

D15

industrial relays

DURAKOOL







D15 2C/O



D15 3C/O



D15 4C/O

- General purpose relays • For plug-in sockets, 35 mm DIN rail mount, EN 50022 or on panel mounting • Cadmium - free contacts - relays D15 2C/O, D15 3C/O
- WT (mechanical indicator + lockable front test button) - standard features of relays D15 2C/O, D15 3C/O in cover, for plug-in sockets. Relays may be provided with the test buttons type P (no latching) and plugs
- Recognitions, certificates, directives: RoHS,    

Contacts

| | | |
|------------------------------|------------|---|
| Contact number & arrangement | | 2C/O, 3C/O, 4C/O |
| Contact material | | 2C/O, 3C/O: AgNi , AgNi/Au 0,2 um, AgNi/Au 5 um 4C/O: AgCdO , AgCdO/Au 0,2 um, AgCdO/Au 5 um |
| Max. switching voltage | AC/DC | 250 V / 250 V |
| Min. switching voltage | | 2C/O, 3C/O: 5 V AgNi, 5 V AgNi/Au 0,2 um, 5 V AgNi/Au 5 um 4C/O: 10 V AgCdO, 10 V AgCdO/Au 0,2 um, 5 V AgCdO/Au 5 um |
| Rated load | AC1 DC1 | 10 A / 250 V AC 10 A / 24 V DC |
| Min. switching current | | 2C/O, 3C/O: 5 mA AgNi, 5 mA AgNi/Au 0,2 um, 2 mA AgNi/Au 5 um 4C/O: 10 mA AgCdO, 10 mA AgCdO/Au 0,2 um, 2 mA AgCdO/Au 5 um |
| Max. inrush current | | 20 A |
| Rated current | | 10 A |
| Max. breaking capacity | AC1 | 2 500 VA |
| Min. breaking capacity | | 2C/O, 3C/O: 0,3 W AgNi, 0,3 W AgNi/Au 0,2 um, 0,05 W AgNi/Au 5 um 4C/O: 0,5 W AgCdO, 0,5 W AgCdO/Au 0,2 um, 0,05 W AgCdO/Au 5 um |
| Resistance | | ≤ 100 mΩ |
| Max. operating frequency | AC1 | 1 200 cycles/hour • at rated load • no load 12 000 cycles/hour |

Coil

| | | | |
|-----------------------------------|----------|---|------------------------------|
| Rated voltage | AC DC | 2C/O, 3C/O: 6...240 V 50/60 Hz 6...220 V | 4C/O: 6...240 V 50 Hz, 60 Hz |
| Must release voltage | | AC: ≥ 0,15 U _n | DC: ≥ 0,1 U _n |
| Operating range of supply voltage | | see Tables 1, 2, 3, 4 | |
| Rated power consumption | | AC: 2,8 VA 50 Hz 2,5 VA 60 Hz DC: 1,5 W | |

Insulation

| | | | |
|-----------------------------|--|---|------------|
| Insulation category | | 2C/O, 3C/O: C250 | 4C/O: B250 |
| Insulation rated voltage | | 250 V AC | |
| Rated surge voltage | | 2 500 V AC | |
| Overvoltage category | | III IEC 61810-5 (PN-IEC 664-1) | |
| Insulation pollution degree | | 3 | |
| Dielectric strength | • coil - contact • contact - contact • pole - pole | 2 500 V AC 1 500 V AC 2 000 V AC | |
| Contact - coil distance | • clearance / • creepage | 2C/O, 3C/O, 4C/O: ≥ 3 mm / 2C/O, 3C/O: ≥ 4,2 mm, 4C/O: ≥ 3,2 mm | |

General data

| | | | |
|--------------------------------|---------------------------|--|---------------------------|
| Operating time (typical value) | | AC: 12 ms | DC: 18 ms |
| Release time (typical value) | | AC: 10 ms | DC: 7 ms |
| Electrical life | • resistive AC1 • cosφ | ≥ 2 x 10 ⁵ 10 A, 250 V AC see Fig. 2 | |
| Mechanical life (cycles) | | ≥ 2 x 10 ⁷ | |
| Motor load - UL | | 2C/O: 1/3 KM 120 V AC, single-phase motor 1/2 KM 240 V AC, single-phase motor 3C/O: 1/3 KM 120 V AC, single-phase motor 1/2 KM 240 V AC, single-phase motor 3C/O: 1/2 KM 240 V AC, three-phase motor | |
| Dimensions (L x W x H) | | 2C/O, 3C/O: 35 x 35 x 54,4 mm | 4C/O: 35 x 42,5 x 54,5 mm |
| Weight | | 2C/O, 3C/O: 83 g | 4C/O: 95 g |
| Ambient temperature | • storage • operating | -40...+85 °C AC: -40...+55 °C | DC: -40...+70 °C |
| Cover protection category | | IP 40 | |
| Environmental protection | | RTI IEC 61810-7 | |
| Shock resistance | | 10 g | |
| Vibration resistance | | 5 g 10...150 Hz | |
| Solder bath temperature | | max. 270 °C | |
| Soldering time | | max. 5 s | |

Standard contact materials are marked with bold type.

Coil data - DC voltage version

Table 1

| Coil code | Rated voltage U_n V DC | Coil resistance $\pm 10\%$ at 20 °C Ω | Coil operating range V DC | |
|-------------|-----------------------------|--|------------------------------|-----------------|
| | | | min. (at 20 °C) | max. (at 55 °C) |
| 1006 | 6 | 28 | 4,8 | 6,6 |
| 1012 | 12 | 110 | 9,6 | 13,2 |
| 1024 | 24 | 430 | 19,2 | 26,4 |
| 1048 | 48 | 1 750 | 38,4 | 52,8 |
| 1060 | 60 | 2 700 | 48,0 | 66,0 |
| 1110 | 110 | 9 200 | 88,0 | 121,0 |
| 1120 | 120 | 11 000 | 96,0 | 132,0 |
| 1220 | 220 | 37 000 | 176,0 | 242,0 |

Standard coil rated voltages marked with bold type.

Coil data - AC 50/60 Hz voltage version (standard for D15 2C/O, D15 3C/O)

Table 2

| Coil code | Rated voltage U_n V AC | Coil resistance $\pm 15\%$ at 20 °C Ω | Coil operating range V AC | |
|-------------|-----------------------------|--|------------------------------|-----------------|
| | | | min. (at 20 °C) | max. (at 55 °C) |
| 5006 | 6 | 4,3 | 4,8 | 6,6 |
| 5012 | 12 | 18,5 | 9,6 | 13,2 |
| 5024 | 24 | 75,0 | 19,2 | 26,4 |
| 5048 | 48 | 305,0 | 38,4 | 52,8 |
| 5060 | 60 | 475,0 | 48,0 | 66,0 |
| 5110 | 110 | 1 700,0 | 88,0 | 121,0 |
| 5120 | 120 | 1 910,0 | 96,0 | 132,0 |
| 5220 | 220 | 6 980,0 | 176,0 | 242,0 |
| 5230 | 230 | 7 080,0 | 184,0 | 253,0 |
| 5240 | 240 | 7 760,0 | 192,0 | 264,0 |

Standard coil rated voltages marked with bold type.

Coil data - AC 50 Hz voltage version (standard for D15 4C/O)

Table 3

| Coil code | Rated voltage U_n V AC | Coil resistance $\pm 15\%$ at 20 °C Ω | Coil operating range V AC | |
|-----------|-----------------------------|--|------------------------------|-----------------|
| | | | min. (at 20 °C) | max. (at 55 °C) |
| 3006 | 6 | 5,3 | 4,8 | 6,6 |
| 3012 | 12 | 20,0 | 9,6 | 13,2 |
| 3024 | 24 | 72,0 | 19,2 | 26,4 |
| 3048 | 48 | 360,0 | 38,4 | 52,8 |
| 3060 | 60 | 520,0 | 48,0 | 66,0 |
| 3110 | 110 | 2 000,0 | 88,0 | 121,0 |
| 3120 | 120 | 2 300,0 | 96,0 | 132,0 |
| 3220 | 220 | 7 000,0 | 176,0 | 242,0 |
| 3230 | 230 | 7 900,0 | 184,0 | 253,0 |
| 3240 | 240 | 8 300,0 | 192,0 | 264,0 |

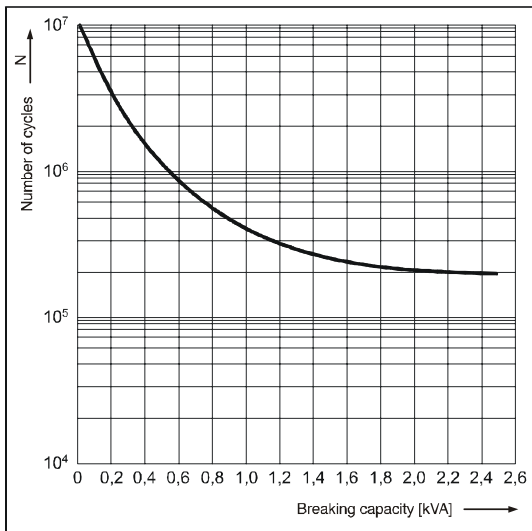
Coil data - AC 60 Hz voltage version (special for D15 4C/O)

Table 4

| Coil code | Rated voltage U_n V AC | Coil resistance $\pm 15\%$ at 20 °C Ω | Coil operating range V AC | |
|-----------|-----------------------------|--|------------------------------|-----------------|
| | | | min. (at 20 °C) | max. (at 55 °C) |
| 6006 | 6 | 4,8 | 4,8 | 6,6 |
| 6012 | 12 | 17,0 | 9,6 | 13,2 |
| 6024 | 24 | 75,0 | 19,2 | 26,4 |
| 6048 | 48 | 310,0 | 38,4 | 52,8 |
| 6060 | 60 | 490,0 | 48,0 | 66,0 |
| 6110 | 110 | 1 760,0 | 88,0 | 121,0 |
| 6120 | 120 | 2 000,0 | 96,0 | 132,0 |
| 6220 | 220 | 6 900,0 | 176,0 | 242,0 |
| 6230 | 230 | 7 000,0 | 184,0 | 253,0 |
| 6240 | 240 | 7 100,0 | 192,0 | 264,0 |

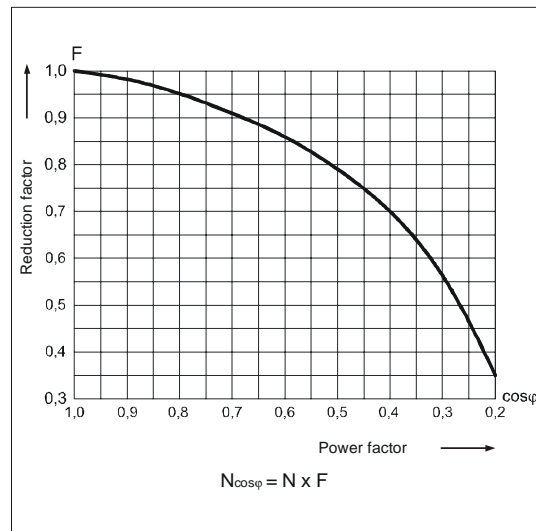
Electrical life at AC resistive load

Fig. 1



Electrical life reduction factor at AC inductive load

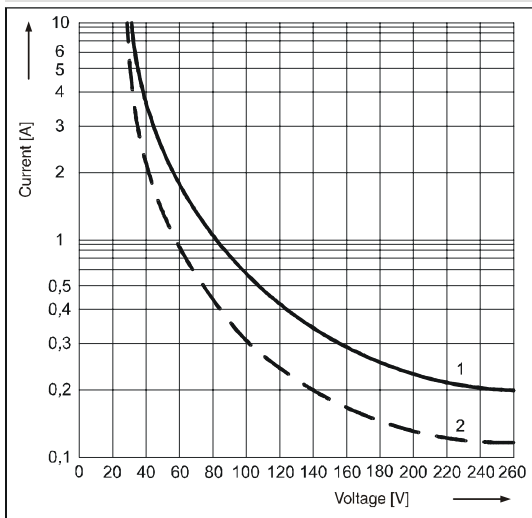
Fig. 2



Max. DC breaking capacity

- 1 - resistive load $T=0$ ms
- 2 - inductive load $T = 40$ ms

Fig. 3



Mounting

Relays **D15 2C/O** are designed for: • screw terminals plug-in sockets **DZ8** with clip **DZ11 0031**, 35 mm DIN rail mount, EN 50022 or on panel mounting; **DZU8** with clip **DZU 1052**, 35 mm DIN rail mount, EN 50022; **DZ8** with clip **DZ 1050**, on panel mounting • plug-in sockets solder terminals **DOP8** with clip **D159 1051** and spring clamp **D15 5922** • direct PCB mounting.

Relays **D15 3C/O** are designed for: • screw terminals plug-in sockets **DS11** and **DZ11** with clip **DZ11 0031**, 35 mm DIN rail mount, EN 50022 or on panel mounting; **DZU11** with clip **DZU 1052**, 35 mm DIN rail mount, EN 50022; **DZ11** with clip **DZ 1050**, on panel mounting • plug-in sockets solder terminals **DOP11** with clip **D159 1051** and spring clamp **D15 5922** • direct PCB mounting.

Relays **D15 4C/O** are designed for: • screw terminals plug-in sockets **DZ14U** with clip **DZ14 0737**, 35 mm DIN rail mount, EN 50022; **DZ14** with clip **DZ14 0737**, on panel mounting • plug-in sockets solder terminals **DOP14** with clip **D15 0736** and spring clamp **D15 5922**.

D15 2C/O, D15 3C/O in cover, for plug-in sockets



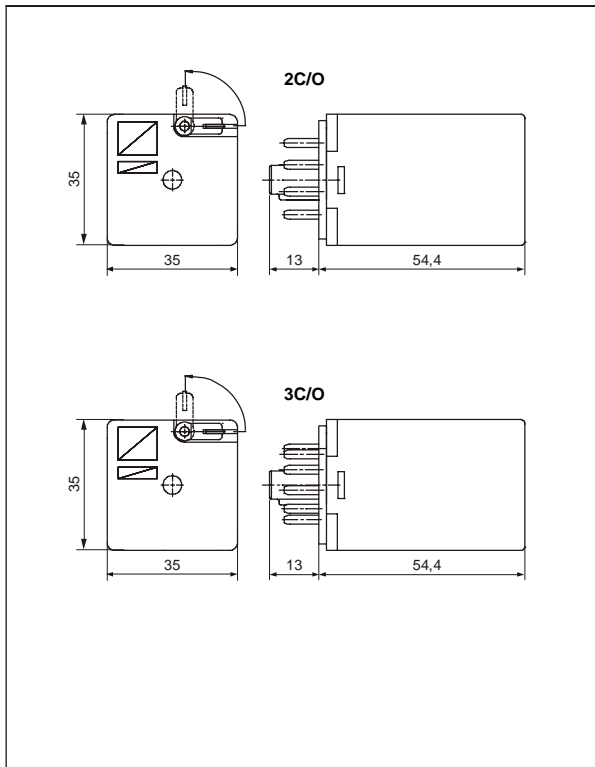
- WT (mechanical indicator + lockable front test button) - standard features of relays D15 2C/O, D15 3C/O in cover, for plug-in sockets. Relays may be provided with the test buttons type P (no latching) and plugs
- Recognitions, certificates, directives: RoHS,



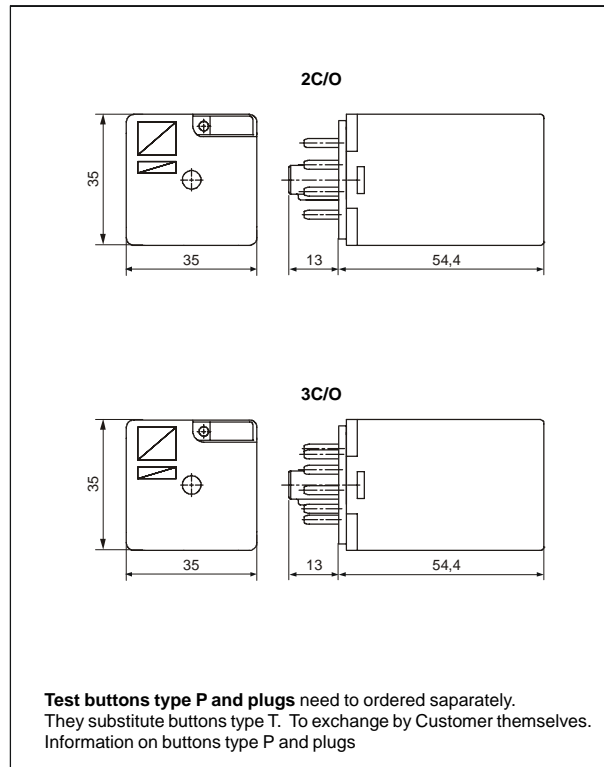
D15 2C/O

D15 3C/O

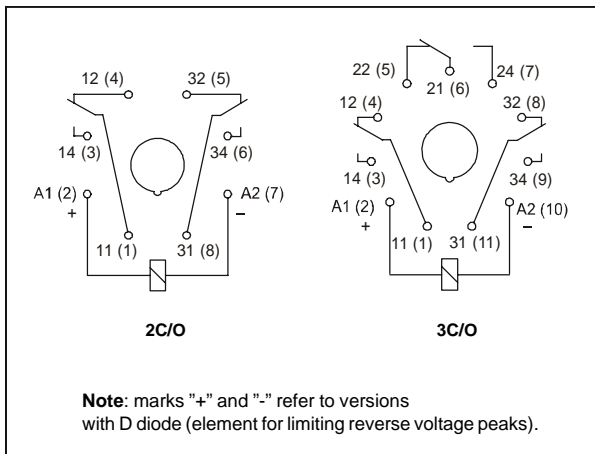
Dimensions - plug-in version (WT), with lockable front test button type T



Dimensions - plug-in version (WT), with test button type P (no latching) or with plug (no manual operation)



Connections diagram (pin side view)

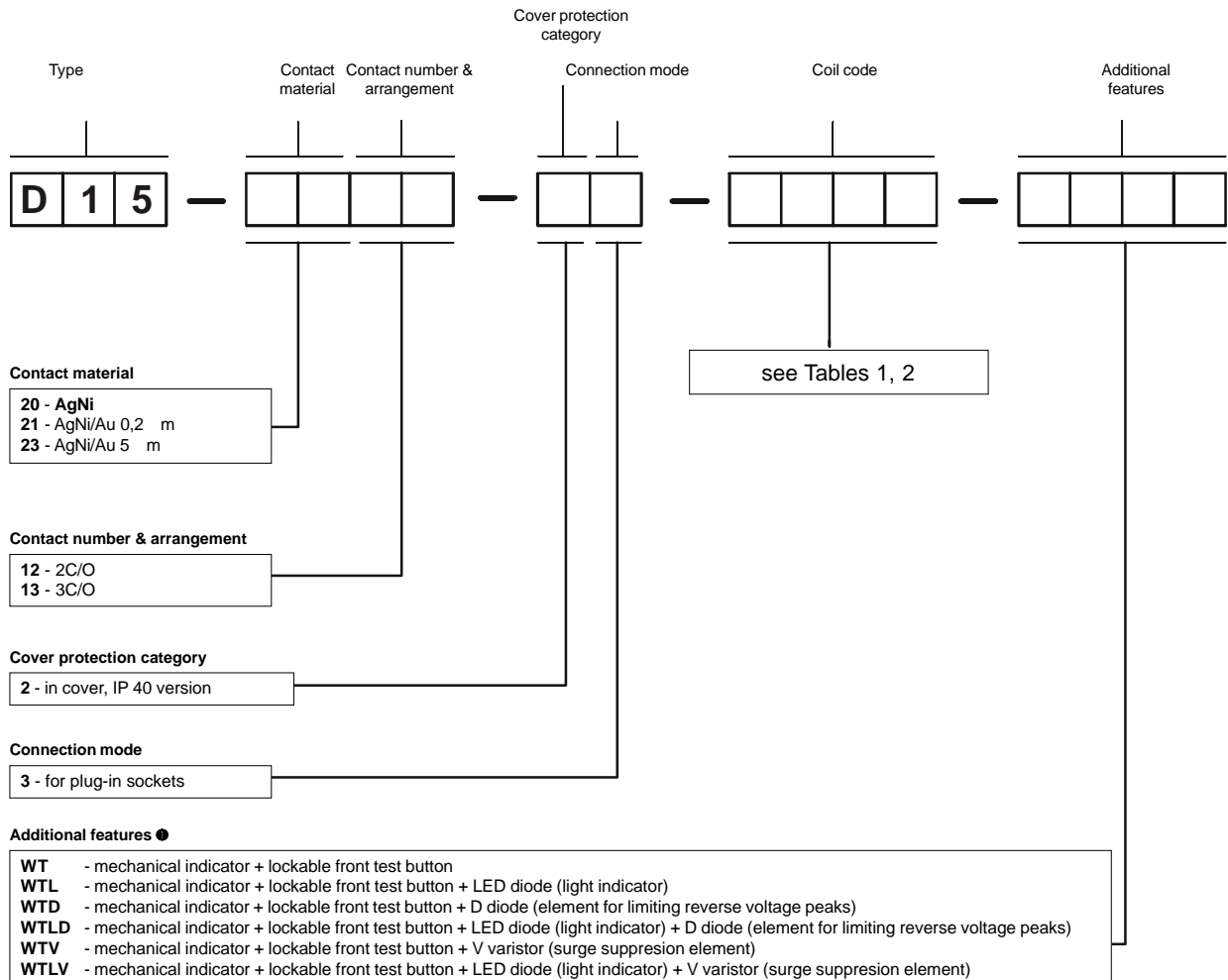


Mounting

WT (mechanical indicator + lockable front test button) - offered as standard features of relays **D15 2C/O**, **D15 3C/O** in cover, voltage versions, for plug-in sockets; **It is possible self-exchange of button type T for: button type P (no latching) or plug (no manual operation). Buttons type P and plugs need to be ordered separately.**

D15 2C/O, D15 3C/O in cover, for plug-in sockets

Ordering codes



● **WT** - standard features of relays for plug-in sockets. **WTD, WTLD** - only for DC coils, **WTV, WTLV** - only for AC coils

Test buttons type P and plugs need to be ordered separately. They substitute buttons type T. To be exchanged by the customer themselves.

Information on buttons type P and plugs.

- Button D15-M404-A - orange colour (AC coils)
- Button D15-M404-D - green colour (DC coils)
- Plug D15-M203-A - orange colour (AC coils)
- Plug D15-M203-D - green colour (DC coils)

Note:

Colour of lockable front test button type T represents type of coil supply current: orange - AC coil, green - DC coil.

Examples of ordering codes:

D15-2013-23-5230-WTL relay **D15**, contact material AgNi, with three changeover contacts, in cover IP 40, for plug-in sockets, voltage version 230 V AC 50/60 Hz, with mechanical indicator and lockable front test button and LED diode (light indicator)

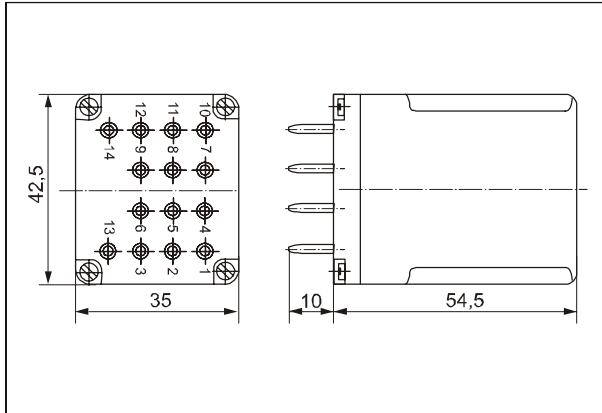


D15 4C/O

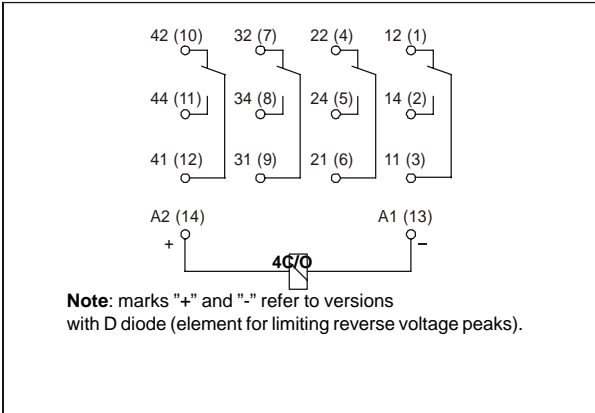
D15 4C/O in cover, for plug-in sockets

- Recognitions, certificates, directives: RoHS,

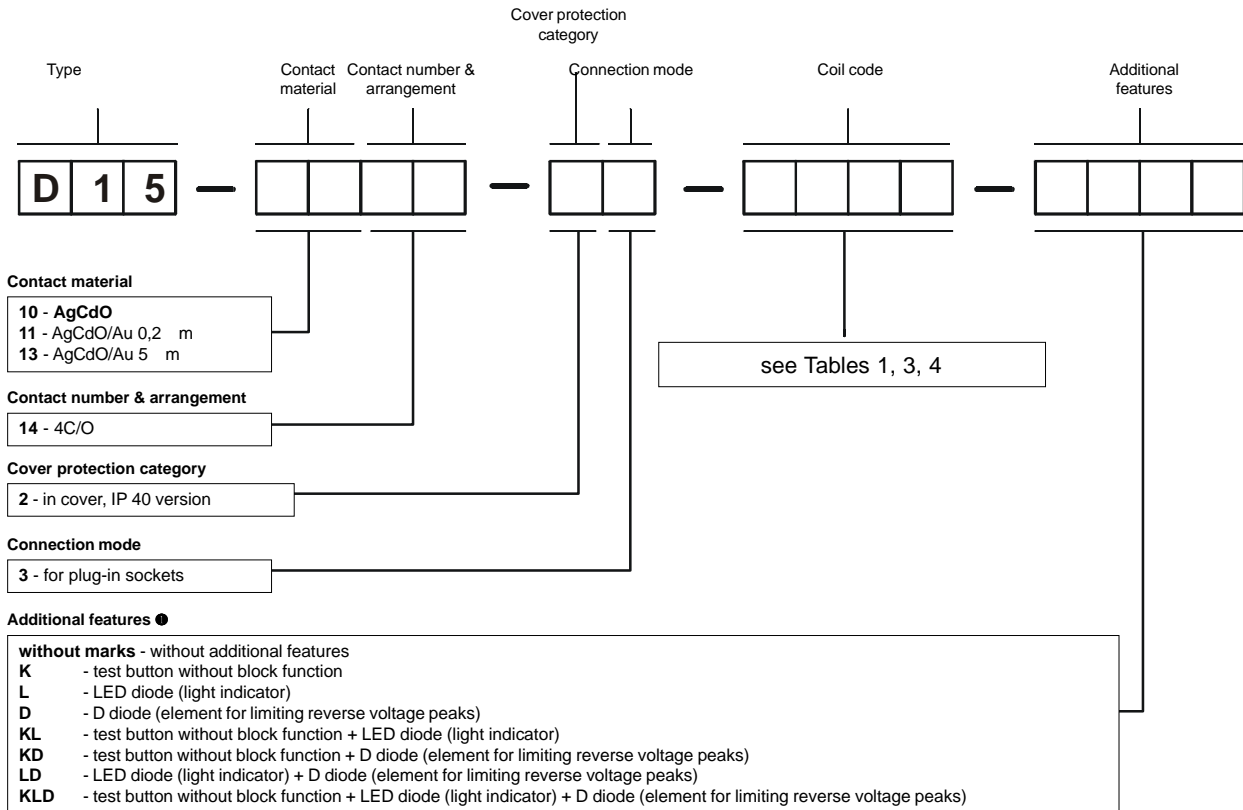
Dimensions



Connections diagram (pin side view)



Ordering codes



① D, KD, LD, KLD - only for DC coils

Note: For relays D15 4C/O 50/60 Hz coils are not offered, show coil according with Table 3 or 4, page 3

Examples of ordering codes:

D15-1014-23-3230-K relay **D15**, contact material AgCdO, with four changeover contacts, in cover IP 40, for plug-in sockets, voltage version 230 V AC 50 Hz, with test button without block function