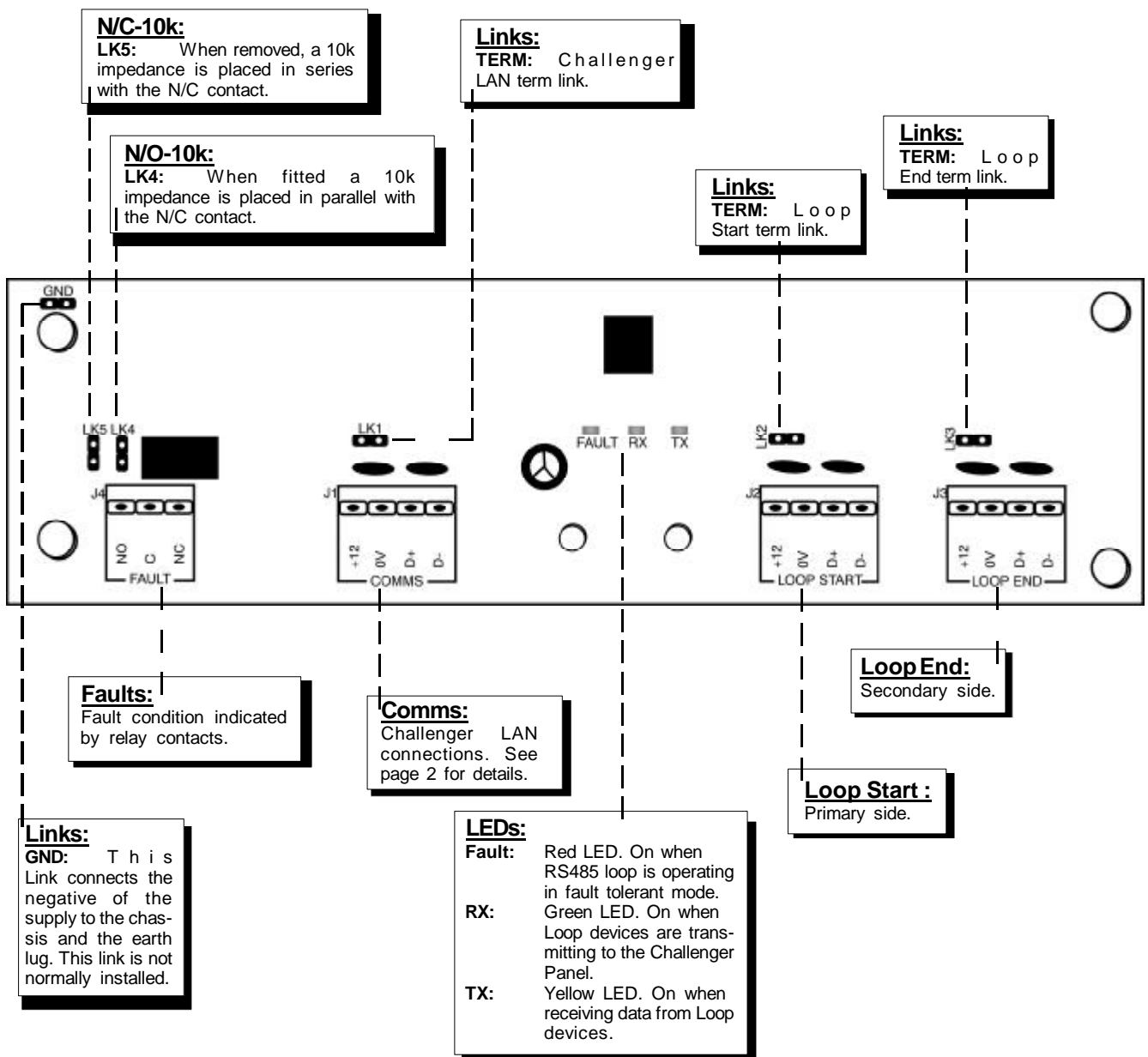


# RS485 LAN Loop Interface MODEL TS0895

## INSTALLATION GUIDE

The TS0895 employs a looped wiring system which enables faults on the RS485 LAN to be detected, while remaining in an operational state. When a fault is detected, the Challenger Panel is able to determine the location of the break and a relay can be triggered to generate an alarm. Receive, transmit and fault status' are indicated by LEDs on the board, which is a standard Tecom 'BB' footprint, mountable in existing Tecom metalwork.



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### **Installation Kit:**

	<b>P</b>
1 x RS485 LAN Loop Interface 'BB' Board	<input type="checkbox"/>
1 x RS485 LAN Loop Interface Installation Guide	<input type="checkbox"/>
1 x 3 Way Plug-on Screw Terminals	<input type="checkbox"/>
6 x 2 Way Plug-on Screw Terminals	<input type="checkbox"/>
5 x Jumper Links	<input type="checkbox"/>
4 x M3x8 Pan Head Philips Screws	<input type="checkbox"/>
Optional 'BB' Board Enclosure TS0306	<input type="checkbox"/>

### **Connection Comms J1:**

<b>PWR</b>	<b>+12</b> (Red) <b>0V</b> (Black)	12 Volt DC supply input. (90mA maximum with no other peripheral devices connected) .
<b>COMMS</b>	<b>D+</b> (White) <b>D-</b> (Green)	Positive and negative data connection of the RS485 LAN. Units can be up to 1.5kms from the Intelligent Controller or Challenger Panel, depending on the cable used. Recommended Belden 8723; 2 pair twisted, shielded, data cable.

### **Connection Comms J2 Loop Start & J3 Loop End:**

<b>PWR</b>	<b>+12</b> (Red) <b>0V</b> (Black)	12 Volt DC supply output.
<b>COMMS</b>	<b>D+</b> (White) <b>D-</b> (Green)	Positive and negative data connection of the RS485 LAN. Units can be up to 1.5kms from the Intelligent Controller or Challenger Panel, depending on the cable used. Recommended Belden 8723; 2 pair twisted, shielded, data cable.

### **Connection Comms J4:**

<b>Fault</b>	<b>NO</b>	Normally Open contact.
	<b>C</b>	Closed contact.
	<b>NC</b>	Normally Closed contact.

### **Fault Detection:**

A fault is registered when data returning to the Loop End connections is different from the data sent out through the Loop Start connection.

In this case the Challenger can detect which, if any, peripherals connected to the loop have failed. See Interfacing LAN Loop Fault Relay to the Challenger Panel on page 3.

If a LAN fault occurs, the Fault Relay will be energised on the TS0895 board, which can be used to generate an alarm or other pre-programmed response. See page 3. Checks are performed every 2 minutes to determine the loop's state. Once the loop fault is corrected, the relay will be de-energised after a period of 1.5 to 2 minutes and all internal processes will be reset to pre-fault conditions.

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**Interfacing LAN Loop Fault Relay to the Challenger Panel:**

- 1) On the TS0895 board, insert LK4 and remove LK5.
- 2) Connect the NC and C relay output pins to a physical input on the Challenger Panel.

**Note:** If a dry contact is required for some other application, insert LK5 and remove LK4. A changeover contact is available on pins NC, C and NO.

**To Diagnose Fault Conditions on the LAN Loop:**

- 1) Check the devices being polled on the loop in Challenger Installer menu 3 (DGP Database) and Installer menu 4 (RAS Database).
- 2) Check for Poll Errors for each of the active devices in Challenger Installer menu 23.
- 3) If zero errors were recorded before the LAN fault, e.g. a cut cable, each device that stopped polling will have registered 7 poll errors. Each device that remained in the normal polling cycle will continue to record zero poll errors.

**LAN System and Earth Connection Block Diagram:**

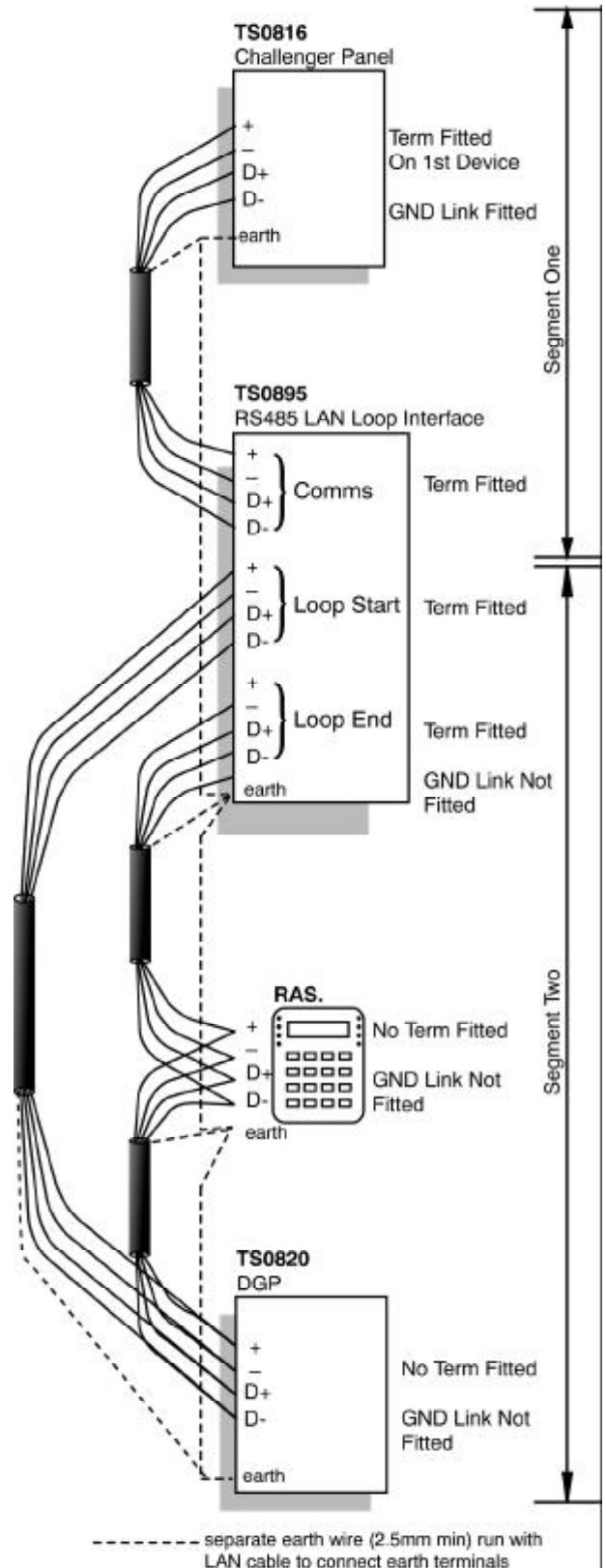
**NOTE 1:** "TERM" links must be fitted to LK1, LK2 and LK3 on the TS0895 board. Remove all "TERM" links on DPGs and RASs connected to the LAN Loop.

**NOTE 2:** Recommended cable for Challenger LAN is Belden 8723 - 2 pair twisted shielded data cable.

**NOTE 3:** The Shield of each length of data cable is only connected to earth at one end.

**NOTE 4:** The **earth terminals** on every piece of equipment in the system that is housed in a metal base, **must be earthed by connecting them all to one common earth point via separate Earth wire run with the LAN cable/s back to the Challenger Panel.** The separate Earth wire must be at least 2.5mm<sup>2</sup>. A heavier gauge is recommended for runs of over 500 metres.

The "GND" link should only be fitted at the Challenger Panel.



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This method of earthing will ensure that the difference in earth potential between any two Challenger products connected to the LAN remains at an acceptable minimum.

**WARNING:**

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

The Challenger is Designed and Manufactured by:

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