



RANGER **I**NSTRUMENTS



2101 QUICK START MANUAL

For use with Software Versions 1.0 & above

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1. Introduction

The Ranger **2101** is a high visibility remote display that is compatible with most Ranger Instruments digital weight indicators. There is no setup required as the **2101** automatically detects the communications parameters being used by the transmitting device.

1.1. Approvals

- C-tick approved and CE approved.

1.2. Features

- The remote display is fitted with an alphanumeric 27mm LCD with super bright LED back lighting display that can be read in all conditions.

1.3. Accessories

- 0333 - Stainless Steel Desk/Wall Mounting Bracket
- 0329 - IP65 Stainless Steel housing
- 0314 - Panel gasket and stiffening plate

2. Warnings

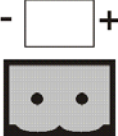
- Unit not to be subject to shock, excessive vibration or extremes of temperature (before or after installation).

3. Installation

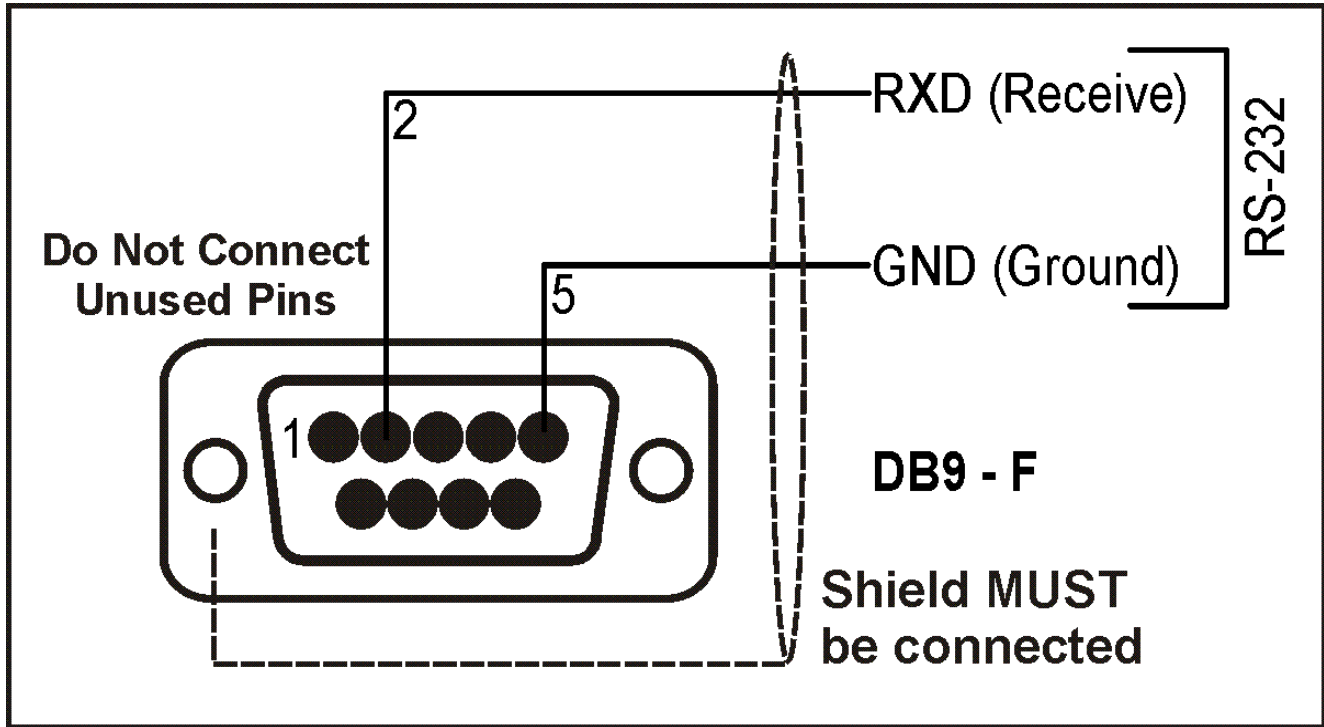
The following steps are required to set up the **2101** indicator.

- Inspect unit to ensure good condition.
- Ensure mounting options and connectors are available.
- Use connection diagram to wire up power and serial cables as required. Connectors for all cables are supplied with indicator.
- Unit has built in panel mounting screws. Use the "Panel Drilling Template" provided for hole locations. The panel mounting screws are also used to attach desk/wall brackets or the stainless steel rear housing accessories.
- Connect the serial and power cables to the unit. If using the 0080 RS-485 option connect the 0080 between the serial cable and the **2101** serial port connector.
- Set the transmitting device to 9600 or 19200 baud and select the preferred output format for that instrument. The **2101** is compatible with all Ranger Instruments digital weighing indicators and will automatically detect the baud rate and serial settings used.

3.1. Power Connection

<p>POWER 9 TO 15 Volts DC 0.2A</p> <p>- <input type="checkbox"/> +</p> 	<p>Warning</p> <p>For 2101 use only 9-15 VDC</p> <p>Voltages outside this range may cause improper operation or damage.</p>
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3.2. Serial Connection



RS 485 using RI 0080

0080 Pin	RS-485 Master
6 RA (-)	8 TA (-)
7 RB (+)	9 TB (+)

3.3. RS-485 Communications

The **2101** is compatible with the RI 0080 RS-232 to RS-485 serial converter. There is no need to provide external power to the RI 0080 module as this is provided directly by the **2101**.

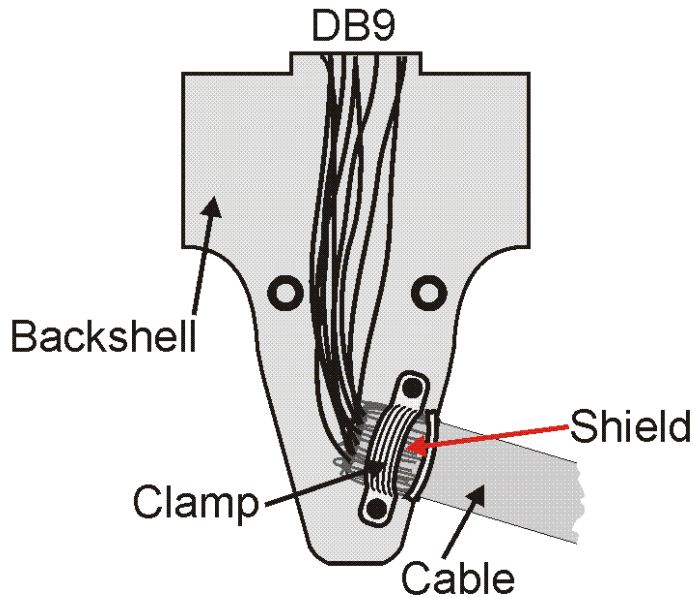
The RS-232 comms can normally travel 10 to 25 metres, providing there is no electrical noise generated nearby. The 0080 is for use in electrically noisy environments and/or over longer distances.

4. Connections

4.1. Connecting Shields

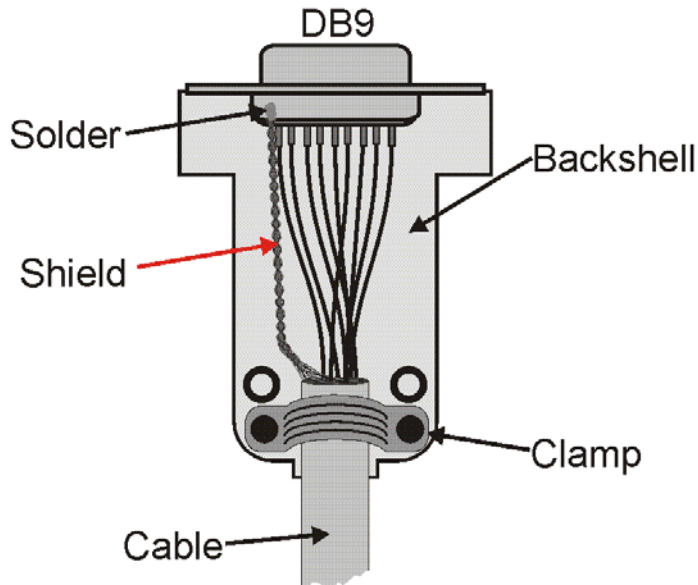
To obtain full EMC resistance with the 2101, the shield MUST be connected electrically to the metal shell of the DB9 connector.

Backshell with Shield Clamp



Fold shield wires back over outside of cable insulation so cable clamp of backshell makes good electrical contact with shield when installed.

Backshell without Shield Clamp



Twist shield wires together and solder ends to DB9 casing.

4.2. Cable Shield Connection and Earthing

- Care should be taken when connecting shields to maximise EMC immunity and minimise earth loops and cross-talk (interference) between instruments.
- For EMC immunity, termination of the shield at the **2101** end is important (ie. with connection to the **2101** case via the shield connection).
- The **2101** enclosure is directly connected to the shield connections on the cables.
- The **2101** should be connected to earth via a single reliable link to avoid earth loops.
- Where each instrument is separately earthed, interconnecting cable shields should be connected at one end only.
- The unit complies with relevant EMC standards provided case ground connection is correctly made. Resistance measured between **2101** case and nearest earth point should be less than 2 ohms.

4.3. Unused Pins

Unused pins are NOT to be connected.

Reason: The functions of the pins may not be compatible with equipment at the other end (eg. connecting output pins to a PC communications port may affect the operation of the PC).

5. Communications Supported

The **2101** supports all data, stop and parity bits settings, but only two baud rates: 9600 or 19200 baud.

5.1.1. Delimiters

The **2101** responds to any string that ends with ';' (ASCII 059), or CRLF (ASCII 013, 010) or any string that start with STX (ASCII 02) and ends with ETX (ASCII 03).

5.1.2. Formats

2100 Master: LCD data from the **2100** is directly transmitted to the **2101** so the displays match exactly.

- Ranger A: Display data, motion and gross/net only.
- Ranger B: Display data, motion, gross/net and units.
- Ranger C: Display data, motion, gross/net, units and Center of Zero.
- Ranger D: Display data only.
- General: Any data that can be displayed in six digits or less not including decimal points. For example "HELLO" or "12.34.56" are acceptable but "CAUTION" is not.

For best results use the **2100 Master** format with the **2100**, **Ranger C** format with the **5000** and **5100** and default auto output settings with all other Ranger Instruments indicators. Refer to the relevant product manual for the digital indicator in use for detailed instruction on configuring the serial ports.

When driving the **2101** from a PC or PLC use the general format.

6. Error Messages

Error	Description
(-----)	The 2101 has not received any new information to display.
(----)	The 2101 is searching for correct communications settings

7. Diagnostic Errors

Error	Description	Action
E0001	Power supply voltage too low.	Check supply
E0002	Power supply voltage too high.	Check scale / cables
E0400	Factory information lost. (FATAL)	Service
E0800	EEPROM memory chip failed. (FATAL)	Service
E8000	FLASH program memory incorrect. (FATAL)	Service

The **E** type error messages are additive. For example, E0C00(0800+0400) would indicate that the EEPROM chip is faulty and factory information has been lost. The numbers add in hexadecimal as follows:

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - A - B - C - D - E - F

(For example, 2 + 4 = 6, or 4 + 8 = C)



This document is designed as a guide to the operation of the product. It shall not form any contract. The specifications of the product may be altered without notice.

Contact Information



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