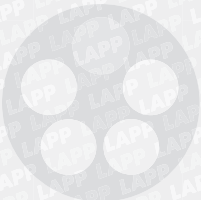


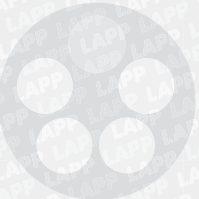
## UNITRONIC® BUS i ETHERLINE® – jaki przewód do jakiego systemu Fieldbus?

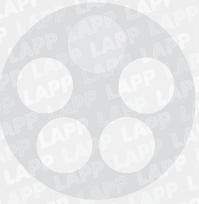
| Kryteria stosowania                                                                        |                                                   |              | Oznaczenie kabla i przewodu                                                 |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------------|---------------------------------------------------|--------------|-----------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|                                                                                            |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Normy</b>                                                                               |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Z aprobatą UL/CSA                                                                          |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Montaż</b>                                                                              |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Połączenie nieruchome                                                                      |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Giętkie                                                                                    |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wysoce giętkie (przewodnice łańcuchowe itp.)                                               |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Montaż na zewnątrz/bezpośrednio w ziemi/odporny na UV                                      |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Impedancja falowa</b>                                                                   |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 100 – 120 omów                                                                             |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 150 omów                                                                                   |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Wymiary</b>                                                                             |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>W mm<sup>2</sup> lub średnice w mm lub wielkość AWG</b>                                 |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 x 2 x 0,22                                                                               |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 x 2 x 0,25                                                                               |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 x 2 x 0,25 + 3 x 1,0                                                                     |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 x 2 x 0,22 + 3 x 1,0                                                                     |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 0,22/2 x 2 x 0,22/3 x 2 x 0,22                                                     |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 0,64                                                                               |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 1,0                                                                                |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 0,8                                                                                |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 0,64 + 4 x 1,5                                                                     |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 0,25/2 x 2 x 0,25                                                                  |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 0,34/2 x 2 x 0,34                                                                  |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 0,5/2 x 2 x 0,5                                                                    |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 0,75/2 x 2 x 0,75                                                                  |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 6 + 2 x 2,5 + 1 x 4 x 0,5                                                              |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Systemy Bus</b>                                                                         |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| INTERBUS® DIN 19258 EN 50251 Bus czujnik/el. wykonawczy                                    |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| INTERBUS® (Phoenix Contact)                                                                |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SUCOnet p® (Klöckner-Möller), Modulink® P (Weidmüller) MODBUS VariNet®-P (Pepperl + Fuchs) |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PROFIBUS-DP, -FMS, FIP                                                                     |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PROFIBUS-PA, Foundation™ Fieldbus                                                          |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CAN ISO 11898, CAN open                                                                    |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AS-INTERFACE                                                                               |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EIB                                                                                        |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CC-Link®                                                                                   |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Device Net™ (Allen-Bradley/Rockwell Automation)                                            |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Industrial Ethernet/Fast Ethernet                                                          |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ISOBUS (ISO 11783-2)                                                                       |                                                   |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Objaśnienia</b>                                                                         |                                                   |              | <b>Znaki towarowe</b>                                                       |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7-W                                                                                        | = 7-drutowe żyły                                  | LD           | = Long distance                                                             | CC-Link®    | = jest to zarejestrowany znak towarowy firmy CLPA, Japonia                          |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AS-I                                                                                       | = AS-INTERFACE                                    | P            | = Zewn. płaszcz z poliuretanu                                               | DeviceNet™  | = jest to zarejestrowany znak towarowy firmy Open Device Vendors Association (ODVA) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| COMBI IBS                                                                                  | = Kabel instalacyjny do INTERBUS                  | PB           | = <b>PROFI BUS</b>                                                          | Foundation™ | = jest to zarejestrowany znak towarowy firmy Foundation Fieldbus                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DN                                                                                         | = Device <b>Net</b>                               | PE           | = Zewn. płaszcz z polietylenu                                               | INTERBUS®   | = jest to zarejestrowany znak towarowy firmy Phoenix Contact GmbH & Co.             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EIB                                                                                        | = Europäischer Installations-Bus (eur. inst. BUS) | PROFIBUS-DP  | = <b>Decentralized Periphery</b>                                            | Modulink® P | = jest to zarejestrowany znak towarowy firmy Weidmüller GmbH & Co.                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FD                                                                                         | = Przewód do przewodnic łańcuchowych              | PROFIBUS-FMS | = <b>Fieldbus Message Specification</b>                                     | SIMATIC®    | = jest to zarejestrowany znak towarowy firmy SIEMENS AG                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FRNC                                                                                       | = Flame <b>Retardant Non Corrosive</b>            | PROFIBUS-PA  | = <b>Process Automation</b>                                                 | SINEC®      | = jest to zarejestrowany znak towarowy firmy SIEMENS AG                             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G                                                                                          | = Gumowy płaszcz zewn. (EPDM)                     | TPE          | = Termoplastyczny elastomer                                                 | SUCOnet P®  | = jest to zarejestrowany znak towarowy firmy Klöckner + Moeller GmbH                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| H                                                                                          | = Bezhalogenowy materiał                          | Yv           | = Przewód do montażu na zewnątrz/w ziemi ze wzmocnionym zewn. płaszczem PVC | VariNet®-P  | = jest to zarejestrowany znak towarowy firmy Pepperl + Fuchs GmbH                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| IBS                                                                                        | = Dalekosiężny kabel do INTERBUS                  | YY           | = Podwójny płaszcz zewn. PVC                                                |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| L2                                                                                         | = skrót od SINEC L2-DP                            |              |                                                                             |             |                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## UNITRONIC® BUS i ETHERLINE® – jaki przewód do jakiego systemu Feldbus?

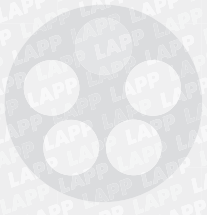
| Kryteria stosowania                                                               |  |  | Oznaczenie kabla i przewodu                                                    |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------|--|--|--------------------------------------------------------------------------------|--|--|------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DIN VDE Normy                                                                     |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Z aprobatą UL/CSA                                                                 |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Montaż                                                                            |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Połączenie nieruchome                                                             |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Giętkie                                                                           |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wysoce giętkie (przewodnice łańcuchowe, obciążenie skrętne itp.)                  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Montaż na zewnątrz/bezpośrednio w ziemi/odporny na UV                             |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Z Impedancja falowa                                                               |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 100–120 omów                                                                      |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Wymiary                                                                           |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W mm² lub średnice w mm lub wielkość AWG                                          |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 0,5, 2 x 2 x 0,5                                                          |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 1,5                                                                           |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2,5                                                                           |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AWG 18 + 15                                                                       |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AWG 24 + 22                                                                       |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2 x 0,8                                                                       |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2 x 0,8 + 3 x 1,5                                                             |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2 x AWG 24/1 oraz 4 x 2 x AWG 24/1                                            |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 x 2 x AWG 24/1                                                                  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 x 2 x AWG 24/7                                                                  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2 x AWG 26/7 oraz 4 x 2 x AWG 26/7                                            |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 x 2 x AWG 26/7                                                                  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2 x AWG 22/1                                                                  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2 x AWG 26/19, 4 x 2 x AWG 26/19                                              |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2 x AWG 22/7                                                                  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2 x AWG 22/19                                                                 |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 1,1 + 1 x 1,1                                                             |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 x 2 x 1,1                                                                       |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 x 1 x AWG 20                                                                    |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 x 2 x AWG 22/1                                                                  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 x 2 x AWG 22/7                                                                  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 x 2 x AWG 23/7                                                                  |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 x 2 x AWG 22/7 + 4 x 1,5                                                        |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 x 2 x AWG 26/19                                                                 |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Systemy Bus                                                                       |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| INTERBUS® DIN 19258 EN 50251 Bus czujnik/el.wykonawczy                            |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| INTERBUS® (Phoenix Contact)                                                       |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SUCOnet p® (Klöckner-Möller), Modulink® P (Weidmüller)                            |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MODBUS, VariNet®-P (Pepperl + Fuchs)                                              |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PROFIBUS DIN 19245 EN 50170                                                       |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PROFIBUS-DP, -FMS, FIP                                                            |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PROFIBUS-PA, Foundation™ Fieldbus                                                 |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CAN ISO 11898, CAN open                                                           |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AS-INTERFACE                                                                      |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EIB                                                                               |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CC-Link®                                                                          |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Device Net™ (Allen-Bradley/Rockwell Automation)                                   |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Industrial Ethernet/Fast Ethernet                                                 |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PROFINET                                                                          |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EtherCAT                                                                          |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Objaśnienia                                                                       |  |  | Znaki towarowe                                                                 |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7-W = 7-drutowe żyły                                                              |  |  | LD = Long distance                                                             |  |  | CC-Link® = jest to zarejestrowany znak towarowy firmy CLPA, Japonia                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AS-I = AS-INTERFACE                                                               |  |  | P = Zewn. płaszcz z poliuretanu                                                |  |  | DeviceNet™ = jest to zarejestrowany znak towarowy firmy Open Device Vendors Association (ODVA) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| COMBI IBS = Kabel instalacyjny do INTERBUS                                        |  |  | PB = PROFIBUS                                                                  |  |  | Foundation™ = jest to zarejestrowany znak towarowy firmy Foundation Fieldbus                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DN = Device Net                                                                   |  |  | PE = Zewn. płaszcz z polietylenu                                               |  |  | INTERBUS® = jest to zarejestrowany znak towarowy firmy Phoenix Contact GmbH & Co.              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EIB = Europäischer Installations-Bus (eur. inst. BUS)                             |  |  | PROFIBUS-DP = Decentralized Periphery                                          |  |  | Modulink® P = jest to zarejestrowany znak towarowy firmy Weidmüller GmbH & Co.                 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FD = Przewód do przewodnic łańcuchowych                                           |  |  | PROFIBUS-FMS = Fieldbus Message Specification                                  |  |  | SIMATIC® = jest to zarejestrowany znak towarowy firmy SIEMENS AG                               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FRNC = Flame Retardant Non Corrosive                                              |  |  | PROFIBUS-PA = Process Automation                                               |  |  | SINEC® = jest to zarejestrowany znak towarowy firmy SIEMENS AG                                 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G = Gumowy płaszcz zewn. (EPDM)                                                   |  |  | TPE = Termoplastyczny elastomer                                                |  |  | SUCOnet P® = jest to zarejestrowany znak towarowy firmy Klöckner + Moeller GmbH                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| H = Bezhalogenowy materiał                                                        |  |  | Yv = Przewód do montażu na zewnątrz/w ziemi ze wzmocnionym zewn. płaszczem PVC |  |  | VariNet®-P = jest to zarejestrowany znak towarowy firmv Pepperl + Fuchs GmbH                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| IBS = Dalekosiężny kabel do INTERBUS                                              |  |  | YY = Podwójny płaszcz zewn. PVC                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| L2 = skrót od SINEC L2-DP                                                         |  |  |                                                                                |  |  |                                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

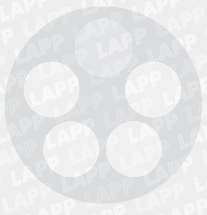
## UNITRONIC® BUS i ETHERLINE® – dane techniczne

| Kryteria stosowania                                                               |                | Oznaczenie kabla i przewodu                 |                                                        |                                              |                                            |                                                       |                                            |                                                                    |                                             |                                                      |                                                        |                                                                        |                                                  |                                              |                         |                        |
|-----------------------------------------------------------------------------------|----------------|---------------------------------------------|--------------------------------------------------------|----------------------------------------------|--------------------------------------------|-------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------|-------------------------|------------------------|
|  |                | UNITRONIC® BUS IBS<br>Połączenie nieruchome | UNITRONIC® BUS IBS FD P<br>Zastosowanie wysoce giętkie | UNITRONIC® BUS IBS Yv<br>Na zewnątrz/w ziemi | UNITRONIC® BUS LD<br>Połączenie nieruchome | UNITRONIC® BUS LD FD P<br>Zastosowanie wysoce giętkie | UNITRONIC® BUS PB<br>Połączenie nieruchome | UNITRONIC® BUS PB FD P + PB FD P FC<br>Zastosowanie wysoce giętkie | UNITRONIC® BUS PB Yv<br>Na zewnątrz/w ziemi | UNITRONIC® BUS PA (BU + BK)<br>Połączenie nieruchome | UNITRONIC® BUS CAN<br>Połączenie nieruchome (0,22 mm²) | UNITRONIC® BUS FD P CAN FD P<br>Zastosowanie wysoce giętkie (0,25 mm²) | UNITRONIC® BUS FF 3 ARM<br>Połączenie nieruchome | UNITRONIC® BUS FF 2<br>Połączenie nieruchome | UNITRONIC® BUS CAN TRAY | UNITRONIC® BUS PB TRAY |
| Parametry                                                                         |                |                                             |                                                        |                                              |                                            |                                                       |                                            |                                                                    |                                             |                                                      |                                                        |                                                                        |                                                  |                                              |                         |                        |
| Impedancja falowa Ω                                                               |                | 100                                         | 100                                                    | 100                                          | 100–120                                    | 100–120                                               | 150 +/-15                                  | 150 +/-15                                                          | 150 +/-15                                   | 100 +/-20                                            | 120                                                    | 120                                                                    | 100                                              | 100                                          | 120                     | 150 +/-15              |
| Pojemność robocza (800 Hz) maks. nF/km                                            |                | 60                                          | 60                                                     | 60                                           | 60                                         | 60                                                    | 30                                         | 30                                                                 | 30                                          | 52                                                   | 40                                                     | 40                                                                     | 56                                               | 65                                           | 40                      | 30                     |
| Napięcie szczytowe [V]<br>(nie do obwodów silnoprądowych)                         |                | 250                                         | 250                                                    | 250                                          | 250                                        | 250                                                   | 250                                        | 250                                                                | 250                                         | 250                                                  | 250                                                    | 250                                                                    | 300                                              | 300                                          | 250                     | 250                    |
| Napięcie próbne żyła/żyła U <sub>eff</sub> V                                      |                | 1500                                        | 1500                                                   | 1500                                         | 1500                                       | 1500                                                  | 1500                                       | 1500                                                               | 1500                                        | 1500                                                 | 1500                                                   | 1500                                                                   | 1500                                             | 1500                                         | 2000                    | 2000                   |
| Rezystancja żyły (pętla)<br>Para przewodów informatycznych maks. Ω/km             |                | 186                                         | 159,8                                                  | 186                                          | 186                                        | 159,8                                                 | 110                                        | 145, 133                                                           | 115                                         | 44                                                   | 186                                                    | 159,8                                                                  | ≤ 24                                             | ≤ 24                                         | 110,8                   | 110                    |
| Minimalny promień gięcia, połączenie nieruchome                                   |                | 8 x D                                       | -                                                      | 8 x D                                        | 8 x D                                      | -                                                     | 75 mm                                      | -                                                                  | 75 mm                                       | 65 mm                                                | 8 x D                                                  | -                                                                      | 15 x D                                           | 15 x D                                       | 8 x D                   | 8 x D                  |
| Minimalny promień gięcia, połączenie ruchome                                      |                | -                                           | 15 x D                                                 | -                                            | -                                          | 15 x D                                                | -                                          | **                                                                 | -                                           | -                                                    | -                                                      | 15 x D                                                                 | -                                                | -                                            | -                       | -                      |
| Zakres temperatury<br>połączenie nieruchome                                       | od °C<br>do °C | - 30<br>+ 80                                | - 40<br>+ 80                                           | - 40<br>+ 70                                 | - 40<br>+ 80                               | - 40<br>+ 80                                          | - 40<br>+ 80                               | - 40<br>+ 80                                                       | - 40<br>+ 80                                | - 30<br>+ 80                                         | - 30<br>+ 80                                           | - 40<br>+ 80                                                           | - 25<br>+ 80                                     | - 25<br>+ 105                                | - 40<br>+ 80            | - 40<br>+ 80           |
| Zakres temperatury<br>połączenie ruchome                                          | od °C<br>do °C | -                                           | - 30<br>+ 70                                           | -                                            | - 5<br>+ 70                                | - 30<br>+ 70                                          | -                                          | - 30<br>+ 70                                                       | -                                           | -                                                    | - 5<br>+ 70                                            | - 30<br>+ 70                                                           | -                                                | -                                            | - 10<br>+ 70            | - 10<br>+ 70           |

| Kryteria stosowania                                                                 |                | Oznaczenie kabla i przewodu |                             |                     |                     |                       |                          |                          |                          |                             |                             |                           |                               |                                  |                          |  |
|-------------------------------------------------------------------------------------|----------------|-----------------------------|-----------------------------|---------------------|---------------------|-----------------------|--------------------------|--------------------------|--------------------------|-----------------------------|-----------------------------|---------------------------|-------------------------------|----------------------------------|--------------------------|--|
|  |                | UNITRONIC® BUS CC           | UNITRONIC® BUS CC FD P FRNC | ETHERLINE® H Cat.5e | ETHERLINE® P Cat.5e | ETHERLINE® H-H Cat.5e | ETHERLINE® H FLEX Cat.5e | ETHERLINE® P FLEX Cat.5e | ETHERLINE® Y FLEX Cat.5e | ETHERLINE® Y EC FLEX Cat.5e | ETHERLINE® P EC FLEX Cat.5e | ETHERLINE® P EC FD Cat.5e | ETHERLINE® PN Cat.5 Y FLEX FC | ETHERLINE® PN Cat.5 FRNC FLEX FC | ETHERLINE® TORSION Cat.5 |  |
| Parametry                                                                           |                |                             |                             |                     |                     |                       |                          |                          |                          |                             |                             |                           |                               |                                  |                          |  |
| Impedancja falowa Ω                                                                 |                | 110                         | 110                         | 100                 | 100                 | 100                   | 100                      | 100                      | 100                      | 100                         | 100                         | 100                       | 100                           | 100                              | 100                      |  |
| Pojemność robocza (800 Hz) maks. nF/km                                              |                | 60                          | 60                          | 48                  | 46                  | 46                    | 48                       | 48                       | -                        | -                           | -                           | -                         | -                             | -                                | -                        |  |
| Napięcie szczytowe [V]<br>(nie do obwodów silnoprądowych)                           |                | 300                         | 300                         | 125                 | 125                 | 125                   | 125                      | 125                      | 125                      | 100                         | 100                         | 100                       | 125                           | 125                              | 100                      |  |
| Napięcie próbne żyła/żyła U <sub>eff</sub> V                                        |                | 2000                        | 2000                        | 1000                | 1000                | 1000                  | 1000                     | 1000                     | 1000                     | 1000                        | 1000                        | 1000                      | 2000                          | 2000                             | 700                      |  |
| Rezystancja żyły (pętla)<br>Para przewodów informatycznych maks. Ω/km               |                | 37,8                        | 37,8                        | 192                 | 186,6               | 186,6                 | 284                      | 284                      | -                        | -                           | -                           | -                         | -                             | -                                | -                        |  |
| Minimalny promień gięcia, połączenie nieruchome                                     |                | 15 x D                      | 4 x D                       | 7,5-8 x D           | 7,5-8 x D           | 8 x D                 | 8 x D                    | 8 x D                    | 8 x D                    | 4 x D                       | 4 x D                       | 4 x D                     | 10 x D                        | 4 x D                            | 5 x D                    |  |
| Minimalny promień gięcia, połączenie ruchome                                        |                | -                           | 8 x D                       | -                   | -                   | -                     | 15 x D                   | 15 x D                   | 15 x D                   | 8 x D                       | 8 x D                       | 8 x D                     | 15 x D                        | 8 x D                            | 5 x D                    |  |
| Zakres temperatury<br>połączenie nieruchome                                         | od °C<br>do °C | -40<br>+70                  | -40<br>+80                  | -30<br>+80          | -30<br>+80          | -30<br>+80            | -30<br>+80               | -30<br>+80               | -40<br>+80               | -30<br>+80                  | -40<br>+80                  | -40<br>+80                | -40<br>+80                    | -25<br>+80                       | -40<br>+80               |  |
| Zakres temperatury<br>połączenie ruchome                                            | od °C<br>do °C | -<br>-                      | -40<br>+80                  | -5<br>+60           | -5<br>+60           | -5<br>+60             | -5<br>+60                | -5<br>+60                | -10<br>+70               | -5<br>+50                   | -30<br>+50                  | -30<br>+50                | -20<br>+60                    | -25<br>+80                       | -40<br>+80               |  |

\*\* bez FC = 65 mm/FC = 120 mm

| Kryteria stosowania                                                                         |                | Oznaczenie kabla i przewodu |                            |                       |                      |                        |                                                         |                                                            |                                                      |                                                        |                                |                                   |                                                    |                                                      |                          |
|---------------------------------------------------------------------------------------------|----------------|-----------------------------|----------------------------|-----------------------|----------------------|------------------------|---------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|--------------------------------|-----------------------------------|----------------------------------------------------|------------------------------------------------------|--------------------------|
|            |                | ETHERLINE® PN Cat.5e Y      | ETHERLINE® TRAY ER PN Y FC | ETHERLINE® Y FC Cat.5 | ETHERLINE® Cat.5e YY | ETHERLINE® FD P Cat.5e | ETHERLINE® FD P FC Cat.5<br>Zastosowanie wysoce giętkie | ETHERLINE® PN Cat.6, FRNC FC +<br>ETHERLINE® PN Cat.7 FRNC | ETHERLINE® PN Cat.6, P FC +<br>ETHERLINE® PN Cat.7 P | ETHERLINE® PN Cat.6, Y FC +<br>ETHERLINE® PN + Cat.7 Y | ETHERLINE® PN Cat.6, Y FLEX FC | ETHERLINE® PN Cat.6, FRNC FLEX FC | ETHERLINE® FD Cat.6 + TORSION Y Cat.6 <sub>A</sub> | ETHERLINE® FD P Cat.6 + TORSION P Cat.6 <sub>A</sub> | ETHERLINE® TORSION Cat.7 |
|  Parametry |                |                             |                            |                       |                      |                        |                                                         |                                                            |                                                      |                                                        |                                |                                   |                                                    |                                                      |                          |
| Impedancja falowa Ω                                                                         |                | 100                         | 100                        | 100                   | 100                  | 100                    | 100                                                     | 100                                                        | 100                                                  | 100                                                    | 100                            | 100                               | 100                                                | 100                                                  | 100                      |
| Pojemność robocza (800 Hz) maks. nF/km                                                      |                | 48                          | 48                         | 48                    | 48                   | 50                     | 52                                                      | -                                                          | -                                                    | -                                                      | -                              | -                                 | -                                                  | -                                                    | 50                       |
| Napięcie szczytowe [V]<br>(nie do obwodów silnoprądowych)                                   |                | 125                         | 125                        | 125                   | 125                  | 125                    | 125                                                     | 125                                                        | 125                                                  | 125                                                    | 125                            | 125                               | 125                                                | 125                                                  | 125                      |
| Napięcie próbne żyła/żyła U <sub>eff</sub> V                                                |                | 1000                        | 2000                       | 1000                  | 1000                 | 1000                   | 700                                                     | 1000                                                       | 1000                                                 | 1000                                                   | 1000                           | 1000                              | 1000                                               | 1000                                                 | 750                      |
| Rezystancja żyły (pętla)<br>Para przewodów informatycznych maks. Ω/km                       |                | 118                         | 115                        | 115                   | 118                  | 290                    | 120                                                     | 118                                                        | 118                                                  | 118                                                    | 143                            | 143                               | 175                                                | 175                                                  | 175                      |
| Minimalny promień gięcia, połączenie nieruchome                                             |                | 7,5 x D                     | 10 x D                     | 10 x D                | 4 x D                | 8 x D                  | 5 x D                                                   | 4 x D                                                      | 4 x D                                                | 4 x D                                                  | 8 x D                          | 8 x D                             | 8 x D                                              | 8 x D                                                | 8 x D                    |
| Minimalny promień gięcia, połączenie ruchome                                                |                | 15 x D                      | 15 x D                     | 15 x D                | 8 x D                | 15 x D                 | 8 x D                                                   | 8 x D                                                      | 8 x D                                                | 8 x D                                                  | 15 x D                         | 15 x D                            | 15 x D                                             | 15 x D                                               | 15 x D                   |
| Zakres temperatury<br>połączenie nieruchome                                                 | od °C<br>do °C | -40<br>+70                  | -40<br>+80                 | -40<br>+80            | -25<br>+80           | -30<br>+80             | -30<br>+70                                              | -25<br>+80                                                 | -40<br>+80                                           | -30<br>+80                                             | -10<br>+70                     | -25<br>+80                        | -40<br>+80                                         | -40<br>+80                                           | -40<br>+80               |
| Zakres temperatury<br>połączenie ruchome                                                    | od °C<br>do °C | -5<br>+50                   | -20<br>+60                 | -20<br>+60            | -5<br>+70            | -5<br>+70              | -20<br>+60                                              | -                                                          | -                                                    | -                                                      | -10<br>+70                     | -25<br>+80                        | -10<br>+70                                         | -30<br>+70                                           | -30<br>+70               |

| Kryteria stosowania                                                                           |                | Oznaczenie kabla i przewodu                                             |                                                                           |                                                                             |                                                                                |                                                                         |                                                                       |                                                                               |                                                                     |                                                             |                                                             |                                                                |                                             |                                                   |  |
|-----------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------|---------------------------------------------------|--|
|            |                | UNITRONIC® BUS ASI (G) żółty + czarny<br>Połączenie nieruchome / giętki | UNITRONIC® BUS ASI (TPE) żółty + czarny<br>Połączenie nieruchome / giętki | UNITRONIC® BUS ASI LD FD P<br>żółty + czarny<br>Zastosowanie wysoce giętkie | UNITRONIC® BUS ASI FD (TPE) A<br>żółty + czarny<br>Zastosowanie wysoce giętkie | UNITRONIC® BUS ASI FD P FRNC<br>żółty + czarny<br>Połączenie nieruchome | UNITRONIC® BUS ASI (PVC) A<br>żółty + czarny<br>Połączenie nieruchome | UNITRONIC® DeviceNet<br>THICK + THIN (bezhalogenowy)<br>Połączenie nieruchome | UNITRONIC® DeviceNet<br>THICK + THIN (PVC)<br>Połączenie nieruchome | UNITRONIC® DeviceNet<br>THICK + THIN (PUR)<br>wysoce giętki | UNITRONIC® DeviceNet<br>THICK + THIN (PVC)<br>wysoce giętki | UNITRONIC® BUS SAFTEY<br>Połączenie nieruchome / wysoce giętki | UNITRONIC® BUS EIB<br>Połączenie nieruchome | UNITRONIC® BUS EIB COMBI<br>Połączenie nieruchome |  |
|  Parametry |                |                                                                         |                                                                           |                                                                             |                                                                                |                                                                         |                                                                       |                                                                               |                                                                     |                                                             |                                                             |                                                                |                                             |                                                   |  |
| Impedancja falowa Ω                                                                           |                | -                                                                       | -                                                                         | -                                                                           | -                                                                              | -                                                                       | -                                                                     | 120                                                                           | 120                                                                 | 120                                                         | 120                                                         | 100-200                                                        | -                                           | -                                                 |  |
| Pojemność robocza (800 Hz) maks. nF/km                                                        |                | -                                                                       | -                                                                         | -                                                                           | -                                                                              | -                                                                       | -                                                                     | 39,8                                                                          | 39,8                                                                | 39,8                                                        | 39,8                                                        | 45                                                             | maks. 100                                   | maks. 100                                         |  |
| Napięcie szczytowe [V]<br>(nie do obwodów silnoprądowych)                                     |                | 300                                                                     | 300                                                                       | 300                                                                         | 300                                                                            | 300                                                                     | 300                                                                   | 300                                                                           | 300                                                                 | 300                                                         | 300                                                         | 250                                                            | 250                                         | 250                                               |  |
| Napięcie próbne żyła/żyła U <sub>eff</sub> V                                                  |                | 2000                                                                    | 2000                                                                      | 2000                                                                        | 2000                                                                           | 2000                                                                    | 2000                                                                  | 2000                                                                          | 2000                                                                | 2000                                                        | 2000                                                        | 3000                                                           | 4000                                        | 4000                                              |  |
| Rezystancja żyły (pętla)<br>Para przewodów informatycznych maks. Ω/km                         |                | 27,4                                                                    | 27,4                                                                      | 16,5                                                                        | 27,4                                                                           | 27,4                                                                    | 27,4                                                                  | THICK 45<br>THIN 180                                                          | THICK 45<br>THIN 180                                                | THICK 45<br>THIN 180                                        | THICK 45<br>THIN 180                                        | 52                                                             | maks. 130                                   | maks. 130                                         |  |
| Minimalny promień gięcia, połączenie nieruchome                                               |                | 3 x D                                                                   | 3 x D                                                                     | 3 x D                                                                       | 3 x D                                                                          | 3 x D                                                                   | 3 x D                                                                 | 10 x D                                                                        | 10 x D                                                              | -                                                           | -                                                           | 8 x D                                                          | 10 x D                                      | 10 x D                                            |  |
| Minimalny promień gięcia, połączenie ruchome                                                  |                | -                                                                       | -                                                                         | 6 x D                                                                       | 6 x D                                                                          | -                                                                       | -                                                                     | -                                                                             | -                                                                   | 10 x D                                                      | 10 x D                                                      | -                                                              | -                                           | -                                                 |  |
| Zakres temperatury<br>połączenie nieruchome                                                   | od °C<br>do °C | -40<br>+85                                                              | -40<br>+85                                                                | -40<br>+80                                                                  | -40<br>+105                                                                    | -40<br>+80                                                              | -30<br>+90                                                            | -25<br>+80                                                                    | -20<br>+80                                                          | -                                                           | -                                                           | -40<br>+80                                                     | -30<br>+70                                  | -30<br>+70                                        |  |
| Zakres temperatury<br>połączenie ruchome                                                      | od °C<br>do °C | -                                                                       | -                                                                         | -30<br>+70                                                                  | -30<br>+105                                                                    | -30<br>+70                                                              | -                                                                     | -                                                                             | -                                                                   | -40<br>+80                                                  | -10<br>+80                                                  | -30<br>+80                                                     | -                                           | -                                                 |  |