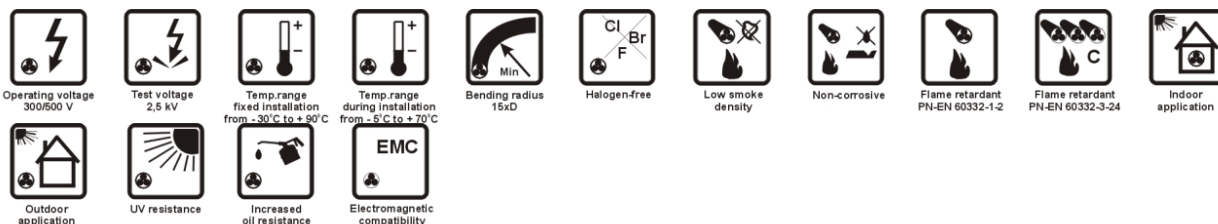
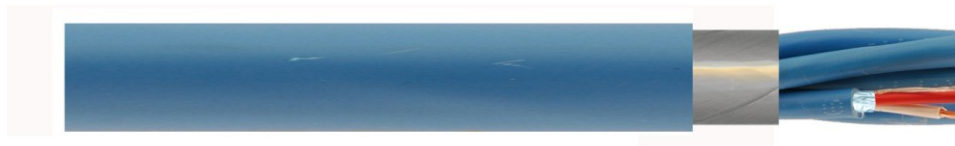


**EISF SHX, EIFA SHX****INSTRUMENTATION CABLES****APPLICATIONS**

**EISF SHX** and **EIFA SHX** instrumentation cables are intended for control and instrumentation circuits, for signal, monitoring and data processing systems and for analogue or digital data transmission, all in industrial electronics applications, allowing particularly for conditions met in chemical, petrochemical and paper industries.

The cables are protected by an overall electrostatic shield against external electric interferences.

Shielded pair structure substantially decreases mutual influence between signals transmitted along the cable.

Steel tape armour in **EIFA SHX** cables offers enhanced protection against mechanical damages and rodent attack.

The cables can also be used for power supply to small auxiliary devices on condition that current-carrying capacity limit (see our *Technical Guide*) is not exceeded.

The cables are suitable for fixed indoor and outdoor installations.

The cables are flame retardant and their smoke emission is low, emitted fumes are non toxic and non corrosive.

The cables are oil-resistant and offer enhanced resistance to aliphatic hydrocarbons.

**CONSTRUCTION**

- bare annealed copper wire conductors,
  - 05** – 0.50 mm<sup>2</sup> (1x0.8 mm),
  - 09** – 0.88 mm<sup>2</sup> (7x0.4 mm)
  - 15** – 1.50 mm<sup>2</sup> (7x0.52 mm),
- insulation made of cross-linked halogen free compound,
- insulated conductors twisted into,
  - pairs **IP** – colour code insulation: white and red,
  - triads **IT** – colour code insulation: white, red and blue,
- pair/triad electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire, cross-section 0.22 mm<sup>2</sup> (7x0.2 mm),
- sheath of shielded pairs/triads made of cross-linked halogen free compound, blue (RAL 5012), other colours also available and printed black number of pair or triad,
- shielded and sheathed pairs or triads laid-up in layers,
- cable core wrapped in polyester tape,
- overall electrostatic shield incorporating aluminium-polyester tape and stranded annealed tinned copper drain wire, cross-section 0.22 mm<sup>2</sup> (7x0.2 mm), number of drain wires from 1 to 3 depending on the cable core diameter,
- cable sheath made of cross-linked halogen free compound, blue (RAL 5012), other colours also available,
- steel tape armour for **EIFA SHX** cable,
- cable covering made of cross-linked halogen free compound, blue (RAL 5012), other colours also available.

## EISF SHX, EIFA SHX

### CHARACTERISTICS

DC loop resistance at 20°C,  
maximum:

|                                |           |
|--------------------------------|-----------|
| 0.50 mm <sup>2</sup> conductor | 75.0 Ω/km |
| 0.88 mm <sup>2</sup> conductor | 42.8 Ω/km |
| 1.50 mm <sup>2</sup> conductor | 24.2 Ω/km |

Resistance unbalance,  
maximum:

|                                |            |
|--------------------------------|------------|
| 0.50 mm <sup>2</sup> conductor | 1.120 Ω/km |
| 0.88 mm <sup>2</sup> conductor | 1.070 Ω/km |
| 1.50 mm <sup>2</sup> conductor | 0.605 Ω/km |

Operating voltage U<sub>0</sub>/U 300/500 V

Voltage test

|                     |            |
|---------------------|------------|
| conductor/conductor | 2500 V rms |
| conductor/screen    | 2000 V rms |

Insulation resistance, minimum 500 MΩ·km

Mutual capacitance,  
maximum:

|                                |           |
|--------------------------------|-----------|
| 0.50 mm <sup>2</sup> conductor | 210 nF/km |
| 0.88 mm <sup>2</sup> conductor | 230 nF/km |
| 1.50 mm <sup>2</sup> conductor | 220 nF/km |

Operating temperature range  
during operation  
during installation

from - 30 to + 90°C  
from - 5 to + 70°C

Corrosivity of emitted gases  
per

very low, halogen free  
PN-EN 60754-1, PN-EN 60754-2,  
IEC 60754-2

pH appr.  
conductivity appr.

6.8  
0.4 μS/mm

Smoke density

low smoke density  
PN-EN 61034-2, IEC 61034-2

light transmittance,  
minimum

70 %

Minimum bending radius

15 x cable diameter

Resistance to aliphatic  
hydrocarbons

NF M 87-202 Annex A

Oil resistance

PN-EN 60811-404

Cable combustibility

flame retardant

Combustibility tests

PN-EN 50265-2-1, IEC 60332-1-2  
PN-EN 60332-3-24, IEC 60332-3-24

Reference standards

NF M 87-202

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

| Product No. | Cable type        | Number of pairs/triads (x 2/3) x conductor cross-section | Cable outer diameter (appr.) | Copper index | Cable weight (appr.) |
|-------------|-------------------|----------------------------------------------------------|------------------------------|--------------|----------------------|
|             |                   | mm <sup>2</sup>                                          | mm                           | kg/km        | kg/km                |
| 1715 001    | 03 IP 05 EISF SHX | 3 x 2 x 0,5                                              | 12.2                         | 38.0         | 126.0                |
| 1715 002    | 07 IP 05 EISF SHX | 7 x 2 x 0,5                                              | 17.6                         | 87.0         | 339.0                |
| 1715 003    | 12 IP 05 EISF SHX | 12 x 2 x 0,5                                             | 23.6                         | 145.0        | 558.0                |
| 1715 004    | 19 IP 05 EISF SHX | 19 x 2 x 0,5                                             | 29.4                         | 229.0        | 867.0                |
|             |                   |                                                          |                              |              |                      |
| 1715 005    | 07 IT 05 EISF SHX | 7 x 3 x 0,5                                              | 18.2                         | 120.0        | 399.0                |
| 1715 006    | 12 IT 05 EISF SHX | 12 x 3 x 0,5                                             | 24.7                         | 205.0        | 673.0                |
|             |                   |                                                          |                              |              |                      |
| 1715 007    | 03 IP 09 EISF SHX | 3 x 2 x 0,88                                             | 15.5                         | 60.0         | 223.0                |
| 1715 008    | 07 IP 09 EISF SHX | 7 x 2 x 0,88                                             | 20.8                         | 138.0        | 470.0                |
| 1715 009    | 12 IP 09 EISF SHX | 12 x 2 x 0,88                                            | 28.0                         | 235.0        | 778.0                |
| 1715 010    | 19 IP 09 EISF SHX | 19 x 2 x 0,88                                            | 34.8                         | 368.0        | 1207.0               |
|             |                   |                                                          |                              |              |                      |
| 1715 011    | 07 IT 09 EISF SHX | 7 x 3 x 0,88                                             | 21.7                         | 197.0        | 574.0                |
| 1715 012    | 12 IT 09 EISF SHX | 12 x 3 x 0,88                                            | 29.4                         | 336.0        | 970.0                |

| Product No. | Cable type        | Number of pairs/triads (x 2/3) x conductor cross-section | Cable outer diameter (appr.) | Copper index | Cable weight (appr.) |
|-------------|-------------------|----------------------------------------------------------|------------------------------|--------------|----------------------|
|             |                   | mm <sup>2</sup>                                          | mm                           | kg/km        | kg/km                |
| 1716 001    | 03 IP 05 EIFA SHX | 3 x 2 x 0,5                                              | 16.4                         | 38.0         | 348.0                |
| 1716 002    | 07 IP 05 EIFA SHX | 7 x 2 x 0,5                                              | 21.0                         | 87.0         | 581.0                |
| 1716 003    | 12 IP 05 EIFA SHX | 12 x 2 x 0,5                                             | 27.2                         | 145.0        | 891.0                |
| 1716 004    | 19 IP 05 EIFA SHX | 19 x 2 x 0,5                                             | 33.0                         | 229.0        | 1277.0               |
|             |                   |                                                          |                              |              |                      |
| 1716 005    | 07 IT 05 EIFA SHX | 7 x 3 x 0,5                                              | 21.6                         | 120.0        | 649.0                |
| 1716 006    | 12 IT 05 EIFA SHX | 12 x 3 x 0,5                                             | 28.1                         | 205.0        | 1006.0               |
|             |                   |                                                          |                              |              |                      |
| 1716 007    | 03 IP 09 EIFA SHX | 3 x 2 x 0,88                                             | 18.7                         | 60.0         | 440.0                |
| 1716 008    | 07 IP 09 EIFA SHX | 7 x 2 x 0,88                                             | 24.2                         | 138.0        | 754.0                |
| 1716 009    | 12 IP 09 EIFA SHX | 12 x 2 x 0,88                                            | 31.8                         | 235.0        | 1184.0               |
| 1716 010    | 19 IP 09 EIFA SHX | 19 x 2 x 0,88                                            | 38.8                         | 368.0        | 1727.0               |
|             |                   |                                                          |                              |              |                      |
| 1716 011    | 07 IT 09 EIFA SHX | 7 x 3 x 0,88                                             | 25.3                         | 197.0        | 882.0                |
| 1716 012    | 12 IT 09 EIFA SHX | 12 x 3 x 0,88                                            | 29.4                         | 336.0        | 1397.0               |

Other cross-sections and pair or triad counts available on request.

TECHNOKABEL S.A. reserves the right to change specifications without prior notice.