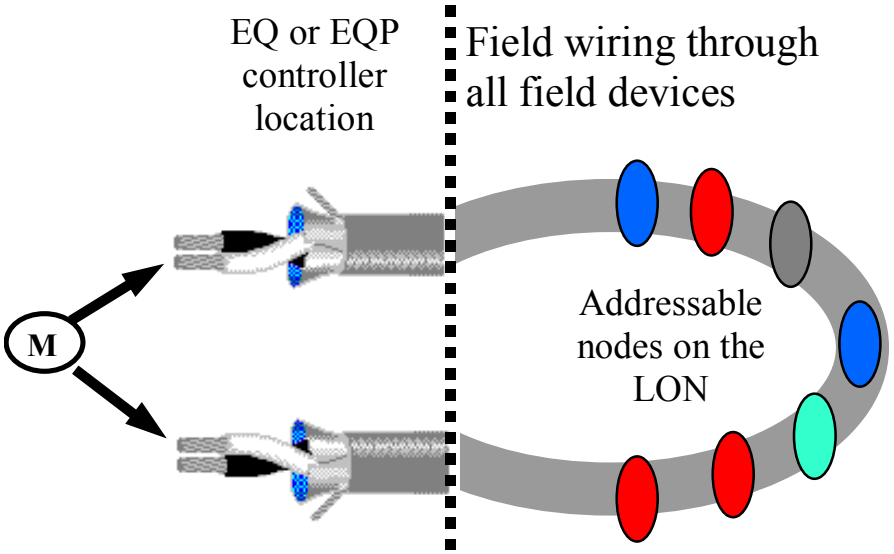
DET-TRONICS

Technical note

Testing of EQ and EQP LON wiring prior to startup of system

Considerable time can be saved during the startup and commissioning phase of an EQ or EQP system if the following measurements are taken to verify the correct wiring and integrity of the LON.
Note: These measurements should be taken prior to powering of the LON devices and controller.



Disconnect LON wires from the EQ or EQP controller.
Using an ohm meter measure the resistance of the following :
(This example shows the color code for Beldon 8719, your LON wires may be a different color but the same color should be used throughout)

White to White *
Black to Black *
Shield to Shield (drain wires) *

White to Black **Should be open**
White to Earth (not shield) **Should be open**
Black to Earth (not shield) **Should be open**
Shield to Earth **Should be open**

* The resistance of these three will depend of the LON length and the resistance per 1000ft or 1000m of the wire used.
Example: LON is 3500 ft (loop length). Resistance from wire spec-sheet is 4.5 ohm per 1000ft. White to White and Black to Black should be approx. 15.75 ohms.

Note: if Network Extenders, RSU's, or PLR's (Physical Layer Repeaters) are used add 25 ohms per NE, RSU or PLR.
Example: if two network extenders were used in a LON of 10,000 ft with the above Belden wire: 10,000 X 4.5 ohms per 1000ft = 45 ohms + 50 ohms = 95 ohms total.
The resistance of Shield to Shield will be slightly lower then the White to White or Black to Black resistance and is independent of any NE's, RSU's or PLR's.

Any resistances noted from White to Black, White to Earth, Black to Earth or Shield to Earth indicate a short or partial short and will effect the ground fault monitoring and functionality of the system. They should be found and cleared.

The resistances measured from White to White and Black to Black should be the same and should be near the calculated resistance.
If the length is unknown, estimate the resistance and see if one or both are near the calculated value. If one is near but the other is higher investigate why and get them to read the same.
Typical causes are: loose wires in field device terminals, loose J-box connections, loose ribbon cables in DCU's, IDC's SAM's , ARM's , loose plug-in sensor assemblies in Eclipse gas detectors.

For Technical Assistance call the Factory support line at:
800-765-3473 or 952-941-5665 (ask for Tech support)