

# 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: <b>AgNi</b> , AgNi/Au 0,2 um, AgNi/Au 5 um 4C/O: <b>AgCdO</b> , 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 <sub>n</sub>	DC: ≥ 0,1 U <sub>n</sub>
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 <sup>5</sup> 10 A, 250 V AC see Fig. 2	
Mechanical life (cycles)		≥ 2 x 10 <sup>7</sup>	
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 $\Omega$	Coil operating range V DC	
			min. (at 20 °C)	max. (at 55 °C)
1006	6	28	4,8	6,6
<b>1012</b>	<b>12</b>	<b>110</b>	<b>9,6</b>	<b>13,2</b>
<b>1024</b>	<b>24</b>	<b>430</b>	<b>19,2</b>	<b>26,4</b>
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
<b>1220</b>	<b>220</b>	<b>37 000</b>	<b>176,0</b>	<b>242,0</b>

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 $\Omega$	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
<b>5024</b>	<b>24</b>	<b>75,0</b>	<b>19,2</b>	<b>26,4</b>
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
<b>5230</b>	<b>230</b>	<b>7 080,0</b>	<b>184,0</b>	<b>253,0</b>
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 $\Omega$	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

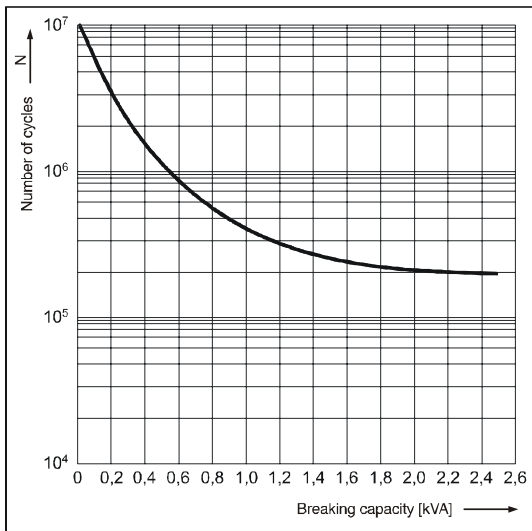
Coil data - AC 60 Hz voltage version (special for D15 4C/O)

Table 4

Coil code	Rated voltage $U_n$ V AC	Coil resistance $\pm 15\%$ at 20 °C $\Omega$	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

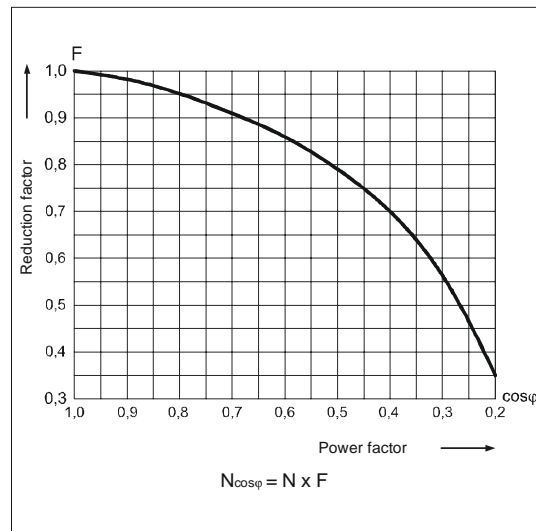
Electrical life at AC resistive load

Fig. 1



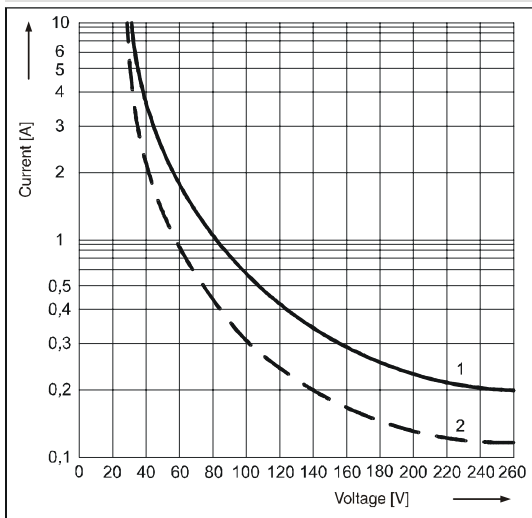
Electrical life reduction factor at AC inductive load

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



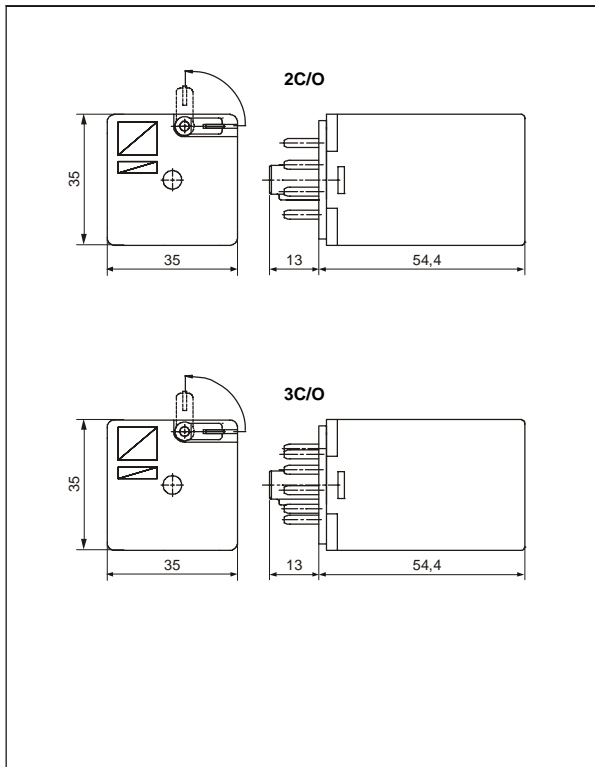
- WT (mechanical indicator + lockable front test button) - standard features of relays D15 2C/O, D15 3C/O in cover, for plug-in sockets. Relays may be provided with the test buttons type P (no latching) and plugs
- Recognitions, certificates, directives: RoHS,



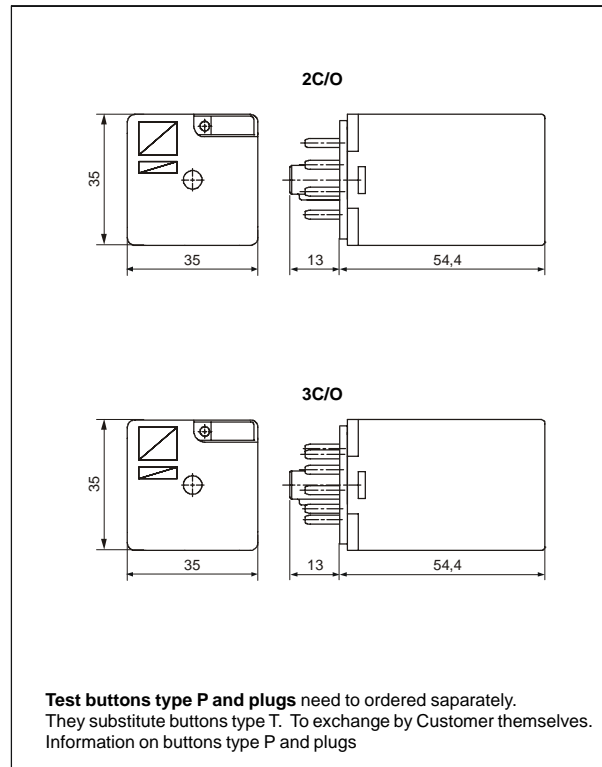
D15 2C/O

D15 3C/O

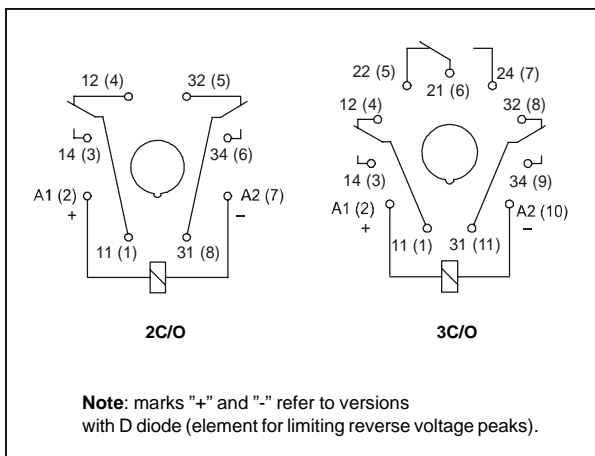
**Dimensions** - plug-in version (WT), with lockable front test button type T



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



### Connections diagram (pin side view)

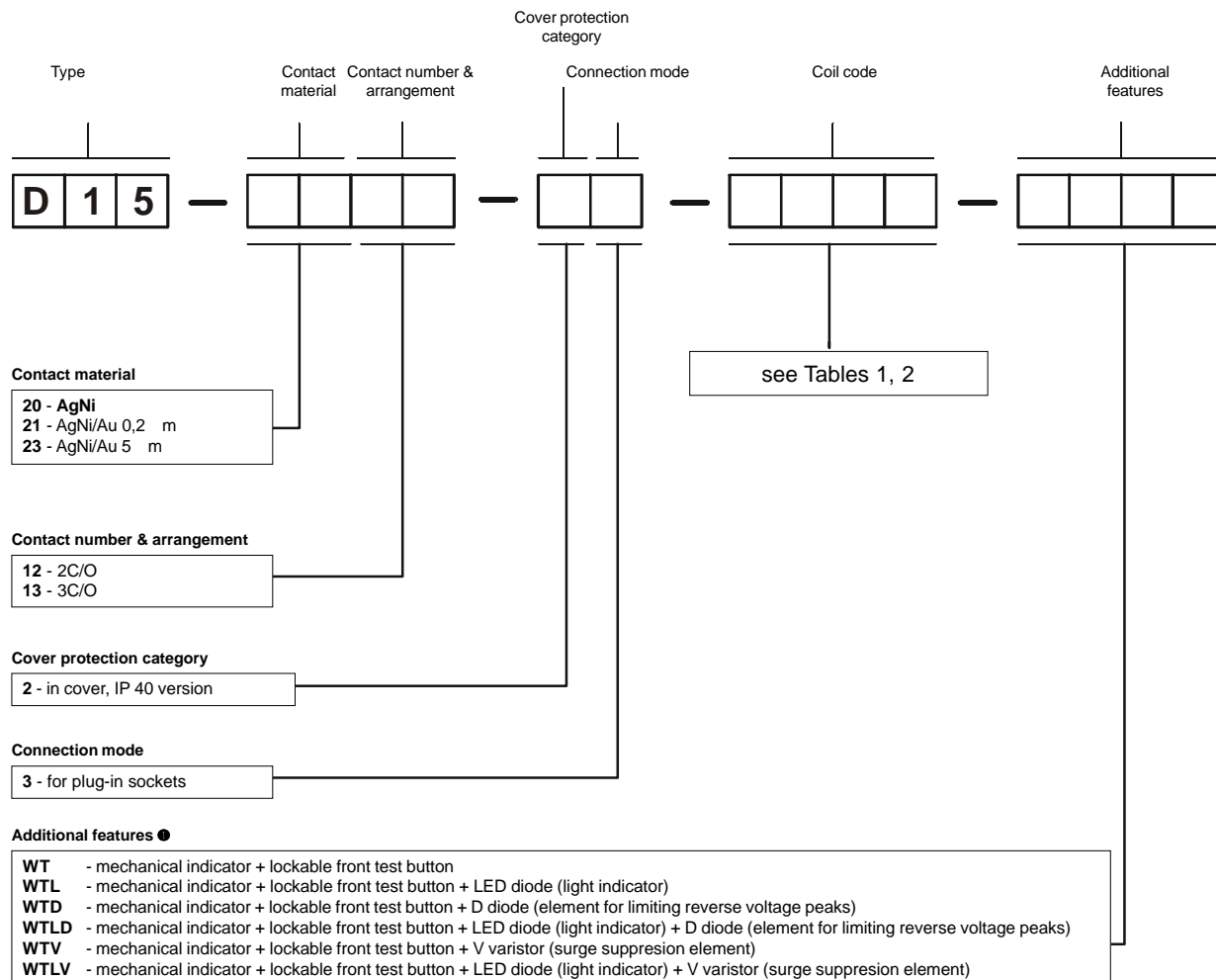


### Mounting

**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)

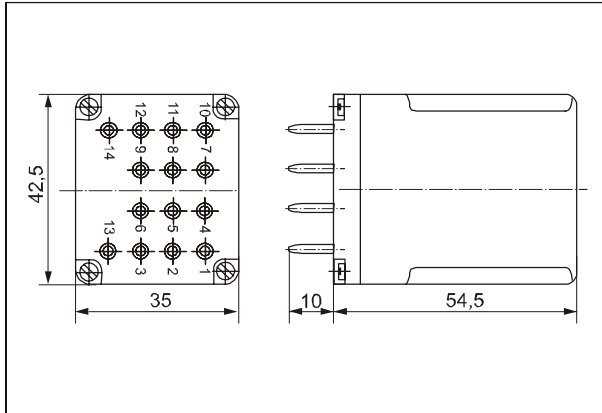


D15 4C/O

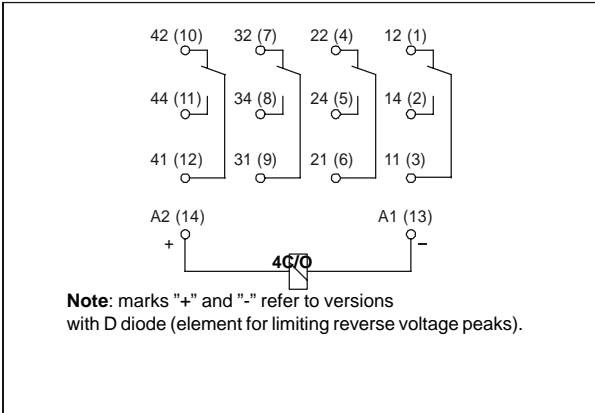
## D15 4C/O in cover, for plug-in sockets

- Recognitions, certificates, directives: RoHS,

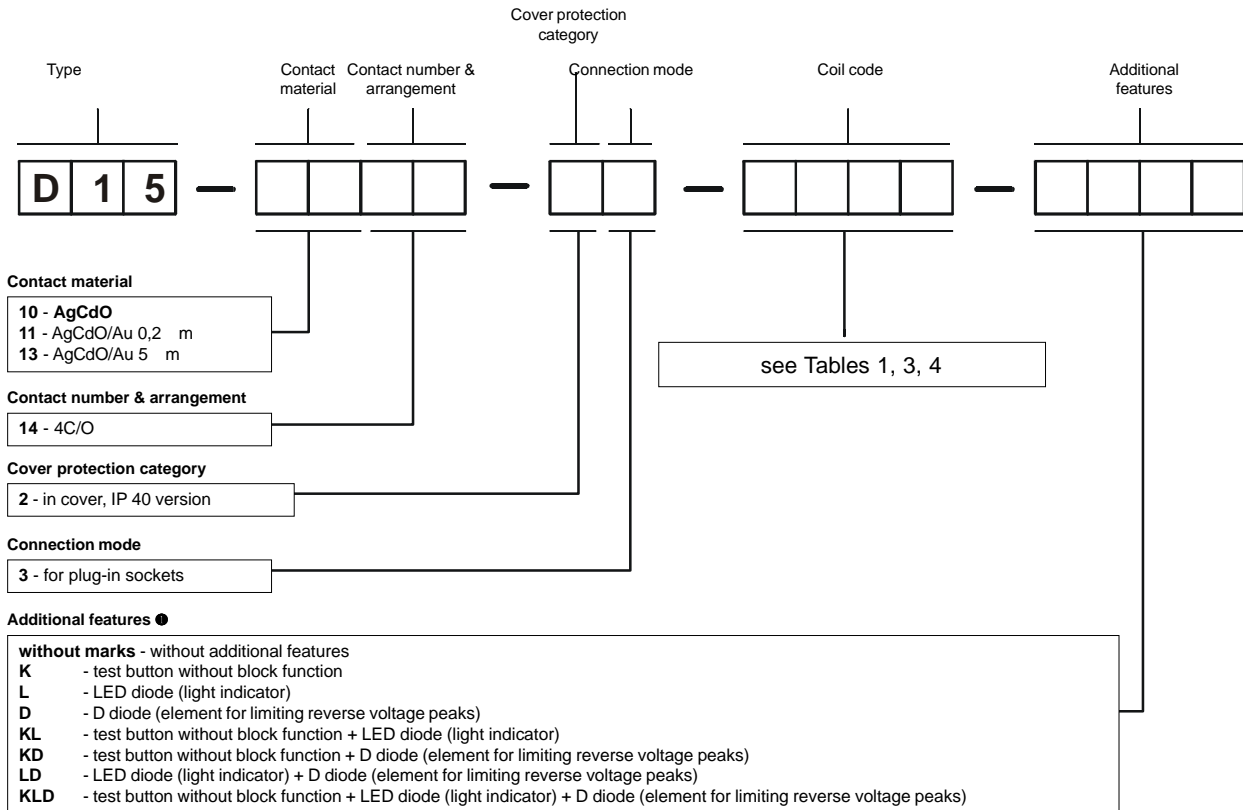
### Dimensions



### 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