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

- Albert Einstein -

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1. Introduction

The **Rinstrum 5230** is a precision industrial digital indicator using the latest technology to ensure fast and accurate weight readings. The **5230** has been optimised for truck weighing applications and is capable of storing information on up to 200 truck/product/destination IDs.



1.1. Approvals

- C-tick approved
- CE, OIML and NSC approved

1.2. Features

- 20mm alpha-numeric LCD display
- Single, multiple and variable axle weighings
- Truck, Product and Destination totalisation
- Real Time Clock and Calendar

1.3. Manuals

For more information on the **5230 Truck Weigher**, refer to the **5230 Digital Indicator Reference Manual**, **5230 Quick Start Manual**, **5230 Applications Manual** or the **5230 Communications Manual** (available from <u>www.rinstrum.com</u>).

2. Safety

2.1. Operating Environment

- Operating Temperature: -10 to 50°C
- Humidity: <90% non-condensing
- Operating Voltage: Shown on Rating Plate

2.2. Cleaning

To clean the instrument, never use harsh abrasive cleaners or solvents on the keyboard. Wipe the instrument with a soft cloth slightly dampened with either methylated spirits or warm soapy water.

3. Basic Operation

3.1. User Interface Display and Controls



3.2. Keypad Buttons

Key	Description
ZERO →()→	ZERO: The <zero></zero> key is used to perform a zero adjustment on the scale display when an empty scale has drifted away from a true zero reading. The zero adjustment is stored by the 5230 when power is removed and is re-used when next powered up. The amount of weight that may be cancelled by the <zero></zero> key is limited via a setting in the Setup of the unit.
	De-Zero: A two second press of the <zero></zero> key clears the zero setting. This function is not available in Trade mode.
FIRST	FIRST: The <first></first> key is used to store the first truck weight. An existing Truck ID can be selected or a new Truck ID created during this procedure.
	When a first weight has been successfully stored the instrument displays the FIRST STORED message and then alternates the weight and the DRIVE OFF message. The weight must go below the truck minimum weight before any further operation can be performed.
	If another first weigh is attempted on a Truck ID (prior to the second weigh), the message FIRST EXISTS will display and then CONT N . Use the <find></find> key to switch between N (No) and Y (Yes). Press <accept ok=""></accept> to accept your choice.

Key	Description
SECOND	SECOND: After the first weight is stored the <second></second> key is used to store the second truck weight. The first truck weight is subtracted from the second truck weight. During the second weigh procedure the instrument may also prompt for a Product ID and/or Destination ID (depending on the Setup of the unit). An existing Product ID or Destination ID can be selected or new IDs can be created during this procedure.
	Preset Tare Weight: The <second></second> key can also be used to set a Preset Tare weight. When the <second></second> key is pressed without previously storing a first weight, the instrument will prompt for a Preset Tare weight. The Preset Tare weight is manually entered via the numeric keypad and will take the place of a stored first weight.
PRINT	PRINT: If a printer or computer has been attached to the 5230 and the manual print function selected, the <print></print> key will trigger an output of the current weight reading.
	ACCEPT/OK: The <accept ok=""></accept> key is used to accept commands and continue to the next step.
REPORT	REPORT Truck, Product or Dest
1	Short Press(s): Where data entry is required, these keys will cycle through the alphanumeric characters on the key.
Product 2 ABC	Long Press: A long press of any of these keys will report the Total data on that key (eg. Total (TOT) of the current Truck (TRK), Product (PRO) or Destination (DST)). The display will alternate between the specific ID and the Total (TOT) for that ID.
3 DEF	Note: In setup when the Products or Destinations fields have been set to Not Stored , a long press of the Product or Dest keys will result in the message NO PROD or NO DEST .
ARGET.	TARGET
PORS	Short Press(s): Where data entry is required, this key will cycle through the alphanumeric characters on the key.
	Long Press: A long press of the <target></target> key is used to adjust setpoint targets.
	Active Setpoints: LIM.1 to LIM.4
	Fill Material Setpoints: PRE.MED and PRE.FST

Key	Description
ര്	ID: The <id></id> key is used to set the Reference ID or Sequence ID.
N TUV	Short Press(s): Where data entry is required, this key will cycle through the alphanumeric characters on the key.
	Long Press: A long press of the <id></id> key will access the REF.ID / SEQ.ID settings. Pressing the <find></find> key will switch between REF.ID and SEQ.ID . In each setting the display will alternate with the current setting.
	REF.ID (Reference ID) : The Reference ID can contain up to six numeric characters and can be used to identify a series of printouts if a Fixed 1, 2 or 3 type has been configured. The Reference ID can be altered by entering a new number on the numeric keypad and then pressing the ACCEPT/OK> key accept your choice. Press the ACCEPT/OK to return to normal operation.
	SEQ.ID (Sequence ID): The Sequence ID can contain up to six numeric characters and is a sequential counter that is incremented with every printout up to a maximum of 999999 (after which the counter cycles back to zero). The SEQ.ID can only be viewed (not changed) using the <id></id> key. The SEQ.ID can only be changed in full setup.
FIND	FIND: The <find></find> key is used in conjunction with other keys to find and/or create Truck IDs, Product IDs and Destination IDs.
New	When entering alphanumeric characters (eg. creating Truck IDs) this key can also be used to insert a space (eg. TRK 1).
ESC	Escape/Clear Key
	Short Press(s):
	The <esc c=""></esc> key is used as an undo key during editing
Lor	When Managing IDs this key is used in conjunction with other keys to clear entries or totals and/or delete Truck IDs, Product IDs and Destination IDs.
	Long Press: Press and hold the <esc c=""></esc> key for two seconds to clear all of the current keypad entries and revert to normal operation.

3.3. Auxiliary Display

Code	Description
	Zero Band: Lit when the displayed weight is within the zero dead
	band setting.
1ST	First Weigh
2ND	Second Weigh
AXL	Axles: Lit when setting the number of axles.
	Example: If 2 axles are set, the auxiliary display will show 1-2 (when
	weighing axle 1 of 2) or 2-2 (when weighing axle 2 of 2).
DST	Destination ID
ID	Ref.ID and Seq.ID
LIN	Linearisation Point
PRO	Product ID
SPN	Span Calibration or Direct Mv/V Span Calibration
TGT	Target
TOT	Total
TRK	Truck ID
ZER	Zero Calibration or Direct Mv/V Zero

3.4. Status Annunciators

Status Annunciators are a number of small triangles that show the status of the displayed reading.

Annunciator	Meaning
ZERO	Lit when the displayed reading is within $\pm \frac{1}{4}$ of a division of
	true zero.
GROSS	Lit when the display reading represents GROSS weight.
NET	Not used in the 5230 .
MOTION	Lit when the displayed reading is not stable.

4. Basic Weighing

4.1. Normal Weighing

- Ensure instrument is On and zero annunciator is lit.
- Place your item on the weigh platform.
- Read the weight display.

4.1.1. Print Currently Displayed Weight

- Press the **<PRINT>** key.
- Depending on the setup, the unit may prompt with ENTER ID. If prompted, enter a user defined ID.
- Press <ACCEPT/OK> to accept your choice and return to normal operation.

4.2. Managing IDs

Procedures for all IDs are essentially the same except for the key pressed to instigate the procedure. In these procedures unless otherwise noted, Truck, Product and Destination IDs will be referred to in the singular as **ID**.

In the following procedures **<TRUCK**, **PRODUCT or DEST>** refers to these keys.



Thuck

Product

REPORT

PRINT

 \bigcirc

ACCEPT

Dest

ACCEPT

FIND

ACCEPT

ÔΚ

ACCEPT

4.2.1. Display Total for Most Recent ID

- Press and hold the **<TRUCK**, **PRODUCT or DEST>** key for two seconds. The most recent ID and the current total weight reading will display alternately.
- Press <ACCEPT/OK> to return to the normal display.

4.2.2. Search 10 Most Recent IDs

- Press and hold the **<TRUCK**, **PRODUCT or DEST>** key for two seconds. The most recent ID and the current total weight reading will display alternately.
- Press **<FIND>** to step through the 10 most recent IDs.
- When the desired ID is located, press **<ACCEPT/OK>** to select it. The ID and the current total weight reading will display alternately.
- Press <ACCEPT/OK> to return to the normal display.

4.2.3. Search All IDs

- Press and hold the **<TRUCK**, **PRODUCT or DEST>** key for two seconds. The most recent ID and the current total weight reading will display alternately.
- Press the **<FIND>** key.



FIND

ACCEPT

OK ACCEPT

PRINT

 \odot

PRINT

 \odot

ACCEPT

- Enter the first character of the ID to find. If there are no IDs beginning with the character entered, the display will show the character followed by dashes (eg. A - - -).
- Press the **<FIND>** key to step through all IDs starting with that character.
- When the desired ID is located, press **<ACCEPT/OK>** to select it. The ID and the current total weight reading will display alternately.
- Press **<ACCEPT/OK>** to return to the normal display.

4.2.4. Print All Truck/Product/Dest ID Totals

- Press and hold the **<TRUCK**, **PRODUCT or DEST>** key for two seconds. The most recent ID and the current total weight reading will display alternately.
- Press the **<PRINT>** key. Totals for all IDs will print.

4.2.5. Print and Clear All ID Totals

- Press and hold the **<TRUCK, PRODUCT or DEST>** key for two seconds. The most recent ID and the current total weight reading will display alternately.
- Press and hold the <PRINT> key for two seconds. Totals for all IDs will print.
- The unit will prompt to clear the totals with CLR N. The <FIND> key to switches between N (No) and Y (Yes).
- Press <ACCEPT/OK> to accept your choice and return to normal operation.

4.2.6. Create New ID

- Press and hold the **<TRUCK**, **PRODUCT or DEST>** key for two seconds. The most recent ID and the current total weight reading will display alternately.
- Press and hold the **<FIND>** key for two seconds.

OK ACCEPT

ESC

ACCEPT

ACCEPT

- Enter the ID name.
- Press the <ACCEPT/OK> key to create the ID. The ID and the current total weight reading (zero) will display alternately.
- Press <ACCEPT/OK> to return to the normal display.

4.2.7. Delete ID

A Truck ID can only be deleted if the total is zero. The error message **NOT CLEAR** will display if an attempt is made to delete an ID where the total is not zero.

- Press and hold the **<TRUCK**, **PRODUCT or DEST>** key for two seconds. The most recent ID and the current total weight reading will display alternately.
- Use a Search method noted previously to display the ID to be deleted.
- Press and hold the **<ESC/C>** key for two seconds.
- The unit will prompt to delete the ID with DEL N. The <FIND> key to switches between N (No) and Y (Yes).
- Press **<ACCEPT/OK>** to delete the ID. The unit will display dashes (ie. - - -).
- Press <ACCEPT/OK> to return to normal operation.

5. Truck ID Operations

These procedures describe operations in their basic form and assume Instrument Defaults are set, Fixed printer type is configured and Product and Destination IDs will be used.

Manual or Auto Axle Weighing: These procedures describe manual weighings (accepted by the operator). Auto Weighing procedures are basically the same except weights (after no motion) and printing would be automatically accepted. (Auto steps are marked with **)

5.1. Single Axle Weighing



NOTE: The reverse procedure could also be used (ie. 1st Weigh = Full and 2nd Weigh = Empty).

5.1.1. First Weigh (Single Axle)



•	Press the <first></first> key.	FIRST
•	Use a search method to display the Truck ID.	
•	Press <accept ok=""> to accept the displayed Truck ID.</accept>	
•	The unit displays TRUCK and the accepted Truck ID .	
•	The unit then displays the current weight and DRIVE ON alternately. display shows 1ST .	Auxiliary
•	The truck drives on the scale.	
•	When the weight is stable, press <accept ok=""></accept> to accept the first weight. (**Auto Weighings: No motion weight is automatically accepted.)	ACCEPT
•	With Fixed printer the unit alternates the prompts PRINT.? and STORE.?. Press <print> to store/ print the result. Press <accept ok=""> to only store the result. The unit displays either PRINT or FIRST STORED, depending on the operation selected. (**Auto Weighings: Unit briefly displays PRINT.)</accept></print>	
•	The unit then displays the current weight and DRIVE OFF alternately display shows 1ST . The weight must go below the truck minimum we before any further operation can be performed.	Auxiliary eight
•	The truck drives off the scale.	

5.1.2. Second Weigh (Single Axle)



Press the <second></second> key.
 Use a Search method to display the Truck ID.
• Press <accept ok=""> to accept the displayed Truck ID.</accept>
 The unit then prompts for a Product ID. Use a Search method to display the Product ID.
Press <accept ok=""> to accept the displayed Product ID.</accept>
 The unit then prompts for a Destination ID. Use a Search method to display the Destination ID.
Press <accept ok=""> to accept the displayed Destination ID.</accept>
 The unit displays TRUCK and the accepted Truck ID.
 The unit then displays the current weight and DRIVE ON alternately. Auxiliary display shows 2ND.
 The truck drives on the scale.
 When the weight is stable, press <accept ok=""> to accept the second weight. (**Auto Weighings: No motion weight is automatically accepted.)</accept>
 With a Fixed printer settings type configured, the unit will display PRINT and then print and store the result.
 The unit then displays the current weight and DRIVE OFF alternately. Auxiliary display shows 2ND. The weight must go below the truck minimum weight before any further operation can be performed.
The truck drives off the scale.

5.1.3. Preset Tare Truck Weigh (Single Axle)

	FULL BOOLOGO Weighbridge
	2nd Weigh (Single - Preset Tare)
• F	Press the <second></second> key.
	2
• 5	elect a truck ID with no current first weight.
• [Jse a Search method to display the Truck ID.
• F	Press <accept ok=""> to accept displayed Truck ID.</accept>
• 7 F	he unit then prompts for a Product ID. Use a Search method to display the Product ID.
• F	Press <accept ok=""> to accept displayed Product ID.</accept>
• 1 [he unit then prompts for a Destination ID. Use a Search method to display the Destination ID.
• F	Press <accept ok=""> to accept the displayed Destination ID.</accept>
• 1 4	The unit then displays six digits where the preset tare weight can be entered. Auxiliary display shows PT . Enter the weight to be used for the preset tare.
• F	Press <accept ok=""> to accept the preset tare weight.</accept>
•]	he unit displays TRUCK and the accepted Truck ID .
• T c	he unit then displays the current weight and DRIVE ON alternately. Auxiliary isplay shows 2ND .
• 7	he truck drives on the scale.
• V V 2	Vhen the weight is stable, press <accept ok=""></accept> to accept the second veight. (**Auto Weighings: No motion weight is automatically ccepted.)
• V t	Vith a Fixed printer settings type configured, the unit will display PRINT and nen print and store the result.(**Auto Weighings: Unit briefly displays PRINT .)
• T c a	he unit then displays the current weight and DRIVE OFF alternately. Auxiliary isplay shows 2ND . The weight must go below the truck minimum weight before ny further operation can be performed.
• 7	he truck drives off the scale.

5.2. Multiple or Variable Axle Weighing



NOTE: The reverse procedure could also be used (ie. 1st Weigh = Full and 2nd Weigh = Empty).

5.2.1. First Weigh (Multiple / Variable Axles)

1st Weigh (Multiple 1st Weigh EMPTY (1st Axle) EMPTY 0.0 0.0 Axle Scale Axle S	(Max 10 Axles)
 Press the <first> key.</first> 	FIRST
• Use a Search method to display the Truck ID.	
 Press <accept ok=""> to accept the displayed</accept> 	Truck ID.
 Auxiliary display shows AXL. Enter the number numeric keypad. (This example = 2) 	r of axles (maximum 10) from the
 Press <accept ok=""> to accept the displayed</accept> 	number of axles.
• The unit displays TRUCK and the accepted Tr	ruck ID.
 The unit then displays the current weight and a display shows 1-2 (axle 1 of 2). 	AXLE 1 alternately. The auxiliary
• The truck drives on the scale to the first axle.	
 When the weight is stable, press < ACCEPT/O axle weight. (**Auto Weighings: No motion we accepted.) 	K> to accept the first eight is automatically
 The unit then displays the current weight and a display shows 2-2 (axle 2 of 2). 	AXLE 2 alternately. The auxiliary
 The truck drives on the scale to the second ax 	de.
 When the weight is stable, press <accept o<br="">axle weight. (**Auto Weighings: No motion we accepted.)</accept> 	K> to accept the second eight is automatically
 With Fixed printer the unit alternates the prom STORE.?. Press <print> to store and print is <accept ok=""> to only store the result. The use or FIRST STORED, depending on the operation (**Auto Weighings: Unit briefly displays PRINT)</accept></print> 	ipts PRINT.? and the result. Press unit displays either PRINT or or ACCEPT OK
 The unit then displays the current weight and I weight must go below the truck minimum weig be performed. 	DRIVE OFF alternately. The Jht before any further operation can
The truck drives off the scale.	

5.2.2. Second Weigh (Multiple / Variable Axles)



(Max 10 Axles)

Multiple Axles: Unit will not prompt for the number of axles. Variable Axles: Unit will prompt for the number of axles.

Press the <second></second> key.
 Use a Search method to display the Truck ID.
Press <accept ok=""> to accept the displayed Truck ID.</accept>
 The unit then prompts for a Product ID. Use a Search method to display the Product ID.
• Press <accept ok=""> to accept the displayed Product ID.</accept>
 The unit then prompts for a Destination ID. Use a Search method to display the Destination ID.
Press <accept ok=""> to accept displayed Destination ID.</accept>
 If Variable Axles have been set the unit prompts for number of axles and auxiliary display will show AXL.
 The unit displays TRUCK and the accepted Truck ID.
 The unit then displays the current weight and AXLE 1 alternately. Auxiliary display shows 1-2 (axle 1 of 2).
The truck drives on the scale to the first axle.
• When the weight is stable, press <accept ok=""></accept> to accept the first axle weight. (**Auto Weighings: No motion weight is automatically accepted.)
 The unit then displays the current weight and AXLE 2 alternately. Auxiliary display shows 2-2 (axle 2 of 2).
 The truck drives on the scale to the second axle.
When the weight is stable, press <accept ok=""> to accept the second axle weight. (**Auto Weighings: No motion weight is automatically accepted.)</accept>
• With a fixed printer settings type configured, the unit will display PRINT and then print and store the result.
The unit then displays the current weight and DRIVE OFF alternately. The weight must go below the truck minimum weight before any further operation can be performed.
The truck drives off the scale.

5.3. Batching Process (Remote Fill)



The Target settings are accessed with a long press of the **<TARGET>** key. Refer to **TARGET** page 6.

• The truck should be on the scale.

• Press the <REMOTE> key (previously defined in Setup as a FILL input) .

- Accept the correct Truck and also Product and Destination (if applicable).
- Enter the target weight for the current truck using the numeric keypad. This is the slow fill target for Setpoint 1.
- Press <**ACCEPT/OK>** to accept the target weight.
- The **FILL** prompt will flash on the display, alternating with the current weight.
- Press the **<REMOTE>** key (**FILL** input) again. This starts the fill process, assuming interlocks are in place and the minimum weight is on the scale.
- The message **FIRST STORED** displays to indicate the truck weight has been stored. The accepted IDs will then flash on the display, alternating with the current weight.
- The filling procedure runs and the Range/Output Display will reflect the current configuration.
- To pause the batch operation press the <REMOTE> key (FILL input). The message PAUSE OPER displays alternately with the last accepted ID and the current weight. Another press of the same <REMOTE> key will restart the operation.
- To abort the batch operation press the **<ESC/C>** key for two seconds.

6. Error Messages			
Error	Description	Resolution	
(U)	Weight is below minimum allowable weight reading.	Increase weight or check setup.	
(O)	Weight is above maximum allowable weight reading.	Check condition of load cell connections and for damaged load cell.	
(ZERO) (ERROR)	Weight is beyond limit set for Zero operation.	Check setup.	
(STABLE) (ERROR)	Scale motion has prevented a <first>, <second> or <print> operation from occurring.</print></second></first>	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.	
(QA) (DUE)	Quality assurance testing is due.	Press any key to clear the warning for one hour.	

7. Diagnostic Errors

Error	Description	Action
E0001	Power supply voltage too low.	Check supply
E0002	Power supply voltage too high.	Check scale / cables
E0004	Load cell excitation voltage too low. (8 volts for up to 12 x 350 ohm load cells)	Check scale / supply
E0008	Load cell excitation voltage too high. (8 volts for up to 12 x 350 ohm load cells)	Check scale / supply
E0010	Temperature outside limits. (-10 to +50°C ambient)	Check location
E0020	Scale build incorrect. (100 to 100000 grads).	Fix up scale build
E0040	Positive sense line not connected.	Check connection
E0080	Negative sense line not connected.	Check connection
E00C0	Neither sense line is connected.	Check connection
E0100	Digital setup information lost.	Re-enter setup
E0200	Calibration information lost.	Re-calibrate
E0300	All setup information lost.	Enter setup & calibrate
E0400	Factory information lost.	Service
E0800	EEPROM memory chip failed.	Service

The **E** type error messages are additive. For example, E0005(0001+0004) indicates that both Excitation and Power Supply Voltage are low. 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:

Notes:

