

WIRING & TERMINATIONS FOR SENSORS AND PANELS

GDS policy for earth, zero volts and screen connections for sensors and panels

For equipment installation guidelines see C1144.

Sensor transmitter details – Flammable see C1883, Toxic/Oxygen C1882.

Technical Sheet ref C1770 Issue Av.8

Doc No. 274D85C

Gas detection system installations generally have differing methods of connection for earth and screens. Unfortunately some configurations can cause problems with the operation of equipment through earth loops and signal noise. This document therefore states the preferred method of connection for land and marine based GDS equipment.

Installation

- Screened 1.5mm multi core cables should be used in preference to non-screened, check area classification for cable type.
- From GDS equipment, power and signals can exist in the same multi core cable.
- Separation between sensor cables and power control cabling should be maintained.
- The electronics are floating and not connected electrically to the sensor enclosure.
- The sensor metal housing and panel metal enclosure should always be connected to safety earth, do not connect to zero volts.
- **Screen and safety earth should be kept separate.**
- Where armoured / screened cables are used only the armoured sheath should be connected to safety earth.
- Where the screen cannot be separated from the safety earth do not connect the screen to DC zero volts.
- Low impedance earthing must be maintained for effectively dissipating stray voltage.

Cable Requirement

2/3/4 core – project dependent (stranded cores preferred)

Core size: 1.5mm standard / 1mm project dependent

Screen requirement: foil or braid (braid preferred)

Outer sheath: Polyurethane (thermoplastic)

Suitable cable type: CY screened (PUR-outdoor, special project)

Sensor Types

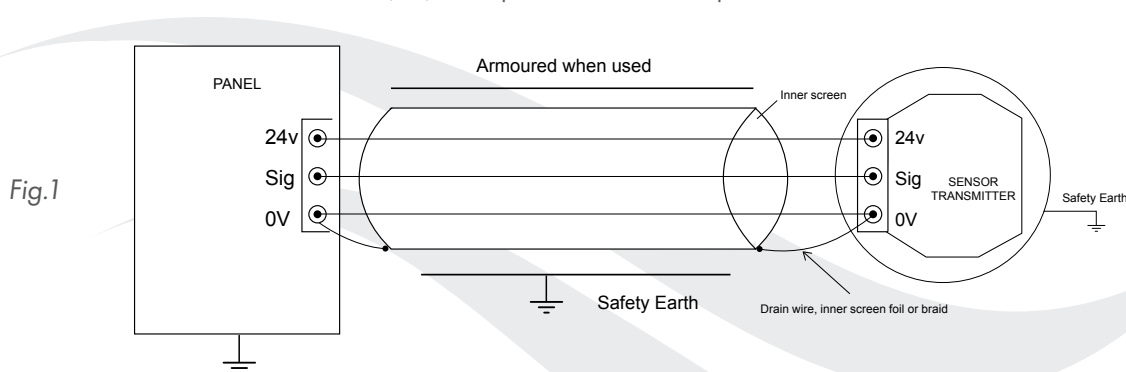
XDI-F1 XDI-F1win	15/30J	15/30Jwin
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Single Sensor – 3 Wire

3 core plus screen for use with powered 4-20mA or bridge sensors wired to a control panel.

- core 1 is power from panel (usually 24v)
- core 2 is zero volts from panel (0V)
- core 3 is signal (source to GDS panels)

Screen should be wired to zero volts (0V) at the panel and all sensor points.



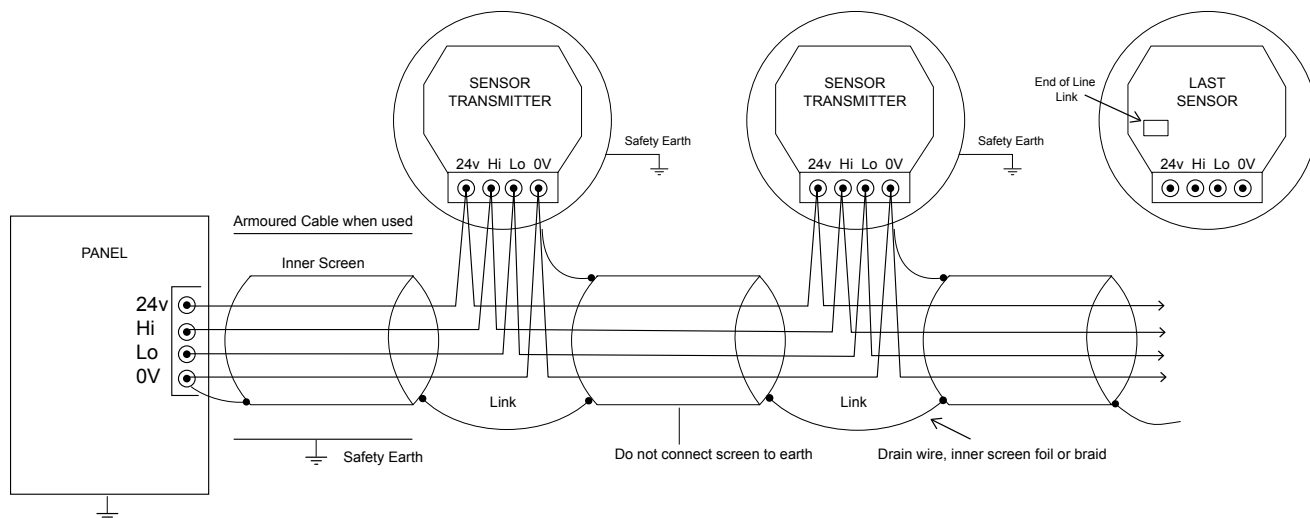
Multi Drop Installations with Data – 4 Wire

For GDS networked sensors, a single cable is used with 2 or more sensors connected along the length of the cable. Power and signals (usually data packets) can exist in the same multi core cable.

4 core plus armour and screen for use with powered intelligent sensors wired to a control panel.

- core 1 is power from panel (usually 24v)
- core 2 is zero volts from panel (0V)
- core 3 is signal data + differential (Hi)
- core 4 is signal data - differential (Lo)

Fig.2



3 Terminal Sensor/Controllers

GDS Model 10, 10+, 100, 101, 102, 404, 2000, 2010

3 wire 4~20mA / Bridge

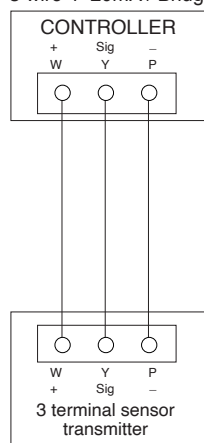


Fig.3

2 wire (loop) 4~20mA

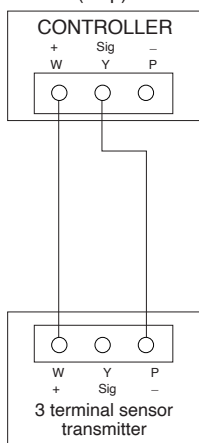


Fig.4

3 wire 4~20mA

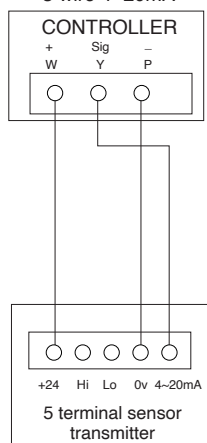


Fig.5

2 wire 4~20mA

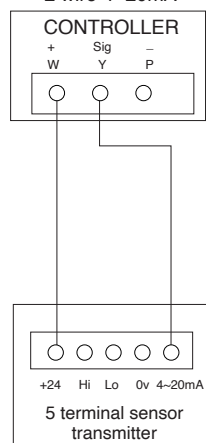


Fig.6

Multi Sensor Terminal Controllers

Combi series 80, 64, 16

4 wire addressable

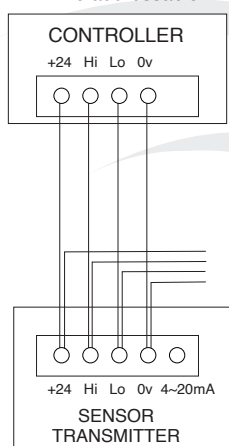


Fig.7

3 wire 4~20mA

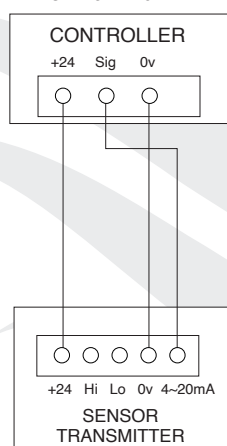


Fig.8

2 wire 4~20mA

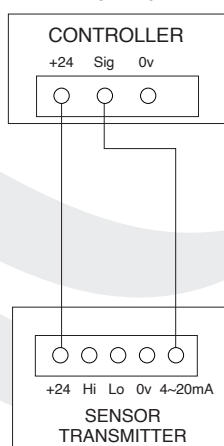


Fig.9

