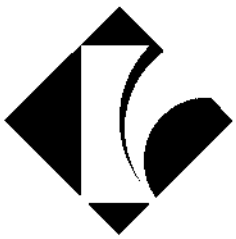
SMART WEIGHING SOLUTIONS



rinstrum

5000

Digital Indicator Quick Start Manual

For use with Software Versions 4.6 and above

5000-601-442

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Disclaimer

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SPECIAL NOTE
Trade Use of the Rinstrum 5000

This manual may occasionally make reference to Trade Use settings of the **5000**. Only properly marked Trade Certified versions of the **5000** can be used in **Legal for Trade** applications.

Some individual settings may not be legal for trade use.
Please check regulations with the appropriate Weights and Measures Authority.

"Everything should be made as simple as possible, but not simpler."

- Albert Einstein -

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1. Introduction

1.1. Introduction

The **Rinstrum 5000** is a precision industrial digital indicator using the latest technology to ensure fast and accurate weight readings.

1.2. Features

The indicator is fitted with an alphanumeric 14.5mm LED display

- Real Time Clock and RAM for storing Zero, Tare and Total settings, etc.
- Support for Setpoint or Combo Accessory Cards.
- Smart Options:
  - Serial (0202)
  - Modbus Protocol (0213) needs (0202)
  - Intelligent Batching for up to 2 materials (0211)

1.3. Accessories

- 0107 12VDC 1A Plug Pack Power Supply for use with DC models.
- 0212 Combo Accessory Card. 2 open collector outputs, 1 input and voltage or current analog outputs.
- 0204 Setpoint Accessory Card: 4 open collector outputs and 4 inputs.
- 0081 RS-232-20mA Loop Converter.
- 0215 DIN rail Relay Module.
- 0220 Viewer Software
- 0301 Panel Mount Clamps / 0302 Swivel Mount Clamps.
- 0303 30-degree Fixed Desk Mount Bracket.
- 0304 Stainless Steel IP65 Housing
- 0305 Stainless Steel Desk Bracket (requires 0302)
- 0306 Stainless Steel Wall Bracket (requires 0302)

1.4. Manuals

For more information on the **5000** refer to the **5000 Reference Manual** and **5000 Communications Manual** (available free of charge from www.rinstrum.com).

2. Specifications

Performance		
Display		6 digit green LEDs, 14.5mm high
Display Resolution		Up to 100,000 divisions, minimum of 0.15 μV/division
Count-By		1, 2, 5, 10, 20, 50, 100 (Entered in Displayed Weight)
Operating Modes		Single Range, Dual Interval and Dual Range
Zero Cancellation		+ / - 2.0mV/V
Span Adjustment		0.1mV/V to 3.0mV/V full scale
Stability/Drift		Zero: < 0.1uV/°C, Span < 10ppm/°C, Linearity < 20ppm, Noise < 0.05μV p-p
Operating Environment		Temperature -10 to +50°C, Humidity < 90% non condensing
Digital		
Setup And Calibration		Full digital with visual prompting in plain messages
Memory Retention		Full non-volatile operation
Digital Filter		Averaging from 1 to 200 consecutive readings
Zero Range		Adjustable from 4% to 100% of full capacity
A/D Converter		
Type		24 bit Sigma Delta
Resolution		8,388,608 internal counts.
A/D Sync Filter		Adjustable, 15 to 60 cycles /second, FIR filter > 80dB
Load Cells		
Excitation		8 volts for up to 8 x 350 ohm load cells
Load Cell Connection		6-wire + shield
Serial Comms		**(Factory License option)**
Serial Outputs		Dual RS-232, plus RS-485
Capabilities		Automatic transmit, network, or printer drive
Clock		Battery backed clock and calendar fitted
Dimensions		
Case Size		150mm wide x 72mm high x 100mm deep
Panel Cutout		DIN 43 700 - 137(+1)mm wide x 68(+1)mm high
Power Supply Options	DC DC AC	12-15 volts DC 0.7A (Not for Trade Use) 12/24VDC 10VA 86 - 260VAC 48 - 62Hz 8VA
Options		
Analog Option Card		0-10 volts and 4-20mA opto isolated (10,000 count)
Setpoint Option Card		4 x isolated 50volt, 500mA open collector transistor drives and 4 x isolated digital inputs (5V to 28V).
Combo Option Card		-10 to10 V or 4-20mA opto isolated analog output, two outputs and one input as per the Setpoint option card.
No. of Option Slots		One
Features		
		Approved to OIML 6000 divisions, CE and C-Tick approved.
		Five point linearity correction
		Adjustable anti-vibration filter
		Extended setpoint batching operation (requires setpoint accessory card or combo card, and License)
		Modbus protocol support (license option)

3. Installation

The following steps are required to install the **5000** indicator.

- First inspect the unit to ensure that it is in good condition, and that the required mounting options and connectors are available.
- Use the connection diagrams to wire up the load cell, power and serial cables as required. Connectors for all of these cables are supplied with the indicator.
- Connect Power to the unit to start the instrument.
- Follow the instructions in INSTRUMENT SETUP to configure and calibrate the instrument.
- Enter SAFE and FULL setup to protect the settings from tampering and record these in a safe place for future reference.

4. Smart Software Options

To enable any of the **Smart Software Options** you need to enter a license code. The license codes are unique to each option and to each instrument and may be factory installed or installed in the field.

To check to see what options are fitted or to install another option:

- Enter Setup by pressing the SETUP button on the front of the instrument.
- Press The **<ZERO>** key (marked GROUP) to advance from “build” to the “Factory” group.
- Press **<TARE>** key to advance from “deflt” to “Config”.
- Press the **<TARE>** key (marked ITEM) to enter the next level of the menus.
- Press **<GROSS/NET>** key (marked SELECT) to enter the new code. The options currently enabled are displayed momentarily followed by “000000”.
- Using **<PRINT>** (marked CHANGE) and **<GROSS/NET>** keys, enter the new code as follows:
    - Press the **<PRINT>**key to scroll from 0 to 9.
    - Press the **<GROSS/NET>** key to advance to the right, one digit at a time.
- When the code is entered correctly press the **<TARE>** key to accept it. If the code is incorrect “No Entry” is displayed, otherwise the updated list of options is displayed. To enter the code again, or enter another code go back to step 5.
- Press the **<ZERO>** key to advance to –END-.
- Press the **<TARE>** key to exit the setup.

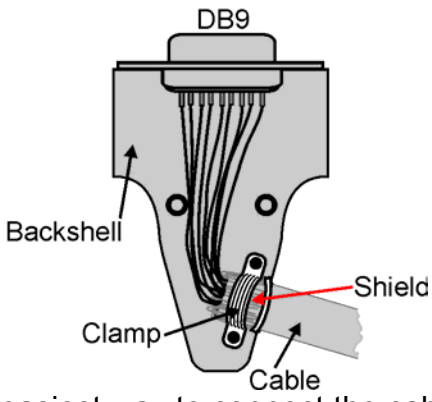
Software Option	Display	Features
0202 Serial Communications	"Serial"	Needed to enable the use of Ser1 or Ser2 for printing, remote display driving, networking etc.
0211 Intelligent Setpointing	"Setpnt"	Full batching capabilities for up to 2 materials.
0213 Modbus Communications	"Modbus"	Enables the use of the Modbus ASCII network protocol. Requires the Serial Communications option as well.

5. Connections

5.1. Connecting Shields

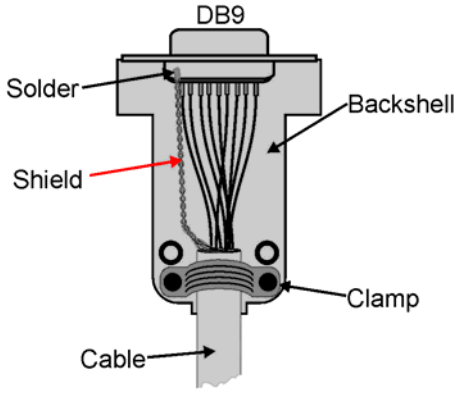
To obtain full EMC or for RFI immunity with the **5000**, the load cell shield MUST be connected electrically to the metal shell of the DB9 connector. Refer to diagrams below or to instructions supplied with the connector.

Backshell with Shield Clamp
(Preferred for Load Cells)



The easiest way to connect the cable shield to the DB9 backshell is to fold the shield wires back over the outside of the cable insulation so the cable clamp of the backshell makes good electrical contact with the shield when installed.

Backshell without Shield Clamp



A method for connecting the cable shield to the DB9 is to twist the shield wires together and solder the ends to the DB9 casing.

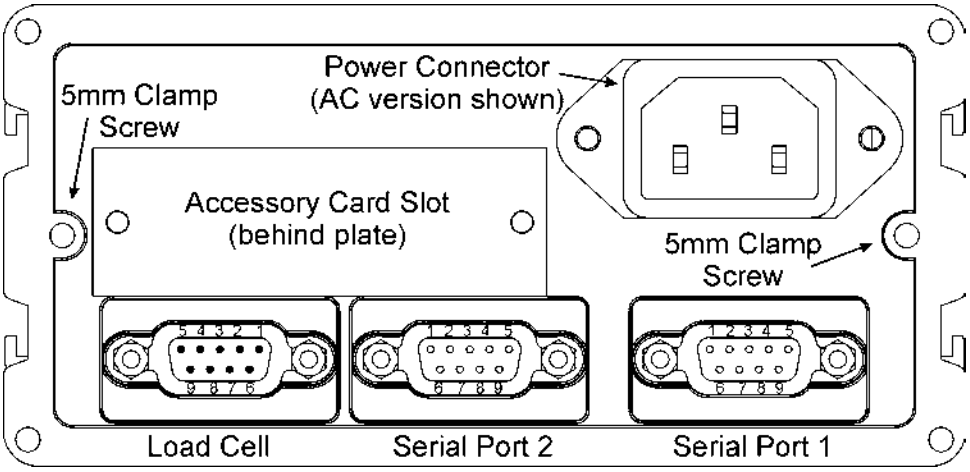
5.1.1. Cable Shield Connection and Earthing

- Care should be taken when connecting shields to maximise RFI immunity and minimise earth loops and cross-talk (interference) between instruments.
- For RFI immunity, termination of the load cell shield at the **5000** end is important (ie. with connection to the **5000** case via the shield connection).
- The **5000** enclosure is directly connected to the shield connections on the cables.
- The **5000** 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.
- **Caution:** Some load cells connect the cable shield directly to the load cell (and therefore the scale base). Connection of the shield in this situation may be site specific.
- The instrument complies with relevant EMC standards provided case ground connection is correctly made. Resistance measured between **5000** case and nearest earth point should be less than 2 ohms.

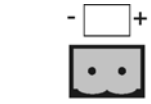
5.2. Unused Pins

It is important to note that unused pins are not to be connected. The reason being that 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). Consequently many commercial communications cables are not suitable for use.

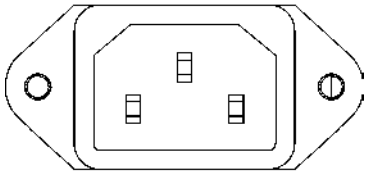
5.3. 5000 Rear Plate Connections



5.4. DC Power Supply

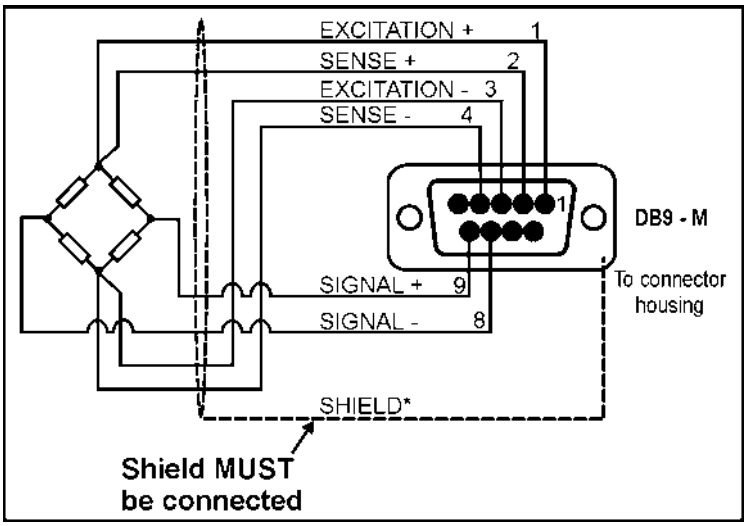


DC Power Supply:
12/24VDC 10VA



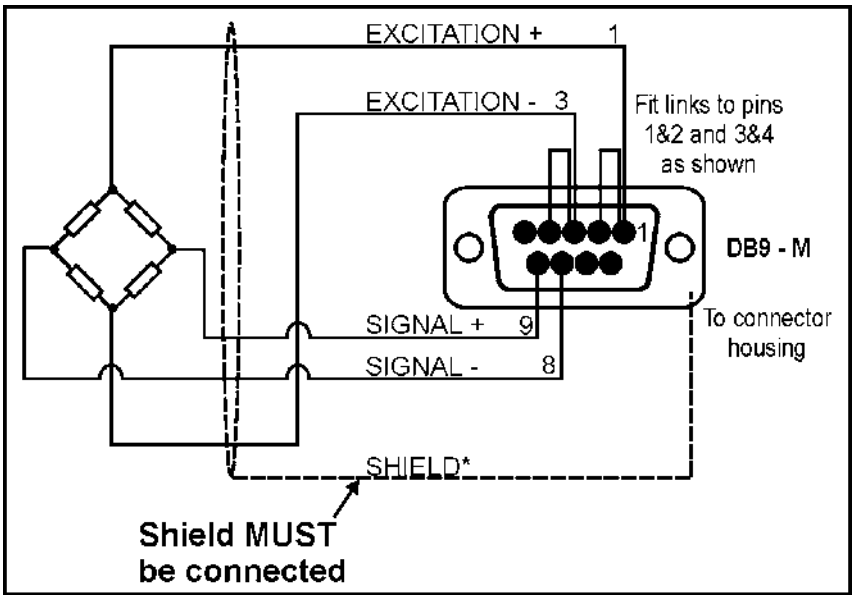
AC Power Supply:
110/240VAC 50-60Hz 10VA
IEC cable supplied

5.5. 6-Wire Load Cell Connection



Note: Sense lines MUST be connected.

5.6. 4-Wire Load Cell Connection

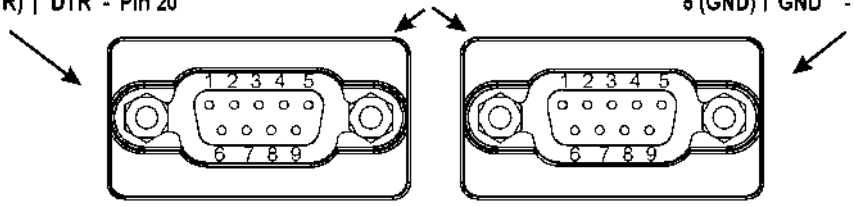


5.7. Serial Connection

Printer	
Pin	Printer Plug - DB25F
3 (TXD)	RXD - Pin 3
5 (GND)	GND - Pin 7
4 (DTR)	DTR - Pin 20

Remote Display	
Pin	Remote Display Plug
3 (TXD)	RXD / Receive
5 (GND)	GND / Ground

Direct Computer Link : RS-232	
Pin	Computer DB-9F (DB-25F)
2 (RXD)	TXD - Pin 3 (Pin 2)
3 (TXD)	RXD - Pin 2 (Pin 3)
5 (GND)	GND - Pin 5 (Pin 7)



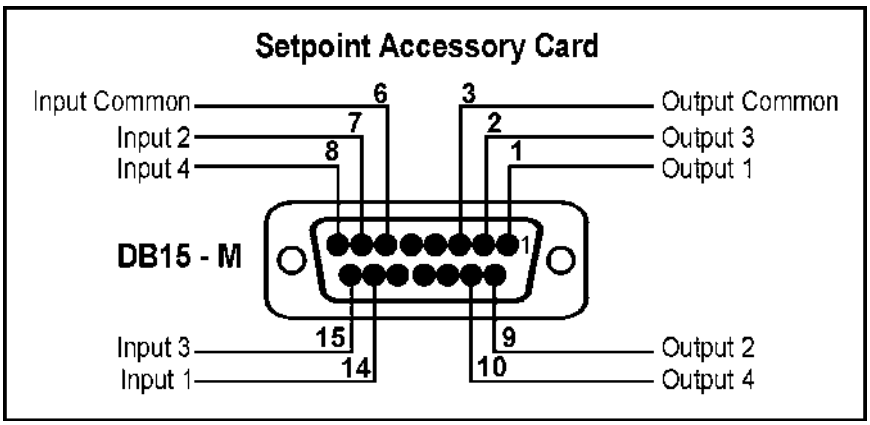
Direct Computer Link : RS-485	
Pin	Network Master
6 (RA (-))	8 (TA (-))
7 (RB(+))	9 (TB (+))
8 (TA (-))	6 (RA (-))
9 (TB (+))	7 (RB (+))

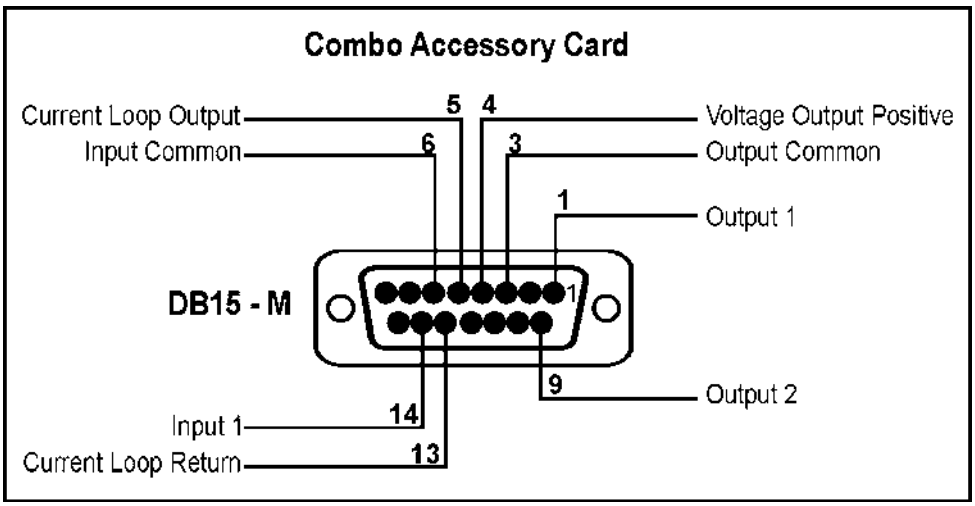
(NB: Pins 6..9 On Serial Port 1 are duplicated on Serial Port 2 for convenient cable termination)

5.8. Accessory Card Installation

- Isolate the **5000** from the power before attempting to install an accessory card. Avoid excess handling of the accessory card as each card contains static sensitive devices. Hold the card by the edges or mounting plate as much as possible.
- Each option card is installed into a slot in the back panel of the **5000**. The slot is accessed by removing the cover plate at the top left. The connector lead is attached to the inside of this plate. Separate the lead from the plate taking care not to lose the lead inside the **5000**. Discard the plate, but retain the two mounting screws. Clean any remnants of tape from the lead connector.
- Plug the lead connector onto the four-pin socket on the accessory card. The connector only fits one way round.
- Slide the card into the slot in the back of the **5000**, cable end first, until the mounting plate is fitted against the back plate. Re-install the two retaining screws.

5.9. Accessory Card Connection





6. Setup

6.1. Accessing Full or Safe Setup

There are two methods of entering setup mode. One accesses the complete Full Setup. The other only allows access to the more restricted Safe Setup.

Full Setup	Safe Setup
(behind screw) SETUP	
To enter and exit **Full Setup** mode press the setup button (behind the setup screw).	To access **Safe Setup** press and hold the **<GROSS/NET>** key for two seconds

If a Passcode has been set it is necessary to enter the appropriate passcode to gain access to the Setup.

Once access to the Setup has been achieved the display will show (SEtUP) for two seconds before displaying the first group title.

⊗	Items marked with ⊗ indicate that the setting is available only in Full Setup and is trade critical. When trade critical settings are changed the calibration counter will be incremented.

6.2. Exiting Full or Safe Setup

The following identifies the methods used to save settings, exit setup and return to the normal weighing mode.

6.2.1. Exiting Safe Setup

- Press the **[GROUP]** key until the **-END-** group appears in the display.
- Press the **[ITEM]** key to exit the setup.

6.2.2. Exiting Full Setup

This method may be used where the **<SETUP>** key is not sealed and can be freely accessed.

- Press the **<SETUP>** key once.
- Reseal the key with the seal screw. In trade applications, the screw head can be sealed with a destructible verification sticker.

GROUP	ITEM	SELECT	CHANGE
BUILD	**TYPE⊗**	Scale ranging selection	**SINGLE** (single range) **DUAL r** (dual range) **DUAL I** (dual interval) **DirEct** (direct mV/V)
	DP⊗	Decimal point position	**000000, 00000.0, 0000.00, 000.000, 00.0000, 0.00000**
	CAP1⊗	Capacity of first range	Press **<PRINT>** key to increment the digit and **<GROSS/NET>** key to change to the next digit
	E1⊗	Resolution of first range	**1, 2, 5, 10, 20, 50, 100**
	CAP2⊗	Capacity of second range	Press **<PRINT>** key to increment the digit and gross/net key to change to the next digit
	E2⊗	Resolution of second range	**1, 2, 5, 10, 20, 50, 100**
	UNITS⊗	Units of measure	**None, g** (grams) **kg** (kilograms) **lb** (pounds) **t** (tonnes/tons)
OPTION	**USE⊗**	Industrial or trade use	**IndUST** (+ and - weighing) or **TRAdE** (trade)
	FILTER	Digital Filtering/Averaging	**1** (number of A/D readings to be averaged) or **2, 3, 4, 5, 6, 7, 8, 9, 10, 25, 50, 75, 100, 200**
	JITTER	Display filter	**OFF** (stabilizes minor weight changes) **FinE, COARSE**
	MOTION⊗	Motion detection setting	**NONE** or **0.5 divs over 1.0 second** in steps up to **5 divs per 0.2 second**
	AUTO.Z	Auto zero on power up	**OFF** or **ON**
	Z.TRAC⊗	Zero tracking setting	**NONE** or **0.5 divs over 1.0 second** in steps up to **5 divs per 0.2 second** (affected by zero band)
	Z.RANGE⊗	Zero key range in percentages	**02-02, 01-03, 20-20, 100.100**
	Z.BAND⊗	Zero band width in divisions	(also limits zero tracking range)
CAL	**ZERO⊗**	Current weight is displayed	**Zero in progress** [press **<TARE>** key to exit]
	SPAN⊗	Current weight is displayed	Enter in applied weight by a press of the **<PRINT>** key to increment the digit and **<GROSS/NET>** key to change to next digit [then press the **<TARE>** key] **Span in progress** [press **<ZERO>** key to exit]
	Ed.LIN⊗	Edit linearisation points	
	Clr.LIN⊗	Clear linearisation points	
	FAC.CAL⊗	Restore indicator to default factory configuration	**Cont n** (continue –No?) **Cont Y** (Yes) **WARNING! All current setup will be lost – excluding zero and span**

ZERO GROUP	TARE ITEM	GROSS/NET SELECT	PRINT CHANGE
SERIAL	**SER1**	Function of serial port 1	**NET** (Rinstrum-Net used or Viewer software) **OFF** **Auto.Lo** (automatic output 10 updates/second) **Auto.Hi** (automatic output @ A/D frequency) **SingIE** (single weight output from Serial Port 1)
	SER2	Function of serial port 2	**OFF, Auto.Lo, Print, SingIE**
	NET.OPT	**ADDRES** Network address	**00 to 31**
		TYPE Network protocol	**NEt.A** (Rinstrum network) **nEt.b** (modbus network)
	AUT.OPT	**TYPE** Automatic output format	**Auto.A** (Rinstrum default string for all normal uses) **Auto.B** (see reference manual) **Auto.C** (see reference manual) **Auto.D** (see reference manual) **Auto.E** (see reference manual) **CuStom** (see reference manual)
		Src Source for automatic output	**DISP** (displayed weight) **GroSS** (gross weight) **NET** (net weight) **Total** (total weight)
		Aut.Fmt Programmable format	**01.000 (posn.char)** (see reference manual)
		ST.CHr Start character	**002** (see reference manual)
		END.CH1 End character (1)	**003** (see reference manual)
		END.CH2 End character (2)	**000** (see reference manual)
	Prn.OPT	**Prnt.TP** Type of print-out	**SINg/A.SINg** (print/auto print single line) **Doub/A.DOUB** (print/auto print double line) **Tic/A.tic** (print/auto full weight ticket) **TotAL** (Totalising printer mode) **A.totAL** (Automatic totalising)
		HEADER Custom ticket header	**1.01.000 (line.posn.char)** (see reference manual)
		Tic.Fmt Custom ticket format	**1.01.000 (line.posn.char)** (see reference manual)
		SPACE Ticket margin spacing	**00.00 (columns.rows)** (see reference manual)
	BAUD	Baud rate for both ports	**300, 600, 1200, 2400, 4800, 9600, 19200**
	BITS	Serial data format **n 8 1 – 2 –** Defaults as above are for: **N**o parity **8** data bits **1** stop bit **-** termination resistors disabled RS-**2**32 **-** no printer handshaking	**N** (no parity) **O** (odd parity) **E** (even parity) **8** (8 data bits) **7** (7 data bits) **1** (one stop bits) **2** (two stop bits) **-** (termination resistors disabled) **T** (termination resistors enabled) **2** (RS-232) **4** (RS-485) **-** (no printer handshaking) **D** (DTR handshaking)

GROUP	ITEM	SELECT	CHANGE
SPEC	**SAFE.PC**	Set safe access passcode	
	FULL.PC⊗	Set full access passcode	
	BUTTON⊗	Zero, Tare, Gross/Net and Print key operations (all individually set)	**YYYY** (yes, buttons are active, but subject to motion detection for trade use) **NNNN** (no, buttons are disabled) **iiii** (active and over-rides motion detection)
	InP.Fn	Input functionally	**O** – Zero , **t** – Tare , **G** – Gross , **P** – Print **B** – Blank , **L** – Lock , **S** – Show total , **C** – Clear total , **u** – Undo , **-** Disable, **r** – Start, **A** – Pause/Abort, **I** – Interlock, **d** – Dump Enable, **1** – Serial 1, **2** –Serial 2 , **H** – Manual Hold, **E** – Peak Hold
	SYNC⊗	A/D frequency (used for anti-vibration filter)	**15 to 60 Hz** **(changes affects zero and span calibration)**
TEST	**SCALE**	Displays the L/C output in Mv/V	**X.XXXX** (only lasts for 5 seconds in trade mode)
	Hi.Res	Expand the display resolution by 10 times	**Off** (In trade mode – only lasts for 5 seconds) **On** (tool for corner tests using minimal weights)
	Frc.Out	Force the outputs on the setpoint and combo cards	**OFF, On1, On2, On3, On4**
	tSt.inP	Displays the current status of the remote inputs on the setpoint and combo cards	**[- - - - -]** **[-]** no input present **[1 to 4]** input is active
SET.PTS	**ACTIVE**	Enable setpoints	**-** Off, **A** – Active, **1** – Material 1, **2** – Material 2, **d** – Dump, **F** – Finish, **m** – Motion, **O** – Zero, **P** - Pause
	LOC	Setpoint lock out	**-** Unlocked, **L** - Locked
	SRC	Source of weight data for analog output	**GroSS** (gross weight reading) **NET** (net weight reading)
	DIR	Output switching direction	**O** (Over – weight increasing to target) **U** (Under – weight decreasing to target)
	LOGIC	Active relay logic	**H** – High, **L** - Low
	ALARM	Setpoint alarms	**-** Off, **S** – Single beep, **d** – Double beep, **C** - Continuous
	TARGET	Target settings	Press **<PRINT>** key to increment the digit and **<GROSS/NET>** key to change to the next digit
	HYS	Weight tolerance settings	Press **<PRINT>** key to increment the digit and **<GROSS/NET>** key to change to the next digit
	FLT	Setpoint in-flight settings	Press **<PRINT>** key to increment the digit and **<GROSS/NET>** key to change to the next digit
	FLT AD	**FLT.ADJ** Flight adjustment in %	**000000 to 000050**
	DELAY	**DLY1 to 20** Delay after feeders	0.1second to 20 secs. (0.0 inserts a PAUSE)

GROUP	ITEM	SELECT	CHANGE
SET.PTS	**OPT**	**OPTION** General batching options **S E d - -** Defaults as above are for: **S** (single batch) **E** (halt on all errors) **d** (1 sec. Delay between steps) **-** (no batch details) **-** (multi-speed feeders operated consecutively)	**S** (single batch) **A** (auto re-start after each batch) **E** (halt on all errors) **-** (ignore Overload and Underload errors) **d** (one second delay between steps) **-** (no delays) **b** (show full batch details at start) **t** (show targets only at start) **-** (no batch data shown) **-** (multi-speed feeders all operated consecutively) **F** (all speeds on together)
	LABEL	Material names	
AnAloG	**SRC**	Source of weight data for analog output	**DISP** (currently displayed weight, net or gross) **GroSS** (gross weight reading) **NET** (net weight reading)
	TYPE	Type of output	**Volt** (0-10 voltage output) **Cur**. (4-20mA current output) **AbS.Cur** (4-20mA absolute, + and - weighing)
	CAL.Lo	Zero calibration of analog outputs	**UP** (up fine adjustment) **Dn** (down fine adjustment)
	CAL.Hi	Span calibration of analog outputs	**UP** (up fine adjustment) **Dn** (down fine adjustment)
	Frc.AnL	Force analog readings for easy calibration of external devices	**Lo** (transmits 0V or 4mA, depending on **TYPE**) **Hi** (transmits either 10V or 20mA)
CLOC	**TIME**	Setting of current time	**00HH.MM**
	DATE	Setting of current date Setting of current year	**00DD.MM** then **00.YYYY**
	QA.OPT	Quality Assurance reminder	**Off** **On** (intermediately flashes **QA Due** on due date)
	QA.dATE	Setting of QA date due Setting of QA year due	**00DD.MM** then **00.YYYY**
FACTRY	**DEFLT⊗**	Restore zero and span to factory default settings **Warning: this sequence wipes all stored calibrations!**	**Cont n** **Cont Y (wipe all existing calibration data?)**
	FAC.RST⊗	**<Not Available>** **Factory access only**	
	COnFIG⊗	Enter license codes for Smart options	**SErial** (Serial output communications) **SetPnt** (Intelligent setpoints, up to 2 products) **ModbuS** (ASCii networking protocol)
-END-	**SAVING**	**Exit, save changes and return to normal operation**	

7. Error Messages

A number of error messages may be displayed to warn of operation outside of acceptable limits. These messages are given below. Short messages (xxxxx) will appear as a single message on the display. Longer messages (xxxxx)(yyyyy) will appear on the display in two parts, first the (xxxxx) part, then the (yyyyy) part.

7.1. Weighing Errors

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

Error	Description
(U - - - - -)	The weight is below the minimum allowable weight reading.
(O - - - - -)	The weight is above the maximum allowable weight reading. Warning - overloading may damage mechanical scale elements. (Check the condition of loadcell connections. Check for damaged load cell.)
(ZERO) (ERROR)	The weight reading is beyond the limit set for Zero operation. The operation of the **<ZERO>** key is limited in the setup during installation. Zero cannot be done at this weight. (Use TARE instead.)
(STABLE) (ERROR)	Scale motion has prevented a Zero, Tare or Print operation from occurring on command. (Try the operation again once the scale is stable.)
(PRINT) (ERROR)	A printer problem has prevented the printout from being completed. (Look for loss of printer power, no paper or cable fault.)
(CAL) (DUE)	The “calibration due” date has been set and the current date exceeds this limit. Press any key to clear the warning for 1 hour. To clear the warning permanently, recalibrate the instrument and set a new ‘calibration due’ date.

7.2. Setup Errors

These messages warn of setup entries that are not acceptable to the **5000** programme.

Error	Description
(RES) (LO)	The scale build is configured for less than 100 graduations. (Check the resolution (count-by) and Capacity settings)
(RES) (HIGH)	The scale build is configured for more than 100,000 graduations. (Check the resolution (count-by) and Capacity settings)

7.3. Calibration Errors

These messages warn of incorrect calibration technique, or of attempts to calibrate the **5000** beyond it’s specification.

Error	Description
(ZERO) (HI)	The load cell output is beyond allowable zero calibration range. (Check for incorrect scale connection. Reduce the dead load, or shunt the load cells.)
(ZERO) (LO)	The load cell output is below allowable zero calibration range. (Check for incorrect scale connection. Increase the dead load, or shunt the load cells.)
(SPAN) (LO)	The load cell signal range (span) is too small for these settings. (Incorrect span weight entered. Scale wiring incorrect. Wrong load cell capacity [too large]. Wrong or no calibration weight added to scale.)
(SPAN) (HI)	The load cell signal range (span) is too large for these settings. (Incorrect span weight entered. Scale wiring incorrect. Load cell capacity too small for application.)
(NO) (ZERO)	There is no valid zero calibration so the span calibration cannot proceed.

7.4. Diagnostic Errors

The **5000** 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 **5000** must be returned for factory service.

Error	Description	Resolution
E0001	The power supply voltage is too low.	Check supply
E0002	The power supply voltage is too high.	Check scale / cables
E0004	The load cell excitation voltage is too low.	Check scale/supply
E0008	The load cell excitation voltage is too high.	Check scale/supply
E0010	The temperature is outside of allowable limits.	Check location
E0020	Scale build is incorrect. The number of graduations has been set < 100 or greater than 100000.	Fix up scale build
E0040	The positive sense line is not connected.	Check connection
E0080	The negative sense line is not connected.	Check connection
E00C0	Neither sense line is connected	Check connection
E0100	The digital setup information has been lost.	Re-enter setup
E0200	The calibration information has been lost.	Re-calibrate
E0300	All setup information has been lost	Enter setup and calibrate
E0400	The factory information has been lost.	Service
E0800	The EEPROM memory storage chip has failed	Service
E2000	The Clock Calendar chip has failed	Service
E8000	The EPROM memory storage chip has failed	Service

The **E** type error messages are additive. For example if a condition is detected where the power supply voltage is low, resulting in a reduction of excitation voltage, the resulting Error messages will be **E0005** (0001 + 0004). 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

Notes:

Notes:

SMART WEIGHING SOLUTIONS

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