

# Electronic timer CT-AWE

## Impulse-OFF without auxiliary voltage, 1 c/o (SPDT) contact

The CT-AWE is an electronic time relay with Impulse-OFF function without auxiliary voltage. 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.



20DC 251 125 F0004

### Characteristics

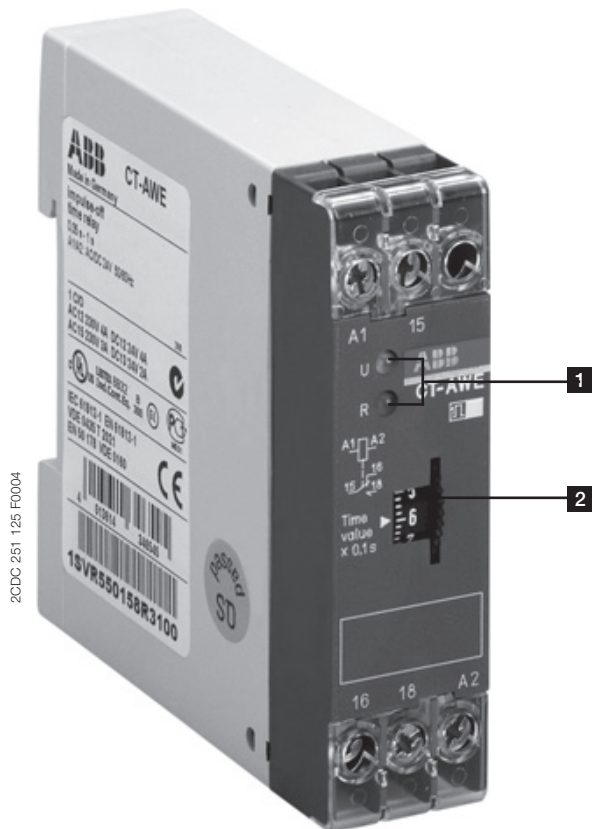
- 3 versions:
  - 1 single time range (0.05-1 s) and
  - 3 different rated control supply voltage ranges (24 V AC/DC, 110-130 V AC and 220-240 V AC)
- Single-function impulse-OFF timer without auxiliary voltage
- 1 c/o (SPDT) contact
- 22.5 mm (0.89 in) width
- 2 LEDs for the indication of operational states

### Order data

Type	Rated control supply voltage	Time range	Order code
CT-AWE	24 V AC/DC	0.05-1 s	1SVR 550 158 R3100
	110-130 V AC		1SVR 550 150 R3100
	220-240 V AC		1SVR 550 151 R3100

## Functions

### Operating controls



#### 1 Indication of operational states

U: green LED – Control supply voltage applied

R: red LED – Output relay energized

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

### Application

Their conception makes the CT-E range timers ideal for repeat applications.

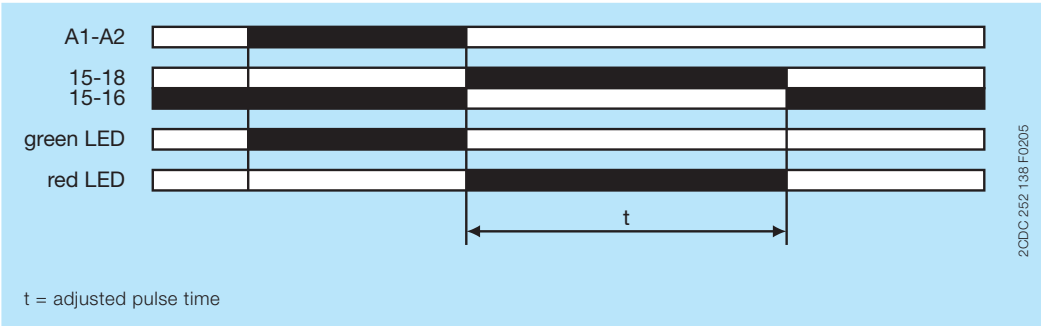
### Operating mode

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

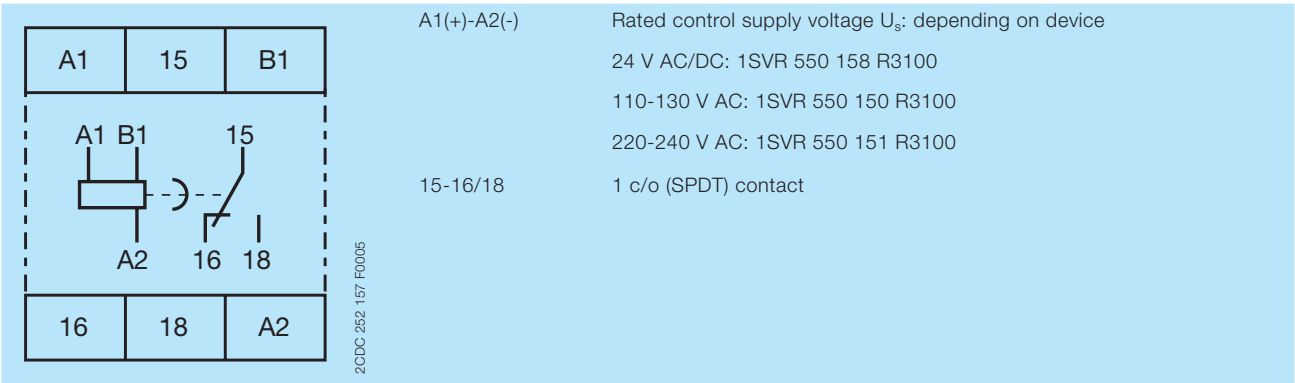
Function diagram

1. Impulse-OFF without auxiliary voltage (True trailing edge interval)

The Impulse-OFF function without auxiliary voltage does not require continuous control supply voltage for timing. If control supply voltage is interrupted, the output relay energizes and the OFF time starts. When timing is complete, the output relay de-energizes. If control supply voltage is re-applied before the time delay is complete, the time delay is reset and the output relay de-energizes. Control supply voltage must be applied for the minimum energizing time (200 ms), for proper operation.



Electrical connection



Connection diagram

## Technical data



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

### Input circuits

Supply circuit		
Rated control supply voltage $U_s$	A1-A2	110-130 V AC
	A1-A2	220-240 V AC
	A1-A2	24 V AC/DC
Rated control supply voltage $U_s$ tolerance		-15...+10 %
Rated frequency	AC/DC version	DC or 50/60 Hz
	AC version	50/60 Hz
Typical current / power consumption	24 V AC/DC	approx. 1.0 VA/W
	110-130 V AC	approx. 2.0 VA
	220-240 V AC	approx. 2.0 VA
Release voltage		> 10 % of the minimum control supply voltage
Minimum energizing time		200 ms

Timing circuit	
Time range	0.05-1 s
Recovery time	< 400 ms
Repeat accuracy (constant parameters)	$\Delta t < 1\%$
Accuracy within the rated control supply voltage tolerance	$\Delta t < 0.5\% / V$
Accuracy within the temperature range	$\Delta t < 0.1\% / \text{°C}$
Setting accuracy of time delay	$\pm 10\%$ of full-scale value

### User interface

Indication of operational states		
Control supply voltage	U: green LED	 : control supply voltage applied
Relay status	R: red LED	 : output relay energized

### Output circuit

Kind of output	15-16/18	relay, 1 c/o (SPDT) contact
Contact material		silver alloy
Rated operational voltage $U_o$		250 V
Minimum switching voltage / current		12 V / 100 mA
Maximum switching voltage / current		see 'Load limit curves'
Rated operational current $I_o$	AC-12 (resistive) at 230 V	4 A
	AC-15 (inductive) at 230 V	3 A
	DC-12 (resistive) at 24 V	4 A
	DC-13 (inductive) at 24 V	2 A
AC rating (UL 508)	Utilization category	B 300
	(Control Circuit Rating Code)	
	max. rated operational voltage	300 V AC
	Maximum continuous thermal current at B300	5 A
	max. making/breaking apparent power at B300	3600 VA / 360 VA
Mechanical lifetime		$10 \times 10^6$ switching cycles
Electrical lifetime	AC-12, 230 V, 4 A	$0.1 \times 10^6$ switching cycles
Frequency of operation	with/without load	$360/72000^{-1}$
Maximum fuse rating to achieve	n/c contact	10 A fast
short-circuit protection	n/o contact	10 A fast

### General data

MTBF	on request
Duty time	100 %
Dimensions	see 'Dimensional drawings'

Weight	net weight	0.067 kg (0.148 lb)
	gross weight	0.079 kg (0.174 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 <sup>2</sup> (2 x 18-16 AWG)
	fine-strand without wire end ferrule	2 x 1-1.5 mm <sup>2</sup> (2 x 18-16 AWG)
	rigid	2 x 0.75-1.5 mm <sup>2</sup> (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 <sup>2</sup> , 10-58/60-150 Hz
Shock, half-sine	IEC/EN 60068-2-27	150 m/s <sup>2</sup> , 11 ms, 3 shocks/direction

### Isolation data

Rated insulation voltage U <sub>i</sub>	between all isolated circuits	Control supply voltage up to 240 V: 300 V
		Control supply voltage up to 440 V: 500 V
Rated impulse withstand voltage U <sub>imp</sub>	between all isolated circuits	4 kV / 1.2-50 µs
Power frequency withstand voltage (test voltage)	between all isolated circuits	2.5 kV, 50 Hz, 1 min.
Basic insulation (IEC/EN 61140)	input/output	300 V
Protective separation (IEC/EN 61140, EN 50178)	input/output	-
Pollution degree	3	
Overvoltage category	III	

### Standards / Directives

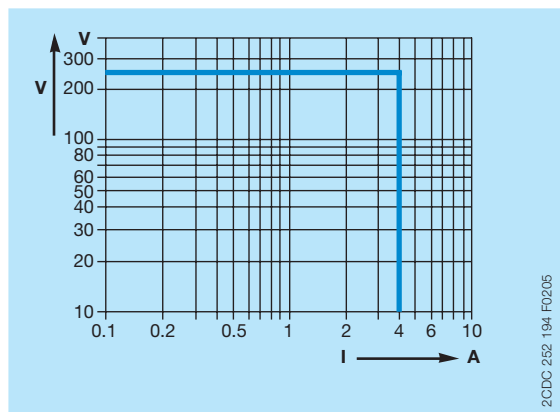
Standards	IEC/EN 61812-1
Low Voltage Directive	2014/35/EU
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

### Electromagnetic compatibility

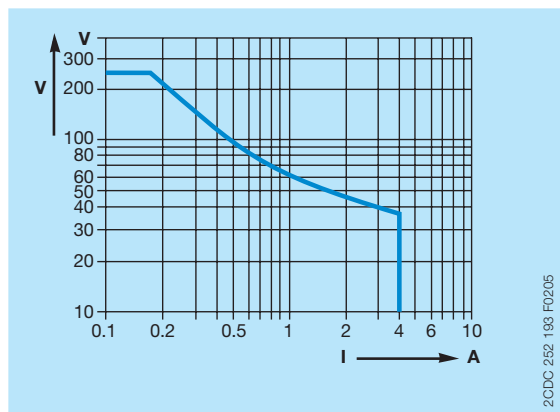
Interference immunity to		IEC/EN 61000-6-2
electrostatic discharge	IEC/EN 61000-4-2	Level 3 (6 kV / 8 kV)
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	10 V/m (1 GHz), 3 V/m (2 GHz), 1 V/m (2.7 GHz)
electrical fast transient / burst	IEC/EN 61000-4-4	Level 3 (2 kV / 5 kHz)
surge	IEC/EN 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

## Technical diagrams

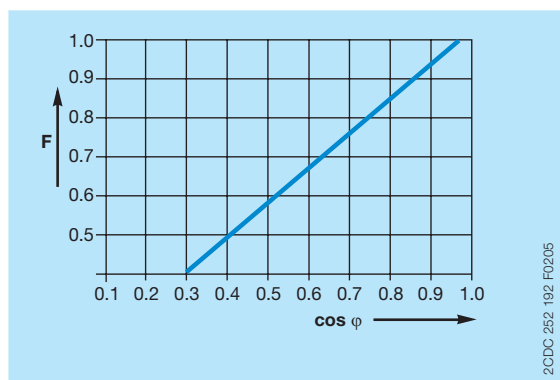
### Load limit curves



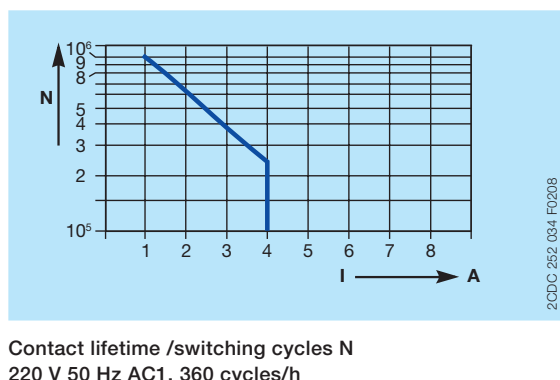
AC load (resistive)



DC load (resistive)



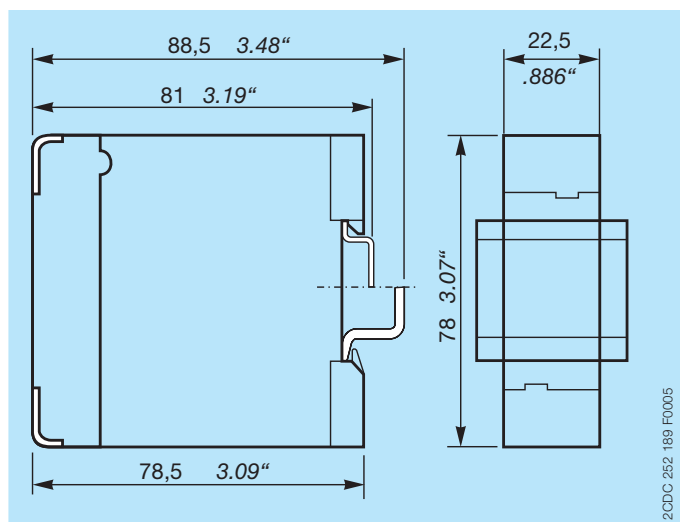
Derating factor  $F$  for inductive AC load



Contact lifetime /switching cycles  $N$   
220 V 50 Hz AC1, 360 cycles/h

## 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](http://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.

# Contact us

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