

## Table 6-1: Type designations for control cables and harmonised cables (excerpts)

### Control cables

□ □ □ □ □ □ □ x □  
1 2 3 4 5 6 7 8

#### 1. Basic type

N VDE standard  
(N) in line with VDE

#### 2. Insulating material

Y Thermoplastic resins  
X Cross-linked thermoplastic resins  
G Elastomers  
HX Halogen-free materials

#### 3. Cable designation

A Core cable  
D Solid wire  
AF Fine-wire core cable  
F Socket core  
L Fluorescent tube cable  
LH Connecting cable,  
light mechanical loads  
MH Connecting cable,  
moderate mechanical loads  
SH Connecting cable,  
heavy mechanical loads  
SSH Connecting cable for special loads  
SL Control cable/welding cable  
S Control cable  
LS Light control cable  
FL Flat cable  
Si Silicone cable  
Z Twin cable  
GL Glass fibre  
Li Braided conductor as per VDE 0812  
LiF Braided conductor as per VDE 0812,  
extra-fine wire

#### 4. Special features

T Supporting element  
Ö Enhanced oil resistance  
U Flame-retardant  
w Heat-resistant, weather-resistant  
FE Insulation retained for a limited time  
C Screening braid  
D Screening as Cu wire wrapping  
S Steel wire braiding as mech. protection

#### 5. Sheaths

As point 2.  
"Insulating material" P/PUR polyurethane

#### 6. Protective conductor

-O Without protective conductor  
-J With protective conductor

#### 7. Number of cores

... number of cores

#### 8. Conductor cross-section

Figures in mm<sup>2</sup>

### Harmonised cables

□ □ □ □ □ - □ □ □ □  
1 2 3 4 5 6 7 8 9

#### 1. Basic type

H Harmonised type  
A National type  
X or S in the style of a harmonized type

#### 2. Nominal voltage

01 100/100 volts  
03 300/300 volts  
05 300/500 volts  
07 450/750 volts

#### 3. Insulating material

V PVC  
V2 PVC +90 °C  
V3 PVC flexible at cold temperatures  
B Ethylene propylene rubber  
E PE polyethylene  
X XPE, cross-linked PE  
R Rubber  
S Silicone rubber

#### 4. Outer/inner sheath material

V PVC  
V2 PVC +90 °C  
V3 PVC flexible at cold temperatures  
V5 PVC with enhanced oil resistance  
R Rubber  
N Chloroprene based rubber  
Q Polyurethane  
J Glass fibre braiding  
T Textile braiding  
S Silicone rubber

#### 5. Special features

C4 Copper wire screen braiding  
H Flat cable, divisible  
H2 Flat cable, not divisible  
H6 Flat cable, not divisible,  
for lifts  
H8 Helical/spiral cable

#### 6. Conductor type

U Single-wire  
R Multi-wire  
K Fine-wire (fixed installation)  
F Fine-wire (flexible installation)  
H Extra-fine wire  
Y Tinsel wire  
D Fine-wire conductor  
for welding cable  
E Extra-fine wire conductor  
for welding cable

#### 7. Number of cores

... number of cores

#### 8. Protective conductor

X Without protective conductor  
G With protective conductor

#### 9. Conductor cross-section

Figures in mm<sup>2</sup>

### Telecommunications cables

□ □ - □ □ □ □ x □ x □ □ □  
1 2 3 4 5 6 7 8 9 10

#### 1. Basic type

A- Outdoor cable  
G- Mining cable  
J- Installation cable  
Li Stranded conductor, flexible cable  
S- Jumper cable

#### 2. Additional designation

J Induction protection  
E Electronics

#### 3. Insulating material

Y PVC  
11Y PUR  
2Y Polyethylene  
02Y Cellular PE  
9Y PP  
5Y PTFE  
6Y FEP  
7Y ETFE  
H Halogen-free compound

#### 4. Special features

C Copper screen braiding  
D Copper wrapping  
(ST) Metal foil screening  
(L) Aluminium strip  
F Petroleum jelly filling  
LD Corrugated aluminium sheath  
(K) Copper strip screening  
(Z) Steel wire braiding  
W Corrugated steel sheath  
b Armouring

#### 5. Sheathing

(see point 3. "Insulating material")

#### 6. Number of elements

... number of stranding elements

#### 7. Stranding element

1 Single core  
2 Pair  
3 Triple

#### 8. Conductor diameter or cross section

... in mm or mm<sup>2</sup>

#### 9. Stranding element

St Star quad (phantom)  
StI Star quad (trunk cable)  
StII Star quad (local cable)  
TF Star quad for TF  
S Signal cable (railway)  
PiMF Screened pair  
(TP) Twisted Pair  
PiD Pairs in copper wrapping

#### 10. Stranding type

Lg Twisted into layers  
Bd Twisted into bundles

EXAMPLE: NSHTÖU 24G 1.5

ÖLFLEX® CRANE NSHTÖU cable, 24-core,  
with protective cond., cross-section: 1.5 mm<sup>2</sup>

EXAMPLE: H05 VV-F 3G 1.5

Medium PVC hose, 3-core,  
with protective cond., cross-section: 1.5 mm<sup>2</sup>

EXAMPLE: A2Y(L)2Y 6 x 2 x 0.8 Bd

Telephone cable for local network  
with PE insulation and layered sheath

**Table 6-2: Type designations for telecommunications cables and fibre-optic cables****Fibre-optic cables**

□ – □ □ □ □ □ □ □ □ □ □  
1 2 3 4 5 6 7 8 9 10

**1. Product application area**

|          |                                       |
|----------|---------------------------------------|
| A        | Outdoor cable                         |
| AT       | Outdoor cable, divisible              |
| J        | Indoor cable                          |
| J/A or U | Indoor/outdoor cable, universal cable |

**2. Buffered fibre type**

|   |                       |
|---|-----------------------|
| B | Loose tube, unfilled  |
| D | Loose tube, filled    |
| V | Tight-buffered fibres |

**3. Design elements**

|   |                         |
|---|-------------------------|
| F | Petroleum jelly filling |
| Q | Swelling tape           |

**4. Further design elements**

|   |                             |
|---|-----------------------------|
| S | Metal element in cable core |
|---|-----------------------------|

**5. Sheath materials**

|        |                                                    |
|--------|----------------------------------------------------|
| 2Y     | PE sheath                                          |
| 11Y    | PUR sheath                                         |
| H      | Halogen-free sheath                                |
| (ZM)   | With metallic strain relief elements               |
| (ZN)   | With non-metallic strain relief elements           |
| (ZN)2Y | PE sheath with non-metallic strain relief elements |

**6. Armouring**

|        |                                        |
|--------|----------------------------------------|
| B      | Armouring                              |
| B2Y    | Armouring with PE casing               |
| (BN)   | Glass yarn armouring                   |
| (SG)   | Steel sheath                           |
| (SR)   | Corrugated steel sheath                |
| (SR)2Y | Corrugated steel sheath with PE Sheath |

**7. Number of fibres**

Number of fibres

**8. Fibre type**

|   |                                        |
|---|----------------------------------------|
| E | Single-mode fibre glass/glass (SM GOF) |
| G | Gradient fibre glass/glass (MM GOF)    |
| K | Step index fibre glass/plastic (PCF)   |
| P | Polymer optical fibre/plastic (POF)    |

**9. Core diameter/fibre sheath diameter**

|          |                            |
|----------|----------------------------|
| 50/125   | Multimode glass fibre      |
| 62.5/125 | Multimode glass fibre      |
| 9/125    | Single-mode glass fibre    |
| 200/230  | Plastic-coated glass fibre |
| 980/1000 | Polymer optical fibre      |

**10. Category: fibre quality**

|     |                                           |
|-----|-------------------------------------------|
| OM4 | For 50/125 OM4 multimode fibres           |
| OM3 | For 50/125 OM3 multimode fibres           |
| OM2 | For 50/125 OM2 multimode fibres           |
| OM1 | For 62.5/125 OM1 multimode fibres         |
| OS2 | For 9/125 OS2 Single-mode fibres (G 652D) |

**EXAMPLE 1: A-DQ(ZN)(SR)2Y 12G 50/125 OM3**

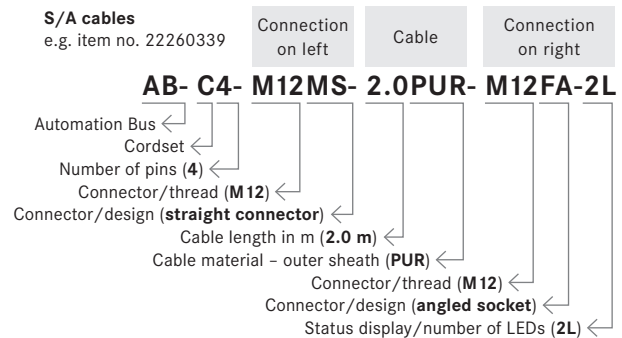
Outdoor cable with corrugated steel sheath, central loose tube, non-metallic strain relief made of glass yarn, 12 fibres, 50/125 µm OM3 multimode fibres

**EXAMPLE 2: J-V2Y(ZN)11Y 2P 980/1000**

Plastic fibre-optic cable, two-fibre (duplex), indoor cable with PE inner sheath, non-metallic strain relief, PUR outer sheath

**Type designations for UNITRONIC® SENSOR****S/A cables**

e.g. item no. 22260339



**MS** – straight connector

**MA** – angled connector

**FS** – straight socket

**FA** – angled socket

**M8, M12, M16, M23** – thread

**L** – status display/LEDs

**SH** – screened version

**HD** – Hygienic Design

**VA** – stainless steel knurl

**M12Y** – M12 Y connector

**B** – bridged

**3-, 4-, 5-, 8-, ..** number of pins

**A, AD, B, BI, C, CI** – valve connector type

**S** – valve connector with Z diode

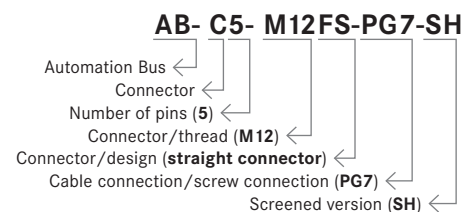
**SV** – valve connector with varistor

**SVC** – valve connector with varistor and commutator

**SUP** – valve connector with suppressor diode



**mountable connector** e.g. item no. 22260127



**MS** – straight connector

**MA** – angled connector

**FS** – straight socket

**FA** – angled socket

**P** – piercing connection

**SH** – screened version

**M8, M12, M16, M23** – thread

**3-, 4-, 5-, 8-, ..** number of pins

**PG7, PG9, PG11, PG13** – cable connection

**F0.34** (fast connection, max. 0.34 mm<sup>2</sup> cond. cross-sec.)

**F0.75** (fast connection, max. 0.75 mm<sup>2</sup> cond. cross-sec.)

**M16-0.5** (M16 flush-type conn. with 0.5 m PUR strand)

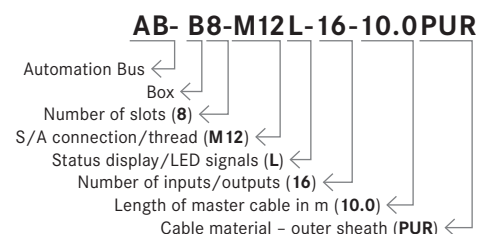
**PG9-0.5** (PG9 flush-type conn. with 0.5 m PUR strand)

**DSI** – flush-type connector (rear wall mounting)

**PO** – flush-type connector (can be positioned)



**S/A passive distributor box** e.g. item no. 22260025



INFO: S/A box with **double** assignment →  $\frac{\text{(number of inputs/outputs)}}{\text{(number of slots)}} = 2$

**PUR** – distributor box with perm. connected master cable (PUR)

**C** – distributor box with master cable conn. (pluggable screw connection)

**M8L** – distributor box with M8 slots and LED signals

**M16** – distributor box with M16 master cable conn.

**M12** – distributor box with M12 master cable conn.

Further abbreviations:

**AB-PC** – Automation Bus Power Cable

**AB-PB** – Automation Bus PROFIBUS

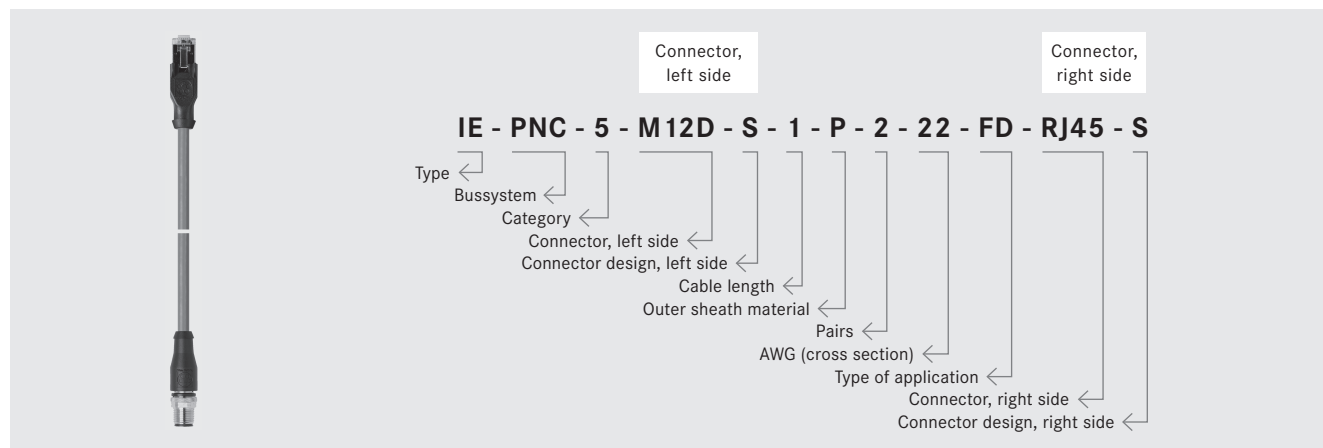
**AB-DN** – Automation Bus DeviceNet

**AB-ASI** – Automation Bus AS-Interface

**AB-ASI-J** – AS-Interface distributor

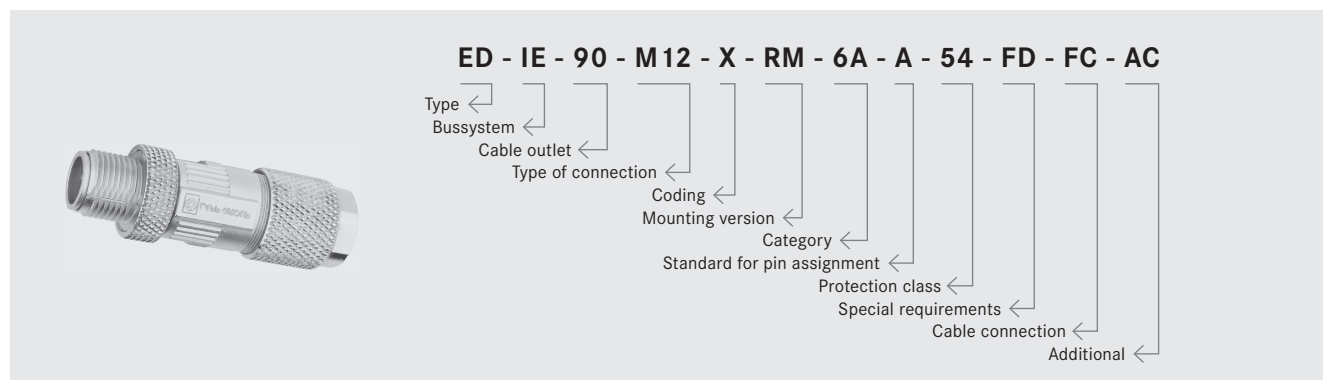
Table 6-3: Data communication systems for ETHERNET technology

## Industrial ethernet articlecode for patchcords



|                                                                                                                                     |                                                                                                                                                                                                                 |                                                                                           |                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Type</b><br>IE Industrial Ethernet                                                                                            | <b>4. Connector, left side</b><br>M8 M8 A-coded, male<br>M8F M8 A-coded, female<br>M12D M12 D-coded, male<br>M12DF M12 D-coded, female<br>M12X M12 X-coded, male<br>M12XF M12 X-coded, female<br>RJ45 RJ45 male | <b>7. Outer sheath material</b><br>H Halogen free<br>P PUR<br>Y PVC                       | <b>10. Type of application</b><br>1 Fixed installation<br>7 Flexible application<br>FD Drag chain application<br>T Torsion stressed application                                                                                        |
| <b>2. Bussystem</b><br>N/A Default Ethernet<br>PNA PROFINET® Type A<br>PNB PROFINET® Type B<br>PNC PROFINET® Type C<br>EC EtherCAT® | <b>5. Connector design, left side</b><br>S Straight (180°)<br>A Angled (90°)                                                                                                                                    | <b>8. Pairs</b><br>2 2 x 2 cores<br>4 4 x 2 cores                                         | <b>11. Connector, right side</b><br>M8 M8 A-coded, male<br>M8F M8 A-coded, female<br>M12D M12 D-coded male<br>M12DF M12 D-coded female<br>M12X M12 X-coded male<br>M12XF M12 X-coded female<br>RJ45 RJ45 male<br>OE Open conductor end |
| <b>3. Category</b><br>5 Cat.5/Cat.5e<br>6 Cat.6<br>6A Cat.6 <sub>A</sub>                                                            | <b>6. Cable length</b><br>0,5 0,5 m<br>1 1 m<br>2 2 m<br>5 5 m<br>10 10 m<br>15 15 m<br>20 20 m                                                                                                                 | <b>9. AWG (cross section)</b><br>22 AWG22<br>23 AWG23<br>24 AWG24<br>26 AWG26<br>27 AWG27 | <b>12. Connector design, right side</b><br>S Straight (180°)<br>A Angled (90°)                                                                                                                                                         |

## EPIC® DATA Code for Ethernet applications



|                                                                                                            |                                                                                                 |                                                                             |                                                                                           |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <b>1. Type</b><br>ED EPIC® DATA                                                                            | <b>5. Coding</b><br>N/A D-coded<br>A A-coded<br>D D-coded<br>X X-coded                          | <b>7. Category</b><br>5 Cat.5/Cat.5e<br>6 Cat.6<br>6A Cat.6 <sub>A</sub>    | <b>10. Special requirements</b><br>FD Especially for 19 wire stranded cores               |
| <b>2. Bussystem</b><br>IE Industrial Ethernet                                                              | <b>6. Mounting version</b><br>RM Rear-mounting<br>FM Front-mounting                             | <b>8. Standard for pin assignment</b><br>A T568A<br>B T568B<br>PN PROFINET® | <b>11. Cable connection</b><br>N/A Screw (= Standard)<br>FC Fastconnect<br>FZ Spring type |
| <b>3. Cable outlet</b><br>90 90°<br>AX Straight (0°)                                                       | <b>9. Protection class</b><br>N/A IP20 (= Standard)<br>54 IP54<br>65 IP65<br>67 IP67<br>68 IP68 | <b>12. Additional</b><br>AC-DC Accessory Dust Cap                           |                                                                                           |
| <b>4. Type of connection</b><br>N/A/RJ45 RJ45 male<br>RJ45F RJ45 female<br>M12 M12 male<br>M12F M12 female |                                                                                                 |                                                                             |                                                                                           |