltage to VDE0110, IEC947-1 between supply-, control- and output circuits	supply up to 240V-300V supply up to 440V-500V
Rated impulse withstand voltage to VDE0110, IEC664 -between all isolated circuits	4kV/1.2-50µs
Test voltage between all isolated circuits	2.5kV, 50Hz, 1min.
Pollution category acc. to VDE0110, IEC664/IEC255-5	III/C
Overvoltage category acc. to VDE0110, IEC664/IEC255-5	III/C
Environmental tests acc. to IEC68-2-30	24h cycle, 55°C, 93% rel., 96h

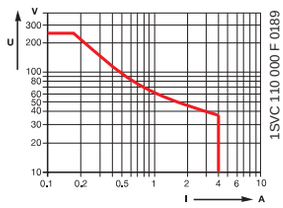
[1] see connection example page 25

Load limit curves

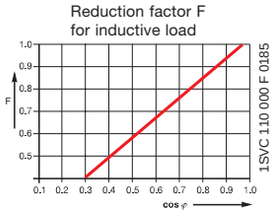
AC load (resistive)



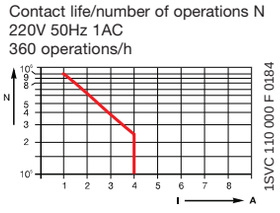
DC load (resistive)



Reduction factor for inductive AC load



Contact life

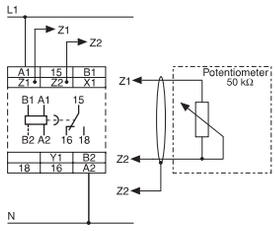


Electronic timers CT-S range

Wiring diagrams, connection examples star-delta applications

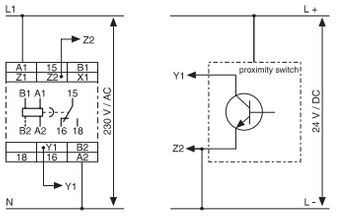
CT-S range wiring diagrams

Connection diagram using a remote potentiometer



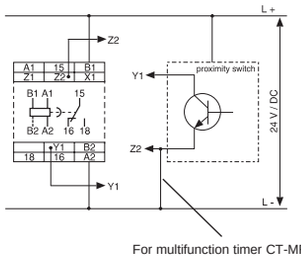
1SVC 110 000 F 0387

Connection diagram of a proximity switch (3 wire) with 230VAC supply



1SVC 110 000 F 0697

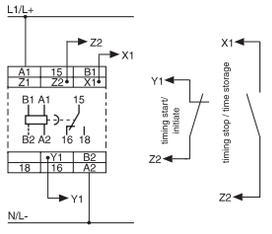
Connection diagram of a proximity switch (3 wire) with 24VDC supply



1SVC 110 000 F 0698

For multifunction timer CT-MFS this jumper is not required

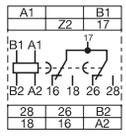
Connection diagram of the control contacts



1SVC 110 000 F 0699

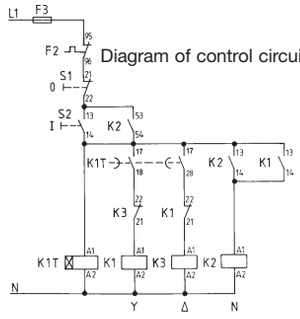
CT-YDEW

Star-delta timer with relay output impulse function



1SVC 110 000 F 0381

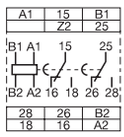
Diagram of control circuit



1SVC 110 000 F 0391

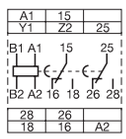
CT-YDAV

Star-delta timer with relay output



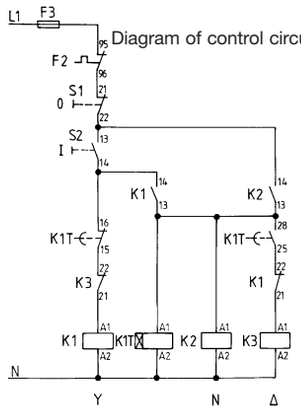
1SVC 110 000 F 0393

Version 380-440VAC



1SVC 110 000 F 0380

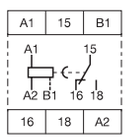
Diagram of control circuit



1SVC 110 000 F 0388

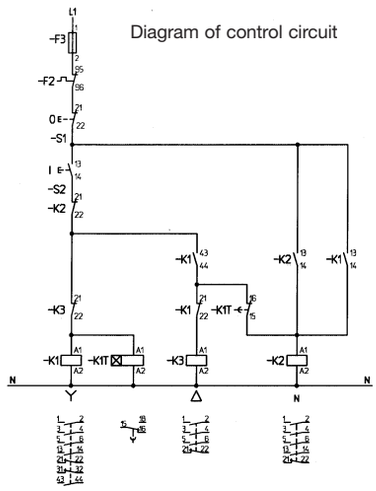
CT-YDE

Star-delta timer with relay output



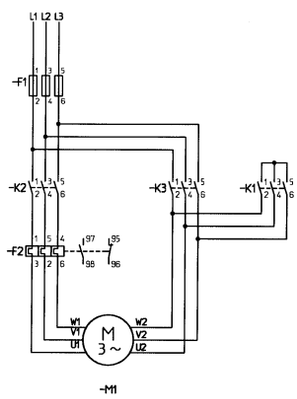
1SVC 110 000 F 0382

Diagram of control circuit



1SVC 110 000 F 0390

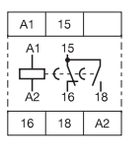
Diagram of main circuit



1SVC 110 000 F 0389

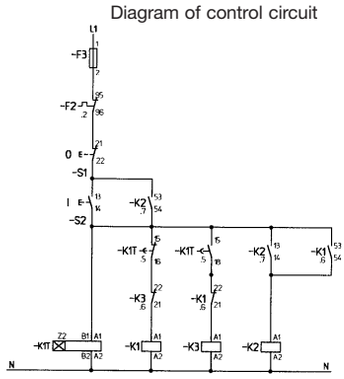
CT-SDE

Star-delta timer with relay output



1SVC 110 000 F 0383

Diagram of control circuit

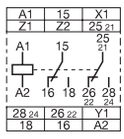


1SVC 110 000 F 0392

Electronic timers CT-S range

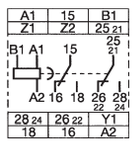
Connection diagrams and position of connection terminals
Dimensional drawing

CT-MFS

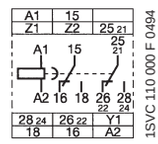


1SVC 110 000 F 0394

CT-MBS



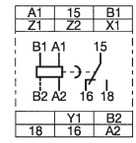
1SVC 110 000 F 0493



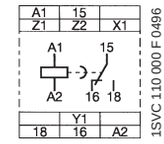
1SVC 110 000 F 0494

Supply voltage versions 12-40VAC/12-60VDC and 380-440VAC

CT-MBS



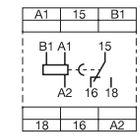
1SVC 110 000 F 0495



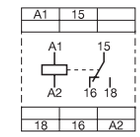
1SVC 110 000 F 0496

Supply voltage versions 12-40VAC/12-60VDC and 380-440VAC

CT-ERS



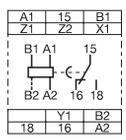
1SVC 110 000 F 0395



1SVC 110 000 F 0396

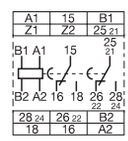
Supply voltage versions 12-40VAC/12-60V DC and 380-440VAC

CT-ERS



1SVC 110 000 F 0397

CT-ERS



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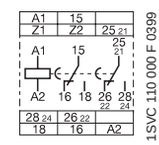
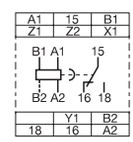


1SVC 110 000 F 0399

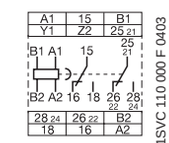
Supply voltage versions 12-40VAC/12-60VDC and 380-440VAC

CT-AHS



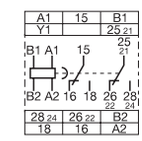
1SVC 110 000 F 0402

CT-AHS



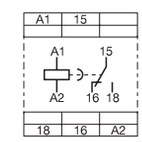
1SVC 110 000 F 0403

CT-APS



1SVC 110 000 F 0404

CT-ARS



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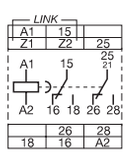

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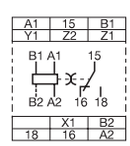
CT-EAS



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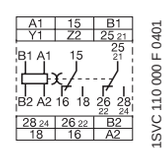
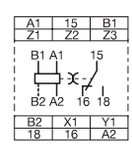


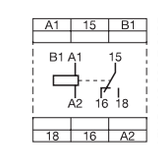
1SVC 110 000 F 0401

CT-EVS



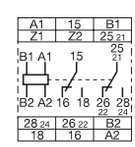
1SVC 110 000 F 0420

CT-VWS



1SVC 110 000 F 0407

CT-VWS



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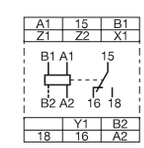
CT-AWS



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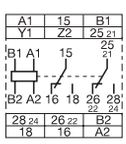
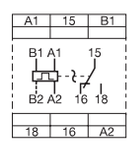
CT-AWS



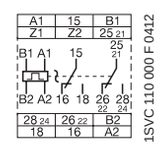
1SVC 110 000 F 0410

CT-EBS



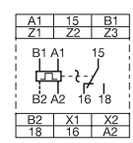
1SVC 110 000 F 0411

CT-EBS



1SVC 110 000 F 0412

CT-TGS



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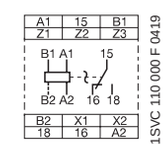
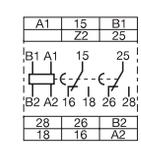
CT-PGS



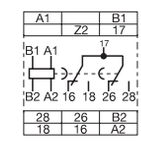
1SVC 110 000 F 0419

CT-YDAV



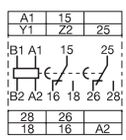
1SVC 110 000 F 0414

CT-YDEW

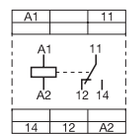


1SVC 110 000 F 0381

CT-IRS



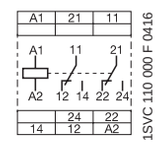
1SVC 110 000 F 0415



1SVC 110 000 F 0421

Version 380-440VAC

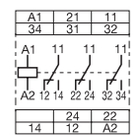
CT-IRS



1SVC 110 000 F 0416

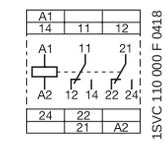
Version with gold plated contacts

CT-IRS



1SVC 110 000 F 0417

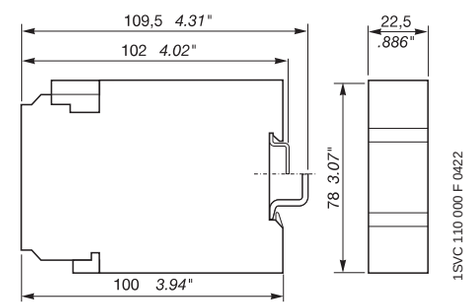
CT-IRS



1SVC 110 000 F 0418

Dimensional drawing

CT-S range

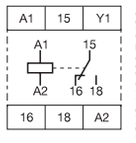


Electronic timers CT-E range

Connection diagrams and position of connection terminals
Dimensional drawings

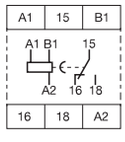
Electronic timers CT-E range

CT-MFE



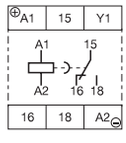
1SVC 110 000 F 0436

CT-ERE



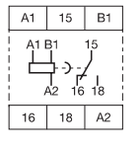
1SVC 110 000 F 0427

CT-AHS [1)]



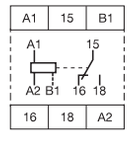
1SVC 110 000 F 0428

CT-ARE



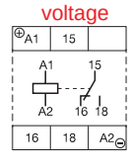
1SVC 110 000 F 0430

CT-VWE



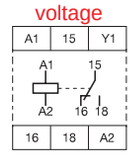
1SVC 110 000 F 0431

CT-AWE [1)] without auxiliary voltage



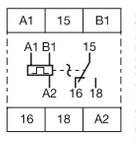
1SVC 110 000 F 0433

CT-AWE [1)] with auxiliary voltage



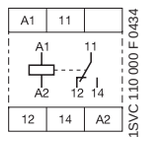
1SVC 110 000 F 0432

CT-EBE



1SVC 110 000 F 0429

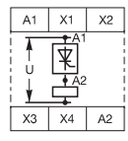
CT-IRE



1SVC 110 000 F 0434

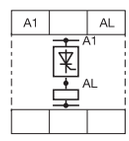
1SVC 110 000 F 0435

CT-MKE



1SVC 110 000 F 0424

CT-EKE



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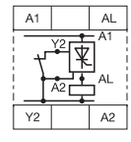
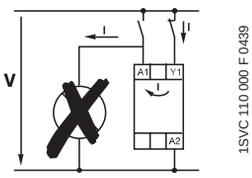
CT-AKE



1SVC 110 000 F 0426

Connection examples CT-E range

Single function devices with control contact



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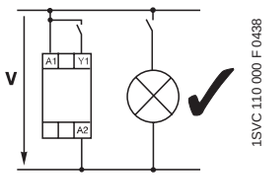

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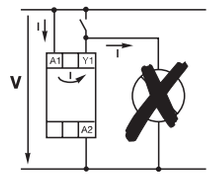

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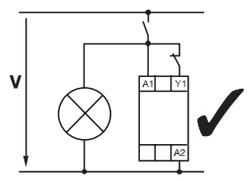
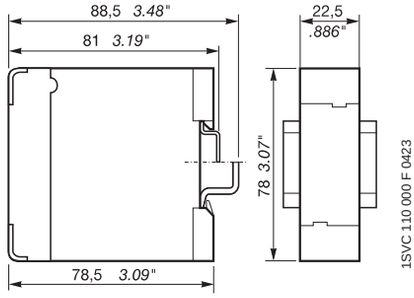


1SVC 110 000 F 0440

Dimensional drawings

CT-E range



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