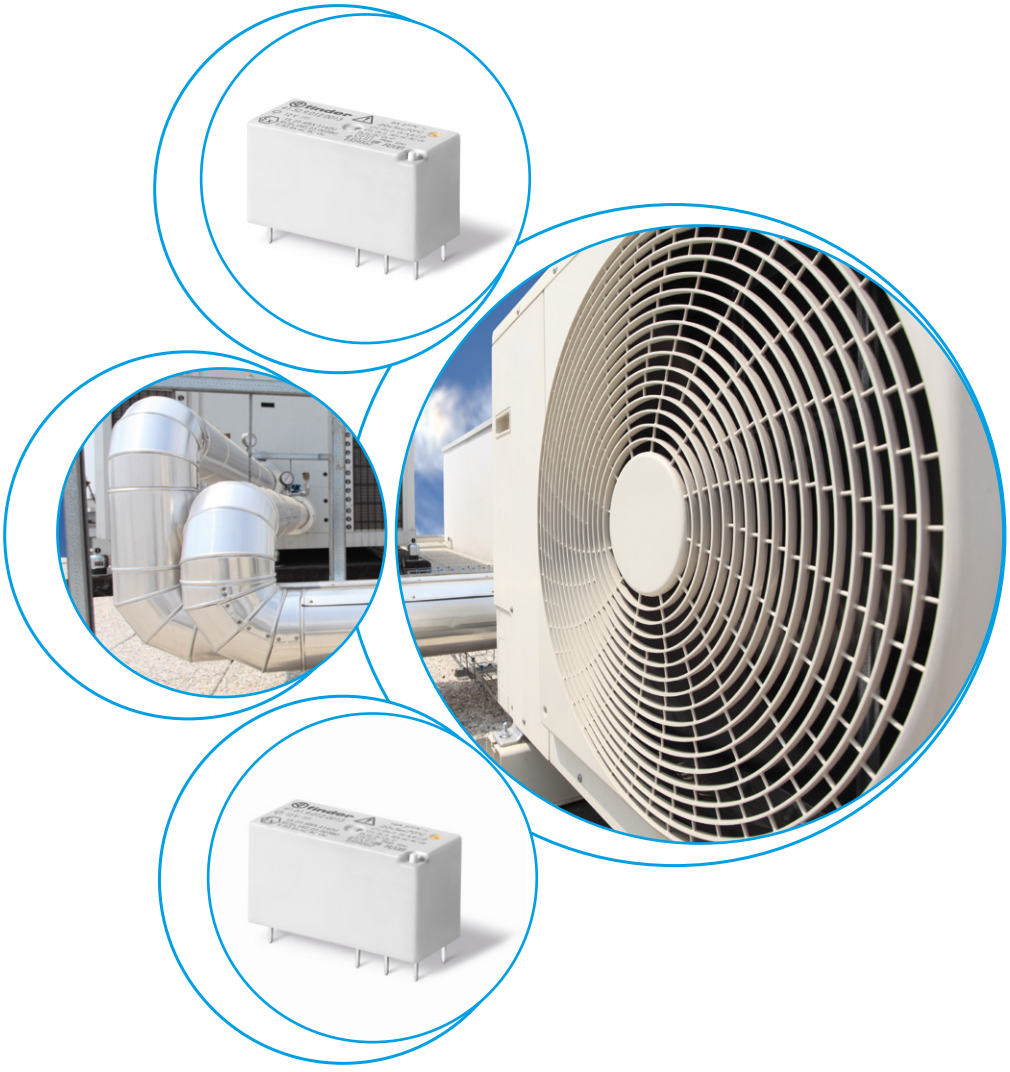
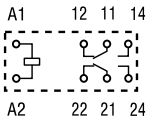
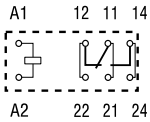
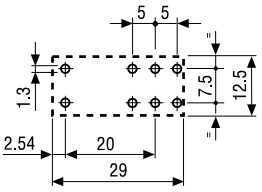
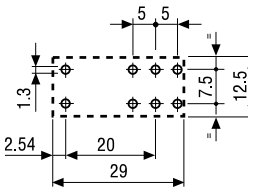
finder
RELAYING INNOVATION

41
SERIES

# Low profile PCB relays
# 8 - 16 A
# IECEx - ATEX - HazLoc



| **1 & 2 Pole - Low profile (15.7 mm height)**<br>**Type 41.52**<br>- 2 Pole 8 A (5.0 mm pin pitch)<br>**Type 41.61**<br>- 1 Pole 16 A (5.0 mm pin pitch)<br>**PCB mount**<br>- **direct**<br>• DC coils<br>• 8 mm, 6 kV (1.2/50 µs) isolation, coil-contacts<br>• Cadmium Free contact materials<br>• Versions compliant with IECEx, ATEX (EX ec nC), HazLoc Class I Div. 2, Groups A, B, C, D - T4* | **41.52**<br>  <br>• 5.0 mm contact pin pitch<br>• 2 Pole 8 A<br>• PCB direct or via socket | **41.61**<br>  <br>• 5.0 mm contact pin pitch<br>• 1 Pole 16 A<br>• PCB direct or via socket |
|---|---|---|
| |  <br> |  <br> |
| * Characteristics page 7<br><br>** See table temperature range on page 7<br><br>For outline drawing see page 7 |  <br><br>Copper side view |  <br><br>Copper side view |

| | | | |
|---|---|---|---|
| **Contact specification** | | | |
| Contact configuration | | 2 CO (DPDT) - 2 NO (DPST) | 1 CO (SPDT) - 1 NO (SPST) |
| Rated current | A | 8 | 16 |
| Rated voltage | V AC | 277 | 277 |
| Rated load AC1 | VA | 2215 | 4430 |
| Rated load AC15 (230 V AC) | VA | 400 | 750 |
| Single phase motor rating (230 V AC) | kW | 0.3 | 0.5 |
| Breaking capacity DC1: 32 V | A | 5 | 5 |
| Minimum switching load | mW (V/mA) | 300 (5/5) | 300 (5/5) |
| Standard contact material | | AgNi | AgNi |
| **Coil specification** | | | |
| Nominal voltage ($U_N$) | V DC | 5 - 6 - 12 - 24 - 48 - 60 - 110 | 5 - 6 - 12 - 24 - 48 - 60 - 110 |
| Rated power AC/DC | W | 0.52 | 0.52 |
| Operating range | DC | $(0.7…1.5)U_N$ | $(0.7…1.5)U_N$ |
| Holding voltage | DC | $0.4\ U_N$ | $0.4\ U_N$ |
| Must drop-out voltage | DC | $0.1\ U_N$ | $0.1\ U_N$ |
| **Technical data** | | | |
| Mechanical life DC | cycles | $10 \cdot 10^6$ | $10 \cdot 10^6$ |
| Electrical life at rated load AC1 | cycles | $60 \cdot 10^3$ | $50 \cdot 10^3$ |
| Operate/release time | ms | 8/6 | 8/6 |
| Insulation between coil and contacts (1.2/50 µs) | kV | 6 (8 mm) | 6 (8 mm) |
| Dielectric strength between open contacts | V AC | 1000 | 1000 |
| Ambient temperature range DC | °C | –40…+85** | –40…+85** |
| Environmental protection | | RT III | RT III |
| **Approvals** (according to type) | | | |

## Ordering information

A

***Electromechanical relay (EMR)***

Example: 41 series low-profile PCB relay, 2 CO (DPDT), 24 V DC coil.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | A | B | C | D | | |
| 4 | 1 | . | 5 | 2 | . | 9 | . | 0 | 2 | 4 | . | 0 | 0 | 1 | 3 |

**Series**

**Type**
5 = PCB - 5.0 mm pinning
6 = PCB - 5.0 mm pinning

**No. of poles**
1 = 1 pole for 41.61, 16 A
2 = 2 pole for 41.52, 8 A

**Coil version**
9 = DC

**Coil voltage**
See coil specifications

**A: Contact material**
0 = Standard AgNi
4 = $AgSnO_2$
5 = AgNi + Au

**B: Contact circuit**
0 = CO (nPDT)
3 = NO (nPST)

**C: Options**
1 = Production line 1

**D: Special versions**
3 = IECEx, ATEX (EX ec nC), HazLoc

**Selecting features and options: only combinations in the same row are possible.**
Preferred selections for best availability are shown in **bold**.

| Type | Coil version | A | B | C | D |
|---|---|---|---|---|---|
| 41.52 | DC | **0** - 5 | **0** - 3 | **1** | 3 |
| 41.61 | DC | **0** - 4 | **0** - 3 | **1** | 3 |

## *Electromechanical relay*

## Technical data

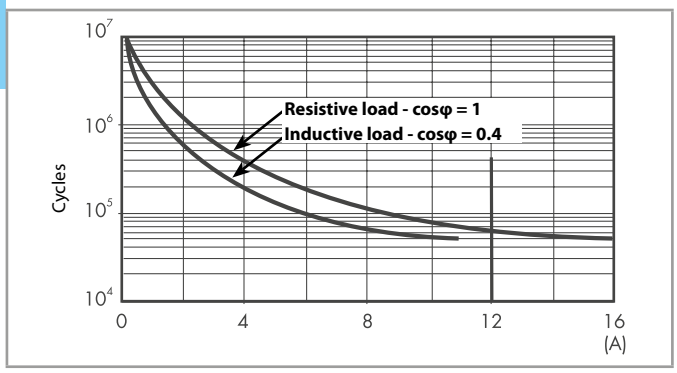


| | | | | | | |
|---|---|---|---|---|---|---|
| **Insulation according to EN 61810-1** | | | | | | |
| | | | **1 pole** | | **2 pole** | |
| Nominal voltage of supply system | | V AC | 230/400 | | 230/400 | |
| Rated insulation voltage | | V AC | 250 | 400 | 250 | 400 |
| Pollution degree | | | 3 | 2 | 3 | 2 |
| **Insulation between coil and contact set** | | | | | | |
| Type of insulation | | | Reinforced (8 mm) | | Reinforced (8 mm) | |
| Overvoltage category | | | III | | III | |
| Rated impulse voltage | | kV (1.2/50 µs) | 6 | | 6 | |
| Dielectric strength | | V AC | 4000 | | 4000 | |
| **Insulation between adjacent contacts** | | | | | | |
| Type of insulation | | | — | | Basic | |
| Overvoltage category | | | — | | III | |
| Rated impulse voltage | | kV (1.2/50 µs) | — | | 4 | |
| Dielectric strength | | V AC | — | | 2000 | |
| **Insulation between open contacts** | | | | | | |
| Type of disconnection | | | Micro-disconnection | | Micro-disconnection | |
| Dielectric strength | | V AC/kV (1.2/50 µs) | 1000/1.5 | | 1000/1.5 | |
| **Insulation between coil terminals** | | | | | | |
| Rated impulse voltage (surge) differential mode (according to EN 61000-4-5) | | kV (1.2/50 µs) | 2 | | | |
| **Other data** | | | | | | |
| Bounce time: NO/NC | | ms | 4/6 (monostable) | | | |
| Vibration resistance (5…55)Hz: NO/NC | | g | 15/2 (monostable) | | | |
| Shock resistance | | g | 16 (monostable) | | | |
| Power lost to the environment | without contact current | W | 0.4 (monostable) | | | |
| | with rated current | W | 1.2 (41.52) | | 1.8 (41.61) | |
| Recommended distance between relays mounted on PCB | | mm | ≥ 5 | | | |

## Contact specification

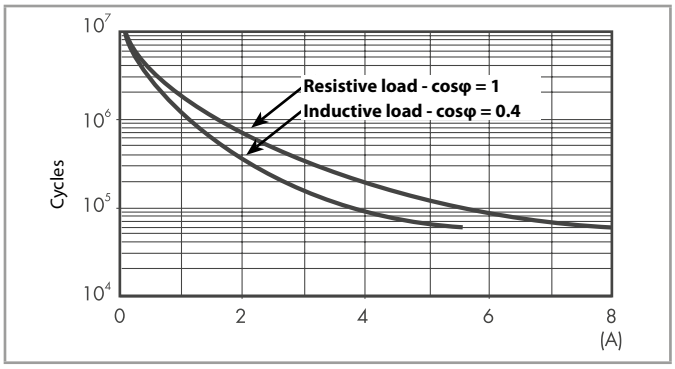
**F 41 - Electrical life (AC) v contact current (monostable)**

Type 41.61

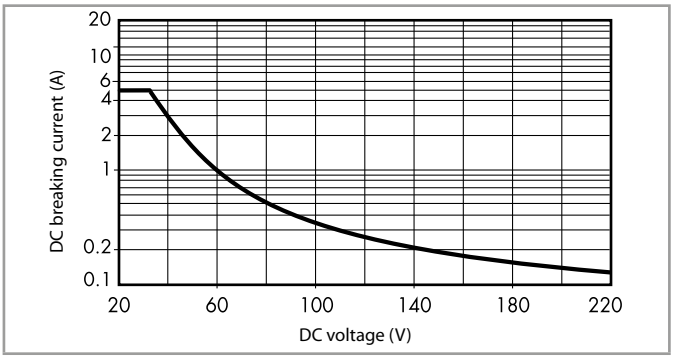



**F 41 - Electrical life (AC) v contact current (monostable)**

Type 41.52




**H 41- Maximum DC1 breaking capacity**



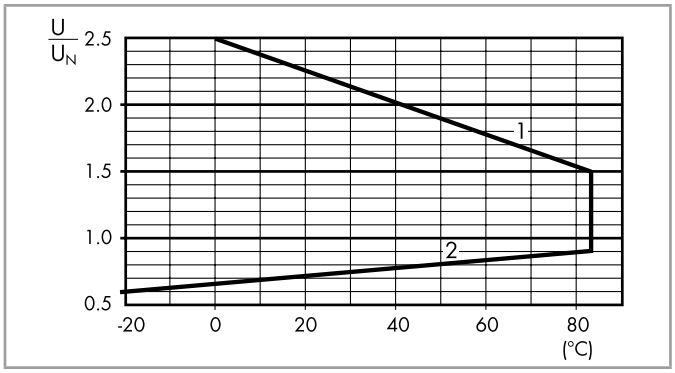

- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of ≥ 100 · $10^3$ can be expected.
- In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
  Note: the release time for the load will be increased.

## Coil specifications

**DC coil data**

| Nominal voltage | Coil code | Operating range | | Resistance | Rated coil consumption |
|---|---|---|---|---|---|
| $U_N$ | | $U_{min}$ | $U_{max}$ | R | I at $U_N$ |
| V | | V | V | Ω | mA |
| 5 | **9**.005 | 3.5 | 7.5 | 62 | 80 |
| 6 | **9**.006 | 4.2 | 9 | 90 | 66.7 |
| 12 | **9**.012 | 8.4 | 18 | 360 | 33.3 |
| 24 | **9**.024 | 16.8 | 36 | 1440 | 16.7 |
| 48 | **9**.048 | 33.6 | 72 | 5760 | 8.3 |
| 60 | **9**.060 | 42 | 90 | 9000 | 6.6 |
| 110 | **9**.110 | 77 | 165 | 24200 | 4.5 |

**R 41 - DC coil operating range v ambient temperature**




**1 -** Max. permitted coil voltage.
**2 -** Min. pick-up voltage with coil at ambient temperature.



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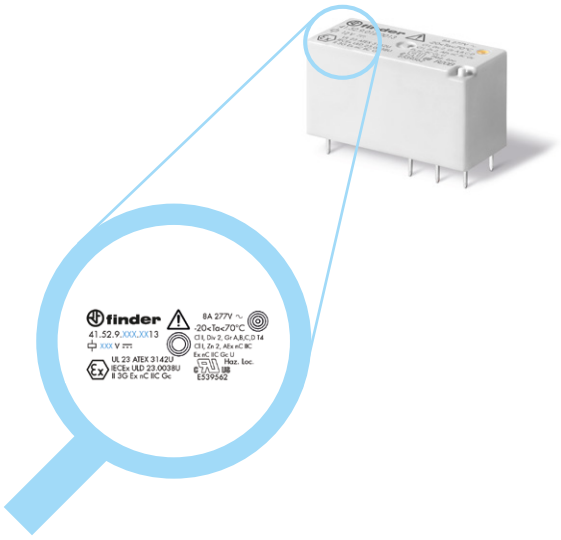
## IECEx - ATEX - HazLoc: Nominal current and ambient temperature

| Type | | | 41.52...13 | 41.61...13 |
|---|---|---|---|---|
| Approval | Ambient temperature | Contact configuration | 2 CO/NO | 1 CO/NO |
| IECEx - EX | -20…+85 °C (105 °C service temperature) | Rated voltage | 277 V AC | 277 V AC |
| | | Rated current | 8 A | 16 A |
| | | Breaking capacity DC1: 32 V DC | 5 A | 5 A |
| HazLoc | -20…+70 °C (105 °C service temperature) | Rated voltage | 277 V AC | 277 V AC |
| | | Rated current | 8 A | 16 A |
| | | Breaking capacity DC1: 32 V DC | 5 A | 5 A |
| | -20…+85 °C (105 °C service temperature) | Rated voltage | — | 277 V AC |
| | | Rated current | — | 10 A |

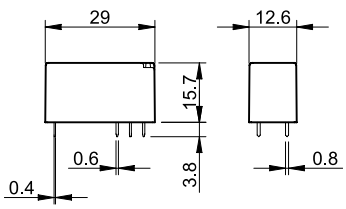
## Markings - ATEX, IECEx and HazLoc versions

| | | |
|---|---|---|
| **ATEX (UL 23 ATEX 3142 U):** | II 3 G | |
| **IECEx (IECEx ULD 23.0038 U):** | Ex nC IIC Gc | |
| **Haz.Loc. (E539562):** | Cl I, Div2, Gr A, B, C, D, T4<br>Cl I, Zn 2, AEx nC IIC<br>Ex nC IIC Gc U | c UL us LISTED IND. CONT. EQ FOR HAZ.LOC. |
| Specific marking of explosion protection | | |
| **II** Component for surface plant (different from mines) | | |
| **3** Category 3: normal level of protection | | |
| **G - Cl I** Explosive atmosphere due to presence of combustible gas vapour or mist | | |
| **Div 2 - Zn 2** Hazardous explosive concentration presence just in case of fault | | |
| **Ex nC - AEx nC** Sealed device | | |
| **IIC - Gr A, B, C, D** Gas group | | |
| **T4** Temperature class | | |
| **Gc** Device protection level | | |
| **UL 23 ATEX 3142 U - IECEx ULD 23.0038 U - E539562**<br>UL - ULD: ID of the notified body which issues the type certificate<br>23: year of issue of the certificate<br>3142 - 0013: number of the type certificate<br>E539562: UL file number<br>U: components | | |
| **Zyy: production batch identification**<br>Z: year, yy: week | | |



## Outline drawings

Types 41.52/61




Types 41.52.6.xxx/41.61.6.xxx