



PROCTER & CHESTER (MEASUREMENTS) LTD

# USER MANUAL



*Excelsior*

## Cased Weighing Indicator/Controller

*Document Version: XLG2T-STD-041012*

*PCB Version: XLG4 onwards (G4-XXT)*

*APPROVED DISTRIBUTORS OF:*

*Electronic Weighing Services*

## **Section 1**

### **SETTING UP INSTRUCTIONS**

**WARNING: ALWAYS ENSURE THAT THE POWER IS DISCONNECTED BEFORE REMOVING COVER.**

#### **a. SETTING UP: Load Cells.**

The load cell connector consists of a seven way screw terminal connector; terminated as follows:

1. Cable Screen
2. Negative Excitation
3. Positive Excitation
4. Negative Sense
5. Positive Sense
6. Positive Signal
7. Negative Signal

#### **NOTE REGARDING SENSE TERMINATION**

The sense inputs are for use with six wire load cells that have remote voltage sensing in order to compensate for resistive loss within the cable run. If a load cell is used without this feature then connect the positive excitation to positive sense and negative excitation to negative sense.

#### **b. SETTING UP: Power**

##### **i. AC Applications: (110-240VAC Auto Selection)**

**DANGER: WARNING LIVE TERMINALS EXPOSED WHEN REAR COVER REMOVED**

<b>L</b>	Live 110-240VAC
<b>N</b>	Neutral
<b>E</b>	Earth

**Please note: AC power supply automatically senses the mains supply voltage.**

##### **ii. DC Applications (7-30vdc)**

<b>N</b>	Positive DC Input
<b>E</b>	Earth / Ground

**Please Note: Vehicles installations must be Negative Earth systems**

### **c. CONNECTING THE SERIAL OUTPUT (Factory Fitted Option)**

<b>GD</b>	Signal Ground
<b>OP</b>	RS232C Output
<b>IP</b>	RS232C Input (Busy)

#### **Serial Protocol**

RS232C (+/- 10v)

8 Data Bits

1 Stop Bit

No Parity

Baud Rate: Selectable

ASCII

#### **Printer Requirements:**

40 column RS232C compatible.

Common Connections (typical example 25pin D Type – Epson LX300)

Pin 3 (RXD) to OP

Pin 7 (SG) to GD

Pin 20 (DTR/Busy) to IP

Please refer to the printer manual for relevant pin descriptions/terminations.

### **d. SETTING UP HEADER TEXT**

Please note: Applicable for use with printouts only.

#### **CAL link must not be fitted.**

Switch on the unit and immediately press and hold the enter key.

The text display will be blank.

Enter via the keyboard a maximum of 19 characters. Press a key repeatedly to input a text character; the ZERO key will perform a delete/backspace function in the event of an incorrect entry, once a line is complete press return.

The display will then prompt for you to select another input or to end.

The indicator will return to reset once complete.

### **e. SETTING UP TIME/ DATE (Factory Fitted Option)**

Switch on the unit whilst holding the PRINT key.

The display will indicate "E00000"

Enter the date followed by the time 2 digits at a time followed by RETURN

e.g. 26<sup>th</sup> January 2004 14:16

Enter the following sequence:

26 RETURN

01 RETURN

04 RETURN

14 RETURN

16 RETURN.

Once this process is completed the indicator will return to reset mode.

**f. SETTING UP RELAYS (Factory Fitted Option)**

COM1	110/240VAC IN
1	Alarm Relay Out.
2	N/C
3	N/C
4	N/C
5	N/C
6	N/C
7	N/C
8	N/C
COM2	N/C
9	N/C
10	N/C
11	N/C
12	N/C
13	N/C
14	N/C
15	N/C
16	N/C
VFC	N/C
VFC	N/C
SRN	Cable Screen

## **Section 2**

### **CALIBRATION**

Plug in the CAL link situated on the PCB.

Switch on the unit whilst holding the MODE key pressed until the LED display prompts "UNIT". Select from the menu the required unit.

The LED display will now indicate "TYPE". Select either "TRADE or NON-TRADE" by pressing the 1 or 2 key. Selecting NON TRADE inhibits the Zero range limit detection.

**If the unit is a trade version follow section A, if the unit is a non-trade version follow section B.**

#### **A: TRADE VERSION**

The display will then prompt 'DP 0000' and the last decimal point setting. To alter the decimal point setting press the "0" key until the required position is indicated, once selected press ENTER to accept.

The display will now prompt "DIV" and the last minor division increment will be indicated. To alter this value (possible selections are: 1, 2 or 5) repeatedly press the "0" key until the required value is shown, once selected press ENTER to accept.

The display will then briefly prompt "TOP" followed by the last top capacity stored. The far left digit will indicate "E" showing that the display is in keyboard mode. To clear existing data press the ZERO key. Enter the maximum capacity via the 0-9 keyboard, when you have input the required data press ENTER to store the value.

The display will briefly prompt "LOAD" and then indicate 'E00000' awaiting the input of your test load value, at this point check that the platform is empty then enter your required test load value via the keyboard and press ENTER to accept. The display will now auto null any dead load and raw un-calibrated weight will be indicated. Check that the display is zero and press the ZERO key if necessary then position the test load onto the platform, when the display is stable press the ENTER key. The display will then indicate the existing function code for the unit, the ENTER key will accept this code (press ZERO to clear any existing data, the display will prompt "E00000" then press ENTER) or refer to Menu settings if you wish to amend it, the unit is now calibrated.

Pressing the number 1 key will enable the X10 division test display.

Before putting the unit into use remove the CAL link.

## **B: NON-TRADE VERSION**

Plug in the CAL link situated on the PCB.

Switch on the unit whilst holding the MODE key pressed until the LED display prompts "UNIT". Select from the menu the required unit.

The LED display will now indicate for you selection of zero track on or off

The display will then prompt 'DP 0000' and the last decimal point setting. To alter the decimal point setting press the "0" key until the required position is indicated, once selected press ENTER to accept.

The display will now prompt "DIV" and the last minor division increment will be indicated. To alter this value (possible selections are: 1, 2, 5, 10, 20 or 50) repeatedly press the "0" key until the required value is shown, once selected press ENTER to accept.

The display will then briefly prompt "TOP" followed by the last top capacity stored. The far left digit will indicate "E" showing that the display is in keyboard mode. To clear existing data press the ZERO key. Enter the maximum capacity via the 0-9 keyboard, when you have input the required data press ENTER to store the value.

The display will briefly prompt "LOAD" and then indicate 'E00000' awaiting the input of your test load value, at this point check that the platform is empty then enter your required test load value via the keyboard and press ENTER to accept. The display will now auto null any dead load and raw un-calibrated weight will be indicated. Check that the display is zero and press the ZERO key if necessary then position the test load onto the platform, when the display is stable press the ENTER key. The display will then indicate the existing function code for the unit, the ENTER key will accept this code (press ZERO to clear any existing data, the display will prompt "E00000" then press ENTER) or refer to Menu settings if you wish to amend it, the unit is now calibrated

Remove the CAL link if you wish to inhibit calibration.

### Section 3

#### MENU SETTINGS

To access the MENU engineers setting press and hold the TARE key and switch on the unit. The LCD display will indicate "MENU" followed by a series of numbers. To change these setting press the ZERO key and re-enter via the keyboard your new code.

4 Modes of operation are available from selectable menus:

Weigh Mode		Print Mode		Baud Select		Line Feeds		Function	
0	Standard	0	X	0	X	0	X	0	X
1	Batching	1	X	1	X	1	X	1	X
2	Multi-trip Batcher	2	X	2	X	2	X	2	X
3	Weighbridge	3	X	3	X	3	X	3	X

**Section 3: Continued**

**Standard Mode:**

Note that print functions require optional RS232 fitted.

Weigh Mode		Print Mode		Baud Select		Line Feeds		Function	
0	Standard	0	Nett	0	1200	0	1	0	X
1	X	1	G/N/T	1	2400	1	2	1	X
2	X	2	PC Output (continuous)	2	9600	2	3	2	X
3	X	3	PC Output (on demand)	3	X	3	4	3	X
4	X	4	X	4	Totalise	4	5	4	X
5	X	5	X	5	X	5	6	5	X
6	X	6	X	6	X	6	7	6	X
7	X	7	X	7	X	7	8	7	X
8	X	8	X	8	X	8	9	8	X
9	X	9	X	9	X	9	10	9	X

**Notes:**

**G/ N/ T** = Gross / Nett / Tare mode.



**Section 3: Continued**

**Batching Mode:**

Note that batching functions require optional relays fitted

Weigh Mode		Print Mode		Baud Select		Line Feeds		Function	
0	X	0	X	0	X	0	1	0	1 Trip
1	Batching	1	X	1	X	1	2	1	1 Trip tare on start
2	X	2	X	2	X	2	3	2	2 Trips
3	X	3	X	3	X	3	4	3	2 Trip tare on start
4	X	4	X	4	Silo Batcher (Negative)	4	5	4	Relay Pattern 2
5	X	5	X	5	X	5	6	5	X
6	X	6	X	6	X	6	7	6	X
7	X	7	X	7	X	7	8	7	X
8	X	8	X	8	X	8	9	8	X
9	X	9	X	9	X	9	10	9	X

**Section 3: Continued**

**Multi-Trip Mode (Sequential operation of up to 8 relays)**

Factory configured option (specify number of trips required)

Weigh Mode		Print Mode		Baud Select		Line Feeds		Function	
0	X	0	X	0	X	0	X	0	X
1	X	1	X	1	X	1	X	1	X
2	Multi-trip	2	X	2	X	2	X	2	X
3	X	3	X	3	X	3	X	3	X
4	X	4	X	4	X	4	X	4	X
5	X	5	X	5	X	5	X	5	X
6	X	6	X	6	X	6	X	6	X
7	X	7	X	7	X	7	X	7	X
8	X	8	X	8	X	8	X	8	X
9	X	9	X	9	X	9	X	9	X

**Section 3: Continued**

**Weighbridge Mode:**

Routine to store and print first weight/second weight with NET.  
 Factory programmed to suit customers slip printer.

Weigh Mode		Print Mode		Baud Select		Line Feeds		Function	
0	X	0	Net	0	1200	0	1	0	X
1	X	1	Gross/Net/ Tare	1	2400	1	2	1	X
2	X	2	PC Output	2	9600	2	3	2	X
3	Weighbridge	3	X	3	X	3	4	3	X
4	X	4	X	4	X	4	5	4	X
5	X	5	X	5	X	5	6	5	X
6	X	6	X	6	X	6	7	6	X
7	X	7	X	7	X	7	8	7	X
8	X	8	X	8	X	8	9	8	X
9	X	9	X	9	X	9	10	9	X

## **Section 4**

### **USER INSTRUCTIONS**

#### **4. The Apex Excelsior in Use (Standard mode)**

When mains power is applied the LED display will indicate all eights. After a short delay the LED display will indicate gross weight. The lower LCD display will indicate the tare value.

#### **Zero Function.**

Use to reference the weight display to zero, note that if the unit is configured for legal trade use that the zero is limited to 2% of capacity. If the unit is configured for non trade use then the zero is 100% active.

#### **Semi automatic tare.**

The tare key performs an automatic tare; the lower LCD will now indicate the tare value and gross weight. The upper led will indicate the net weight value. Pressing the tare key when a semi automatic or pre-set tare value is present will clear the tare value and all readings will return to gross weighing.

#### **Preset Tare.**

- a. Press the "ENTER (return)" key and the LCD display will indicate "PRESET TARE".
- b. Enter the required value via the keyboard and press "ENTER".
- c. The LCD display will now show the tare value and the gross weight, the LED display will indicate the net value.
- d. To clear the Preset Tare press "TARE".

#### **Code.**

Allows the input of a line of text for inclusion in the print out, press the CODE key and then via the keyboard input a maximum of 19 characters. Pressing the key repeatedly will display the text character; the ZERO key will perform a delete/backspace function in the event of an incorrect entry, once a line is complete press ENTER/return.

#### **Batcher Units.**

To view the Final cutoff value press the TARGET Key, to retain this value press ENTER or if you wish to change the value then first press the Zero key to clear the value and then use the 0-9 keys followed by ENTER. The display will prompt F1= END F2= INFLIGHT (2 Trip batchers will show F1= END F2= SLOW), press the F1 to exit setting or F2 to continue in order to view or edit the slow or in flight values.

Press the START key to begin the batching sequence

Press the MODE key to suspend any batching in progress and then select to resume, abort or clear the running number

## Section 5



**Display:** 6 digits, 25.4mm (1") high LED display and 2 x 20 Backlit Alphanumeric LCD display.

**Membrane:** Polyester, tactile action with pocket for tailored functions

**Enclosure:** Splash proof, 260mm x 160mm x 65mm High Grade Stainless Steel.

**Operating Temperature:** -10 to +40 degrees C

**Load cell Capability:** 4 individual weigh channels, up to 16 x 300R load cells.

**Conversion:** 24bit Sigma Delta A-D.

**Input Range:** 0 – 150mV

**Linearity:** 0.0015% F.S.

**Temperature Drift:** 2 p.p.m per degree C

**Internal Resolution:** 300,000 counts for 10mV input (2mV per volt load cell)

**Calibration:** Keyboard routine.

**Power (Mains Option):** Mains version: 75-250vac 50/60Hz Auto Selection.

**Power (D.C. Option):** 6-26vdc

**Power Consumption:** TBA

**Factory fitted Options:** 8 Weighing Channels, 16 programmable I/O ports for process control, 2 x serial RS232C ports, 4-20mA Output, Radio TX/RX Communications, 32k x 8 FRAM memory capability, Time and Date (battery backed), 1 x 16 and 4 x 20 Large Character Backlit LCD options for bespoke applications (replaces standard displays).

**Section 6:**

**Excelsior Specifications – Trade Technical Characteristics (Test cert: GB1190)**

Maximum number of Scale divisions	6000
Minimum Load-cell Impedance	35 ohms
Maximum load-cell Impedance	500 ohms
Minimum voltage per verification scale interval	1 microvolt
Measuring range minimum voltage	6mV
Measuring range maximum voltage	16mV
Load-cell cable Max length	100 metres

**Further Notes and Readings:**

## Section 7

### EC Declaration of Conformity

#### E.M.C. STANDARD EN61326 CLASS A

We: *Electronic Weighing Services Limited*

Of: *Lytton Street, Stoke on Trent. Staffordshire. ST4 2AG*

Declare under our sole responsibility that the products:

JUNIOR DWT	EXCELSIOR DWT
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To which this declaration relates is in conformity with the following transposing harmonized standards:

DIRECTIVE	DESCRIPTION
EN55022	Radiated Emissions
EN61000-4-4	Fast Burst Transient
EN61000-4-3	Radiated Immunity
EN61000-4-6	Conducted Immunity
EN61000-4-2	Electrostatic Discharge
EN6095	Low Voltage Safety

### R.O.H.S DIRECTIVE

The instruments listed conform to the R.O.H.S directive and is therefore compliant with the directive.

This declaration is made on the basis of certification and declarations provided to us from our component suppliers. Under our duty of due diligence these documents are stored for future audit purposes.

**Signed**

**S.G. Keeling**

(Managing Director)