



Industrial Weighing Systems

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This document shows calibration instructions extracted from Manuals we have on file that may not necessarily match your current model.

For your reference only.

IWSystems provides repair services to instruments and load cells

On site calibrations

For additional information please contact us.

CALIBRATION MODE

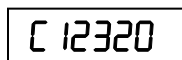
All **Calibration** and **Set-up** functions are executed via the keypad in Calibration Mode. Each function or parameter has a unique code with which to access and edit values. For a complete listing of all parameters, see **Appendix A**.

ENTERING INTO CALIBRATION MODE

TO ENTER CALIBRATION MODE FOR SCALE CHANNEL 1:



1. Enter **19** followed by the **[PRINT/SELECT]** key.
2. The display will flash “**PASS**”. At this point, a four-digit password is required.



3. Enter **1111** (factory default password). A blinking “**⏏**” should appear on the left hand side of the display, indicating Calibration Mode has been entered. (For more information on passwords, see Security Features - Page **14**)



Note: To enter Calibration Mode for Channels 2 & 3, use Parameters **29** & **39** respectively and follow the exact same steps as for Channel 1.

ENTERING COMMANDS IN CALIBRATION MODE

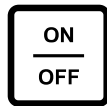
SELECT A PARAMETER

- Calibration & Set-up parameters are selected by entering their **unique numeric code** followed by the **[PRINT/SELECT]** key. This method is similar to selecting a function in Normal Weighing Mode.

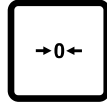
EDIT A PARAMETER

- After a parameter is selected, its current value will be displayed. There is a **6 second** window to edit the parameter. Parameter values are entered using the **numeric keys** followed by the **[PRINT/SELECT]** key.
- In some cases, the **[TARE]** key must be used to enter a parameter value. Specific Parameter Descriptions will address the use of the **[TARE]** key.

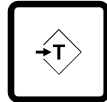
KEY FUNCTIONS IN CALIBRATION MODE



Cycles the display between Graduated Counts (Displayed weight prefixed by a blinking letter “**L**”) and Raw Internal Counts (Prefixed by a blinking letter “**R**”).



Continues to function as in normal **Weighing Mode**.



Confirms entry of new Parameter Values (in certain cases only).



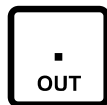
Select Parameters and confirms entry of most Parameter Values.



Aborts any parameter change without saving.



Used to **increase** some parameter values. Specific Parameter Descriptions will address the exact function of this key.



Used to **decrease** some parameter values. Specific Parameter Descriptions will address the exact function of this key.

EXIT CALIBRATION MODE - PARAMETER 99

Description: Exits Calibration Mode and restarts the M2000. All calibration changes are **saved** to flash memory and the Audit Trail is updated.

1. Enter **99** followed by the **[PRINT/SELECT]** key.



2. The display will flash, run through a save series, and return to Normal Weighing Mode.



STANDARD SCALE SET-UP PARAMETERS

The following parameters are standard for getting a scale up and running.

DECIMAL POINT POSITION - PARAMETER 2

Description: Sets the number of decimal places to correspond with Grad Size.

PARAMETER VALUE	DISPLAY EXAMPLE
0 (default)	123456.
1	12345.6
2	1234.56
3	123.456
4	12.3456

GRADUATION SIZE - PARAMETER 3

Description: The number the scale will count by.

PARAMETER VALUE	DISPLAY EXAMPLE
1 (default)	1, 2, 3, etc.
2	2, 4, 6, etc.
5	5, 10, 15, etc.
10	10, 20, 30, etc.
20	20, 40, 60, etc.
50	50, 100, 150, etc.
100	100, 200, 300, etc.

SCALE CAPACITY - PARAMETER 4

Description: True Scale Capacity. The Zero Range is calculated from this value.

Accepted Parameter Values: **Any number (weight) up to 999999.**



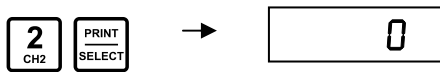
For "Scale Over" above True Scale Capacity, see **Parameter 8 – Page 46.**

EXAMPLE: SET UP A 5,000 LB. CAPACITY SCALE WITH A GRADUATION SIZE OF 0.5 LB. ON CHANNEL 1.

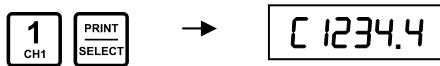
1. Enter Calibration Mode for Channel 1.



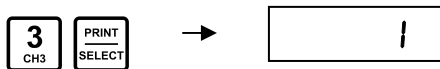
2. Select the weighing units for Set-Up by pressing **7** followed by the **[PRINT/SELECT]** key. Either the **lb** or **kg** LED indicator LED will illuminate.
3. To select Decimal Point Position, press **2** on the keypad followed by **[PRINT/SELECT]**. The display will show the current position (default: 0).



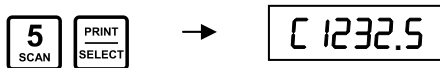
4. For 1 decimal place, press **1** on the keypad followed by the **[PRINT/SELECT]** key.



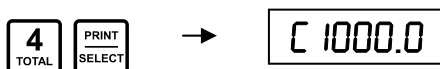
5. To select Graduation size, press **3** on the keypad followed by **[PRINT/SELECT]**. The display will show the current Graduation size (default: 1)



6. For a grad size of half a pound, press **5** on the keypad followed by **[PRINT/SELECT]**.



7. To select Scale Capacity, press **4** on the keypad followed by **[PRINT/SELECT]**. The display will show the current Scale Capacity.



8. For a Scale Capacity of 5,000 lb., enter **5000** on the keypad followed by the **[PRINT/SELECT]** key.



The Scale is now ready for calibration and/or more advanced Set-Up.

SCALE CALIBRATION PARAMETERS

The following parameters relate to basic Scale Calibration.

SCALE CALIBRATION UNITS - PARAMETER 7

Description: Selects measurement units for calibration. Test Weight units should match Calibration units. Verify on indicator display.

- Toggle weighing units by pressing **7** followed by the **[PRINT/SELECT]** key.

DEADLOAD SCALE - PARAMETER 12

Description: Identifies the weight of the scale itself. Before spanning the scale for the first time, the scale must be deadloaded.

EXAMPLE:

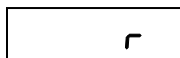
1. Ensure that all test weights are removed from the weighing platform and that the weight is stable.
2. Enter **12** followed by the **[PRINT/SELECT]** key. The Indicator Password will be required (Factory default "**1111**").



3. After the deadload is complete, the indicator will briefly display the Deadload Value in raw A/D counts before returning to weight display mode.



Older M2000 software versions (**1.44** and older) will not prompt for the Password when the scale is deadloaded. Instead, the "Reconfirm" screen appears.



At this point, press **[1]** followed by the **[PRINT/SELECT]** key to activate the deadload function.





IMPORTANT NOTICE FOR HIGH CAPACITY SCALES & SCALES UTILIZING A LARGE NUMBER OF LOADCELLS!

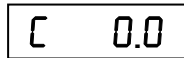
PLEASE VERIFY THAT THE CORRECT ANALOG INPUT RANGE IS SET BEFORE PROCEEDING TO SPAN SCALE. (SEE PARAMETER 11 - PAGE 47)

SET SPAN - PARAMETER 13

Description: Calibrates (Spans) the scale with a known Test Weight.

EXAMPLE: IN CALIBRATION MODE, SPAN A SCALE TO 5,000 LBS.

1. Verify that scale is reading zero with the **Centre of Zero** LED illuminated.



2. Place Test Weights on the scale (**5,000 lbs**).

3. Enter **13** followed by the **[PRINT/SELECT]** key. Once activated, the current displayed weight will be frozen on the display.



4. Enter the known test weight value followed by the **[PRINT/SELECT]** key. The display will show the new, corrected weight on the scale.

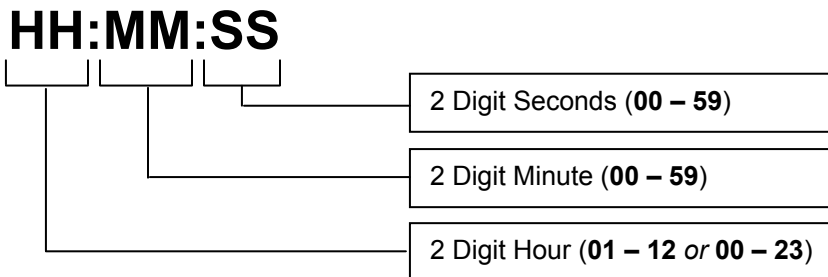


TIME & DATE ON THE M2000

M2000 Indicators have a built-in Time & Date Clock that is Y2K compliant and automatically adjusts for leap years. The real time clock runs from a battery on the main board and will continue to operate when power is cut. The time and date settings are changed when the M2000 is in Normal Weighing Mode.

PARAMETER 80 - SET TIME

Using the numeric keypad, enter the new 6-digit time in the format shown below. Press **[PRINT/SELECT]** to save the new time or cancel at any time by pressing the **[CLEAR]** key.



EXAMPLE: 11:00 AM

1. Select **Parameter 80**. The current time will be displayed.



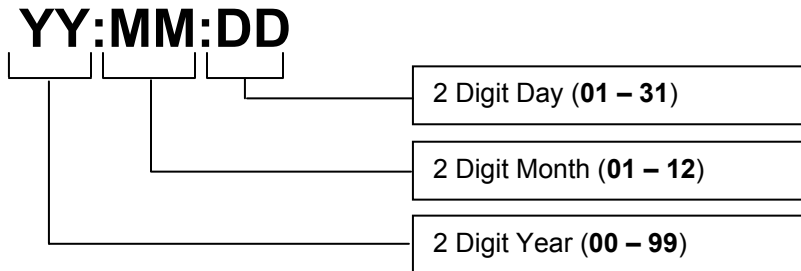
2. Enter the new time, followed by the **[PRINT/SELECT]** key.



FOR 12-HOUR CLOCK MODE, PARAMETER 83 MUST BE USED TO SELECT **AM** OR **PM**.

PARAMETER 81 - SET DATE

Using the numeric keypad, enter the new 6-digit date in the format shown below. Press **[PRINT/SELECT]** to save the new date or cancel at any time by pressing the **[CLEAR]** key.



EXAMPLE: *January 1, 2004*

1. Select **Parameter 81**. The current date will be displayed.



2. Enter the new time, followed by the **[PRINT/SELECT]** key.



PARAMETER 83 - TIME FORMAT

Description: Controls Time Format settings. 12 Hour or 24 Hour (military time) clock settings are available.

PARAMETER VALUE	TIME FORMAT
0 (default)	24 Hour Mode
1	12 Hour Mode AM
2	12 Hour Mode PM

APPENDIX A – PARAMETER LISTING

PARAMETER	FUNCTION	PARAMETER GROUP	PAGE
1	Reload Factory Default Values (Calibration Only)	Reset	57
2	Decimal Point Position	Standard Scale Set-Up	30
3	Display Divisions (Graduations)	Standard Scale Set-Up	30
4	Scale Capacity	Standard Scale Set-Up	30
5	Motion Window	MOTION	38
6	Power On Units	Advanced Set-Up	46
7	Calibration Scale Units	Standard Calibration	32
8	Scale Over	Advanced Set-Up	46
9	Power On ZERO Prompt	ZERO	40
10	Power Switch Bypass	Scale Set-Up	47
11	Loadcell Voltage Range	Scale Set-Up	47
12	Deadload the Scale	Standard Calibration	32
13	Set Span (Spanning the Indicator)	Standard Calibration	33
15	Reset Span Table	Linearity Adjustment	54
16	Increment Span Table Pointer	Linearity Adjustment	54
17	Decrement Span Table Pointer	Linearity Adjustment	54
19	Display Update Rate	Advanced Set-Up	48
20	Scale Over Message	Advanced Set-Up	48
21	Push to Zero Window	ZERO	40
22	Auto Zero ON/OFF	ZERO	40
23	Zero Tracking Window	ZERO	41
24	Motion Settle Time	MOTION	39
25	Offset Value	TARE	43
26	Offset Flag	TARE	43
27	Data Bits (COM2 Only)	Serial Communications	61
28	Sound Volume	Advanced Set-Up	48
29	Keypress Feedback	Advanced Set-Up	49
30	Baud Rate (COM1)	Serial Communications	61
31	Parity (COM1)	Serial Communications	61
32	Baud Rate (COM2)	Serial Communications	61
33	Parity (COM2)	Serial Communications	61
34	Output String Format (COM1)	Serial Communications	62
35	Output String Format (COM2)	Serial Communications	62
36	Serial Handshaking (COM 1)	Serial Communications	63
37	Serial Handshaking (COM 2)	Serial Communications	63
38	String Output Mode (COM1)	Serial Communications	63

PARAMETER	FUNCTION	PARAMETER GROUP	PAGE
39	String Output Mode (COM2)	Serial Communications	63
40	Configure COM Ports for RS422 Mode	Serial Communications	64
41	Main Filter (Digital Averaging) Setting	FILTERING	51
42	Faststep Filter Threshold	FILTERING	51
43	Faststep Filter Sensitivity	FILTERING	53
44	Disable Faststep Filter	FILTERING	53
45	Power ON ZERO (IZSM)	ZERO	41
46	Selecting Power Up Default Channel	Scale Channel & Total Mode	45
47	Serial Output String Routing (Channel Allocation): COM 1	Serial Communications	65
48	Serial Output String Routing (Channel Allocation): COM 2	Serial Communications	65
50	Tare Function Mode	TARE	42
51	Set Weight for Setpoint 1	SETPOINT	91
52	Set Weight for Setpoint 2	SETPOINT	91
53	Set Weight for Setpoint 3	SETPOINT	91
54	Set Weight for Setpoint 4	SETPOINT	91
55	Set Weight for Setpoint 5	SETPOINT	91
56	Set Weight for Setpoint 6	SETPOINT	91
57	Set Point Control Mask	SETPOINT	89
58	Set Point Hysteresis Adjustments	SETPOINT	91
59	Enabling SmartWire Interface	SMARTWIRE	79
60	Selecting Scale Channel to Connect to Current Loop	4-20 mA (Analog Output)	80
61	Current Loop Offset Adjustment	4-20 mA (Analog Output)	81
62	Current Loop Span Adjustment	4-20 mA (Analog Output)	82
63	Current Loop Gross or Net Mode	4-20 mA (Analog Output)	83
64	Current Loop Span	4-20 mA (Analog Output)	83
65	Transmission Delay for COM1 and COM2	Serial Communications	65
70	Enable Total Mode	Scale Channel & Total Mode	45
71	Force Zero for Keyboard Tare	TARE	42
75	Transmit Calibration Information to Serial Port	Serial Communications	70
76	Capture Calibration Information From a Serial Port	Serial Communications	72
77	Transmit Ticket Buffer Information To Serial Port	See Printing & Ticket Formatting Guide	
78	Capture Ticket Buffer Information From Serial Port	See Printing & Ticket Formatting Guide	
80	Set Time of Day	Time & Date	34
81	Set the Date	Time & Date	35
83	Time Format Mode	Time & Date	35
84	Add New Ticket	See Printing & Ticket Formatting Guide	
85	Edit Existing Ticket	See Printing & Ticket Formatting Guide	
86	Number of Ticket Saved in the Ticket Buffer	See Printing & Ticket Formatting Guide	

PARAMETER	FUNCTION	PARAMETER GROUP	PAGE
87	Show Available Space in Custom Ticket Buffer	See Printing & Ticket Formatting Guide	
88	Clear Custom Ticket Buffer	See Printing & Ticket Formatting Guide	
89	Print Specific Ticket	See Printing & Ticket Formatting Guide	
90	Scanner Handshaking Mode	Serial Communications	75
95	Assigning a Ticket Event to the Scanner	Serial Communications	75
96	View/Change Password	Security Features	14
98	Enables Scale Channel	Scale Channel & Total Mode	44
99	Exit Calibration Mode	CALIBRATION MODE	29
100	Delete Truck IN/OUT Database	See Printing & Ticket Formatting Guide	
101	Delete Truck IN/OUT Database	See Printing & Ticket Formatting Guide	
105	Lock Units (lbs or kgs)	Advanced Set-Up	49
106	Auto Tare Clear	TARE	42
107	Peak Hold Threshold	See Applications & Examples Guide	
110	Span Factor	Reset	56
111	Disable ZERO key	ZERO	41
240	Boot Loader Version Information	Call Factory for Assistance	**
244	Testing Battery Information	Battery	
255	Software Upgrade Download	Call Factory for Assistance	**
260	Complete Factory Initialize	Reset	57
400	Grading Mode - Set Grade Entry 1 of 10	See Applications & Examples Guide	
401	Grading Mode - Set Grade Entry 2 of 10	See Applications & Examples Guide	
402	Grading Mode - Set Grade Entry 3 of 10	See Applications & Examples Guide	
403	Grading Mode - Set Grade Entry 4 of 10	See Applications & Examples Guide	
404	Grading Mode - Set Grade Entry 5 of 10	See Applications & Examples Guide	
405	Grading Mode - Set Grade Entry 6 of 10	See Applications & Examples Guide	
406	Grading Mode - Set Grade Entry 7 of 10	See Applications & Examples Guide	
407	Grading Mode - Set Grade Entry 8 of 10	See Applications & Examples Guide	
408	Grading Mode - Set Grade Entry 9 of 10	See Applications & Examples Guide	
409	Grading Mode - Set Grade Entry 10 of 10	See Applications & Examples Guide	
410	Enable Grading Mode	See Applications & Examples Guide	
411	Grading Mode - Select Product	See Applications & Examples Guide	
412	Grading Sample - Minimum weight	See Applications & Examples Guide	
413	Grading Sample - Validation Threshold	See Applications & Examples Guide	
414	Grading Mode - Reset All	See Applications & Examples Guide	

APPENDIX B - ERROR CODES

ERROR CODE	DESCRIPTION	SEE PARAMETER
1	Invalid parameter number for Calibration Mode	Calibration Mode
2	Invalid Graduation size	3
3	Invalid Decimal Position	2
4	Parameter value must be 1 for 'ON' or 0 for 'OFF'	22
5	Push to Zero Window must be 0-99	21
8	Only 1 will reset Span Table	15
10	IZSM value can be 1 for ON and 0 for OFF	45
12	Motion settle time out of range (1-50)	24
13	Power on units may only be 0=lb, 1=kg.	6
14	Invalid Time entry HH.MM.SS	80
15	Invalid Date entry YY.MM.DD	81
16	Motion value is out of range (1-10)	5
17	Press tare to increment span table, any other key invalid	16
17	Press tare to decrement span table, any other key invalid	17
19	Span table cannot be decremented past 1	17
23	Invalid Serial Port speed setting	30, 32
24	Invalid Serial Port Parity parameter	27, 31, 33
25	Cannot increment Span Table any further	16
26	Entered offset larger than Capacity	25
28	Power on Zero warning 0=Off, 1=On	9
29	Channel enable is 0=Off and 1=On	98
30	Only 1 will set the deadload	12
31	Sound Volume can be between 0-3	28
32	Keypress feedback can be 0=OFF or 1=ON	29
37	Channel 1 cannot be disabled	98
38	Invalid Print Select Function Number	Normal Weighing Mode
40	Scale channel is not enabled	Normal Weighing Mode
41	Pushbutton Tare is invalid (Over, Motion, or disabled)	Normal Weighing Mode
42	Keyboard tare available on channel 1 only	Normal Weighing Mode
43	Tare greater than capacity	Normal Weighing Mode
46	Invalid Entry (Parameter 26 - Values of 0, 1 & 80 are acceptable)	26
47	Bad Clock Mode (0-2)	83
48	Invalid Main Filter Value	41
49	Invalid Output String Format	34
49	Invalid Faststep Threshold Value	42
50	Zero tracking must be 1-99 or 100, 200, 300.	23

ERROR CODE	DESCRIPTION	SEE PARAMETER
50	Invalid Faststep Sensitivity	43
51	Keypad Tare Function Disabled	Tare Scale
51	Invalid Faststep Setting 0=OFF or 1=ON	44
52	Tare function Disabled.	Tare Scale
54	Invalid Tare Mode Entry (0-3)	50
56	Invalid Power Bypass Entry (0 or 1)	10
56	Invalid Display Update Rate (0-9)	19
56	Cannot delete ticket. Ticket # not found.	89
57	Invalid input for AD voltage range	11
100	Invalid Password number range, can only be 0000-9999.	96
110	SRAM failure	Call for Support
151	Audit trail CRC failed	Call for Support
152	Database CRC failed	Call for Support
153	CAL copy CRC failed	Call for Support
154	Ticket Buffer CRC failed	Call for Support
185	SMART wire COM link not responding	59
191	SMART wire set-point checksum failed	59
192	Channel 1 AD converter not responding	Call for Support
193	Channel 2 AD converter not responding	Call for Support
200	Channel 3 AD converter not responding	Call for Support
231	Ticket does not exist	Ticket Printing