

## Miniature circuit breaker ETIMAT P10-DC

Rated short-circuit capacity  
**10 kA**

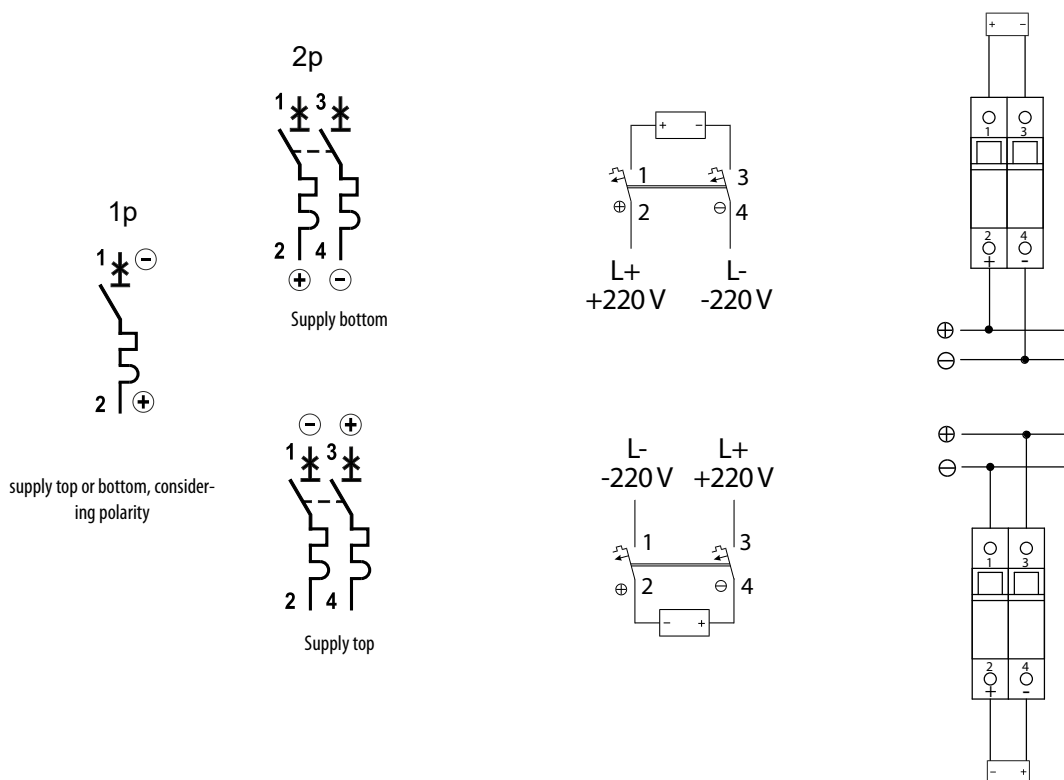
Rated current  
**0,5 - 63 A**

Tripping characteristic  
**B, C, K, Z**



Application: Miniature circuit breakers ETIMAT DC are used for protection of conductors in direct current electric circuits. 1-pole circuit breakers are used for voltages up to 220 V d.c., while 2-pole circuit breakers with poles connected in a series are used for higher voltages (up to 440 V d.c.). When connecting the MCB ETIMAT DC, attention must be paid to polarity as connected in a wrong way the MCB can be destroyed. Note that two 1-pole MCBs cannot be used instead of one 2-pole MCB.

### Technical data

|  |   |
|--|---|
| Rated voltage - for 1-pole $U_n$<br>- for 2-pole $U_n$ | 220 V DC<br>220 V / 440 V DC                |
| Rated time constant L/R                                | 4 ms  |
| Rated current $I_n$                                    | 0,5-32A (K & Z), 0,5-63A (C), 2-63A (B)     |
| Rated short-circuit capacity                           | 10 kA                                       |
| Tripping characteristic                                | B, C, K, Z                                  |
| Energy limiting class                                  | 3   |
| Insulating class                                       | B   |
| Pollution degree                                       | 2   |
| Back-up fuse   | 100 A gG                                    |
| Ambient temperature                                    | -40°C ... +70°C                             |
| Storage temperature                                    | -60°C ... +70°C                             |
| Terminals  | 1-25mm <sup>2</sup> , min 1,4Nm / max 2,5Nm |
| Terminal screw   | M5 (PoziDrive PZ2)                          |
| Mounting position                                      | any   |
| Sealing possibility                                    | ✓   |
| Terminal cover   | ✓   |
| Contact position indicator                             | ✓   |
| Locking device   | ✓   |
| Resistance to vibrations (IEC 60068-2-7)               | 5g (10,60 & 500Hz)                          |
| Standards  | IEC 60898, EN 60898, DIN VDE 0641           |





**1-pole, characteristic B, C**



| $I_n$<br>[A] | $U_n$<br>[V] | Type B                | Code No. B | Type C                | Code No. C |  |  |
|--------------|--------------|-----------------------|------------|-----------------------|------------|---|---|
| 0,5          | 220          | /                     | /          | ETIMAT P10-DC 1p C0,5 | 001903021  | 94  | 12/108  |
| 1            |              | ETIMAT P10-DC 1p B1   | 001903002  | ETIMAT P10-DC 1p C1   | 001903022  | 94  | 12/108  |
| 1,6          |              | ETIMAT P10-DC 1p B1,6 | 001903003  | ETIMAT P10-DC 1p C1,6 | 001903023  | 94  | 12/108  |
| 2            |              | ETIMAT P10-DC 1p B2   | 001903004  | ETIMAT P10-DC 1p C2   | 001903024  | 94  | 12/108  |
| 3            |              | ETIMAT P10-DC 1p B3   | 001903005  | ETIMAT P10-DC 1p C3   | 001903025  | 94  | 12/108  |
| 4            |              | ETIMAT P10-DC 1p B4   | 001903006  | ETIMAT P10-DC 1p C4   | 001903026  | 94  | 12/108  |
| 6            |              | ETIMAT P10-DC 1p B6   | 001903007  | ETIMAT P10-DC 1p C6   | 001903027  | 94  | 12/108  |
| 10           |              | ETIMAT P10-DC 1p B10  | 001903008  | ETIMAT P10-DC 1p C10  | 001903028  | 94  | 12/108  |
| 13           |              | ETIMAT P10-DC 1p B13  | 001903009  | ETIMAT P10-DC 1p C13  | 001903029  | 94  | 12/108  |
| 16           |              | ETIMAT P10-DC 1p B16  | 001903010  | ETIMAT P10-DC 1p C16  | 001903030  | 94  | 12/108  |
| 20           |              | ETIMAT P10-DC 1p B20  | 001903011  | ETIMAT P10-DC 1p C20  | 001903031  | 94  | 12/108  |
| 25           |              | ETIMAT P10-DC 1p B25  | 001903012  | ETIMAT P10-DC 1p C25  | 001903032  | 95  | 12/108  |
| 32           |              | ETIMAT P10-DC 1p B32  | 001903013  | ETIMAT P10-DC 1p C32  | 001903033  | 95  | 12/108  |
| 40           |              | ETIMAT P10-DC 1p B40  | 001903014  | ETIMAT P10-DC 1p C40  | 001903034  | 95  | 12/108  |
| 50           |              | ETIMAT P10-DC 1p B50  | 001903015  | ETIMAT P10-DC 1p C50  | 001903035  | 103   | 12/108  |
| 63           |              | ETIMAT P10-DC 1p B63  | 001903016  | ETIMAT P10-DC 1p C63  | 001903036  | 106   | 12/108  |



**1-pole, characteristic K, Z**



| $I_n$<br>[A] | $U_n$<br>[V] | Type K                | Code No. K | Type Z                | Code No. Z |  |  |
|--------------|--------------|-----------------------|------------|-----------------------|------------|---|---|
| 0,5          | 220          | ETIMAT P10-DC 1p K0,5 | 001903061  | ETIMAT P10-DC 1p Z0,5 | 001903081  | 94  | 12/108  |
| 1            |              | ETIMAT P10-DC 1p K1   | 001903062  | ETIMAT P10-DC 1p Z1   | 001903082  | 94  | 12/108  |
| 1,6          |              | ETIMAT P10-DC 1p K1,6 | 001903063  | ETIMAT P10-DC 1p Z1,6 | 001903083  | 94  | 12/108  |
| 2            |              | ETIMAT P10-DC 1p K2   | 001903064  | ETIMAT P10-DC 1p Z2   | 001903084  | 94  | 12/108  |
| 3            |              | ETIMAT P10-DC 1p K3   | 001903065  | ETIMAT P10-DC 1p Z3   | 001903085  | 94  | 12/108  |
| 4            |              | ETIMAT P10-DC 1p K4   | 001903066  | ETIMAT P10-DC 1p Z4   | 001903086  | 94  | 12/108  |
| 6            |              | ETIMAT P10-DC 1p K6   | 001903067  | ETIMAT P10-DC 1p Z6   | 001903087  | 94  | 12/108  |
| 10           |              | ETIMAT P10-DC 1p K10  | 001903068  | ETIMAT P10-DC 1p Z10  | 001903088  | 94  | 12/108  |
| 13           |              | ETIMAT P10-DC 1p K13  | 001903069  | ETIMAT P10-DC 1p Z13  | 001903089  | 94  | 12/108  |
| 16           |              | ETIMAT P10-DC 1p K16  | 001903070  | ETIMAT P10-DC 1p Z16  | 001903090  | 94  | 12/108  |
| 20           |              | ETIMAT P10-DC 1p K20  | 001903071  | ETIMAT P10-DC 1p Z20  | 001903091  | 94  | 12/108  |
| 25           |              | ETIMAT P10-DC 1p K25  | 001903072  | ETIMAT P10-DC 1p Z25  | 001903092  | 95  | 12/108  |
| 32           |              | ETIMAT P10-DC 1p K32  | 001903073  | ETIMAT P10-DC 1p Z32  | 001903093  | 95  | 12/108  |

**2-pole, characteristic B, C**

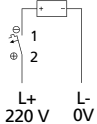
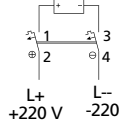
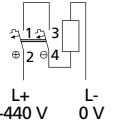
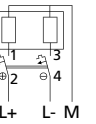
| $I_n$<br>[A] | $U_n$<br>[V] | Type B                | Code No. B | Type C                | Code No. C |  |  |
|--------------|--------------|-----------------------|------------|-----------------------|------------|---|---|
| 0,5          | 440          | /                     | /          | ETIMAT P10-DC 2p C0,5 | 001903221  | 190   | 6/54  |
| 1            |              | ETIMAT P10-DC 2p B1   | 001903202  | ETIMAT P10-DC 2p C1   | 001903222  | 190   | 6/54  |
| 1,6          |              | ETIMAT P10-DC 2p B1,6 | 001903203  | ETIMAT P10-DC 2p C1,6 | 001903223  | 190   | 6/54  |
| 2            |              | ETIMAT P10-DC 2p B2   | 001903204  | ETIMAT P10-DC 2p C2   | 001903224  | 190   | 6/54  |
| 3            |              | ETIMAT P10-DC 2p B3   | 001903205  | ETIMAT P10-DC 2p C3   | 001903225  | 190   | 6/54  |
| 4            |              | ETIMAT P10-DC 2p B4   | 001903206  | ETIMAT P10-DC 2p C4   | 001903226  | 190   | 6/54  |
| 6            |              | ETIMAT P10-DC 2p B6   | 001903207  | ETIMAT P10-DC 2p C6   | 001903227  | 190   | 6/54  |
| 10           |              | ETIMAT P10-DC 2p B10  | 001903208  | ETIMAT P10-DC 2p C10  | 001903228  | 190   | 6/54  |
| 13           |              | ETIMAT P10-DC 2p B13  | 001903209  | ETIMAT P10-DC 2p C13  | 001903229  | 190   | 6/54  |
| 16           |              | ETIMAT P10-DC 2p B16  | 001903210  | ETIMAT P10-DC 2p C16  | 001903230  | 190   | 6/54  |
| 20           |              | ETIMAT P10-DC 2p B20  | 001903211  | ETIMAT P10-DC 2p C20  | 001903231  | 190   | 6/54  |
| 25           |              | ETIMAT P10-DC 2p B25  | 001903212  | ETIMAT P10-DC 2p C25  | 001903232  | 193   | 6/54  |
| 32           |              | ETIMAT P10-DC 2p B32  | 001903213  | ETIMAT P10-DC 2p C32  | 001903233  | 193   | 6/54  |
| 40           |              | ETIMAT P10-DC 2p B40  | 001903214  | ETIMAT P10-DC 2p C40  | 001903234  | 193   | 6/54  |
| 50           |              | ETIMAT P10-DC 2p B50  | 001903215  | ETIMAT P10-DC 2p C50  | 001903235  | 208   | 6/54  |
| 63           |              | ETIMAT P10-DC 2p B63  | 001903216  | ETIMAT P10-DC 2p C63  | 001903236  | 215   | 6/54  |

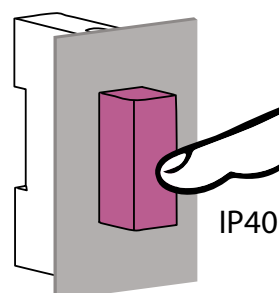
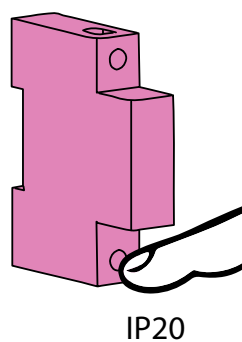
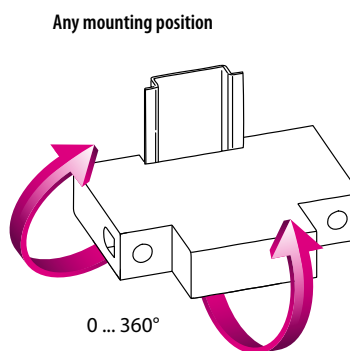
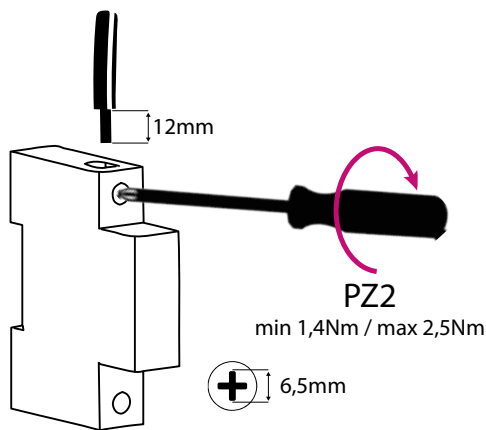


2-pole, characteristic K, Z

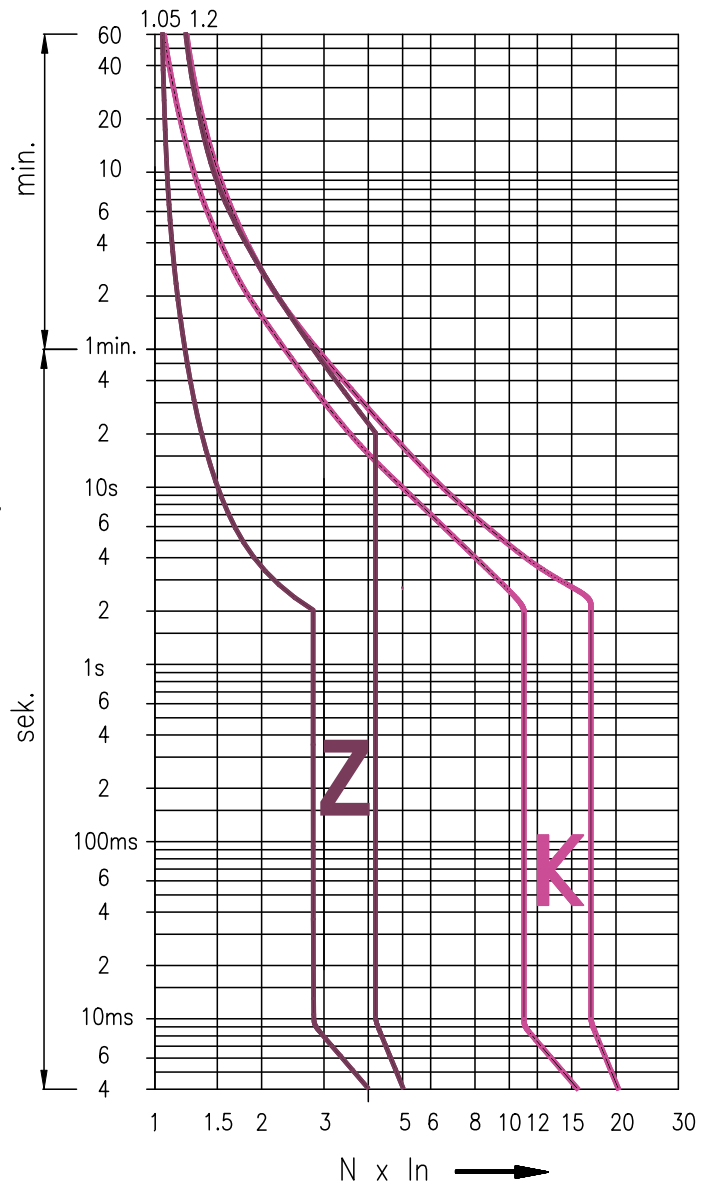
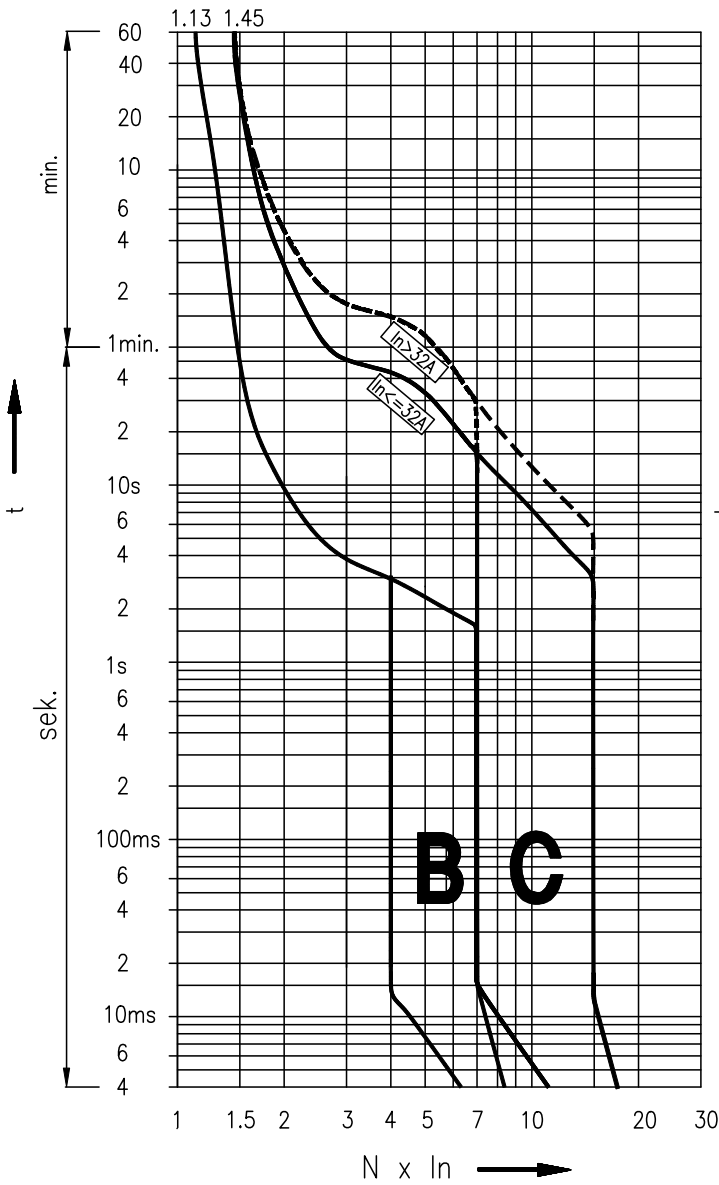
| $I_n$<br>[A] | $U_n$<br>[V]         | Type K                | Code No. K           | Type Z                | Code No. Z |  |  |
|--------------|----------------------|-----------------------|----------------------|-----------------------|------------|---|---|
| 0,5          | 440                  | ETIMAT P10-DC 2p K0,5 | 001903261            | ETIMAT P10-DC 2p Z0,5 | 001903281  | 190   | 6/54  |
| 1            |                      | ETIMAT P10-DC 2p K1   | 001903262            | ETIMAT P10-DC 2p Z1   | 001903282  | 190   | 6/54  |
| 1,6          |                      | ETIMAT P10-DC 2p K1,6 | 001903263            | ETIMAT P10-DC 2p Z1,6 | 001903283  | 190   | 6/54  |
| 2            |                      | ETIMAT P10-DC 2p K2   | 001903264            | ETIMAT P10-DC 2p Z2   | 001903284  | 190   | 6/54  |
| 3            |                      | ETIMAT P10-DC 2p K3   | 001903265            | ETIMAT P10-DC 2p Z3   | 001903285  | 190   | 6/54  |
| 4            |                      | ETIMAT P10-DC 2p K4   | 001903266            | ETIMAT P10-DC 2p Z4   | 001903286  | 190   | 6/54  |
| 6            |                      | ETIMAT P10-DC 2p K6   | 001903267            | ETIMAT P10-DC 2p Z6   | 001903287  | 190   | 6/54  |
| 10           |                      | ETIMAT P10-DC 2p K10  | 001903268            | ETIMAT P10-DC 2p Z10  | 001903288  | 190   | 6/54  |
| 13           |                      | ETIMAT P10-DC 2p K13  | 001903269            | ETIMAT P10-DC 2p Z13  | 001903289  | 190   | 6/54  |
| 16           |                      | ETIMAT P10-DC 2p K16  | 001903270            | ETIMAT P10-DC 2p Z16  | 001903290  | 190   | 6/54  |
| 20           |                      | ETIMAT P10-DC 2p K20  | 001903271            | ETIMAT P10-DC 2p Z20  | 001903291  | 190   | 6/54  |
| 25           |                      | ETIMAT P10-DC 2p K25  | 001903272            | ETIMAT P10-DC 2p Z25  | 001903292  | 193   | 6/54  |
| 32           | ETIMAT P10-DC 2p K32 | 001903273             | ETIMAT P10-DC 2p Z32 | 001903293             | 193        | 6/54  |   |

Connecting diagrams in direct current electric circuits

|  |   |   |  |   |
|--|---|---|--|---|
| Rated voltage of circuit breaker           | 220 V $\text{---}$  | 220/440 V $\text{---}$  | 220/440 V $\text{---}$   | 220/440 V $\text{---}$  |
| Voltage between conductors - max.          | 220 V $\text{---}$  | 440 V $\text{---}$  | 440 V $\text{---}$   | 440 V $\text{---}$  |
| Voltage between conductor and earth - max. | 220 V $\text{---}$  | 220 V $\text{---}$  | 440 V $\text{---}$   | 220 V $\text{---}$  |
| Circuit breaker                            | 1-pole  | 2-pole  | 2-pole   | 2-pole  |
| Connecting diagram                         |  |  |  |  |



Time current characteristics I/t at 50 and 60Hz, ETIMAT P10-DC



| Conductor cross-section [mm <sup>2</sup> ] | Number of single conductors, rigid, single-wire CU conductor |   |   |   |   |
|--|--|---|---|---|---|
|  | 1  | 2 | 3 | 4 | 5 |
| 1,5  | ✓  | ✓ | ✓ | ✓ | ✗ |
| 2,5  | ✓  | ✓ | ✓ | ✗ | ✗ |
| 4  | ✓  | ✓ | ✓ | ✗ | ✗ |
| 6  | ✓  | ✓ | ✗ | ✗ | ✗ |
| 10   | ✓  | ✓ | ✗ | ✗ | ✗ |
| 16   | ✓  | ✗ | ✗ | ✗ | ✗ |
| 25   | ✓  | ✗ | ✗ | ✗ | ✗ |

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

| Conductor cross-section [mm <sup>2</sup> ] | Number of single conductors, flexible Cu conductors with cable ferrule |   |   |   |   |   |
|--|--|---|---|---|---|---|
|  | 1  | 2 | 3 | 4 | 5 | 6 |
| 1,5  | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2,5  | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4  | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6  | ✓  | ✓ | ✓ | ✗ | ✗ | ✗ |
| 10   | ✓  | ✓ | ✗ | ✗ | ✗ | ✗ |
| 16   | ✓  | ✗ | ✗ | ✗ | ✗ | ✗ |
| 25   | ✓  | ✗ | ✗ | ✗ | ✗ | ✗ |

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed