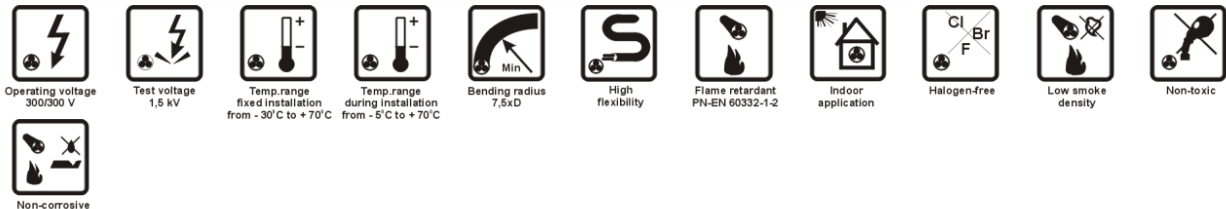


**TECHNOTRONIK LIHH****HALOGEN FREE CONTROL CABLES FOR INDUSTRIAL ELECTRONIC APPLICATIONS****APPLICATIONS**

**TECHNOTRONIK LIHH** are halogen free control cables intended for control and instrumentation circuits, for signal, monitoring and data processing systems and for analogue or digital data transmission, all for industrial electronic applications.

Halogen free cables, applied when higher safety in case of fire is required. The cables are flame retardant, their smoke emission in fire is low and released gases are not corrosive.

The cables are designed to offer high flexibility and small outer diameter combined with tensile strength.

The cables are suitable for connecting fixed and movable equipment inside rail vehicles, subway trains, in trams, as well as for indoor installations.

**CONSTRUCTION**

- flexible, multiwire conductors, stranded of bare annealed copper wires (tin-plated on request), meeting requirements of class 5 per PN-EN 60228,
- insulation made of halogen free compound (HFFR) - identification colour code in accordance with DIN VDE 47100,
- insulated conductors laid-up in layers,
- cable sheath made of halogen free compound (HFFR), grey (RAL 7001), other colours also available.

**AVAILABLE UPON REQUEST**

**TECHNOTRONIK IB-LIHH** - specially designed intrinsically safe cable.

## TECHNOTRONIK LIHH

### CHARACTERISTICS

| Conductor cross-section                        | mm <sup>2</sup> | 0.5  | 0.75 | 1.0  | 1.5  | 2.5  |
|------------------------------------------------|-----------------|------|------|------|------|------|
| DC conductor resistance at 20°C, maximum       | Ω/km            | 39.0 | 26.0 | 19.5 | 13.3 | 7.98 |
| Capacitance between conductors at 1 kHz, appr. | nF/km           | 80   | 90   | 100  | 120  | 140  |

|                                     |                                           |
|-------------------------------------|-------------------------------------------|
| Operating voltage U <sub>0</sub> /U | 300/300 V                                 |
| Insulation resistance, minimum      | 20 MΩ·km                                  |
| Voltage test                        | 1.5 kV rms                                |
| Inductance, approximate             | 0.7 mH/km                                 |
| Impedance, approximate              | 80 Ω                                      |
| Corrosivity of emitted gases per    | PN-EN 60754-1, PN-EN 60754-2, IEC 60754-2 |
| pH appr.                            | 6.8                                       |
| conductivity appr.                  | 0.4 μS/mm                                 |
| Smoke density                       | PN-EN 61034-2, IEC 61034-2                |
| light transmittance, minimum        | 70 %                                      |

|                             |                                |
|-----------------------------|--------------------------------|
| Operating temperature range |                                |
| for fixed installation      | from - 30 to + 70°C            |
| for movable installation    | from - 5 to + 70°C             |
| Minimum bending radius      | 7.5 x cable diameter           |
| Cable combustibility        | flame retardant                |
| Combustibility tests        | PN-EN 60332-1-2, IEC 60332-1-2 |
| Reference standards         | DIN VDE 0812, DIN VDE 0814     |

CE = the cable meets requirements of the low voltage directive 2014/35/EU

| Product No. | Number of conductors x conductor cross-section | Cable outer diameter (appr.) | Copper index | Cable weight (appr.) |
|-------------|------------------------------------------------|------------------------------|--------------|----------------------|
|             | mm <sup>2</sup>                                | mm                           | kg/km        | kg/km                |
| 0453 010    | 2 x 0,5                                        | 4.0                          | 9.6          | 27                   |
| 0453 009    | 3 x 0,5                                        | 4.2                          | 14.4         | 32                   |
| 0453 026    | 4 x 0,5                                        | 4.6                          | 19.2         | 39                   |
| 0453 011    | 5 x 0,5                                        | 5.3                          | 24.0         | 51                   |
| 0453 027    | 6 x 0,5                                        | 5.8                          | 28.8         | 61                   |
| 0453 034    | 7 x 0,5                                        | 5.8                          | 33.6         | 64                   |
| 0453 028    | 10 x 0,5                                       | 7.3                          | 48.0         | 90                   |
| 0453 035    | 12 x 0,5                                       | 7.5                          | 57.6         | 102                  |
| 0453 013    | 16 x 0,5                                       | 8.4                          | 76.8         | 130                  |
| 0453 036    | 20 x 0,5                                       | 9.7                          | 96.0         | 171                  |
| 0453 037    | 25 x 0,5                                       | 11.0                         | 120.0        | 210                  |
| 0453 038    | 32 x 0,5                                       | 12.1                         | 153.6        | 260                  |
| 0453 039    | 34 x 0,5                                       | 12.6                         | 163.2        | 280                  |
| 0453 040    | 37 x 0,5                                       | 12.6                         | 177.6        | 288                  |
| 0453 041    | 44 x 0,5                                       | 14.3                         | 211.2        | 347                  |
| 0453 002    | 2 x 0,75                                       | 4.4                          | 14.4         | 34                   |
| 0453 004    | 3 x 0,75                                       | 4.6                          | 21.6         | 41                   |
| 0453 005    | 4 x 0,75                                       | 5.3                          | 28.8         | 53                   |
| 0453 003    | 5 x 0,75                                       | 5.8                          | 36.0         | 66                   |
| 0453 016    | 6 x 0,75                                       | 6.3                          | 43.2         | 78                   |
| 0453 014    | 7 x 0,75                                       | 6.3                          | 50.4         | 82                   |
| 0453 017    | 10 x 0,75                                      | 8.0                          | 72.0         | 116                  |
| 0453 020    | 12 x 0,75                                      | 8.3                          | 86.4         | 132                  |
| 0453 022    | 16 x 0,75                                      | 9.6                          | 115.2        | 179                  |
| 0453 023    | 20 x 0,75                                      | 10.7                         | 144.0        | 222                  |
| 0453 042    | 25 x 0,75                                      | 12.3                         | 180.0        | 278                  |
| 0453 043    | 32 x 0,75                                      | 13.3                         | 230.4        | 339                  |
| 0453 044    | 34 x 0,75                                      | 14.0                         | 244.8        | 371                  |
| 0453 008    | 2 x 1,0                                        | 4.7                          | 19.2         | 41                   |
| 0453 001    | 3 x 1,0                                        | 5.2                          | 28.8         | 53                   |

| Product No. | Number of conductors x conductor cross-section | Cable outer diameter (appr.) | Copper index | Cable weight (appr.) |
|-------------|------------------------------------------------|------------------------------|--------------|----------------------|
|             | mm <sup>2</sup>                                | mm                           | kg/km        | kg/km                |
| 0453 006    | 4 x 1,0                                        | 5.7                          | 38.4         | 65                   |
| 0453 045    | 5 x 1,0                                        | 6.3                          | 48.0         | 81                   |
| 0453 046    | 6 x 1,0                                        | 6.8                          | 57.6         | 96                   |
| 0453 047    | 7 x 1,0                                        | 6.8                          | 67.2         | 101                  |
| 0453 048    | 10 x 1,0                                       | 8.7                          | 96.0         | 144                  |
| 0453 049    | 12 x 1,0                                       | 9.0                          | 115.2        | 165                  |
| 0453 018    | 16 x 1,0                                       | 10.5                         | 153.6        | 224                  |
| 0453 050    | 20 x 1,0                                       | 11.8                         | 192.0        | 283                  |
| 0453 051    | 25 x 1,0                                       | 13.5                         | 240.0        | 350                  |
| 0453 024    | 2 x 1,5                                        | 5.7                          | 28.8         | 60                   |
| 0453 015    | 3 x 1,5                                        | 6.0                          | 43.2         | 73                   |
| 0453 029    | 4 x 1,5                                        | 6.6                          | 57.6         | 90                   |
| 0453 030    | 5 x 1,5                                        | 7.3                          | 72.0         | 112                  |
| 0453 052    | 6 x 1,5                                        | 7.9                          | 86.4         | 133                  |
| 0453 053    | 7 x 1,5                                        | 7.9                          | 100.8        | 142                  |
| 0453 054    | 10 x 1,5                                       | 10.6                         | 144.0        | 213                  |
| 0453 055    | 12 x 1,5                                       | 11.0                         | 172.8        | 245                  |
| 0453 056    | 16 x 1,5                                       | 12.4                         | 230.4        | 321                  |
| 0453 057    | 20 x 1,5                                       | 14.0                         | 288.0        | 406                  |
| 0453 058    | 25 x 1,5                                       | 15.9                         | 360.0        | 500                  |
| 0453 031    | 2 x 2,5                                        | 6.5                          | 48.0         | 83                   |
| 0453 007    | 3 x 2,5                                        | 6.9                          | 72.0         | 105                  |
| 0453 032    | 4 x 2,5                                        | 7.6                          | 96.0         | 131                  |
| 0453 033    | 5 x 2,5                                        | 8.4                          | 120.0        | 163                  |
| 0453 059    | 6 x 2,5                                        | 9.6                          | 144.0        | 205                  |
| 0453 060    | 7 x 2,5                                        | 9.6                          | 168.0        | 219                  |
| 0453 061    | 10 x 2,5                                       | 12.5                         | 240.0        | 319                  |
| 0453 062    | 12 x 2,5                                       | 13.0                         | 288.0        | 367                  |
| 0453 063    | 16 x 2,5                                       | 14.6                         | 384.0        | 482                  |

Other cross-sections and conductor counts available on request.  
TECHNOKABEL S.A. reserves the right to change specifications without prior notice.