Data sheet

Accessories for pluggable interface relays CR-U
Pluggable multifunction time module CR-U T

2CDC 291 036 F0005

Characteristics

- Rated control supply voltage U_s 24-240 V AC/DC
- Multifunction time module with 8 timing functions: ON-delay, ON-delay with control contact, OFF-delay, Impulse-ON, Impulse-ON with control contact (pulse forming), Impulse-OFF, Flasher starting with ON, Flasher starting with OFF
- One device includes 8 time ranges from 50 ms to 240 h
- Voltage-related (wet/non-floating) control contact, capable of switching a parallel load
- LED for status indication
- 35 mm width (1.380 in)
- Can be combined with the universal relay CR-U, pluggable into the sockets CR-U2S and CR-U3S

Marks

CE CE

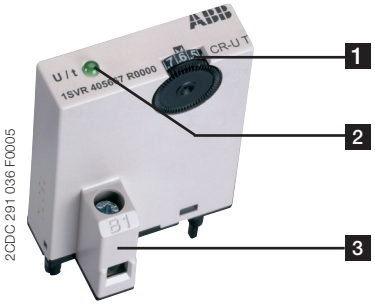
Order data

Multifunction time module

Type	Rated control supply voltage U_s	Order code
CR-U T	24-240 V AC/DC	1SVR 405 667 R0000

Functions

Operating controls



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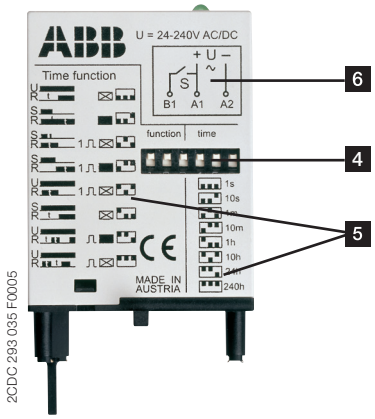

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1 Thumbwheel for the fine adjustment of the desired time

2 U/t: green LED

⎍: Control supply voltage applied

⎍⎍⎍: Timing active

3 Control contact connection B1

4 DIP switch to preselect:

One of the 8 timing functions

One of the 8 time ranges from 50 ms - 240 h

5 DIP switch position

6 Circuit diagram

Application

The multifunction time module CR-U T can be plugged into the sockets CR-U2S and CR-U3S for the CR-U range 2- or 3-pole pluggable interface relays. This creates very compact 2- or 3-pole time relays with a rated operational current of up to 10 A. The easy adjustment of the timing function and the time delay via DIP switches, and the fine adjustment of the time delay with the thumbwheel, provide maximum operating convenience.

Operating mode

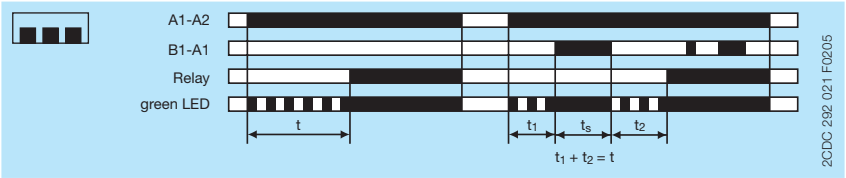
The CR-U T provides 8 timing functions, adjustable with DIP switches. One of the time delay ranges, from 0.05 s to 240 h, can be selected with other DIP switches. The fine adjustment of the time delay is made via the thumbwheel on the front of the unit.

Timing is displayed by a flashing LED labelled U/t.

Function diagrams

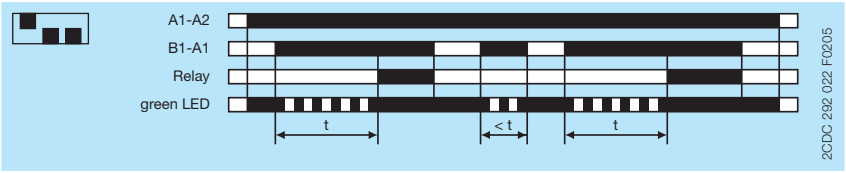
ON-delay with control contact to pause timing / store time

If control contact B1-A1 is open, timing t begins when the control supply voltage U_s is applied. The green LED flashes during timing. When the selected time t is complete, the output relay energizes and the flashing green LED turns steady. If U_s is interrupted, the output relay de-energizes and the time delay is reset. Timing can be paused by closing the control contact. The elapsed time t_1 is stored and continues from this value ($t_2 = t - t_1$) when the control contact is re-opened.



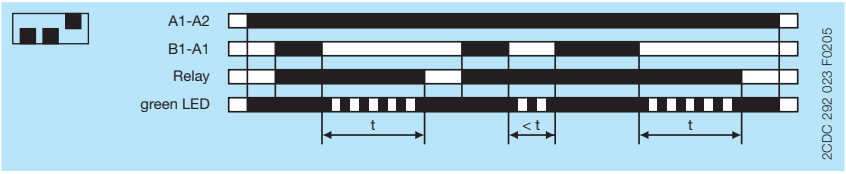
ON-delay with control contact to start timing

This function requires continuous control supply voltage U_s for timing. Applied U_s is displayed by the glowing green LED. Timing is controlled by control contact B1-A1. Timing t begins when the control contact closes. The green LED flashes during timing. When the selected time t is complete, the output relay energizes. Opening the control contact de-energizes the output relay. If the control contact opens before the time t is complete, the elapsed time is reset. Timing starts again when the control contact re-closes.



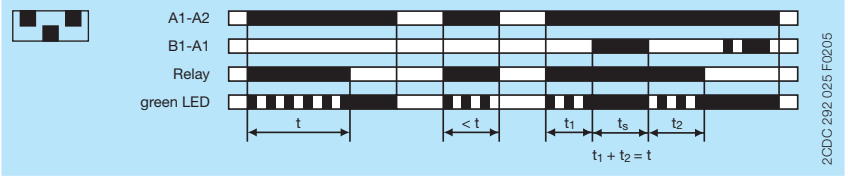
OFF-delay with control contact to start timing

This function requires continuous control supply voltage U_s for timing. Applied U_s is displayed by the glowing green LED. Timing is controlled by control contact B1-A1. When the control contact closes, the output relay energizes. Opening the control contact starts timing t. The green LED flashes during timing. When the selected time t is complete, the output relay de-energizes. If the control contact closes before the time t is complete, the elapsed time is reset. Timing starts again when the control contact re-opens.



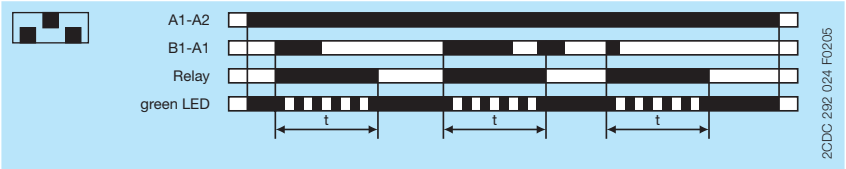
Impulse-ON with control contact to pause timing / store time

With control contact B1-A1 open, applying the control supply voltage U_s starts timing t and energizes the output relay. The green LED flashes during timing. When the selected time t is complete, the output relay de-energizes and the flashing green LED turns steady. If U_s is interrupted, before the time delay is complete, the output relay de-energizes and the time delay is reset. Timing can be paused by closing the control contact. The elapsed time t_1 is stored and continues from this value ($t_2 = t - t_1$) when the control contact is re-opened. The control contact is disabled when the time t is complete.



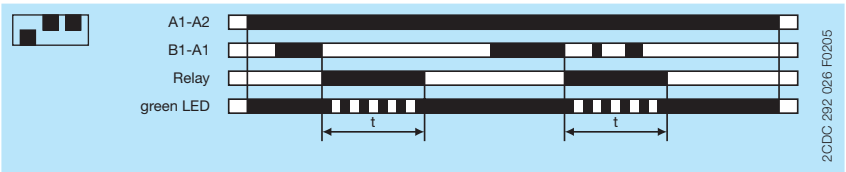
Impulse-ON with control contact to start timing (pulse forming)

This function requires continuous control supply voltage U_s for timing. Applied U_s is displayed by the glowing green LED. Timing is controlled by control contact B1-A1. Closing the control contact starts timing t and energizes the output relay. The green LED flashes during timing. When the selected time t is complete, the output relay de-energizes. During timing t, the control contact has no influence on the function. Timing does not restart if the control contact is still closed when the time delay t is complete. Re-closing the control contact, after the time t is complete, restarts timing.



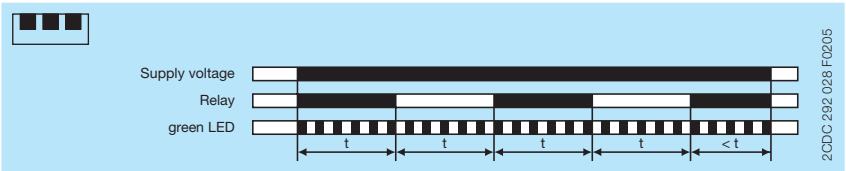
Impulse-OFF with control contact to start timing

This function requires continuous control supply voltage U_s for timing. Applied U_s is displayed by the glowing green LED. Timing is controlled by control contact B1-A1. Closing the control contact has no influence on the function. Opening the control contact starts timing t and energizes the output relay. The green LED flashes during timing. When the selected time t is complete, the output relay de-energizes. Re-closing the control contact during timing t, does not affect timing. Re-closing and opening the control contact, after the time delay t is complete, restarts timing.



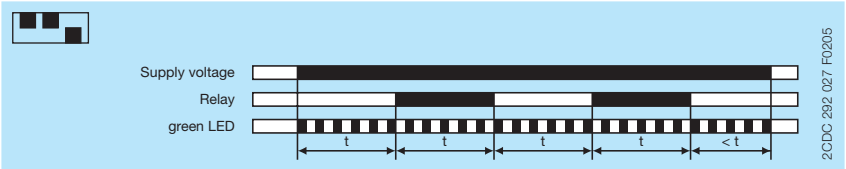
Flasher starting with ON

Applying the control supply voltage U_s starts timing with symmetrical ON & OFF times. The cycle starts with an ON time first. If U_s is interrupted, the output relay de-energizes and timing is reset.

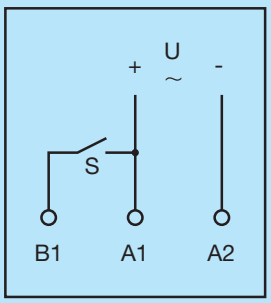


Flasher starting with OFF

Applying the control supply voltage U_s starts timing with symmetrical ON & OFF times. The cycle starts with an OFF time first. If U_s is interrupted, the output relay de-energizes and timing is reset.



Electrical connection

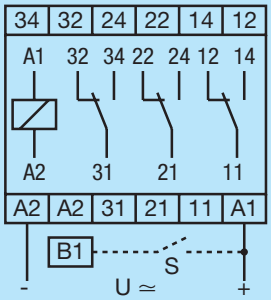


A1-A2 Rated control supply voltage U_s

B1-A1 Control contact connection

Connection diagram

Wiring notes



DIP switches

Time ranges		Timing functions	
	1 s		ON-delay with control contact to pause timing / store timing
	10 s		OFF-delay with control contact to start timing
	1 min		Impulse-ON with control contact to start timing (pulse forming)
	10 min		Impulse-OFF with control contact to start timing
	1 h		Impulse-ON with control contact to pause timing / store timing
	10 h		ON-delay with control contact to start timing
	24 h		Flasher starting with the OFF time
	240 h		Flasher starting with the ON time

Technical data

Input circuit - Supply ciruit

Type		CR-U T
Supply circuit		A1-A2
Rated control supply voltage U_s		24-240 V AC/DC
Rated control supply voltage U_s tolerance		-15...+10 %
Frequency range		45-65 Hz
Typ. power consumption	at 24 V DC	60 mW
	at 240 V DC	765 mW
	at 24 V AC	80 mVA (54 mW)
	at 230 V AC	940 mVA (520 mW)
Residual ripple at DC		10 %
Release voltage		> 10 V AC or 10 V DC

Input circuit - Control circuit

Control circuit		A1-B1
Control contact connection		voltage-related
Load capacity of the control contact connection		capable of switching a parallel load, Minimum load 1 VA (0.5 W) at terminal A2-B1
Maximum cable length to the control contact connections		10 m (twisted)
Minimum control pulse length	DC	60 ms
	AC	80 ms
Recovery time		150 ms

Timing circuit

Timing functions	with control contact to pause timing / store timing	⊠ ON-delay, 1⎍⊠ Impulse-ON
	with control contact to start timing	⊠ ON-delay, ■ OFF-delay, 1⎍⊠ Impulse-ON 1⎍■ Impulse-OFF
	without control contact	⎍⊠ Flasher starting with the ON time, ⎍■ Flasher starting with the OFF time
Time ranges	1 s	50 ms - 1 s
	10 s	500 ms - 10 s
	1 min	3 s - 1 min
	10 min	30 s - 10 min
	1 h	3 min - 1 h
	10 h	30 min - 10 h
	24 h	72 min - 24 h
	240 h	12 h - 240 h
Base accuracy		±1 % (of full-scale)
Accuracy within the rated control supply voltage U_s tolerance		-
Accuracy within the temperature range		≤ 0.01 % / °C

Output circuit

	depending on the universal relay CR-U used

Environmental data

Ambient temperature range	operation (IEC 68-1)	-25...+55 °C
	storage	-25...+70 °C
Climatic category	IEC 721-3-3	3K3
Pollution degree	IEC 664-1	II, III when mounted

User interface

Indication of operational states		
Control supply voltage / timing	U/t: green LED	Control supply voltage applied
	U/t: green LED	Timing active

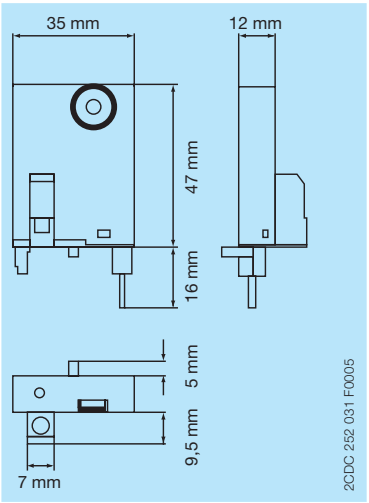
Operating controls	
Tolerance of setting	< 5 % (of setting)

General data

Duty time ED		100 %
Repeat accuracy (constant parameters)		< 0.5 % or ±5 ms
Dimensions (W x H x D)	when mounted	35 x 47 x 21.5 mm (1.380 x 1.850 x 0.850 in)
Material of enclosure		self-extinguishing plastic
Degree of protection		IP 40
Mounting	IEC 67-1-18a	pluggable into socket CR-U2S or CR-U3S
Mounting position		any

Dimensions

in **mm**



Further documentation

Document title	Document type	Document number
Sockets CR-U	Data sheet	2CDC 117 006 D020x
Relays CR-U	Data sheet	2CDC 117 003 D020x

You can find the documentation on the internet at www.abb.com/lowvoltage -> Control Products -> Electronic Relays and Controls -> Interface Relays and Optocouplers.

CAD system files

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

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