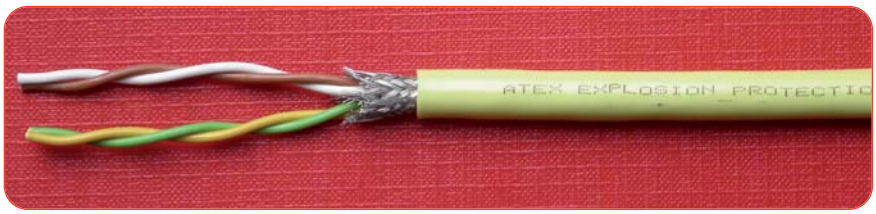
ATEX CIE-2 x 2 x 0.75 mm²-Twisted Pair (TP)-Cable

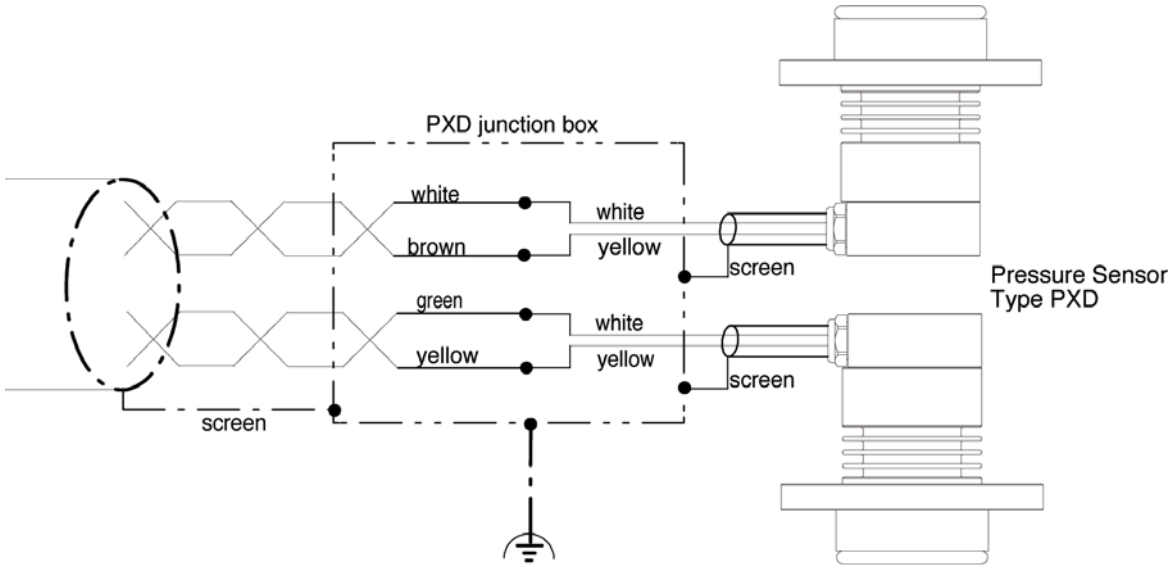
Cable routing and connection instructions

For signal transmission from PXD Sensors and/or AISC Equipment (Suppressors) to the Control Panel, preferably a shielded twisted pair cable (ATEX CIE) should be used. Connect the outgoing and return line (+/ -) to a twisted pair (see below).



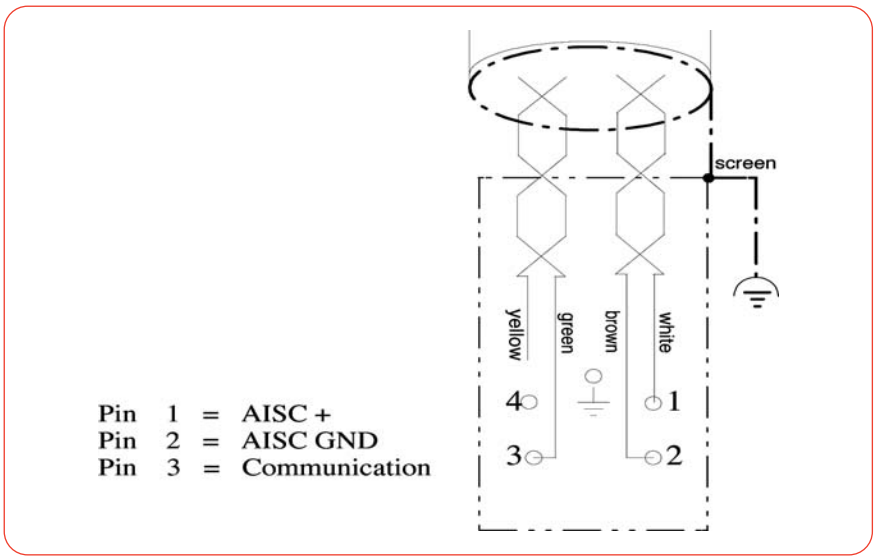
ATEX CIE (TP) 2 x 2 x 0,75mm²

Example:
a) PXD Sensor connection:



NOTE: PXD circuits are intrinsically safe! Follow instructions for cable routing of intrinsic safe circuits.

b) AIS-Suppressor-Connector:

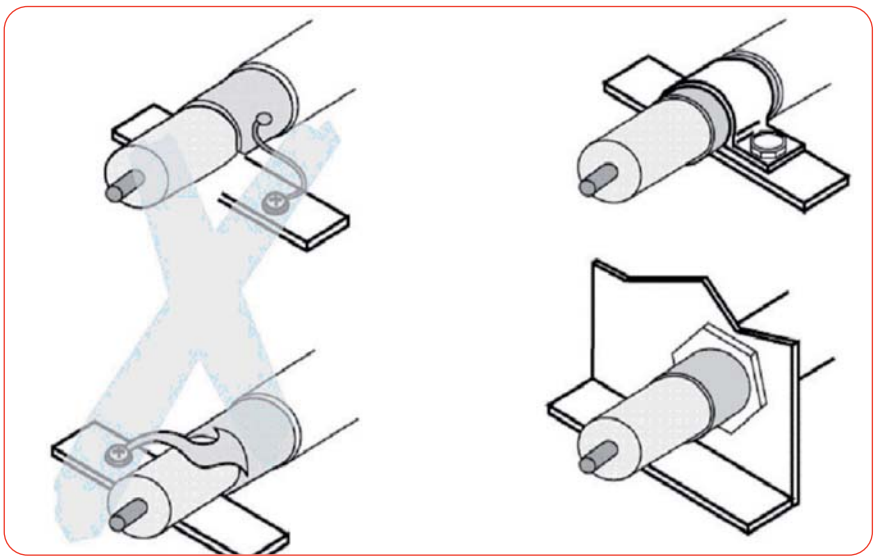


ATEX EXPLOSIONSSCHUTZ GMBH STAMMHAUS DEUTSCHLAND
Auf der Alm 1 | 59519 Möhnesee
Phone: +49 (0) 29 24.87 90-0 | Fax: +49 (0) 29 24.87 90-455
info@atex100.com | www.atex100.com

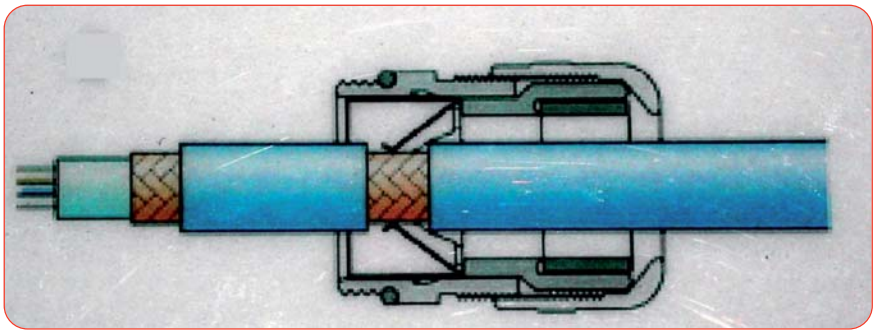
All cable screens should be tied to high frequency ground (EN 60204-1) on both ends (*unless otherwise noted!)

no pigtails!

The cable screen should be continuous from the transmitter to the receiver.
All the earthing connections should be as short as possible. Screen should be earthed on both ends.



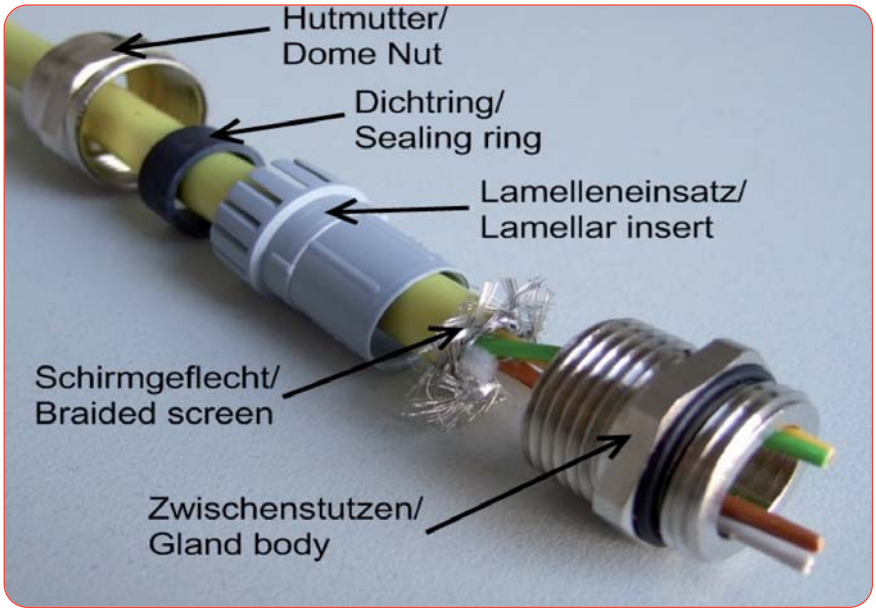
EMC cable glands are attached to all ATEX components. The screen has to be connected as shown in the pictures below (shield bonded 360°)!



Connection Type “Lapp”

Assembly instruction:

1) Cut off outer cable sheath and expose braided screen over a length of approx. 10–15 mm, depending on the cable diameter.
2) Push dome nut and lamellar insert with sealing ring on to the cable.
3) Bend braided screen outwards at a right angle (90°).
4) Fold braided screen towards outer sheath, i.e. by another 180°.
5) Push gland body up to braided screen and turn briefly around both sides of the cable axis.
6) Push lamellar insert with sealing ring into gland body and snap anti-rotation element into place.
7) Firmly screw on dome nut.



Connection Type “EVG” (since July 2007)

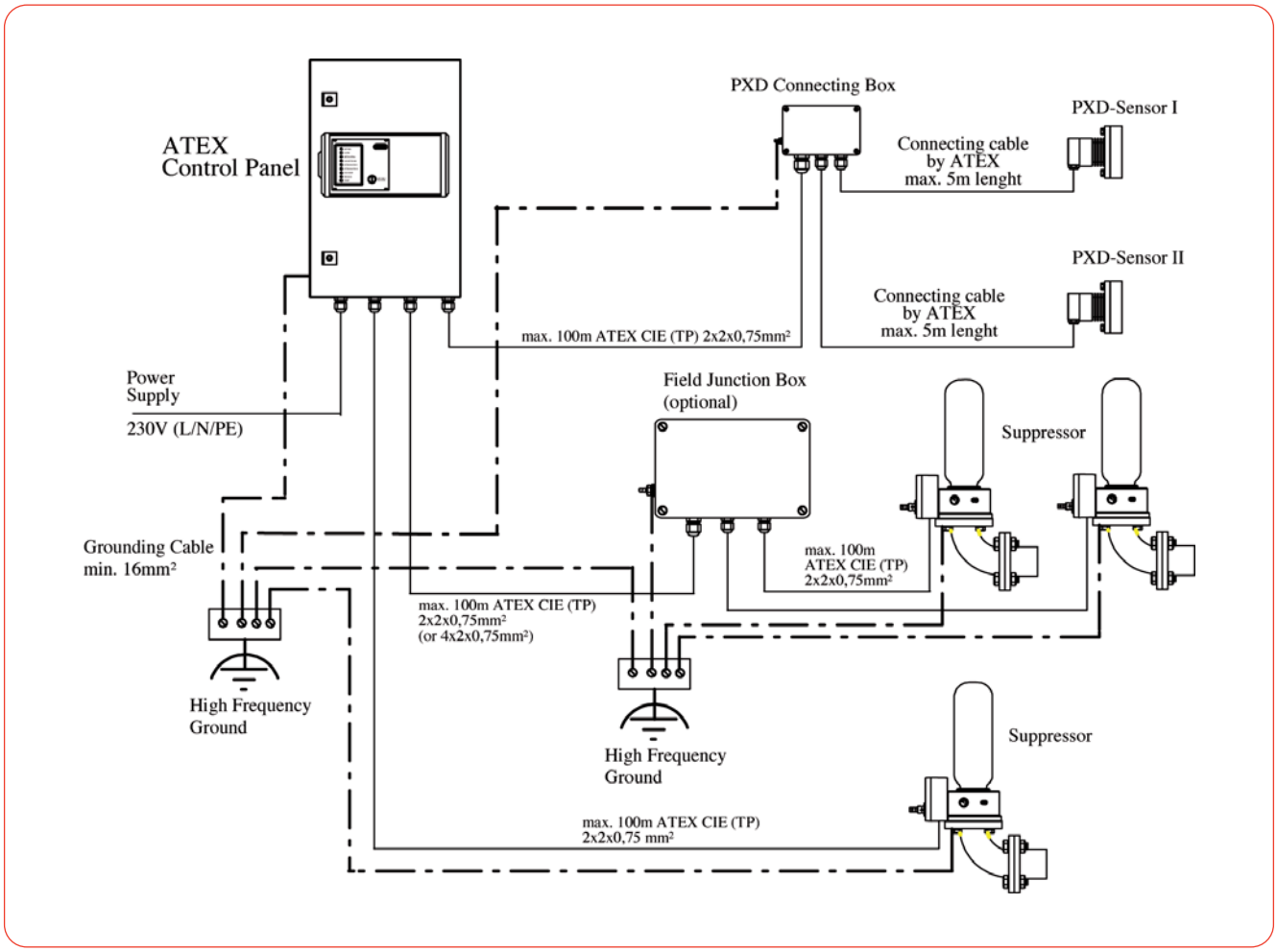
ATEX INTERNATIONAL

ATEX EXPLOSIONSSCHUTZ GMBH STAMMHAUS DEUTSCHLAND
Auf der Alm 1 | 59519 Möhnesee
Phone: +49 (0) 29 24.87 90-0 | Fax: +49 (0) 29 24.87 90-455
info@atex100.com | www.atex100.com

High frequency grounds are not equal to safety grounds according to VDE 0100! EMC ground connectors provide only secondary protection against dangerous contact voltages.

Avoid compensation current through the cable shield! Therefore: run separate grounding cable (min. 16mm²) to all field components (see below) and connect it to the Common High Frequency Ground connector.

Cable routing:
Wiring diagram (example) for ATEX suppression system with high frequency ground network:



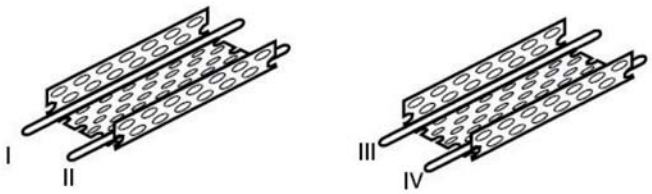
High Frequency (HF) Ground Network (star configuration)

ATEX INTERNATIONAL

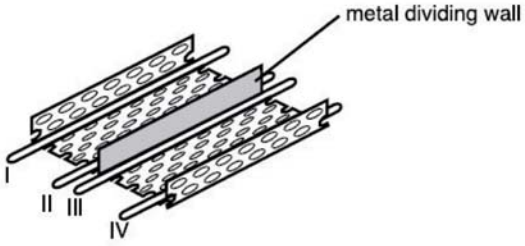
ATEX EXPLOSIONSSCHUTZ GMBH STAMMHAUS DEUTSCHLAND
Auf der Alm 1 | 59519 Möhnesee
Phone: +49 (0) 29 24.87 90-0 | Fax: +49 (0) 29 24.87 90-455
info@atex100.com | www.atex100.com

Cable routing is very important for the EMC suitability of an installation. The cables should be classified into four groups: I, II, III and IV

Cross lines from Group I, II and III, IV at right angels



Ideal: Route cables in separate cable ducts



Alternate: Separate lines using metal rail

Group I: Very susceptible (analog signals, instrument lines)

Group II: Susceptible (digital signals, sensor cables, 24 VDC switching signals, communication signals, e.g. field busses)

Group III: Noise source (control cables for inductive loads, unswitched power cables, motor breakers, contactors)

Group IV: Strong noise sources (output cables of frequency converters, supply cables for welding equipment, switched power cables)

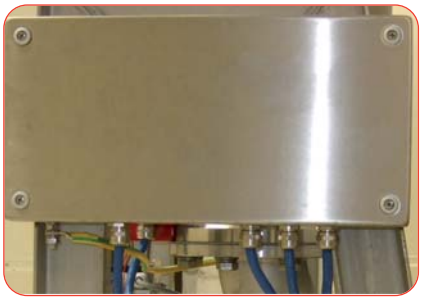
ATEX INTERNATIONAL

ATEX EXPLOSIONSSCHUTZ GMBH STAMMHAUS DEUTSCHLAND
Auf der Alm 1 | 59519 Möhnesee
Phone: +49 (0) 29 24.87 90-0 | Fax: +49 (0) 29 24.87 90-455
info@atex100.com | www.atex100.com

HF-Ground connection PXD Junction Box

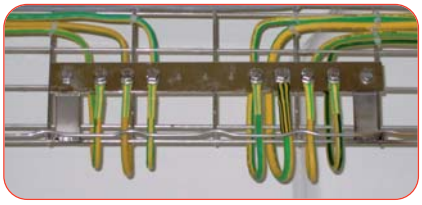
HF-Ground connection AIS-Suppressor

HF-Ground connection Control Panel Type “AE”



HF-Ground connection for Suppressor Junction-Box

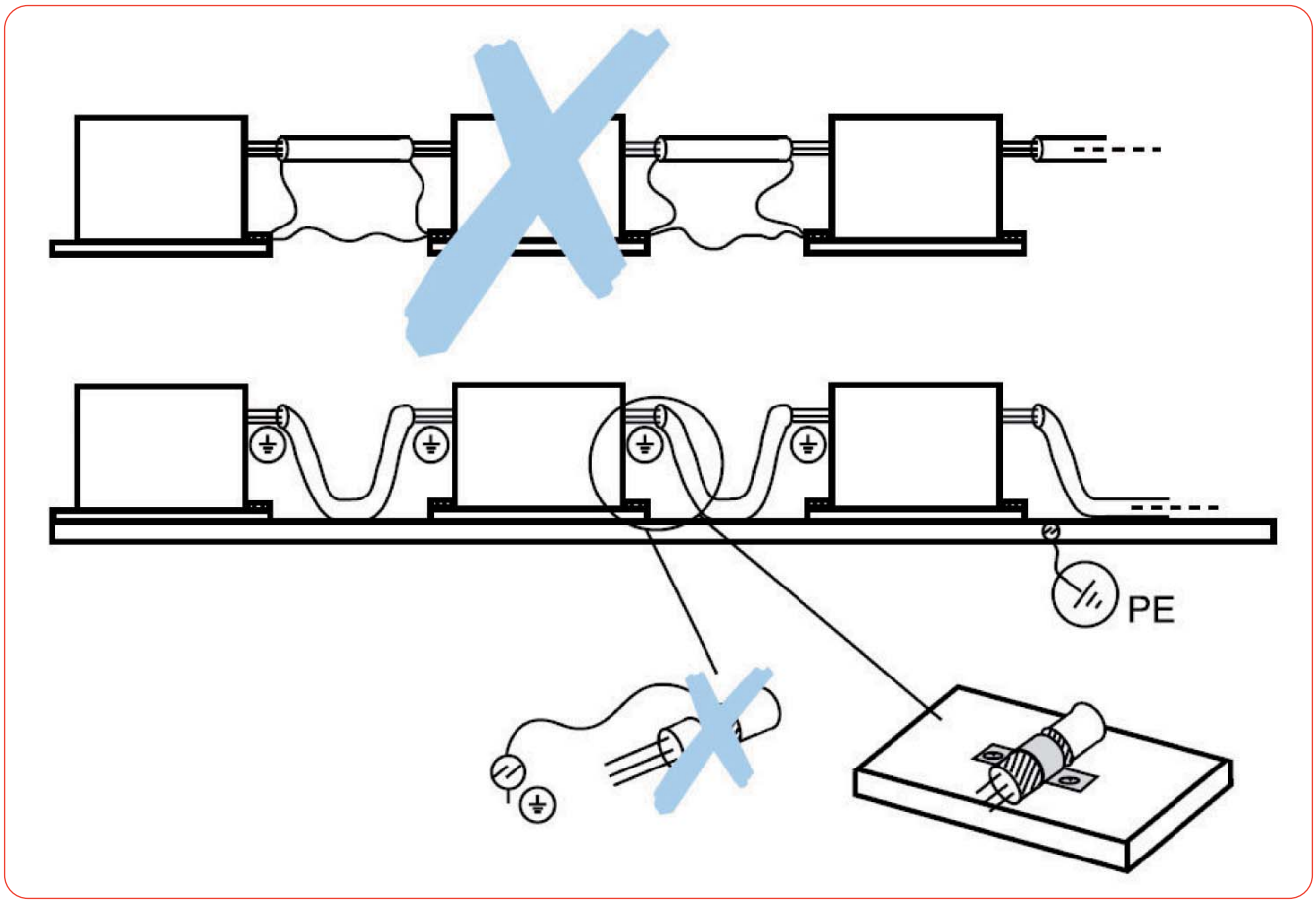
maintain sufficient distance between noise carrying and susceptible cables (> 10cm)



Common High Frequency Ground connector

ATEX EXPLOSIONSSCHUTZ GMBH STAMMHAUS DEUTSCHLAND
Auf der Alm 1 | 59519 Möhnesee
Phone: +49 (0) 29 24.87 90-0 | Fax: +49 (0) 29 24.87 90-455
info@atex100.com | www.atex100.com

Avoid ground loops:



Checklist:

- ☐ Noise carrying and susceptible cables properly classified?
- ☐ ...and never routed in the same cable duct?
- ☐ Distance between noise carrying and susceptible cables > 10cm?
- ☐ Do noise carrying and susceptible cables cross at right angle?
- ☐ Are noise carrying and susceptible cables shielded?
- ☐ Are metal cable ducts with cut-off bridges attached used?
- ☐ Are metal cable ducts connected to each other and to high frequency ground with full contact?
- ☐ Are unshielded cables routed in the corner of metal cable ducts?
- ☐ Are long shielded cables grounded several times?
- ☐ Are shielded cables grounded at both ends?
- ☐ Are outgoing and return lines routed together over the entire length?
- ☐ All connection cables straight (no pigtails)?
- ☐ Contact points bare and grease-free?
- ☐ Can HF compensation currents flow back through the construction frame?
- ☐ Are compensation currents prevented from flowing through cable shields?
- ☐ Are all electrical components routed to the same HF-Ground Network separately (star configuration)?

Revision 0.0/06.2009

ATEX INTERNATIONAL

ATEX EXPLOSIONSSCHUTZ GMBH STAMMHAUS DEUTSCHLAND
Auf der Alm 1 | 59519 Möhnesee
Phone: +49 (0) 29 24.87 90-0 | Fax: +49 (0) 29 24.87 90-455
info@atex100.com | www.atex100.com