Data sheet

# Electronic timer CT-ARS.11

## OFF-delayed without auxiliary voltage with 1 c/o (SPDT) contact

The CT-ARS.11 is an electronic timer from the CT-S range with true OFF-delay. It provides 7 time ranges and a continuous rated control voltage that enables worldwide use regardless of the supply voltage.

All electronic timers from the CT-S range are available with two different terminal versions. You can choose between the proven screw connection technology (double-chamber cage connection terminals) and the completely tool-free Easy Connect Technology (push-in terminals).




2CDC 251 034 V0011

### Characteristics

- Rated control supply voltage 24-240 V AC/DC
- OFF-delay timer without auxiliary voltage
- 7 time ranges (0.05 s - 10 min)
- Precise adjustment by front-face operating elements
- Screw connection technology or Easy Connect Technology available
- Enclosure material for highest fire protection classification
- Tool-free mounting and demounting on DIN-rail
- 1 c/o (SPDT) contact
- 22.5 mm (0.89 in) width
- 1 LED for status indication

### Approvals

| | | |
|---|---|---|
| | UL 508, CAN/CSA C22.2 No.14 | |
| | GL | pending |
| | GOST | |
| | CB scheme | |
| | CCC | |

### Marks

| | |
|---|---|
| CE | CE |
| | C-Tick |

### Order data

Electronic timer

| Type | Rated control supply voltage | Connection technology | Time ranges | Order code |
|---|---|---|---|---|
| CT-ARS.11P | 24-240 V AC/DC | Push-in terminals | 0.05 s - 10 min | 1SVR 740 120 R3100 |
| CT-ARS.11S | 24-240 V AC/DC | Screw type terminals | 0.05 s - 10 min | 1SVR 730 120 R3100 |

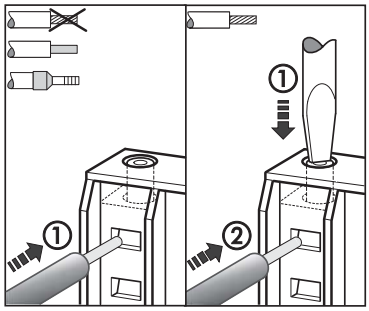
Accessories

| Type | Description | Order code |
|---|---|---|
| ADP.01 | Adapter for screw mounting | 1SVR 430 029 R0100 |
| MAR.01 | Marker label | 1SVR 366 017 R0100 |
| COV.11 | Sealable transparent cover | 1SVR 600 805 P0000 |

## Connection technology

### Maintenance free Easy Connect Technology with push-in terminals

Type designation CT-xxS.yyP

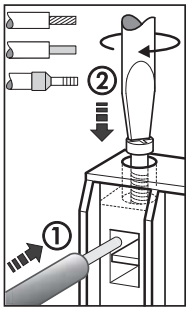



### Push-in terminals

- Tool-free connection of rigid and flexible wires with wire end ferrule
  Wire size: 2 x 0.5-1.5 mm²
- Easy connection of flexible wires without wire end ferrule by opening the terminals
- Opening for testing the electrical contacting
- Gas-tight

### Approved screw connection technology with double-chamber cage connection terminals

Type designation CT-xxS.yyS



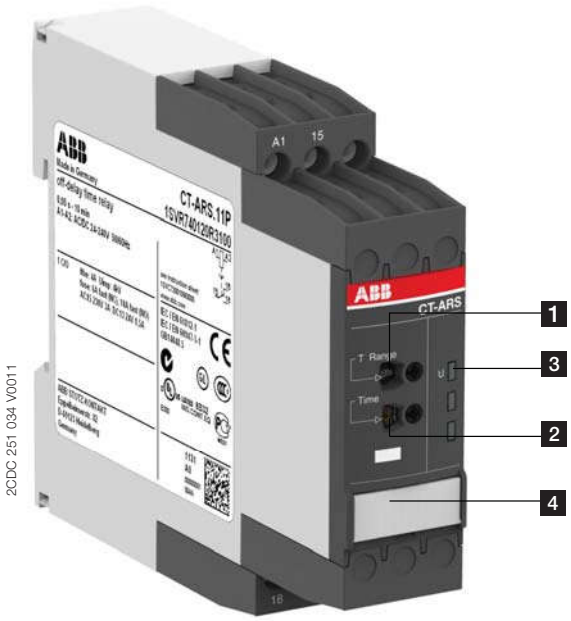

### Double-chamber cage connection terminals

- Terminal spaces for different wire sizes:
  fine-strand with/without wire end ferrule:
  1 x 0.5-2.5 mm², 2 x 0.5-1.5 mm²
  rigid: 1 x 0.5-4 mm², 2 x 0.5-2.5 mm²
- Pozidrive screws for pan- or crosshead screwdrivers

Both the Easy Connect Technology with push-in terminals and screw connection technology with double-chamber cage connection terminals have the same connection geometry as well as terminal position.

## Functions

### Operating controls




**1** **Rotary switch for the preselection of the time range**

**2** **Fine adjustment of the time delay**

**3** **Indication of operational states**

U: green LED - control supply voltage

**4** **Marker label**

### Application

The CT-S range timers are designed for use in industrial applications. They operate over an universal range of supply voltages and a large time delay range, within compact dimensions. The easy-to-set front-face potentiometers, with direct reading scales, provide accurate time delay adjustment.

### Operating mode

The CT-ARS.11 with 1 c/o contact offers 7 time ranges, from 0.05 s to 10 min, for the adjustment of the time delay. The time delay range is rotary switch selectable. The fine adjustment of the time delay is made via an internal potentiometer, with a direct reading scale, on the front of the unit.

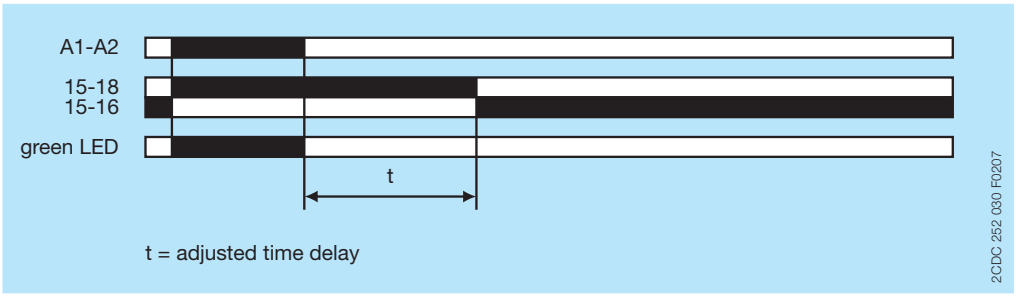
## Function diagram

### OFF-delay without auxiliary voltage

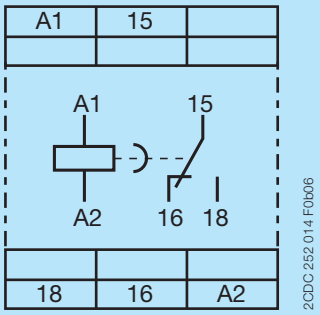
The OFF-delay function without auxiliary voltage does not require continuous control supply voltage for timing. Prior to first commissioning and after a six-month stop in operation, a formatting time of 5 minutes is necessary.

Applying control supply voltage energizes the output relay immediately. Applied control supply voltage is displayed by the glowing green LED. If control supply voltage is interrupted, the OFF-delay starts and the LED turns off. When timing is complete, the output relay de-energizes.

For correct operation of the unit, it is necessary to complete the minimum energizing time.




## Electrical connection




15-16/18 1 c/o (SPDT) contact

A1-A2 Rated control supply voltage $U_S$ 24-240 V AC/DC

**Connection diagram**

## Technical data

Data at $T_a$ = 25 °C and rated values, unless otherwise indicated

### Input circuits

| **Supply circuit** | | **A1-A2** |
|---|---|---|
| Rated control supply voltage $U_S$ | | 24-240 V AC/DC |
| Rated control supply voltage $U_S$ tolerance | | -15...+10 % |
| Rated frequency | DC | n/a |
| | AC | 50/60 Hz |
| Frequency range | AC | 47-63 Hz |
| Typical current / power consumption | 24 V DC | 1 mA / - |
| | 115 V AC | 2.5 mA / - |
| | 230 V AC | 3.1 mA / - |
| Formatting time (prior to 1st commissioning and after a six-month stop in operation) | | 5 min |
| Minimum duty time | | 100 ms |

| **Timing circuit** | | |
|---|---|---|
| Kind of timer | Single-function timer | OFF-delay without auxiliary voltage |
| Time ranges 0.05 s - 10 min | | 0.05-1 s, 0.15-3 s, 0.5-10 s, 1.5-30 s, 5-100 s, 15-300 s, 0.5-10 min |
| Recovery time | | < 50 ms |
| Repeat accuracy (constant parameters) | | Δt <± 0.2 % |
| Accuracy within the rated control supply voltage tolerance | | Δt < 0.004 %/V |
| Accuracy within the temperature range | | Δt < 0.03 %/°C |

### User interface

| **Indication of operational states** | | |
|---|---|---|
| Control supply voltage | U: green LED | ⎍: control supply voltage applied |

### Output circuits

| | | |
|---|---|---|
| Kind of output | 15-16/18 | Relay, 1 c/o (SPDT) contact |
| Contact material | | Cd-free |
| Rated operational voltage $U_e$ | | 250 V |
| Minimum switching voltage / Minimum switching current | | 12 V / 10 mA |
| Maximum switching voltage / Minimum switching current | | see ‘Load limit curves’ on page 8 |
| Rated operational current $I_e$ (IEC/EN 60947-5-1) | AC12 (resistive) at 230 V | 4 A |
| | AC15 (inductive) at 230 V | 3 A |
| | DC12 (resistive) at 24 V | 4 A |
| | DC13 (inductive) at 24 V | 1.5 A |
| AC rating (UL 508) | utilization category (Control Circuit Rating Code) | B 300 |
| | max. rated operational voltage | 300 V AC |
| | max. continuous thermal current at B 300 | 5 A |
| | max. making / breaking apparent power at B 300 | 3600/360 VA |
| Mechanical lifetime | | 30 x $10^6$ switching cycles |
| Electrical lifetime | AC12, 230 V, 4 A | 0.1 x $10^6$ switching cycles |
| Maximum fuse rating to achieve short-circuit protection (IEC/EN 60947-5-1) | n/c contact | 6 A fast-acting |
| | n/o contact | 10 A fast-acting |

## General data

| | | |
|---|---|---|
| MTBF | | on request |
| Duty time | | 100 % |
| Dimensions (W x H x D) | product dimensions | 22.5 x 85.6 x 103.7 mm (0.89 x 3.37 x 4.08 in) |
| | packaging dimensions | 97 x 109 x 30 mm (3.82 x 4.29 x 1.18 in) |
| Weight | net weight | |
| | gross weight | |
| Mounting | | DIN rail (IEC/EN 60715),<br>snap-on mounting without any tool |
| Mounting position | | any |
| Minimum distance to other units | vertical | not necessary |
| | horizontal | not necessary |
| Degree of protection | enclosure | IP50 |
| | terminals | IP20 |

## Electrical connection

| | | **Screw connection technology** | **Easy Connect Technology (Push-in)** |
|---|---|---|---|
| Wire size | fine-strand with wire end ferrule | 1 x 0.5-2.5 mm²<br>(1 x 20-14 AWG)<br>2 x 0.5-1.5 mm²<br>(2 x 20-16 AWG) | 2 x 0.5-1.5 mm²<br>(2 x 20-16 AWG) |
| | fine-strand without wire end ferrule | 1 x 0.5-2.5 mm²<br>(1 x 20-14 AWG)<br>2 x 0.5-1.5 mm²<br>(2 x 20-16 AWG) | 2 x 0.5-1.5 mm²<br>(2 x 20-16 AWG) |
| | rigid | 1 x 0.5-4 mm²<br>(1 x 20-12 AWG)<br>2 x 0.5-2.5 mm²<br>(2 x 20-14 AWG) | 2 x 0.5-1.5 mm²<br>(2 x 20-16 AWG) |
| Stripping length | | 8 mm (0.32 in) | |
| Tightening torque | | 0.6 - 0.8 Nm<br>(5.31 - 7.08 lb.in) | - |

## Environmental data

| | | |
|---|---|---|
| Ambient temperature rangess | operation | -25...+60 °C |
| | storage | -40...+85 °C |
| Damp heat, cyclic (IEC/EN 60068-2-30) | | 6 x 24 h cycle, 55 °C, 95 % RH |
| Vibration, sinusoidal (IEC/EN 60068-2-6) | functioning | 40 m/s², 10-58/60-150 Hz |
| | resistance | 60 m/s², 10-58/60-150 Hz, 20 cycles |
| Vibration, seismic (IEC/EN 60068-3-3) | functioning | 20 m/s² |
| Shock, half-sine (IEC/EN 60068-2-27) | functioning | 100 m/s², 11 ms, 3 shocks/direction |
| | resistance | 300 m/s², 11 ms, 3 shocks/direction |

## Isolation data

| | | |
|---|---|---|
| Rated insulation voltage $U_i$ | input circuit / output circuit | 500 V |
| Rated impulse withstand voltage $U_{imp}$ between all isolated circuits (IEC/EN 60664-1, VDE 0110) | | 4 kV; 1.2/50 µs |
| Power-frequency withstand voltage test between all isolated circuits (test voltage) | | routine test: 2.0 kV; 50 Hz, 1 s<br>type test: 2.5 kV; 50 Hz, 1 min |
| Basic insulation (IEC/EN 61140) | input circuit / output circuit | 500 V |
| Protective separation (IEC/EN 61140; IEC/EN 50178; VDE 0106 part 101 and part 101/A1) | input circuit / output circuit | 250 V |
| Pollution degree (IEC/EN 60664-1, VDE 0110) | | 3 |
| Overvoltage category (IEC/EN 60664-1, VDE 0110) | | III |

## Standards

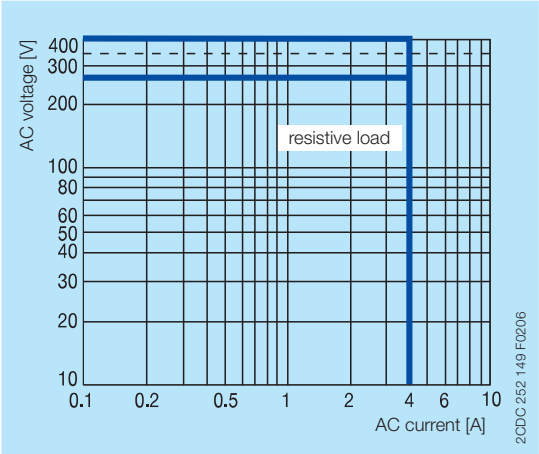
| | |
|---|---|
| Product standard | IEC 61812-1, EN 61812-1 + A11,<br>DIN VDE 0435 part 2021 |
| Low Voltage Directive | 2006/95/EC |
| EMC Directive | 2004/108/EC |
| RoHS Directive | 2002/95/EC |

## Electromagnetic compatibility

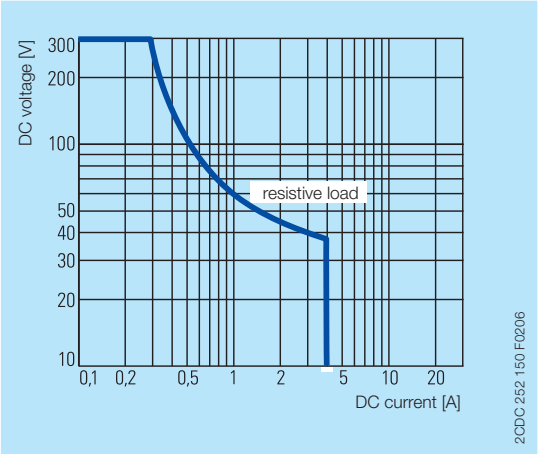
| | | |
|---|---|---|
| Interference immunity to | | IEC/EN 61000-6-1, IEC/EN 61000-6-2 |
| electrostatic discharge | IEC/EN 61000-4-2 | Level 3, 6 kV / 8 kV |
| radiated, radio-frequency, electromagnetic field | IEC/EN 61000-4-3 | Level 3, 10 V/m (1 GHz) / 3 V/m (2 GHz) / 1 V/m (2.7 GHz) |
| electrical fast transient / burst | IEC/EN 61000-4-4 | Level 3, 2 kV / 5 kHz |
| surge | IEC/EN 61000-4-5 | Level 4, 2 kV A1-A2 |
| conducted disturbances, induced by radio-frequency fields | IEC/EN 61000-4-6 | Level 3, 10 V |
| harmonics and interharmonics | IEC/EN 61000-4-13 | Level 3 |
| Interference emission | | IEC/EN 61000-6-3, IEC/EN 61000-6-4 |
| high-frequency radiated | IEC/CISPR 22, EN 55022 | Class B |
| high-frequency conducted | IEC/CISPR 22, EN 55022 | Class B |

## Technical diagrams

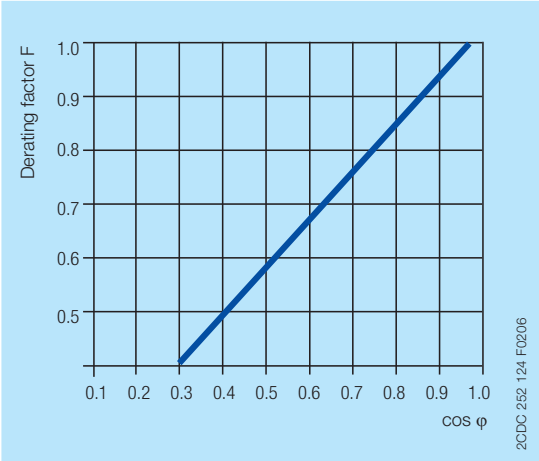
### Load limit curves



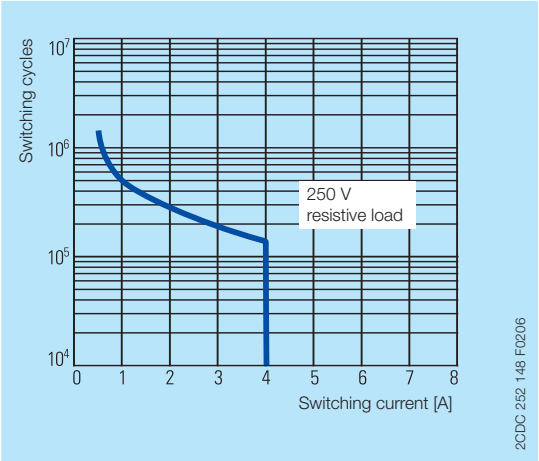

**AC load (resistive)**




**DC load (resistive)**



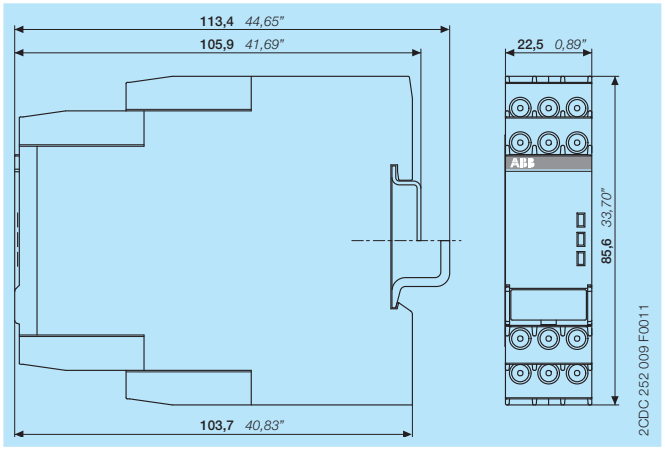

**Derating factor F for inductive AC load**




**Contact lifetime**

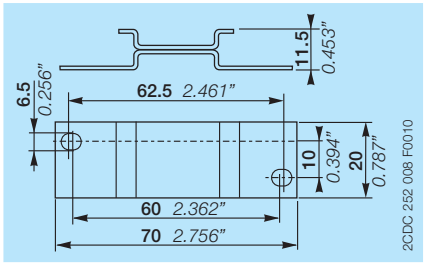
## Dimensions

in **mm** and *inches*

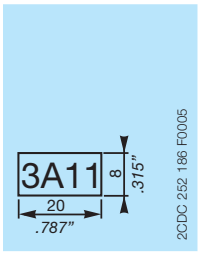



## Accessories

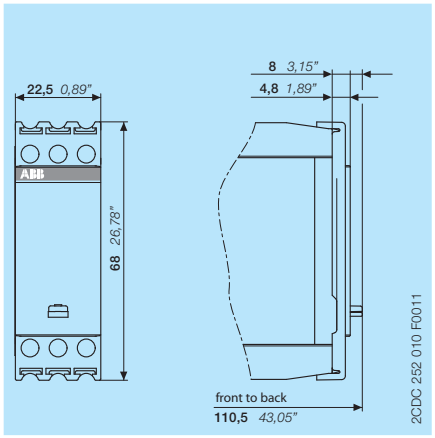
in **mm** and *inches*




**ADP.01 - Adapter for screw mounting**




**MAR.01 - Marker label**




**COV.11 - Sealable transparent cover**

## Further documentation

| Document title | Document type | Document number |
|---|---|---|
| Electronic Products and Relays | Technical catalogue | 2CDC 110 004 C020x |
| CT-AHS, CT-ARS, CT-MBS, CT-MFS | Instruction manual | 1SVC 730 010 M0000 |

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

# Contact us

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