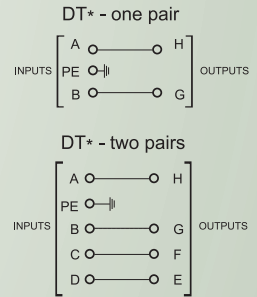
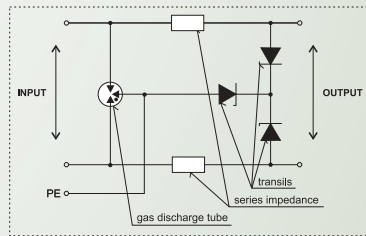
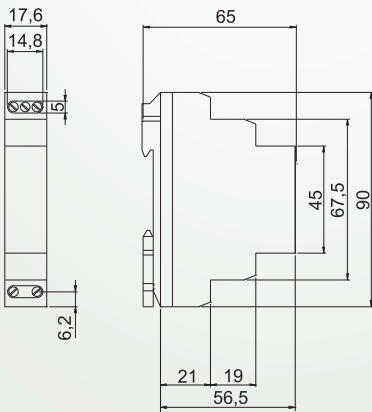




DTE is a complex range of surge protection devices designed for protection of data, communication, measuring and control lines against surge effects. These surge protection devices are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0_{A(B)} - 1 according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to IEC 61643-21. The nominal current of individual protected lines $I_N < 0,1A$.

These devices consist of gas discharge tubes, series impedance and transils. The number of protected pairs is optional (1-2). These devices are produced for nominal voltage within the range of 6V-170V. Maximum discharge current is 10kA (8/20). For the protection of telephone lines it is recommended to use a type with nominal voltage $U_N=170V$ (with code mark "T").

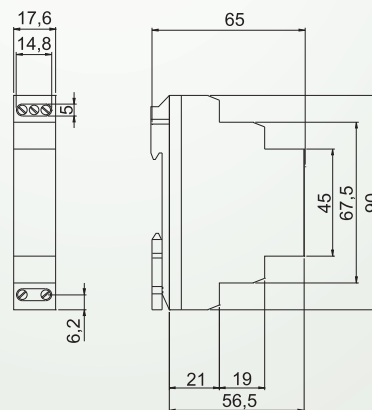
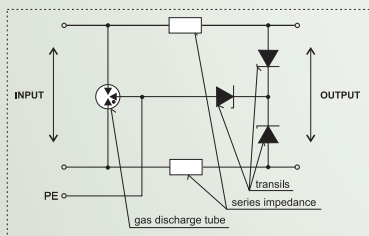
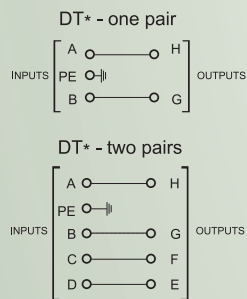


| Technical data | 1 2 | DTE 1/6 DTE 2/6 | DTE 1/12 DTE 2/12 | DTE 1/24 DTE 2/24 | DTE 1/48 DTE 2/48 | DTE 1/T DTE 2/T |
|---|-----------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Number of protected pairs | | | | | | |
| Nominal voltage | U_N | 6 V | 12 V | 24 V | 48 V | 170 V |
| Max. continuous operating voltage | U_C | 7,2 V | 14,4 V | 28,6 V | 57,6 V | 204 V |
| Nominal current | I_N | 100 mA | 100 mA | 100 mA | 100 mA | 100 mA |
| C2 Max. discharge current (8/20) | I_{max} | 10 kA | 10 kA | 10 kA | 10 kA | 10 kA |
| Nominal discharge current (8/20) | I_n | 1 kA | 1 kA | 1 kA | 1 kA | 1 kA |
| Voltage protection level at I_n (8/20) | U_p | 15 V | 28 V | 64 V | 160 V | 500 V |
| Voltage protection level at 1kV/ μ s | U_p | 9 V | 18 V | 34 V | 66 V | 260 V |
| Response time | t_A | < 30 ns | < 30 ns | < 30 ns | < 30 ns | < 30 ns |
| Data rate | | 1 MBit/s | 1 MBit/s | 1 MBit/s | 1 MBit/s | 1 MBit/s |
| Series impedance per line | | 1,5 - 10 Ω | 1,5 - 10 Ω | 1,5 - 10 Ω | 1,5 - 10 Ω | 1,5 - 10 Ω |
| Parasitic capacitance | C | 1,5 nF | 1,5 nF | 1,5 nF | 1,5 nF | 1,5 nF |
| Operating temperature range | θ | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C |
| Recommended cable cross-section | | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² |
| Category tested acc. to IEC 61643:21-2000 | | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 |
| Article number | | 41 301 42 301 | 41 302 42 302 | 41 303 42 303 | 41 304 42 304 | 41 306 42 306 |



DTE-L is a complex range of surge protection devices designed for protection of data, communication, measuring and control lines against surge effects. These surge protection devices are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0_{A(B)} - 1 according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to IEC 61643-21. The nominal current of individual protected lines $I_N < 0,1A$.

These devices consist of gas discharge tubes, series impedance and transils. The number of protected pairs is optional (1-2). These devices are produced for nominal voltage within the range of 6V-170V. Maximum discharge current is 20kA (8/20). For the protection of telephone lines it is recommended to use a type with nominal voltage $U_N=170V$ (with code mark "T").



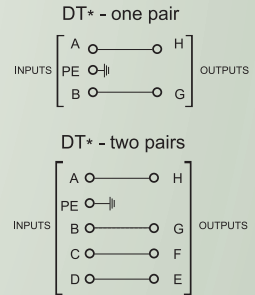
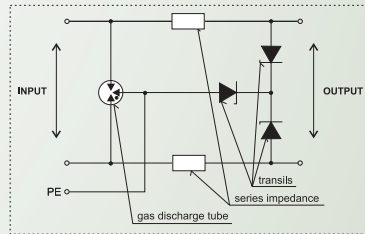
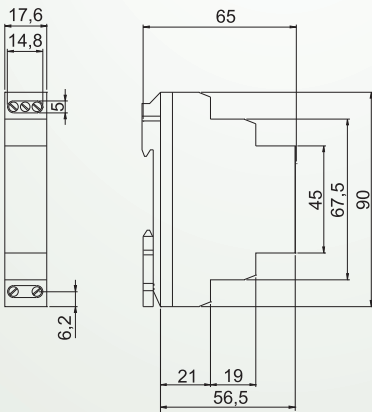
| Technical data | 1 2 | DTE 1/6-L DTE 2/6-L | DTE 1/12-L DTE 2/12-L | DTE 1/24-L DTE 2/24-L | DTE 1/48-L DTE 2/48-L | DTE 1/T-L DTE 2/T-L |
|---|-----------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Number of protected pairs | | | | | | |
| Nominal voltage | U_N | 6 V | 12 V | 24 V | 48 V | 170 V |
| Max. continous operating voltage | U_C | 7,2 V | 14,4 V | 28,6 V | 57,6 V | 204 V |
| Nominal current | I_N | 100 mA | 100 mA | 100 mA | 100 mA | 100 mA |
| D1 Total lightning impulse current (10/350) | I_{imp} | 5 kA | 5 kA | 5 kA | 5 kA | 5 kA |
| D1 Lightning impulse current (10/350) line/PE | I_{imp} | 2,5 kA | 2,5 kA | 2,5 kA | 2,5 kA | 2,5 kA |
| C2 Max. discharge current (8/20) | I_{max} | 20 kA | 20 kA | 20 kA | 20 kA | 20 kA |
| Nominal discharge current (8/20) | I_n | 1 kA | 1 kA | 1 kA | 1 kA | 1 kA |
| Voltage protection level at I_n (8/20) | U_p | 15 V | 28 V | 64 V | 160 V | 500 V |
| Voltage protection level at 1kV/ μ s | U_p | 9 V | 18 V | 34 V | 66 V | 260 V |
| Response time | t_A | < 30 ns | < 30 ns | < 30 ns | < 30 ns | < 30 ns |
| Data rate | | 1 MBit/s | 1 MBit/s | 1 MBit/s | 1 MBit/s | 1 MBit/s |
| Series impedance per line | | 1,5 - 10 Ω | 1,5 - 10 Ω | 1,5 - 10 Ω | 1,5 - 10 Ω | 1,5 - 10 Ω |
| Parasitic capacitance | C | 1,5 nF | 1,5 nF | 1,5 nF | 1,5 nF | 1,5 nF |
| Operating temperature range | θ | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C |
| Recommended cable cross-section | | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² |
| Category tested acc. to IEC 61643:21-2000 | | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 |
| Article number | | 41 401 42 314 | 41 402 42 402 | 41 403 42 312 | 41 404 42 313 | 41 406 42 253 |





DTNVE 0,5 is a complex range of surge protection devices designed for protection of data, communication, measuring and control lines against surge effects. These surge protection devices are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0_{A(B)} - 1 according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to IEC 61643-21. The nominal current of individual protected lines $I_N < 0,5A$.

These devices consist of gas discharge tubes, series impedance and transils. The number of protected pairs is optional (1-2). These devices are produced for nominal voltage within the range of 6V-115V. Maximum discharge current is 10kA (8/20).



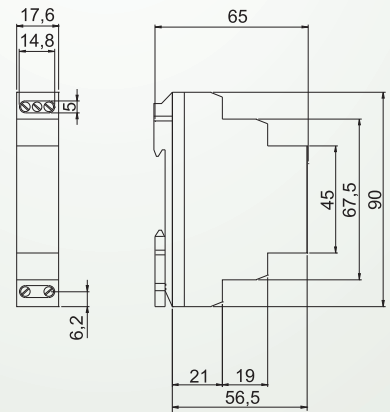
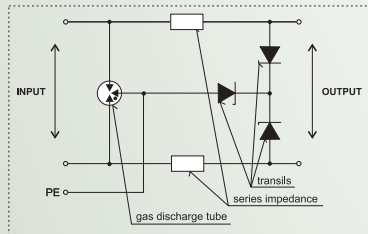
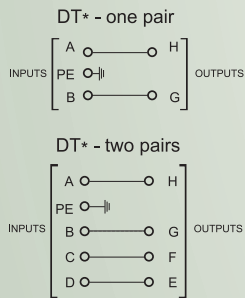
| Technical data | 1 2 | DTNVE 1/6/0,5 DTNVE 2/6/0,5 | DTNVE 1/12/0,5 DTNVE 2/12/0,5 | DTNVE 1/24/0,5 DTNVE 2/24/0,5 | DTNVE 1/30/0,5 DTNVE 2/30/0,5 |
|---|-------------|--------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Number of protected pairs | | | | | |
| Nominal voltage | U_N | 6 V | 12 V | 24 V | 30 V |
| Max. continuous operating voltage | U_C | 7,2 V | 14,4 V | 28,6 V | 36 V |
| Nominal current | I_N | 0,5 A | 0,5 A | 0,5 A | 0,5 A |
| D1 Total lightning impulse current (10/350) | I_{imp} | 5 kA | 5 kA | 5 kA | 5 kA |
| D1 Lightning impulse current (10/350) line/PE | I_{imp} | 2,5 kA | 2,5 kA | 2,5 kA | 2,5 kA |
| C2 Max. discharge current (8/20) | I_{max} | 10 kA | 10 kA | 10 kA | 10 kA |
| Nominal discharge current (8/20) | I_n | 1 kA | 1 kA | 1 kA | 1 kA |
| Voltage protection level at I_n (8/20) | U_p | 15 V | 28 V | 64 V | 75 V |
| Voltage protection level at 1kV/ μ s | U_p | 9 V | 18 V | 34 V | 54 V |
| Response time | t_A | < 30 ns | < 30 ns | < 30 ns | < 30 ns |
| Data rate | | 1 MBit/s | 1 MBit/s | 1 MBit/s | 1 MBit/s |
| Series impedance per line | | 4,7 μ H | 4,7 μ H | 4,7 μ H | 4,7 μ H |
| Parasitic capacitance | C | 1,5 nF | 1,5 nF | 1,5 nF | 1,5 nF |
| Operating temperature range | ϑ | -40°C ÷ +80°C | -40°C ÷ +80°C | -40°C ÷ +80°C | -40°C ÷ +80°C |
| Recommended cable cross-section | | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² |
| Category tested acc. to IEC 61643:21-2000 | | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 |
| Article number | | 41 313 42 323 | 41 324 42 316 | 41 308 42 308 | 41 309 42 309 |

| Technical data | 1 2 | DTNVE 1/48/0,5 DTNVE 2/48/0,5 | DTNVE 1/80/0,5 DTNVE 2/80/0,5 | DTNVE 1/110/0,5 DTNVE 2/110/0,5 | DTNVE 1/115/0,5 DTNVE 2/115/0,5 |
|---|-------------|----------------------------------|----------------------------------|------------------------------------|------------------------------------|
| Number of protected pairs | | | | | |
| Nominal voltage | U_N | 48 V | 80 V | 110 V | 115 V |
| Max. continuous operating voltage | U_C | 57,6 V | 96 V | 132 V | 138 V |
| Nominal current | I_N | 0,5 A | 0,5 A | 0,5 A | 0,5 A |
| D1 Total lightning impulse current (10/350) | I_{imp} | 5 kA | 5 kA | 5 kA | 5 kA |
| D1 Lightning impulse current (10/350) line/PE | I_{imp} | 2,5 kA | 2,5 kA | 2,5 kA | 2,5 kA |
| C2 Max. discharge current (8/20) | I_{max} | 10 kA | 10 kA | 10 kA | 2,5 kA |
| Nominal discharge current (8/20) | I_n | 1 kA | 1 kA | 1 kA | 1 kA |
| Voltage protection level at I_n (8/20) | U_p | 85 V | 500 V | 687 V | 700 V |
| Voltage protection level at 1kV/ μ s | U_p | 66 V | 120 V | 160 V | 160 V |
| Response time | t_A | < 30 ns | < 30 ns | < 30 ns | < 30 ns |
| Data rate | | 1 MBit/s | 1 MBit/s | 1 MBit/s | 1 MBit/s |
| Series impedance per line | | 4,7 μ H | 4,7 μ H | 4,7 μ H | 4,7 μ H |
| Parasitic capacitance | C | 1,5 nF | 1,5 nF | 1,5 nF | 1,5 nF |
| Operating temperature range | ϑ | -40°C ÷ +80°C | -40°C ÷ +80°C | -40°C ÷ +80°C | -40°C ÷ +80°C |
| Recommended cable cross-section | | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² |
| Category tested acc. to IEC 61643:21-2000 | | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 |
| Article number | | 41 310 42 311 | 41 338 42 322 | 41 337 42 337 | 41 333 42 334 |

DTNVE 0,5-L is a complex range of surge protection devices designed for protection of data, communication, measuring and control lines against surge effects. These surge protection devices are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0_{A(B)} - 1 according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to IEC 61643-21. The nominal current of individual protected lines $I_N < 0,5A$.

These devices consist of gas discharge tubes, series impedance and transils. The number of protected pairs is optional (1-2). These devices are produced for nominal voltage within the range of 6V-80V. Maximum discharge current is 20kA (8/20).

DTNVE 0,5-L



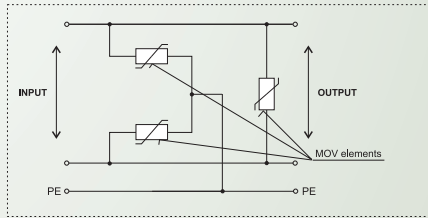
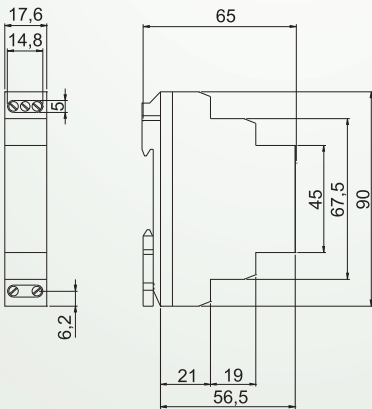
| Technical data | 1 2 | DTNVE 1/6/0,5-L DTNVE 2/6/0,5-L | DTNVE 1/12/0,5-L DTNVE 2/12/0,5-L | DTNVE 1/24/0,5-L DTNVE 2/24/0,5-L |
|---|-----------|------------------------------------|--------------------------------------|--------------------------------------|
| Number of protected pairs | | | | |
| Nominal voltage | U_N | 6 V | 12 V | 24 V |
| Max. continuous operating voltage | U_C | 7,2 V | 14,4 V | 28,6 V |
| Nominal current | I_N | 0,5 A | 0,5 A | 0,5 A |
| D1 Total lightning impulse current (10/350) | I_{imp} | 5 kA | 5 kA | 5 kA |
| D1 Lightning impulse current (10/350) line/PE | I_{imp} | 2,5 kA | 2,5 kA | 2,5 kA |
| C2 Max. discharge current (8/20) | I_{max} | 20 kA | 20 kA | 20 kA |
| Voltage protection level at I_n (8/20) | U_p | 15 V | 28 V | 64 V |
| Voltage protection level at 1kV/ μ s | U_p | 9 V | 18 V | 34 V |
| Response time | t_A | < 30 ns | < 30 ns | < 30 ns |
| Data rate | | 1 MBit/s | 1 MBit/s | 1 MBit/s |
| Series impedance per line | | 4,7 μ H | 4,7 μ H | 4,7 μ H |
| Parasitic capacitance | C | 1,5 nF | 1,5 nF | 1,5 nF |
| Operating temperature range | θ | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C |
| Recommended cable cross-section | | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² |
| Category tested acc. to IEC 61643:21-2000 | | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 |
| Article number | | 41 328 42 423 | 41 329 42 324 | 41 408 42 318 |

| Technical data | 1 2 | DTNVE 1/30/0,5-L DTNVE 2/30/0,5-L | DTNVE 1/48/0,5-L DTNVE 2/48/0,5-L | DTNVE 1/80/0,5-L DTNVE 2/80/0,5-L |
|---|-----------|--------------------------------------|--------------------------------------|--------------------------------------|
| Number of protected pairs | | | | |
| Nominal voltage | U_N | 30 V | 48 V | 80 V |
| Max. continuous operating voltage | U_C | 36 V | 57,6 V | 96 V |
| Nominal current | I_N | 0,5 A | 0,5 A | 0,5 A |
| D1 Total lightning impulse current (10/350) | I_{imp} | 5 kA | 5 kA | 5 kA |
| D1 Lightning impulse current (10/350) line/PE | I_{imp} | 2,5 kA | 2,5 kA | 2,5 kA |
| C2 Max. discharge current (8/20) | I_{max} | 20 kA | 20 kA | 20 kA |
| Nominal discharge current (8/20) | I_n | 1 kA | 1 kA | 1 kA |
| Voltage protection level at I_n (8/20) | U_p | 75 V | 85 V | 500 V |
| Voltage protection level at 1kV/ μ s | U_p | 54 V | 66 V | 120 V |
| Response time | t_A | < 30 ns | < 30 ns | < 30 ns |
| Data rate | | 1 MBit/s | 1 MBit/s | 1 MBit/s |
| Series impedance per line | | 4,7 μ H | 4,7 μ H | 4,7 μ H |
| Parasitic capacitance | C | 1,5 nF | 1,5 nF | 1,5 nF |
| Operating temperature range | θ | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C |
| Recommended cable cross-section | | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² |
| Category tested acc. to IEC 61643:21-2000 | | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 |
| Article number | | 41 409 42 409 | 41 317 42 315 | 41 326 42 326 |



DTNVE 5 is a complex range of surge protection devices designed for protection of data, communication, measuring and control lines against surge effects. These surge protection devices are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0_{A(B)} - 1 according to EN 62305. All types provide effective protection of connected equipment against common mode and differential mode surge effects according to IEC 61643-21. The nominal current of individual protected lines $I_N < 5A$.

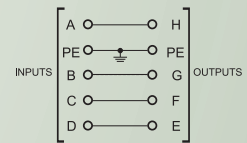
These devices consist of MOVs only. The number of protected pairs is optional (1-2). These devices are produced for nominal voltage within the range of 12V-230V. Maximum discharge current is different according to various types from 2kA (8/20) to 10kA (8/20).



DTNV* 5A - one pair



DTNV* 5A - two pairs



| Technical data | 1 | DTNVE 1/12/5 DTNVE 2/12/5 | DTNVE 1/24/5 DTNVE 2/24/5 | DTNVE 1/48/5 DTNVE 2/48/5 | DTNVE 1/80/5 DTNVE 2/80/5 | DTNVE 1/230/5 DTNVE 2/230/5 |
|---|-----------|------------------------------|------------------------------|------------------------------|------------------------------|--------------------------------|
| Number of protected pairs | 2 | | | | | |
| Nominal voltage | U_N | 12 V | 24 V | 48 V | 80 V | 230 V |
| Max. continuous operating voltage | U_C | 14,4 V | 28,6 V | 57,6 V | 96 V | 275 V |
| Nominal current | I_N | 5 A | 5 A | 5 A | 5 A | 5 A |
| C2 Max. discharge current (8/20) | I_{max} | 2 kA | 2 kA | 2 kA | 6,5 kA | 10 kA |
| Nominal discharge current (8/20) | I_n | 1 kA | 1 kA | 1 kA | 1 kA | 1 kA |
| Voltage protection level at I_n (8/20) | U_p | 56 V | 90 V | 170 V | 280 V | 800 V |
| Voltage protection level at 1kV/ μ s | U_p | 27 V | 51 V | 118 V | 200 V | 575 V |
| Response time | t_A | < 30 ns | < 30 ns | < 30 ns | < 30 ns | < 30 ns |
| Parasitic capacitance | C | 10 nF | 10 nF | 10 nF | 10 nF | 10 nF |
| Operating temperature range | θ | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C | -40°C ÷ + 80°C |
| Recommended cable cross-section | | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² | 0,25 - 1,5 mm ² |
| Category tested acc. to IEC 61643:21-2000 | | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 | A2, B2, C2, C3, D1 |
| Article number | | 41 312 42 317 | 41 307 42 307 | 41 318 42 321 | 41 334 42 328 | 41 305 42 305 |



M.102