

SMART WEIGHING SOLUTIONS



rinstrum

**6500
REMOTE DISPLAY**

**Operators
Manual**

**For use with Software
Versions 1.5+**

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1 INTRODUCTION

The **6500** is a member of the latest generation of Ranger remote displays. It is capable of displaying 6 digits of numbers or text, combined with three status annunciators. Standard features of the **6500** include two independent serial ports providing a range of serial formats (RS232, RS422 and 20mA Current Loop). Facilities for automatic selection of the data source and autobauding are also standard. The principle mode of operation, Remote Display Mode comes standard, with advanced options including serial summing and Modbus support offered as additional software options. The **6500** is fully compliant with the provisions of technical schedule S1/0.

1.1 The Manuals

The other manuals covering the **6500** are:

- 6500 Quick Start Manual (6500-601);
- 6500 Operators Manual (6500-602);
- 6500 Mounting Options Manual (6500-603).

These manuals are available to download from www.rinstrum.com

1.2 Operating Environment

Temperature: -10°C to 50°C

Humidity: <90% Non-condensing

1.3 Electrical Safety

Warning

The **6500** contains high voltages capable of causing electrocution. Disconnect the AC power supply before opening the unit. The display contains no user serviceable components.



DISCONNECT POWER
BEFORE OPENING

For your protection all main electrical hardware must be rated to the environmental conditions of use.

The earth connection must be used to ensure the electrical safety of the unit.

Pluggable equipment must be installed near an easily accessible socket outlet. A permanently connected supply must have a easily accessible isolation device.

To avoid the possibility of electric shock or damage to display, always switch off or isolate the display from the power supply before maintenance is performed.

1.4 Cleaning

Never use abrasive cleaners or solvents when cleaning the unit. The display can be wiped down with a clean cloth or with a mixture of a small amount of washing up liquid and water dampened on to a cloth.

2 INSTALLATION

This section covers the mounting and electrical connections required for the 6500 Remote Display. The unit contains precision electronics and must not be subjected to shock, excessive vibration, or extremes of temperature, either before or after installation.

The serial and power inputs of the **6500** are protected against electrical interference, however excessive levels of electro-magnetic radiation may effect the operation of the instrument. The **6500** should be installed away from any sources of electrical noise, and the power and data cables run separately from other sources of electrical noise.

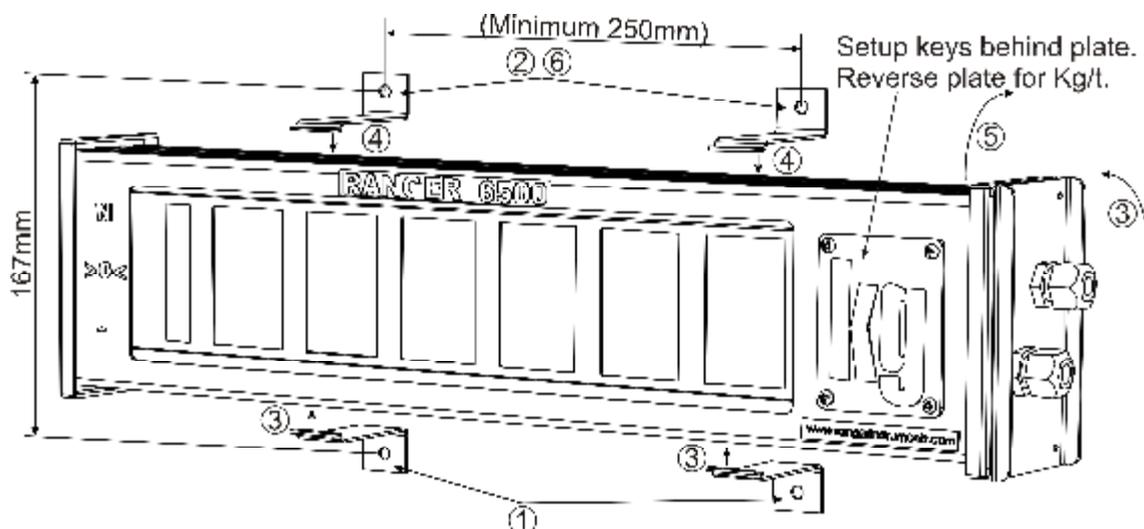
2.1 Mounting

The **6500** can be mounted in a number of ways. The standard method uses four wall mounting clips, to provide a fixed attachment to a flat surface. To attach the unit to a pole, or at an angle, the optional Swivel mounting kit is required.

2.1.1 Wall Mounting

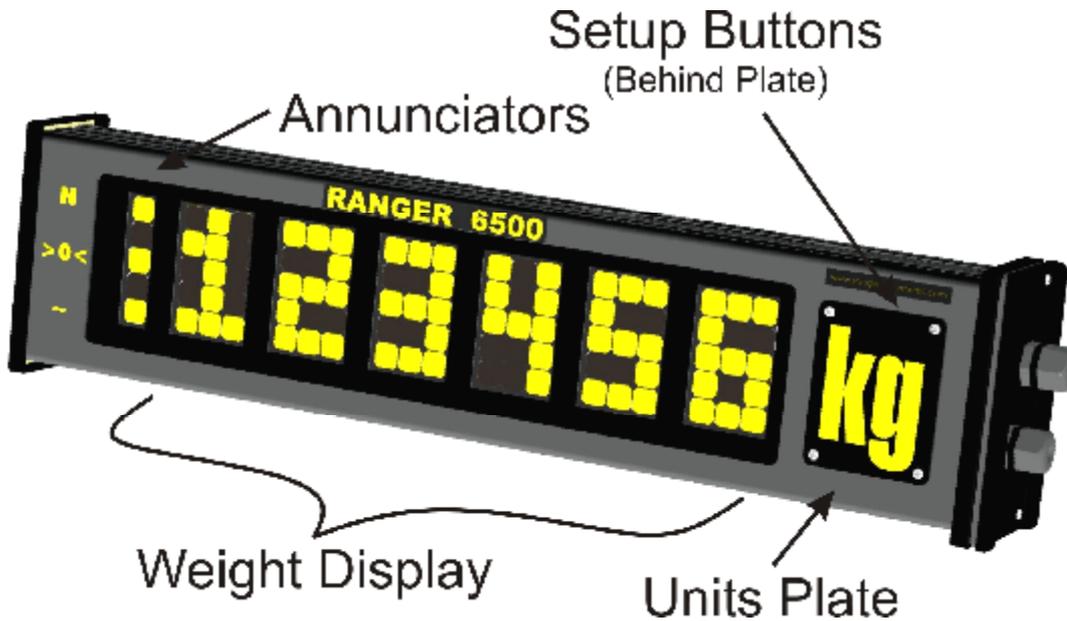
Wall mounting the **6500** utilises the four mounting brackets shipped with the unit. Follow the instructions below to mount the unit:

1. Attach the two lower brackets to the wall using 6mm or 1/4" bolts, ensuring they are aligned horizontally and adequately spaced (minimum distance apart 250mm). Note that all four brackets must be used, two each on both top and bottom of the case to securely attach the display;
2. Drill the two holes for the top brackets, but do not attach the brackets. The vertical spacing is 167mm as shown in the figure below.
3. With the top of the unit angled outward from the wall, insert the two brackets into the front track on the bottom of the case;
4. Insert the two top brackets into the outer track, with a minimum spacing of 250mm;
5. Rotate the top of the unit toward the wall, until the top brackets touch the wall;
6. Attach the top brackets to the wall using suitable 6mm or 1/4" bolts.



3 DISPLAY AND CONTROLS

The **6500** is a six digit alpha-numeric electromechanical remote display. The diagram below shows the main elements of the front panel.



3.1 Weight Display

The Weight Display indicates the weight readings, setup information, errors and warnings.

3.2 Units Indicator Plate

The Unit Indicator Plate is attached to indicate the units of the reading. The plate is also used to cover the setup buttons during normal operation.

3.3 Annunciators

The left most strip on the display form the annunciator bank, which show the status of the displayed reading. The status annunciators indicate the following conditions:

Name	Symbol	Description
ZERO	→ 0 ←	Lit when the indicator is indicating zero.
NET	N	Lit when the display reading represents NET weight.
MOTION	~	Lit when the displayed reading is not stable.

out (NOTMO), to prevent error messages being displayed.

4 SOFTWARE OPTIONS

Summing Master and Modbus Slave modes are optional extras with the **6500**. The standard unit does not have these options enabled. To enable any of these options it is necessary to purchase a license code which may be entered into the instrument by the factory at the time of purchase or it may be entered via the setup menus at any time thereafter.

The license codes are unique to each instrument. To purchase a license code for an existing instrument the serial number (see sticker on rear of the instrument) must be obtained. Following is the procedure to enter a license code into the **6500**:

- Enter General Setup on the **6500** by holding the **EDIT** key;
- Using the **GROUP** key select the **FACTRY** group;
- Using the **ITEM** key select the **CONFIG** item;
- Press the **EDIT** key to enter the software option code;
- The currently licensed options are displayed as listed in Section 4.1;
- "000000" is displayed and the 6 digit Software option code may be entered;
- Enter the code as per standard numeric entry;
- Press the **GROUP** key when done;
- If the code is entered correctly the updated licensing options are displayed and you are returned to the menus. Otherwise an error message "No Entry" is displayed;
- Exit Digital Setup.

4.1 6500 Software Options

The software options available in the **6500** are described in the table below. The items marked * are enabled as default factory settings.

Software Option	Config Symbol	Feature
Non Ranger Data Formats	R*	This option enables the unit to accept data from Non-Ranger indicators in "Remote" mode.
Alphanumeric	A*	The unit will display both text and numbers.
Networked	N	Enables the unit to operate as a serial summing master.
Modbus	M	Enables the unit to operate as a Modbus slave.

5 ERROR MESSAGES

The **6500** operates a range of error detection mechanisms. These fall into three categories, which are described below.

5.1 Configuration Errors

Configuration errors provide feedback to the user of problems with the display setup. These errors are displayed by switching between the normal weight display and the error message. The priority of these errors decreases going down the table below.

Displayed Error	Description
ER.DAT	There is no data being received by the unit. Check cables, connections, indicator and data source configuration (SERIAL:SRC) from the Operating Mode menus.
ER.RX	Data is being received, but the serial format is invalid. Check the baud rate, parity, stop and start bits (SERIAL:BAUD and SERIAL:BITS) from the Operating Mode menus.
ER.ETX	No character matching the specified ETX character has been found. Check the ETX character at the end of the format string (BLOCK:BLK1 .. BLOCK:BLK4) from the Operating Mode menus.
ER.FLD	An ETX character has been found, however some part of the data stream does not match the specified format. Check the format string (BLOCK:BLK1 .. BLOCK:BLK4) against the data being received in the Operating Mode menus.
ER.LEN	The field to be displayed is longer than 6 digits and cannot be displayed. Check the data that is being sent to the display.

5.2 Weighing Errors

These messages show errors that have occurred during the normal weighing operation.

U-----	The weight is below the minimum allowable weight reading.
O-----	The weight is above the maximum allowable weight reading.
-----	The weight being transmitted is invalid (as per remote indicator).

5.3 Operating Errors

The **6500** continually monitors the condition of the internal circuits. Any faults or out-of-tolerance conditions are shown on the display as an E type error message. In the table below the following terms are used:

- (check) = this item can be checked on site by service personnel
- (service) = the **6500** must be returned for factory service

Code	Error Description	Action
E 0001	The power supply voltage is too low	(check supply)
E 0002	The power supply voltage is too high	(check supply)
E 0100	The digital setup information has been lost	(re-enter setup)
E 0300	All setup information has been lost	(enter setup and calibrate)
E 0400	The factory information has been lost	(service)
E 0800	The EEPROM memory chip has failed	(service)
E 8000	The EPROM memory chip has failed	(service)

The "E" type error messages are additive. For example, if a condition is detected where the EEPROM memory chip has failed, resulting in a loss of setup information, the resulting Error messages will be E 0900 (0800 + 0100). 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)

6 SPECIFICATIONS

PERFORMANCE	
Display	6 electromechanical digits, 75mm high with 15 segments per digit for displaying numeric and semi-alpha characters Status annunciators for Motion, Centre of Zero & Net mode (when connected to Ranger indicators)
Visibility	Up to 40 metres
Update Rate	10Hz
Operating Environment	Temperature -10 to +50°C, humidity < 90% non condensing
DIGITAL	
Setup	Full digital with visual prompting in plain messages
Memory retention	Full non-volatile operation
SERIAL COMMS	
Primary Port Formats	RS-232/422/485 – two wire (receive only) 20mA serial current loop two wire (receive only) RS-232/422/485 – four wire (receive and transmit for networking)
Primary Port Features	Remote display, Ranger-Net slave, master and summing master, Modbus ASCII slave
Secondary Port Formats	RS-232/422/485 - two wire (receive only) RS-232/422/485 - four wire (receive and transmit for networking)
Secondary Port Features	Network slave and Modbus slave.
DIMENSIONS	
Body Size (mm)	600 (L) x 148 (H) x 78 (D)
Display Window (mm)	430 x 100
Weight (kg)	3.4
Power Supply (AC)	85 - 264VAC 47 - 63 Hz 15W
FEATURES	
	Status annunciators for Motion, Centre of Zero & Net mode
	P.C. programmable using Ranger Viewer software
APPROVALS	
	Complies with S1/0 for auxiliary devices
	C-Tick (N2708)
OPTIONS	
	Summing software for up to 10 Ranger indicators
	Modbus ASCII networking protocol
	Profibus networking protocol (requires external module)
	Swivel mounting bracket with weather hood

Notes:

SMART WEIGHING SOLUTIONS

