Data sheet

# Electronic timer CT-AWE
## Impulse-OFF with auxiliary voltage, 1 c/o (SPDT) contact

The CT-AWE is an electronic time relay with Impulse-OFF function. 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

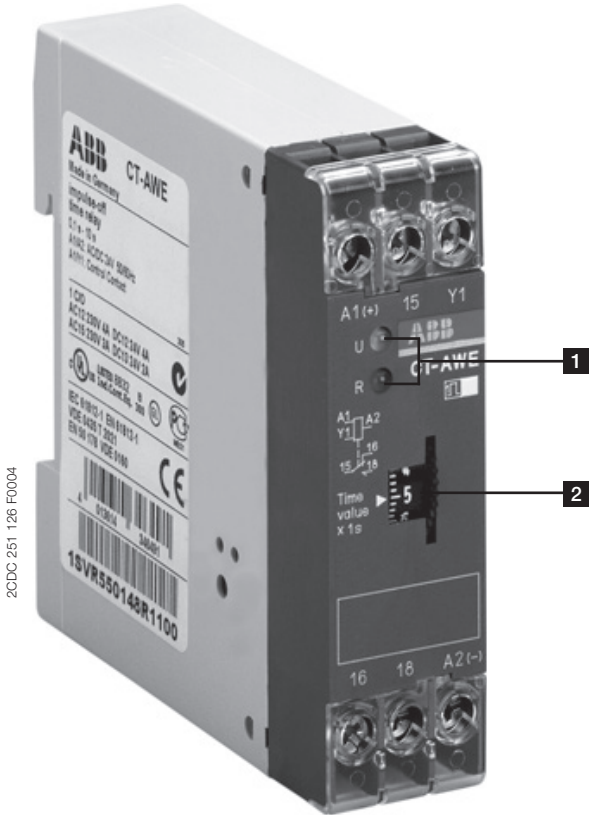
- 9 versions:
  3 different single time ranges (0.1-10 s, 0.3-30 s and 3-300 s) and
  3 different rated control supply voltage ranges (24 V AC/DC, 110-130 V AC and 220-240 V AC)
- Single-function impulse-OFF timer with auxiliary voltage
- Timing can be started via an external, voltage-related control input
- 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 | 0.1-10 s | 1SVR 550 148 R1100 |
| | | 0.3-30 s | 1SVR 550 148 R4100 |
| | | 3-300 s | 1SVR 550 148 R2100 |
| | 110-130 V AC | 0.1-10 s | 1SVR 550 140 R1100 |
| | | 0.3-30 s | 1SVR 550 140 R4100 |
| | | 3-300 s | 1SVR 550 140 R2100 |
| | 220-240 V AC | 0.1-10 s | 1SVR 550 141 R1100 |
| | | 0.3-30 s | 1SVR 550 141 R4100 |
| | | 3-300 s | 1SVR 550 141 R2100 |

## 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.

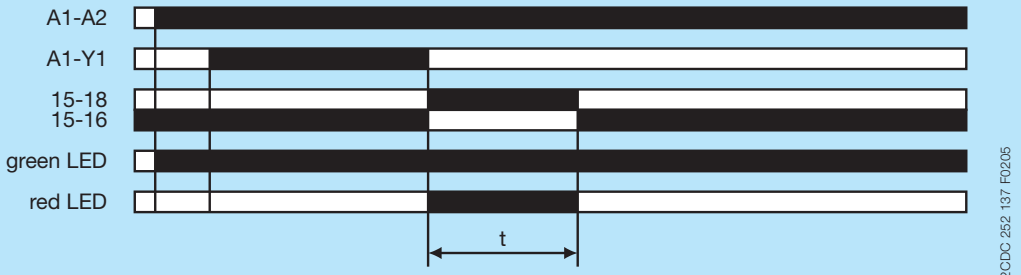
### Operating mode

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

## Function diagram

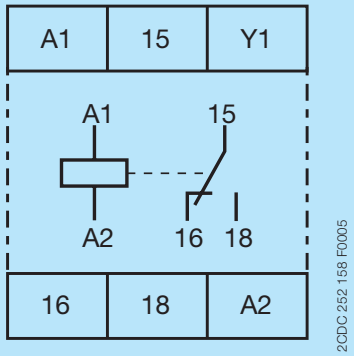
### 1 Impulse-OFF with auxiliary voltage (True trailing edge interval)

This function requires continuous control supply voltage for timing. Timing is controlled by control input A1-Y1. If the control input is opened, the output relay energizes and timing begins. When the selected time delay is complete, the output relay de-energizes. Interrupting control supply voltage or closing control input A1-Y1, before the time delay is complete, de-energizes the output relay and resets the time delay.




t = adjusted pulse time

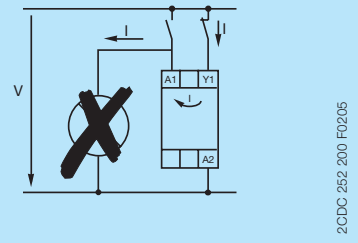
## Electrical connection

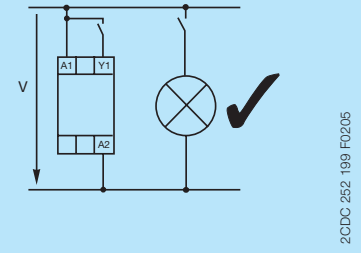


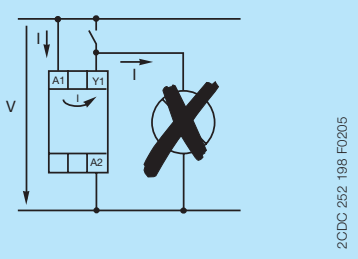

Connection diagramm

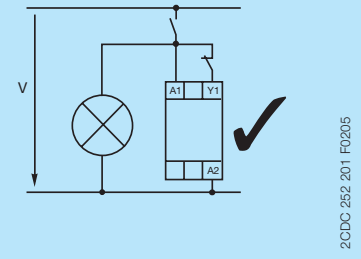
| | |
|---|---|
| A1-A2 | Rated control supply voltage $U_s$: Depending on device |
| | 24 V AC/DC: 1SVR 550 148 R1100, 1SVR 550 148 R4100, 1SVR 550 148 R2100 |
| | 110-130 V AC: 1SVR 550 140 R1100, 1SVR 550 140 R4100, 1SVR 550 140 R2100 |
| | 220-240 V AC: 1SVR 550 141 R1100, 1SVR 550 141 R4100, 1SVR 550 141 R2100 |
| A1-Y1 | Control input to start timing |
| 15-16/18 | 1 c/o (SPDT) contact |

## Wiring notes



## Technical data

Data at $T_a$ = 25 °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 |

| **Control circuit** | | |
|---|---|---|
| Control input, control function | A1-Y1 | start timing external |
| Kind of triggering | | voltage-related |
| Parallel load | | no |
| Polarized | | yes |
| Control voltage potential | | rated control supply voltage |
| Minimum control pulse length | | 20 ms |

| **Timing circuit** | |
|---|---|
| Time range | depending on device: 0.1-10 s, 0.3-30 s or 3-300 s |
| Recovery time | < 400 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** | | |
|---|---|---|
| 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 $U_e$ | | 250 V |
| Minimum switching voltage / current | | 12 V / 100 mA |
| Maximum switching voltage / current | | see ‚Load limit curves' |
| Rated operational current $I_e$ | 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 (Control Circuit Rating Code) | B 300 |
| | 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 x $10^6$ switching cycles |
| Electrical lifetime | AC-12, 230 V, 4 A | 0.1 x $10^6$ switching cycles |
| Frequency of operation | with/without load | 360/72000$^{-1}$ |
| Maximum fuse rating to achieve short-circuit protection | n/c contact | 10 A fast |
| | n/o contact | 10 A fast |

## General data

| | | | |
|---|---|---|---|
| MTBF | | | on request |
| Duty time | | | 100 % |
| Dimensions | | | see 'Dimensional drawings' |
| Weight | net weight | 24 V AC/DC, 220-240 V AC | 0.065 kg (0.143 lb) |
| | | 110-130 V AC | 0.067 kg (0.148 lb) |
| | gross weight | 24 V AC/DC, 220-240 V AC | 0.077 kg (0.170 lb) |
| | | 110-130 V AC | 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 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

| | | |
|---|---|---|
| Rated insulation voltage $U_i$ | 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 $U_{imp}$ | 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

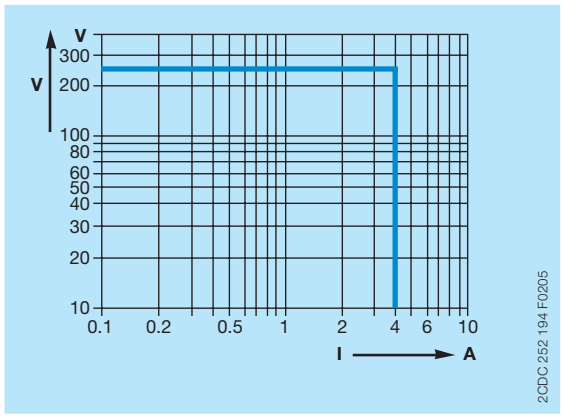
| | |
|---|---|
| Standards | IEC/EN 61812-1 |
| Low Voltage Directive | 2014/35/EU |
| EMC Directive | 2014/30/EU |
| RoHS Directive | 2011/65/EU |

## Electromagnetic compatibility

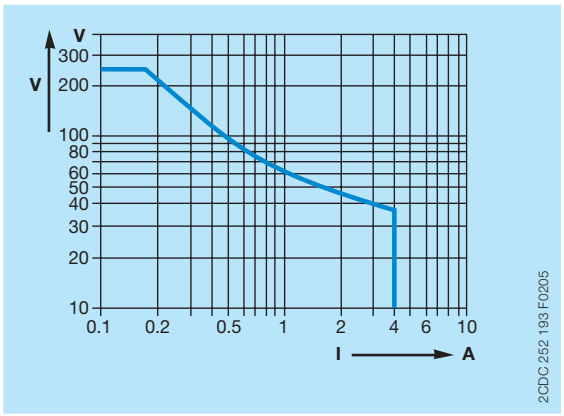
| | | |
|---|---|---|
| Interference immunity to | | IEC/EN 61000-6-2 |
| electrostatic discharge | IEC/EN 61000-4-2 | Level 3 (6 kV / 8 kV) |
| radiated, radio-frequency, electromagnetic field | IEC/EN 61000-4-3 | 10 V/m (1 GHz), 3 V/m (2 GHz), 1 V/m (2.7 GHz) |
| electrical fast transient / burst |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

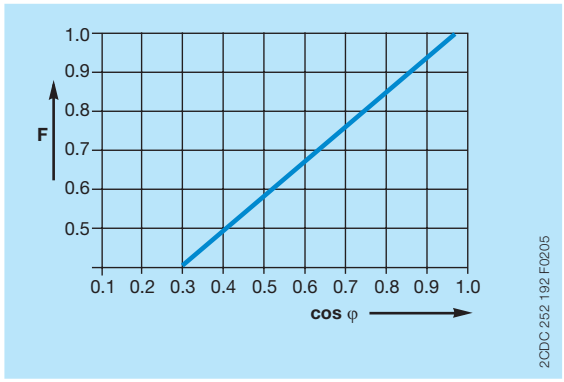
### Load limit curves



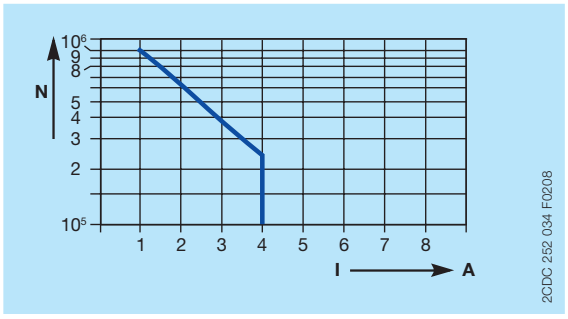

AC load (resistive)




DC load (resistive)



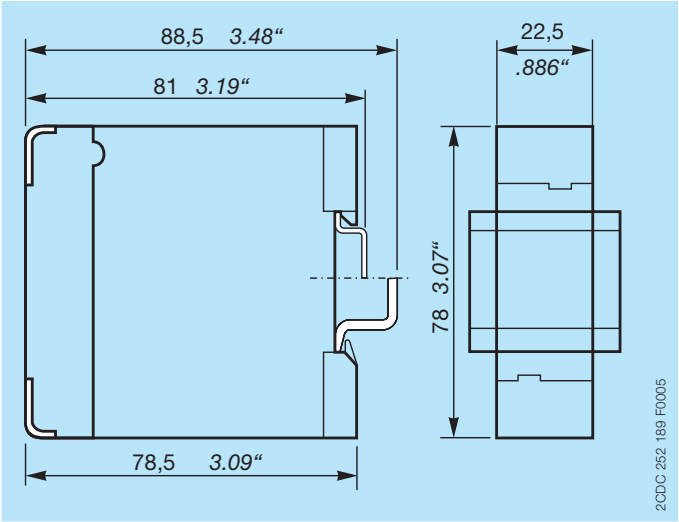

Derating factor F for inductive AC load




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
-> 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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