

# Shielded cables for industrial applications



## CABLES

Dedicated cables

Special versions on request

Standard cables for industrial applications

More safety for your application

### What makes the difference between cables?

The connection cable as a mechanical device is not submitted to the EMC specifications, though it can affect the emission immunity of the devices to which it is connected.

The use of cables with industrial standards has many advantages:

- Protection against EM fields: The shield of the cable is connected to the metallised hood of the D-sub connector. The connection between housing and shield creates an earthing on both sides.
- High noise immunity: More protection through adapted pin assignment of the cables. The way the cable leads are twisted in pairs corresponds to the pin assignment of the boards.

### Industry-standard D-sub connectors versus SCSI-connector

D-sub connectors fit the high requirements of industrial measurement and control. They are robust and have a high noise immunity. This is why we equip all our boards with D-sub connectors.

### Specifications of the cables (STxxxx type)

Specifications:	Special PVC data line for electronic control tasks according to VDE 0812 and 0814
Temperature range:	-30 °C to +80 °C laid permanently
Operating voltage:	Max. 350 V
Test voltage:	1200 V (0.14 mm <sup>2</sup> )
Insulation resistance:	± 20 MΩ / km
Inductance:	Approx. 0.65 mH / km
Impedance:	Approx. 78 Ω
Capacitive coupling:	Approx. 300 pF/100m
Connector cross section:	0.14 mm <sup>2</sup> (ST010-S and ST011-S with a connector cross section of 0.25 mm <sup>2</sup> )
Attenuation factor:	> 40 dB between 300 and 900 MHz
Construction:	The cable screen is screwed with low impedance over the strain relief on both sides of the housing hood with locking screws, the connections are crimped.
Minimum bending radius:	Laid flexibly 15 x cable diameter Laid permanently 6 x cable diameter

### Application

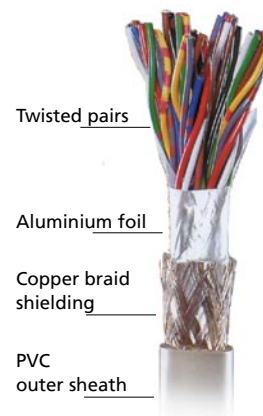
Suitable for use as control or signal cables in noisy environment, for indoor or outdoor applications. The tight braid reduces the emissions. The copper braid is used as "ground". Twisted pairs provide protection against crosstalk and external interference. The cables are suited for dry or damp environments.

### Design of the cables

- Plain copper conductor, fine-strand according to IEC 60228
- Special PVC conductor insulation
- Twisted-pair conductors
- Core identification according to DIN 47100
- Conductors laid up in layers
- Aluminium foil
- Tinned copper braid shielding
- Covering grade approx. 85%
- Special outer sheath, grey PVC
- Oil and petrol resistant according to VDE 0250 and 04772
- Self-extinguishing (SE) and flame-retardant, according to IEC 60332-1

### Special versions on request

- Other lengths
- Open cable end, on one or on both ends
- Bent connector on one or on both ends
- ...



# Shielded standard cables with metallised hoods



Bent connector



ST01x-5 for high currents



Open cable end

Cable designation	Description	Twisted pairs	Shielded round cable	Length
<b>Round cable, 1 to 20 m, 2 x 37-pin D-Sub connector</b>				
ST010_1	Female connector / male connector	✓	✓	1 m
ST010	Female connector / male connector	✓	✓	2 m
ST010_3	Female connector / male connector	✓	✓	3 m
ST011	Female connector / male connector	✓	✓	5 m
ST011_10	Female connector / male connector	✓	✓	10 m
ST011_15	Female connector / male connector	✓	✓	15 m
ST011_20	Female connector / male connector	✓	✓	20 m
<b>Round cable with one 90° bent female connector, 2 x 37-pin D-Sub connector</b>				
ST010_1_ABGW	90° bent female connector / male connector	✓	✓	1 m
ST010_ABGW	90° bent female connector / male connector	✓	✓	2 m
ST010_3_ABGW	90° bent female connector / male connector	✓	✓	3 m
ST011_ABGW	90° bent female connector / male connector	✓	✓	5 m
<b>Round cable with two 90° bent connectors, 2 x 37-pin D-Sub connectors</b>				
ST010_1_2XABGW	Female connector / male connector	✓	✓	1 m
ST010_2XABGW	Female connector / male connector	✓	✓	2 m
<b>Round cable, 2 m and 5 m, or high currents (for 24 V digital outputs), 2 x 37-pin D-Sub connector</b>				
ST010_S	Female connector / male connector, with separate connection for 24 V voltage supply	✓	✓	2 m
ST011_S	Female connector / male connector, with separate connection for 24 V voltage supply	✓	✓	5 m
<b>Round cable with one open end, 1 x 37-pin D-Sub connector</b>				
ST010_1_0	Female connector / other side open and bared, incl. colour table according to DIN 47100	✓	✓	1 m
ST010_0	Female connector / other side open and bared, incl. colour table according to DIN 47100	✓	✓	2 m
ST010_3_0	Female connector / other side open and bared, incl. colour table according to DIN 47100	✓	✓	3 m
ST011_0	Female connector / other side open and bared, incl. colour table according to DIN 47100	✓	✓	5 m
<b>Round cable between digital I/O boards and relay output board PX8500, 2 x 37-pin D-Sub connectors</b>				
ST021	Between digital I/O boards (1500) and PX8500 female connector / male connector	✓	✓	2 m
ST022	Between two PX8500 or PX90x male connector / male connector	✓	✓	2 m
ST8500	Ribbon cable between two PX8500-x			5 cm
<b>Miscellaneous cables</b>				
ST1711-50	Connection cable for the APICle-1711, for connecting the PX8001, 78-pin D-Sub male connector / 50-pin D-Sub male connector Enables the compatibility with the APCI-1710	✓	✓	2 m
ST3003-A	Connection cable for the APCI-3003, for the analog input signals, 15-pin male connector / 37-pin male connector	✓	✓	2 m
ST3003-D	Cable for the APCI-3003, for the digital signals, 15-pin male connector / 37-pin male connector	✓	✓	2 m
ST3122-A	Cable for the APCI-3122 and APCI-3504, for the analog outputs 15-pin male connector / 15-pin male connector	✓	✓	2 m
ST3122-A_5	Cable for the APCI-3122 and APCI-3504, for the analog outputs 15-pin male connector / 15-pin male connector	✓	✓	5 m
ST3122-D	Cable for the APCI-3122 and APCI-3504, for the digital I/O 26-pin male connector / 26-pin male connector	✓	✓	2 m



Bent connector



Cable designation	Description	Twisted pairs	Shielded round cable	Length
ST3122-D_5	Cable for the APCI-3504, for the digital I/O 26-pin male connector / 26-pin male connector	✓	✓	5 m
ST3200	50-pin female connector / 50-pin male connector	✓	✓	2 m
ST3601	Coaxial cable for the APCI-3600			2 m
<b>Round cables, 2 x 50-pin D-Sub connector</b>				
ST370-16_1	Female connector / male connector	✓	✓	1 m
ST370-16	Female connector / male connector	✓	✓	2 m
ST3701	Cable for the APCI-3701, female connector / male connector	✓	✓	2 m
ST370-16_5	Female connector / male connector	✓	✓	5 m
ST370-16_1_ABGW	90° bent female connector / male connector	✓	✓	1 m
ST370-16_ABGW	Female connector / 90° bent male connector	✓	✓	2 m
ST370-16_5_ABGW	90° bent female connector / male connector	✓	✓	5 m
ST3701	Round cable for the APCI-3701 female connector / male connector	✓	✓	2 m
<b>Round cables for the APCI-8001, 2 x 50-pin D-Sub connector</b>				
ST8001	Female connector / male connector	✓	✓	2 m
ST8001_5	Female connector / male connector	✓	✓	5 m
<b>Round cables for serial interfaces</b>				
ST074	Connection cables for 4-port serial interfaces 37-pin female connector / 4 x 25-pin D-Sub male connector		✓	35 cm
ST075	Connection cables for 4-port serial interfaces 37-pin female connector / 4 x 9-pin D-Sub male connector		✓	35 cm
ST075_ABGW	Connection cables for 4-port serial interfaces, 37-pin D-Sub female connector / 4 x 9-pin D-Sub male connector 90° bent female connector		✓	35 cm
ST7809	Connection cables for 8-port serial interfaces 78-pin male connector / 8 x 9-pin female connector		✓	35 cm
ST7825	Connection cables for 8-port serial interfaces 78-pin male connector / 8 x 25-pin male connector		✓	35 cm

## Ribbon cables



Cable designation	Description
FB MSX-DIG-IO	For the MSX-Box option MSX-DIG-IO, 9-pin ribbon cable with D-Sub connector with bracket.
FB-INTERBUS	For the APCI-8001, for connecting the Interbus. Ribbon cable, 9-pin D-Sub female connector with bracket.
FB-PROFIBUS	For the MSX Box, for connecting the Profibus. Ribbon cable, 9-pin D-Sub female connector with bracket.
FB104-1500	For the digital I/O port of the PC104-PLUS1500. Ribbon cable, 37-pin D-Sub male connector
FB3000	Ribbon cable for the digital I/O port, 37-pin D-Sub male connector with bracket.
FB3001	Ribbon cable for the digital I/O port of the CompactPCI boards. 37-pin D-Sub male connector with 3U bracket.
FB3003	Ribbon cable for the digital I/O port, 37-pin D-Sub male connector with bracket.
FB3600-AC	For the analog and counter functions of the APCI-3600. Ribbon cable, 2x15-pin D-Sub male connector with bracket.
FB3600-D	For the digital I/O port of the APCI-3600. Ribbon cable, 37-pin D-Sub male connector with bracket.
FB3702	For APCI-800x, APCI-30xx and APCI-31xx. Ribbon cable, 50-pin D-Sub male connector with bracket.
FB8001	For APCI-800x, APCI-30xx and APCI-31xx. ribbon cable, 50-pin D-Sub male connector with bracket.
FB-CAN	For APCI-800x, between OPMF and 9-pin D-Sub male connector with bracket with bracket for external CAN connection