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INSTRUMENTOS DE MEDICIÓN INDUSTRIAL

Dinamómetro ZTALM IM-ZTALM

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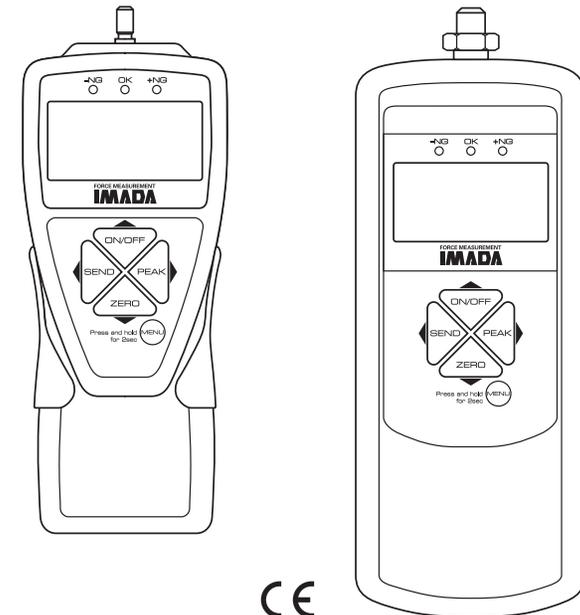
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Digital Force Gauges

- **Electro Luminescent (EL) Display**
- **Multi-Language Menus**
- **Displacement Capability** (Imada test stand with FA option)
- **USB Memory Storage**
- **ZT Logger Data Acquisition Software**



Advanced Models: ZTA, ZTA-DPU, ZTA-LM

INSTRUCTION MANUAL

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Using Multi Display36-37

Turn on the gauge, then press (do not hold) the MENU key to highlight the upper section. Press the arrow keys to cycle selectable data. Press the MENU key to select the data and highlight the lower section. Press the arrow keys to cycle selectable data then press the MENU key to select and exit.

Program Menu

Turn ON the gauge. Press and hold MENU two seconds to enter the Program Menu. Press an arrow key to access the following functions.

High Low Setpoints	38
HighLow Output	38
Peak Functions	39
Displacement Reset	40
Internal Memory	41
USB Memory	42-43
Auto Zero Timer	43

Sound	44
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Display Functions	45-46
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Date and Time	47
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Setup Menu

Press and hold MENU, then press ON/OFF to turn ON the gauge and enter the Setup Menu. Press an arrow key to access the following functions.

Units	48
+/- Indicator	48
Sensitivity	49
Displacement Type	49
Zero/Tare Reset	50
Send Functions	50
Date Format	51
Language	51
Setting LOCK	51

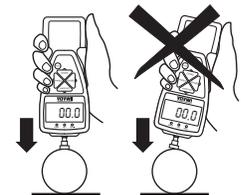
1 INTRODUCTION

Imada ZTA Series high performance, digital force gauges include all the standard features: selectable real time and peak measuring modes, selectable measuring units lbf (ozf), kgf (gf), N, high/low setpoints with color-coded LED indicators for Go/No Go testing, 1,000 data memory, USB, RS-232 and Digimatic output, and they process and transmit 2,000 data/second not just the peak.

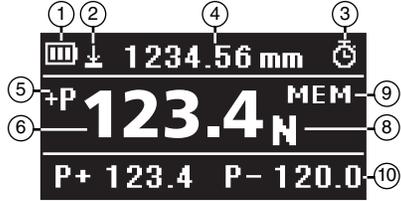
Additionally ZTA gauges incorporate user-friendly, multi-language program menus, highly visible EL (electro luminescent) displays, USB adapter to connect flash drives and ZT Logger software which downloads gauge memory and sets all gauge functions. Displacement data is available when connected to Imada test stands with the FA option.

2 PRECAUTIONS

- WARNING!!** Test samples and fixtures can break or shatter, wear eye and body protection to avoid injury.
- WARNING!!** REGARDLESS of whether the unit is ON or OFF, **DO NOT** exceed the capacity of the gauge. At 110% of the rated capacity, the overload LED indicator flashes to warn. NEVER exceed 200% of the rated capacity, or the load cell will be damaged. Avoid shock load.
- When mounting ZTA Series, use M4 mounting screws with a maximum insertion depth of 5 mm into the gauge. For high capacity gauges use the supplied mounting hardware only.
- Measure in line tension and compression forces only. **DO NOT** attempt to measure forces perpendicular to the measuring shaft - damage to load cell and/or shaft may result.
- Hand tighten attachments only. **DO NOT** use tools.
- Make sure this gauge and all peripherals are powered down before attaching any cables.
- DO NOT** disassemble the gauge. Disassembly voids warranty.



3 OVERVIEW



See page 45 to switch between Multi and Single display.

MULTI DISPLAY

Upper Section

- ① Battery status indicator
- ② Displacement icon: appears when displacement is set.
- ③ Auto zero icon: appears when Auto zero is set.
- ④ Select data: Date, Time, Stored memory data, Average of data in memory, Displacement value, Measurements over high setpoint (see pages 36-37).

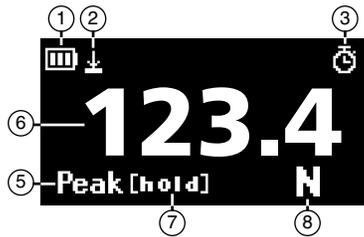
Middle Section

- ⑤ Peak indicator
- ⑥ Force value
- ⑦ Peak hold
- ⑧ Units
- ⑨ USB memory: MEM appears when connected

Lower Section

- ⑩ Select data: Peak value, 1st & 2nd Peaks, Force level, Memory number/value, Min & max memory values, High/low setpoints (see pages 36-37).

SINGLE DISPLAY



- ① Battery status indicator
- ② Displacement icon: appears when displacement is set.
- ③ Auto zero icon: appears when Auto Zero is set.
- ④ Select data: Date, Time, Stored memory data, Average of data in memory, Displacement value, Measurements over high setpoint (see pages 36-37).
- ⑤ Peak indicator
- ⑥ Force value
- ⑦ Peak hold: Appears when external hold signal is active or SEND is pressed.
- ⑧ Units

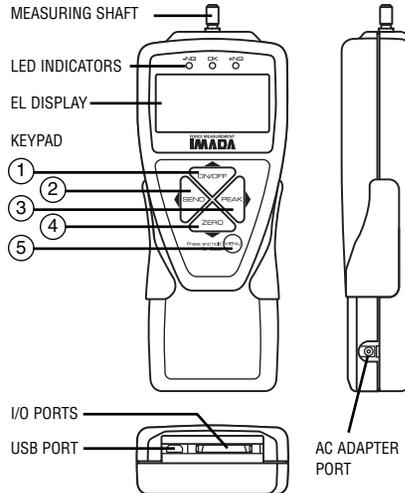
LED INDICATORS: When high/low setpoints are set, LED indicates below (-NG), within (OK), or above setpoint value (+NG)

KEYPAD

- ① **ON/OFF:** Press to turn ON, hold more than one second to turn OFF
- ② **SEND:** Press to send data to internal gauge memory, press and hold for data hold
- ③ **PEAK:** Press to toggle Peak and Real Time
- ④ **ZERO:** Resets the display, tares attachments
- ⑤ **MENU:** Press to select data on Multi Display. (see pages 36-37)

Program Menu: with gauge ON, press and hold two seconds to enter Program Menu.

Setup Menu: with gauge OFF, press and hold, then press ON/OFF to enter Setup Menu.



4 PREPARATION

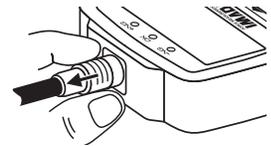
1. Models ZTA-DPU/LM with Remote Sensors

1. To connect the remote sensor to the ZTA display unit, rotate the connector to match the groove with the key, then push it in until positive connection is made.



ROTATE CONNECTOR TO MATCH THE GROOVE WITH THE KEY AND PUSH IN.

2. To disconnect, hold the ribbed cover of the connector and pull out.



HOLD RIBBED COVER AND PULL OUT. DO NOT TWIST OR PULL CABLE!

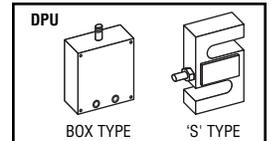
DO NOT TWIST OR PULL THE CABLE!

Remote Sensors

DPU both tension and compression

Low capacity: Box Type ($\pm 0.2\%$ ES.; ± 1 LSD)

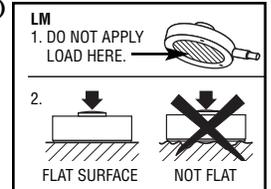
High capacity: S Type ($\pm 0.2\%$ ES.; ± 1 LSD;
ZTA-DPU-2200, ZTA-DPU-4400, $\pm 0.5\%$ ES., ± 1 LSD)



LM compression only ($\pm 0.5\%$ ES.; ± 1 LSD)

IMPORTANT:

1. Do not apply load to back of cell.
2. Load applying surface must be flat.



2. Charging the Ni-MH Battery

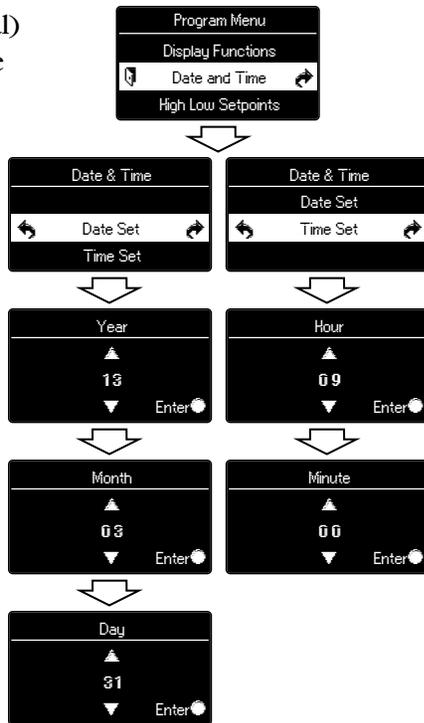
Power shuts off after 10 minutes of non-use. Recharge the battery when the icon shows a single bar . A full charge takes about two hours. When fully charged the icon appears and charging stops. Auto shut off is bypassed when used with the AC adapter/charger. The battery also charges when connected to a computer USB port.

1. Push **ON/OFF** to turn off power.
2. Only use IMADA AC adapter/charger (ADW6010) with the proper 115VAC or 230VAC plug adapter. Plug into the correct AC output. Turn ON the gauge. The display flashes until the battery is charged.

5 COMMON PROGRAMMING TASKS

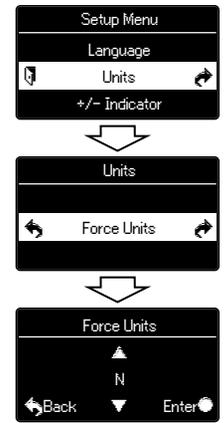
1. Date and Time (optional)

1. Press **ON/OFF** to turn on the gauge.
2. Press and hold the **MENU** key two seconds to enter the Program Menu.
3. Press the up or down arrows on the keypad to highlight Date and Time, then press the right arrow key.
3. Press the right arrow key to select Date Set.
4. Press the up/down arrows to select the year and press **MENU** to save. Repeat this step for month and day.
5. Press the up/down arrow keys to select Time Set, then press the right arrow key.
6. Press the up/down arrows to select the hour and press **MENU** to save and repeat this step for minute.
7. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



2. Selecting Units

1. Turn OFF the gauge. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Units is highlighted, press the right arrow key to select.
2. Force Units is highlighted, press the right arrow to select.
3. Press the up/down arrow keys to select Units and press **MENU** to input your selection.
4. Press the down arrow, to highlight Displacement Units and press the right arrow key to select.
5. Press the up/down arrow keys to select units and press **MENU** to input your selection.
6. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

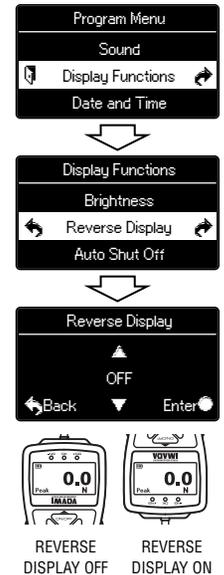


3. Reversing the Display (optional)

Reverse the display for test stand mounting.

1. Press **ON/OFF** to turn ON the gauge, then press and hold **MENU** two seconds to enter the Program Menu. Press the down arrow key to highlight Display Functions, then press the right arrow key to select.
2. Press the up/down arrow keys to highlight Reverse Display and press the right arrow key to select.
3. Press the up/down arrow keys to select and press **MENU** to input your selection.
4. Follow Selecting Units step 6 (above) to exit the menu.

The selected display is retained as the default.



Permanent Test Stand Installation

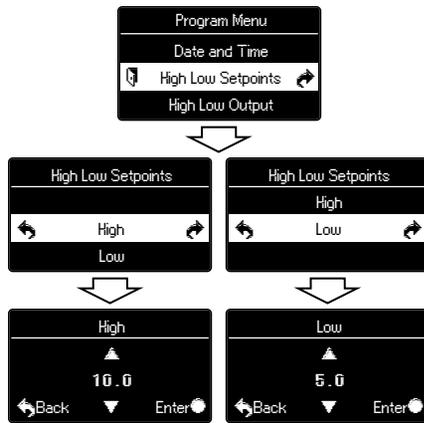
If your force gauge is permanently installed to a test stand, carefully adhere the enclosed reverse display decal over the keypad to make it easier to read.



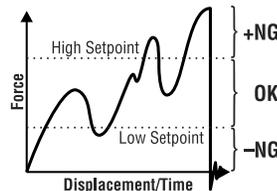
4. Programming Setpoints (optional)

Program High and Low setpoints for easy Go/No Go testing.

1. Press **ON/OFF** to turn on the gauge.
2. Press and hold the **MENU** key two seconds to enter the Program Menu.
3. Press the up or down arrows on the keypad to highlight High Low Setpoints, then press the right arrow key.
4. When High appears press the right arrow key to set the High setpoint.
5. Press the up or down keys to change the high setpoint and press **MENU** to save and return to the High Low Setpoints.
6. Press the down arrow to highlight Low and then press the right arrow key.
7. Press the up/down arrow keys to change the low setpoint and press **MENU** to save.
8. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



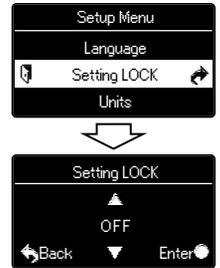
For example, if High and Low setpoints have been programmed and 5 lbf is set as Low and 10 lbf as High, the ORANGE LED lights for measurements less than 5 lbf (-NG). GREEN lights between 5-10 lbf (OK) and RED lights over 10 lbf (+NG). Setpoint output is available through the Communications port (see page 16).



5. Setting LOCK (optional)

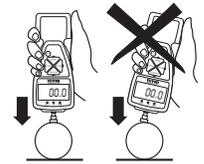
Prevents gauge settings from being changed.

1. Turn OFF the gauge. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu.
2. Press the up or down arrows on the keypad to highlight Setting LOCK, then press the right arrow key.
3. Press the up/down arrow keys to select ON/OFF and press **MENU** to input your selection.
6. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



CAUTION

Apply tension or compression forces in line with the measuring shaft.



6 OPERATION

1. Programming

Select units, reverse display and set the high/low setpoints if required, using the steps on pages 6-9.

2. Attachments

Hand tighten attachments to the shaft. Do not use tools!

3. Measurement Mode

Real Time Measurement

Press **ON/OFF** to turn on the gauge. The gauge automatically enters real time mode and displays transient force values.

Peak Measurement

Press **ON/OFF** to turn on the gauge. Press **PEAK** to capture peak measurements. In Multi display mode 'P' is displayed and in Single display mode 'Peak' is displayed. Peak force values do not change until a higher value is measured. Press **PEAK** again to return to real time.

'Or Peak' is the factory default and captures either peak compression or tension measured during a test.

'And Peak' captures both peak compression and peak tension (See page 39 for programming instructions).

When 'And Peak' is programmed press **PEAK** and '+P' is displayed. Press **PEAK** again and '-P' is displayed.

'+P' displays the compression peak captured during a test; press **PEAK** to display the tension peak.

'-P' displays the tension peak captured during a test; press **PEAK** to display the compression peak.

4. Tare and Zero

'All Reset' is the factory default and tares and zeroes the display. Press **ZERO** to zero the display and tare the weight of a preload or attachment.

If you need to zero without tare see page 50 'Peak Only'.

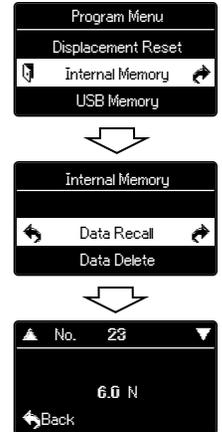
7 STORING AND COLLECTING DATA

1. Gauge Memory

During measurement in either Peak or Real Time mode, press **SEND** to store a value. Up to 1,000 force values may be stored in internal gauge memory.

Recalling Gauge Data

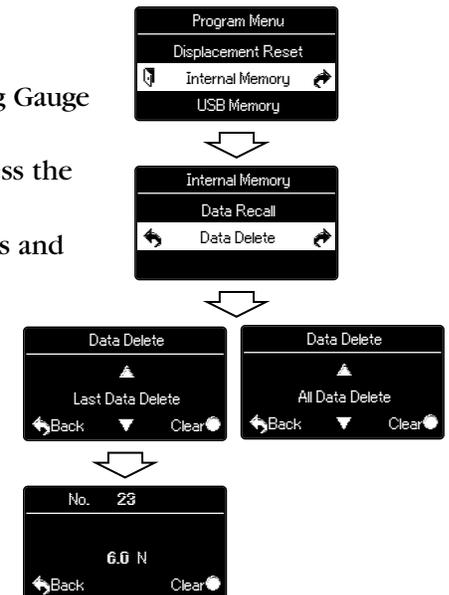
1. Press **ON/OFF** to turn on the gauge.
2. Press and hold the **MENU** key two seconds to enter the Program Menu.
3. Press the up or down arrow keys to highlight Internal Memory, then press the right arrow key.
4. Highlight Data Recall and press the right arrow.
5. Press the up or down arrow keys to view stored data. If no data is stored '-' is displayed.
6. Press the left arrow key until the door icon appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



Clearing Gauge Data

Last Data Delete

1. Follow steps 1-3 from Recalling Gauge Data above.
2. Highlight Data Delete and press the right arrow key.
3. Press the up/down arrow keys and select Last Data Delete.
4. The last data appears, press the **MENU** key to delete it. If no data is stored '-' is displayed.
5. Follow Recalling Gauge Data step 6 (above) to exit.



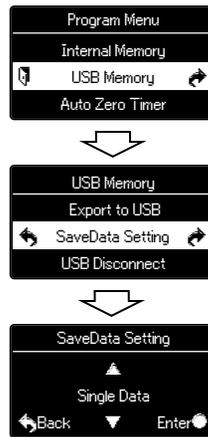
All Data Delete

1. Press **ON/OFF** to turn on the gauge.
2. Press and hold the **MENU** key two seconds to enter the Program Menu.
3. Press the up or down arrow keys to highlight Internal Memory, then press the right arrow key.
4. Highlight Data Delete and press the right arrow key.
5. Press the up/down arrow keys and select All Data Delete.
6. Press the **MENU** key to clear and a confirmation screen appears. Press the **MENU** key again to clear all the data.
7. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

2. USB Memory

Save Data Setting

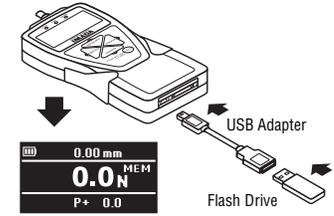
1. Press **ON/OFF** to turn on the gauge.
2. Press and hold **MENU** two seconds to enter the Program Menu.
3. Press the up or down arrows on the keypad to highlight USB Memory, then press the right arrow key.
4. Press the up or down keys to highlight SaveData Setting and then press the right arrow key.
5. Press the down arrow to select Single Data, Cont-Data 1hz, Cont-Data 50 Hz, Cont-Data 100 Hz and press **MENU** to save.
6. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



Connect the gauge and USB flash drive with the USB adapter. MEM appears on screen and flashes 'Data Saved' when either single or continuous data is being sent.

Press **SEND** to save a single data.

Press **SEND** to begin saving continuous data, then press **SEND** again to stop. Follow the steps below to select the save data setting.



Export to USB

Export gauge memory to USB device. USB mass storage class 2.0/1.1 compliant, Max current 200mA, FAT16/FAT32 Format.

1. Press **ON/OFF** to turn on the gauge.
2. Press and hold **MENU** two seconds to enter the Program Menu.
3. Press the up or down arrows on the keypad to highlight USB Memory, then press the right arrow key.
4. Press the down arrow key to highlight Export to USB then press the right arrow key to select.
5. Start Transferring Memory Data? displays. Press **MENU** to continue.
6. Do not remove the USB device or turn off the gauge while transferring data. Gauge returns to ready mode when finished.

USB Disconnect

Disconnects USB device.

1. Follow Export to USB steps 1-3 (above).
2. Press the up or down keys to highlight USB Disconnect and then press the right arrow key to select.
3. Press **MENU** to disconnect and return gauge to ready mode. The USB adapter and flash drive can now be disconnected.

3. Downloading Data from Memory

Choose between the following download methods.

1. USB Data Download from Memory

- 1) Connect the gauge and computer receiving data with the included USB cable.
- 2) Turn on the gauge and ZT Logger.
- 3) Under the Data menu, select Import Gauge Memory. The gauge memory will fill the Data Table which can be saved as a CSV file.



2. RS-232C Data Download from Memory

Connect the gauge and device receiving data with a CB-208 cable. All functions can be duplicated remotely by using the RS-232C interface. Commands must be sent in uppercase ASCII character format followed by a carriage return [CR].
RS-232C Signal: 8 data, 1 stop, no parity. Baud Rate: 19,200 bps
Refer to the tables on pages 18-21 for ASCII commands.

3. Mitutoyo Digimatic Signal

Connect the CB-308 cable to the communications port and the device receiving the data. Set up parameters as instructed from the Mitutoyo processor manual.

4. ±2 VDC Analog Signal

Connect the CB-108 analog cable to the communications port to receive the voltage signal. The voltage comes through the D/A converter and will reset to zero when a tare function is performed.

Specifications

Voltage	±2V
Update	2,000 times/sec
Zero offset	20mV maximum
Span error	±1%
Load Impedance	1KΩ or higher

5. **External Power ON/OFF** (Same as **ON/OFF** key function)
Connecting #24 (EX_Power) and #30 (GND) of the communications port turns ON the gauge and connecting #24 (EX_Power) and #30 (GND) while #29 (Shift) and #30 (GND) are connected turns OFF the gauge.

6. **External Zero** (Same as **ZERO** key function)
Connecting #25 (EX_ZERO) and #30 (GND) of the communications port resets the force display. (Tare, peak reset, or peak reset only are dependent on the Zero/Tare Reset settings, see page 50).

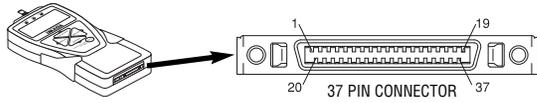
7. **External Send** (same as the **SEND** key function)
Connecting #26 (EX_SEND) and #30 (GND) of the communications port sends data to gauge memory (up to 1,000 data) and an external device and holds the display while the signal is closed.

8. **External Peak** (same as **PEAK** key function)
Connecting #27 (EX_PEAK) and #30 (GND) of the communications port cycles real time, compression peak and tension peak.



Use contact closure only and **DO NOT** apply voltage to #24 through #30 port pins.

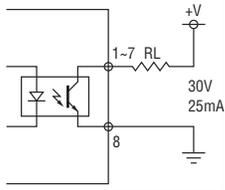
8 OUTPUT



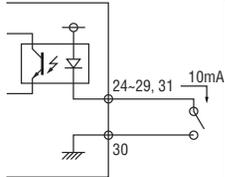
1. Communications Port

PIN#	Signal	Description
1	-NG	-NG Output Signal (Note 1)
2	OK	OK Output Signal (Note 1)
3	+NG	+NG Output Signal (Note 1)
4	SC1	2nd Setpoint Output (Note 1)
5	SC2	3rd Setpoint Output (Note 1)
6	OVL	Over Load Output (Note 1)
7	READY	Output while Measuring (Note 1)
8	OUT_GND	Signal ground for Pins 1 to 7
9	ANALOG OUT 2	Direct Analog Output (Optional)
10	ANALOG GND 2	
11	ANALOG OUT 1	D/A convertor Analog output
12	ANALOG GND 1	
13	TXD	Serial Output (RS232C)
14	RXD	
15	RS_GND	
16	NC	Do not use (Factory use only)
17	NC	
18	NC	
19	REQ	Digimatic Output
20	RDY	
21	CLK	
22	DATA	
23	GND	
24	EX_Power	Power On / Power Off with shift input (Note 2)
25	EX_ZERO	Zero force with shift input (Note 2)
26	EX_SEND	Same function as SEND switch (Note 2)
27	EX_PEAK	Same function as PEAK switch (Note 2)
28	Rec	Data record control (Note 2)
29	Shift	Shift input (Change EX_Power and EX_ZERO input function) (Note 2)
30	IN_GND	Signal ground for Pins 24 to 29
31	MARK	MARK Input
32		Do not use
33		
34		
35		
36	+5V	Power supply +5V 200mA max
37	GND	

OUTPUT CONNECTION



INPUT CONNECTION



Note 1: Pins 1 to 7 are NPN open collector output (30VDC and 25mA maximum)
 Note 2: Pins 24 to 29 are inputs for non-voltage contact or NPN open collector.

2. Data Output Formats

Data Output Format	[Q][±ffff][±dddddd][P][L][C][S][X][CR]
Memory Data Output Format	m[±ffff][±dddddd][P][L][C][S][YY][MM][DD][hh][mm][ss][CR]

Q	Type of Data	f: Continuous data output (2000 data/sec) l: Continuous data output (10 data/sec) a: Continuous +peak data h: Continuous -peak data r: Real time data p: +Peak n: -Peak 1: 1st Peak 2: 2nd Peak
±ffff	Force Data	w/decimal point
±dddddd	Displacement Data	w/decimal point
P	Selected Unit #	0 - 5
L	Displacement Unit	0 - 2
C	High/Low Setpoints	H: +NG O: OK L: -NG E: Overload
S	2nd/3rd Setpoints	1: data ≥ 2nd and data < 3rd 2: data < 2nd and data ≥ 3rd 3: data ≥ 2nd and data ≥ 3rd
X	Signal Line Conditions (Rec Signal and Mark Signal)	0: No input 1: No Rec input and Mark input 2: Rec input and No Mark input 3: Rec input and Mark input 4: Rec + Shift input and No Mark input 5: Rec + Shift input and Mark input
YY	Date/Time Stamp	Year
MM		Month
DD		Date
hh		Hour
mm		Minute
ss	Second	

3. Force & Displacement Unit Codes

FORCE UNIT CODES																	
CODE	00	01	02	03	04	05	07	08	10	11	12	13	14	16	17	22	23
UNIT	None	mN	N	kN	g	kg	gf	kgf	ozf	lbf	klbf	N-cm	N-m	kgf-cm	kgf-m	ozf-in	lbf-in

DISPLACEMENT UNIT CODES				
CODE	0	1	2	3
UNIT	None	mm	inch	---

4. Command Table (RS232C & USB communication)

CATEGORY	COMMAND	DESCRIPTION	RESPONSE	NOTES
Data Output	XAR[CR]	Real Time Data Output Request	See Data Output Format	
	XFP[CR]	+Peak and -Peak Data Output Request		
	XFF[CR]	1st Peak and 2nd Peak Data Output Request		
	XAg[CR]	Continuous Data Output Request (10 data/sec)		
	XAG[CR]	Continuous Data Output Request (2000 data/sec)		USB Connection Only
	XAS[CR]	Stop Continuous Data Output		R[CR]
Setpoints	XCW[±UUUU][±LLLL][CR]	Set High/Low Setpoints	R[CR]	±UUUU: High Setpoint ±LLLL: Low Setpoint (w/o Decimal point)
	XCS[±FFFF][±SSSS][CR]	Set 2nd/3rd Setpoints	R[CR]	±FFFF: 2nd Setpoint ±SSSS: 3rd Setpoint (w/o Decimal point)
	XCR[CR]	High/Low Setpoints Output Request	XCRH[CR] XCRO[CR] XCRL[CR] XCRE[CR]	Display > High Setpoint High ≥ Display ≥ Low Display < Low Setpoint Overload
	XCO[CR]	2nd Setpoint Output Request (Value No. 1)	XCO1[CR] XCO0[CR]	Display ≥ 2nd Setpoint Display < 2nd Setpoint
	XCT[CR]	3rd Setpoint Output Request (Value No. 2)	XCT1[CR] XCT0[CR]	Display ≥ 3rd Setpoint Display < 3rd Setpoint
	Mode	XDS0[CR]	Switch Mode	R[CR]
XDS1[CR]		Peak display		
XDS2[CR]		+Peak display		
XDS3[CR]		-Peak display		
Unit	XFU0[CR]	Switch Unit	R[CR]	Unit0
	XFU1[CR]			Unit1
	XFU2[CR]			Unit2 (See XFC command for unit info.)
	XFU[3-5][CR]			Unit3 - 5 (Option)
	XFC[CR]	List of Measuring Unit Output Request	XFC[00][11][22][33][44][55][CR]	00 - 55: Unit Code for Unit 0 - 5 (See Unit Code Table)
Peak	XFT[bbbb][CR]	Set 1st and 2nd Peak Sensitivity	R[CR]	bbbb: Peak Sense Drop Digits (w/o Decimal Point)
	XFG0[CR]	Peak Switch Function Select	R[CR]	Real Time, +Peak, -Peak (Functions cycle)
	XFG1[CR]			Real Time, Peak (Functions toggle)
Reset	XFY[CR]	Reset Peak	R[CR]	
	XFZ[CR]	Tare		
	XLZ[CR]	Reset Displacement		
	XAZ[CR]	Reset All (Peak, Tare and Displacement)		
Memory	XMM[CR]	Save Data in Memory	R[CR]	
	XMR[CR]	Download All Memory Data Request	See Memory Output Data format	
	XMC[CR]	Clear All Memory	R[CR]	
	XME[CR]	Clear Last Memory	R[CR]	
Counter	XCN[CR]	+NG Counter Data Output Request	XCN[nnnn][CR]	nnnn: Number of +NG
	XCC[CR]	Clear +NG Counter	R[CR]	
Power	XQT[CR]	Turn Off Power	R[CR]	
Other		Invalid command	E[CR]	

5. Backward Compatible Command Table

(RS232C & USB communication)

CATEGORY	COMMAND	DESCRIPTION	RESPONSE	NOTES
Data Output	D[CR]	Data Output Request	[±FFFF][U][M][C][CR]	FFFF: Force Data w/ Decimal Point
				U: Unit K(Kgf), N(N) or O(Lbf)
	V[CR]	+/- Peak Data Request	P+[AAAA][U][CR] P-[BBBB][U][CR]	AAAA: +Peak Data w/ Decimal Point
				BBBB: -Peak Data w/ Decimal Point
g[CR]	Continuous Data Output Request	R[CR] [±FFFF][U][M][C][CR] [±FFFF][U][M][C][CR] . .	Same data format as D command response	
Y[CR]	Stop continuous data output	R[CR]		
Memory	Z[CR]	Zero reset (Tare and peak reset)	R[CR]	
	M[CR]	Save Data in Memory	R[CR]	
	B[CR]	Clear Last Memory	R[CR]	
	C[CR]	Clear All Memory	R[CR]	
	I[CR]	Download All Memory Data Request	[±FFFF][U][M][C][CR] [±FFFF][U][M][C][CR] . . END[CR]	Same data format as D command response
Unit	N[CR]	Switch Unit to N	R[CR]	
	K[CR]	Switch Unit to Kgf(gf)	R[CR]	
	O[CR]	Switch Unit to Lbf(ozf)	R[CR]	
Mode	T[CR]	Switch to Real time mode	R[CR]	
	P[CR]	Switch to Peak mode	R[CR]	
Setpoints	E[HHHH][LLLL][CR]	Set High/Low Setpoints	R[CR]	HHHH: High setpoint w/o decimal
				LLLL: Low setpoint w/o decimal

9 ZT LOGGER

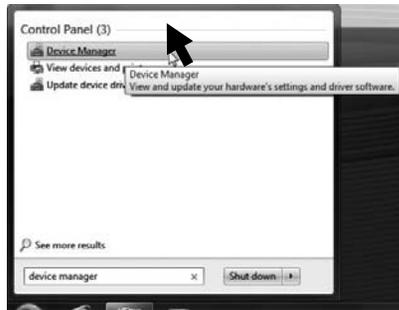
ZT Logger USB software utility can download and log all data stored in gauge memory and log all force values sent to gauge memory while the gauge is online. ZT Logger saves data files in CSV format.

1. Installation

1. USB Driver Installation Windows Vista/7

If Windows Vista/7 does not automatically install the ZT series driver, follow these directions.

1. Connect the ZTA gauge to the computer with the provided USB cable. Turn on the gauge.
2. Insert the ZT Driver CD-ROM and click the Windows Icon.
3. In the search bar, above the Windows Icon, type “device manager” and press enter to open the Device Manager.
4. Find the force gauge in the Device Manager. It will be under “Other Devices”. The force gauge will be listed as an “Unknown Device”. Right Click the entry and select “Update Driver Software...”.

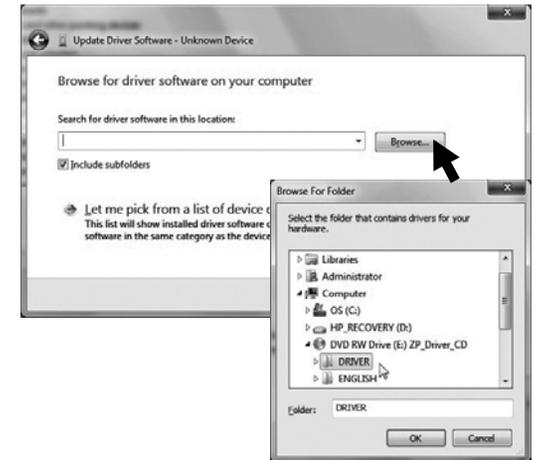


5. When prompted to search for the device, select “Browse my computer for driver software”.



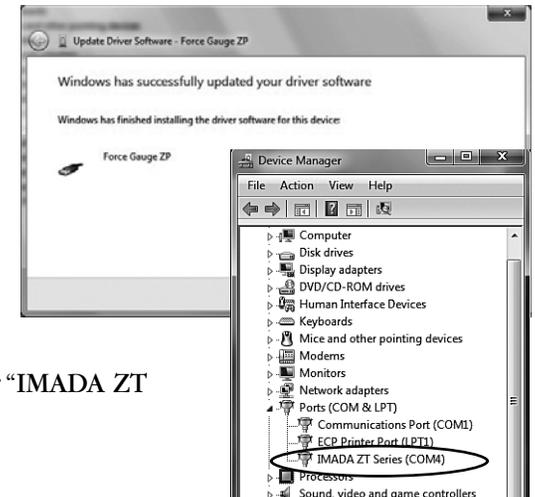
On the next screen, select “Browse...”

6. Navigate to the “DRIVER” folder on the ZT Driver CD-ROM and select OK.
7. Windows may ask for confirmation to install the driver, click Yes.



When the screen at the right comes up, the driver has been successfully installed.

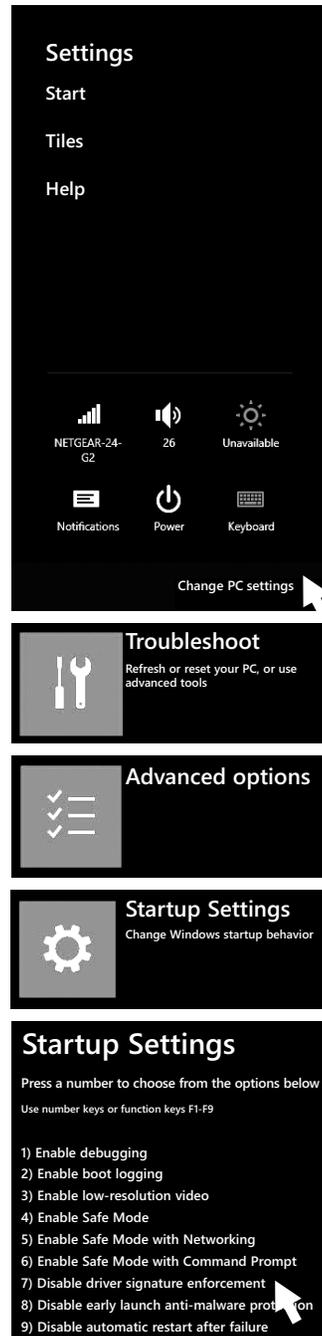
8. To confirm the driver is installed. Open the Device Manager and Expand the “Ports COM & LPT” Tab. You should see an entry for “IMADA ZT Series”



Windows 8 Driver

Before installing the Windows 8 driver, the installation of unsigned drivers in Windows 8 must be enabled. Follow the steps below.

1. Activate the charm bar, hover over the bottom right or top right corner of the screen, then press the Settings Icon. Alternatively, press Windows key and “I” to launch the charm bar. Select Change PC Settings.
2. Select General.
3. Scroll down and select Advanced Startup.
4. Click Restart Now. The computer will restart to the advanced startup menu.
5. Select Troubleshoot.
6. Select Advanced Options.
7. Select Startup Settings.
8. Select Restart.
9. The computer will restart and boot to the startup settings menu. Option 7 should be Disable Driver Signature Enforcement. Press 7 or F7 to boot Windows 8 with driver signature enforcement disabled.
10. Once these steps have been completed, follow the steps for Windows 7/ Vista Driver installation.



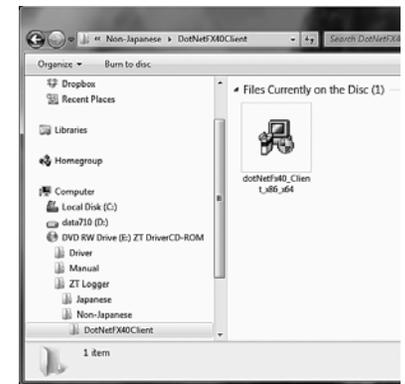
Windows XP Driver

1. Connect the ZTA force gauge to computer with the USB cable provided and turn ON the gauge. Welcome to the Found New Hardware Wizard should appear.
2. Insert the Driver CD-ROM (included with force gauge) and select “install software automatically.” Click Next and follow onscreen instructions. When prompted to search the Web select “No not this time” and click Next.
3. If a Windows XP compatibility message appears, select “continue anyway.”
4. After the ZT driver is installed select “Finish.”

2. Installing Microsoft .NET Framework

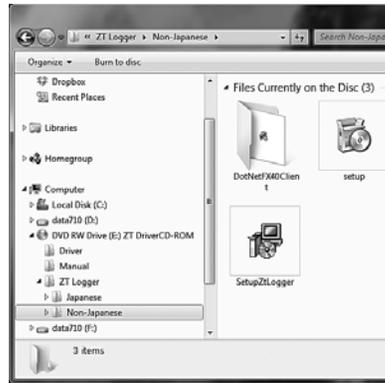
Microsoft .NET Framework 4.0 or later must be installed prior to running ZT Logger software.

1. Check to see if you already have .NET Framework installed. This is not necessary on Windows 8, as .NET Framework 4.5 is distributed with Windows 8. To check what version is installed on your computer, open the Control Panel, select Add or Remove Programs/Uninstall a program. You should see Microsoft .NET Framework X.X.
2. If you do not see Microsoft .NET Framework 4.0 you will need to install it from the CD-ROM included with your Imada ZTA force gauge. Open the CD in Window Explorer and navigate to ZT Logger/Non-Japanese/DotNetFx40Client folder and install dotNetFx40_Client by double clicking the program.
3. Once installation is complete, restart the computer.



3. Install ZT Logger software

1. Insert the CD-ROM and open the ZT Logger/Non-Japanese folder. Double click the Setup ZT Logger icon.
2. Follow the instructions on screen.
3. Choose “close” when installation is complete.
4. Eject the Driver CD-ROM.



2.ZT Logger Operation

1. Connect the ZTA force gauge and computer with the USB cable.
2. Turn ON the gauge.
3. Click Start/All Programs/Imada/ZT Logger and start ZT Logger

If Indicator doesn't change to Connect, check:

USB cable

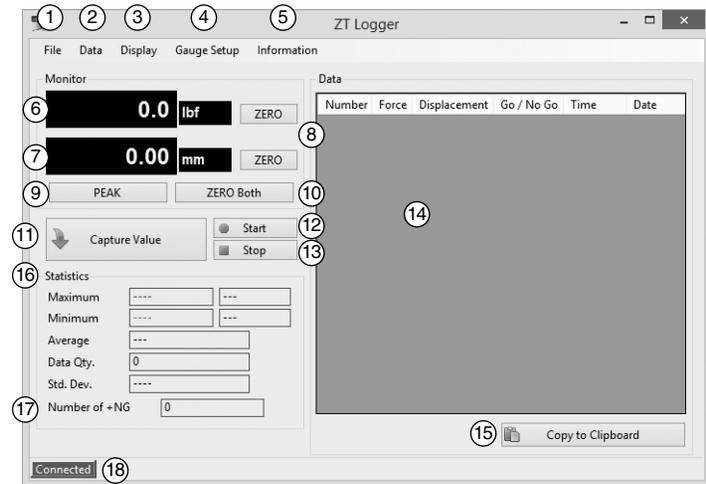
USB driver installation

Microsoft .NET Framework 4.0 installation.

If Force-Recorder software (optional) is running, it should be closed.

- ① **File Menu** Save as CSV, Add to CSV, CSV Setup, Copy to Clipboard, Quit
- ② **Data Menu** Capture Value, Trigger Setup, Delete Selected Data in Table, Clear All Data in Table, Import Force Gauge Memory, Clear Force Gauge Memory
- ③ **Display Menu** Select Items to Show and Save
- ④ **Gauge Setup Menu** Gauge Setup, Import Gauge Settings from File, Save Gauge Settings
- ⑤ **Information Menu** Version Information
- ⑥ **Force Value** Displays current value on the force gauge
- ⑦ **Displacement Value** Displays current value on the force gauge

- ⑧ **Zero Button** Zero the force value on the force gauge
- ⑨ **Peak** Capture peak value
- ⑩ **Zero Both** Button Zero both force and displacement values on the force gauge
- ⑪ **Capture Value Button** Captures and displays data in table
- ⑫ **Start Continuous Capture** Start capturing continuous data at 10 data/second max.
- ⑬ **Stop Continuous Capture** Stops continuous data capture
- ⑭ **Data Table** Displays captured data
- ⑮ **Copy** Copy data table to clipboard
- ⑯ **Statistics** Displays statistics of acquired data
- ⑰ **Go/No Go** Displays number of +NG
- ⑱ **Connection/Operation Status** Gauge is connected or disconnected in Peak or Real Time mode

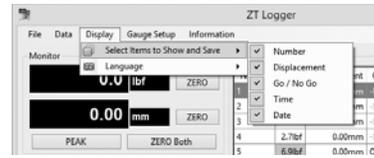


Basic Operation

1. Display Setup

Click on Display and check the data items to appear in the data table and to save in CSV files.

* Displacement is only available with ZTA force gauges



2. Zero Reset

Click on the **ZERO** button to zero force or displacement values.
Click on **ZERO Both** to zero both force and displacement values.

Capturing Data

1. Capturing Individual Data

Click the Capture Value button or Data/Capture Value to acquire current force/displacement values.

OR press the **SEND** button on the force gauge to acquire data (using the Send Functions programmed in the force gauge Setup Menu). The data is also stored in the force gauge memory.



2. Capturing Continuous data

Click the Start Continuous Capture button to capture continuous data acquired at 10 data/second and display it in the data table. Click the Stop Continuous Capture button to stop. (Connect a flash drive and press **SEND** to capture continuous data at 100 data/second. Press **SEND** again to stop.)

3. Transferring Internal Memory

Click on Data/Import Gauge Memory and the following message appears. The force gauge memory data will overwrite any existing data in the table. Save important data before importing gauge memory. Click OK to transfer the force gauge memory to the data table.

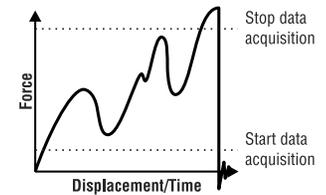


4. Trigger Setup

Click on Data/Trigger Setup, to set the trigger values (force/displacement) for automatic acquisition. Enter trigger values in the fields (absolute values only) and check the force/displacement boxes to activate the trigger. When the force/displacement value exceeds the trigger value, the force/displacement is automatically captured and displayed in the data table.

* Up to three trigger values can be set for both force and displacement.

* The trigger activates according to the values acquired at 10 data/second.



Deleting Data

1. Individual data

Select data in Data Table and click on Data /Delete Selected Data to delete.

* The data remains in the force gauge.

Number	Force	Displacement	Go / No Go	Time	Date
1	4.8lbf	0.00mm	NG	9:56:21 AM	6/5/2014
2	-1.2lbf	0.00mm	NG	9:56:27 AM	6/5/2014
3	1.7lbf	0.00mm	NG	9:56:28 AM	6/5/2014
4	2.7lbf	0.00mm	NG	9:56:28 AM	6/5/2014
5	6.9lbf	0.00mm	OK	9:56:30 AM	6/5/2014
6	6.3lbf	0.00mm	OK	9:56:31 AM	6/5/2014
7	6.8lbf	0.00mm	OK	9:56:32 AM	6/5/2014

2. All data

Click on Data/Clear Table Data.

When the warning window appears click OK to delete all the data in Data Table.

* The data remains in the force gauge.



3. Deleting the ZTA force gauge internal memory

Click on Data/Clear Gauge Memory.

When the warning window appears click OK to delete the force gauge internal data memory.



Saving Data

The Data Table can be saved in CSV format and imported into Microsoft Excel and Word.

- * Check items to save in the Display Menu.
- * Data may not appear correctly in Microsoft Excel depending on the Excel settings.

1. Saving a new file

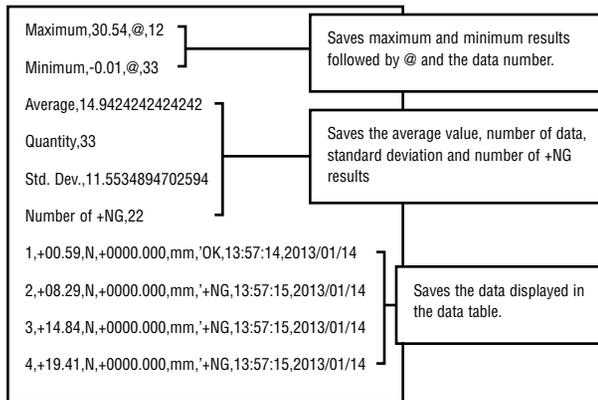
Click on File/Save As CSV to save or click the SAVE button to select folder and filename.

2. Adding to existing CSV file

Click File/Add to Existing CSV File and select a CSV file. The Data Table can be added to an existing file. The new data appears to the right of the previous data.

- * New data cannot be added to an open file. Close the file in which the data is to be added.

Example of saved data:



Copy & Paste

Click or go to File/Copy copy the Data Table to the clipboard in text format. The copied data can be pasted into Microsoft Word and Excel.

ZTA Force Gauge Settings

1. ZTA force gauge setup

Click on Gauge Setup Menu/Gauge Setup to show the Program and Setup menus. Changes made in this window also change the force gauge settings.

Click Close to complete settings.



To set up High/Low Setpoints, Output and thresholds, enter the value with decimals displayed on the force gauge without decimal points. 20N displays as 20.0 enter 200

- * Low setpoint value must be less than High setpoint value.



2. Saving ZTA force gauge settings

Click on Gauge Setup Menu/Save Gauge Settings to save the settings of the connected ZTA force gauge.

3. Importing saved ZTA force gauge settings

Click on Gauge Setup Menu/Import Gauge Settings from File to navigate to a folder and load saved settings.

- * Importing settings overwrites existing force gauge settings. Save the initial settings if required to restore them later.

Closing the Program

Save or delete the Data Table before closing. Click the X box at the top right or select File/Quit.

Optional Accessories

SW-1 Data Acquisition Software

Capture and analyze force data from force gauges with an RS-232 port. A running log of all the data is displayed along with a chart. Calculate max/min, average, and standard deviation.

ZT-R Force Recorder Software

Record and process the 2,000 data per second from ZTA gauges and generate a graph with statistics. Zoom in to examine the force value at individual data points.

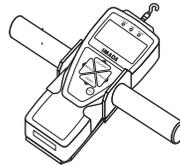
Select part of the graph to detect the first peak or generate statistics for that time interval. Compare and align multiple graphs. Save graphs or export data to CSV format.

Cables

- CB-108** 10' Analog cable
- CB-208** 10' RS-232C cable, 9 pin female
- CB-308** 10' Digimatic Cable
- CB-718** Force and displacement cable for MX2 test stands with FA option
- CB-728** Force and displacement cable for EMX test stands with FA option

Handle

OH-1 handle fits ZTA low capacity force gauges to facilitate the measurement of heavy loads. The handle is constructed of high quality steel for rugged use and comes with mounting screws.



Repair/Calibration

Go to www.imada.com and click on Repair/Calibration to get an RGA number or call 800-373-9989 and send your gauge to Imada, Inc. Suite 707, 3100 Dundee Rd., Northbrook, IL 60062 USA

10 SPECIFICATIONS

ZTA Series Specifications

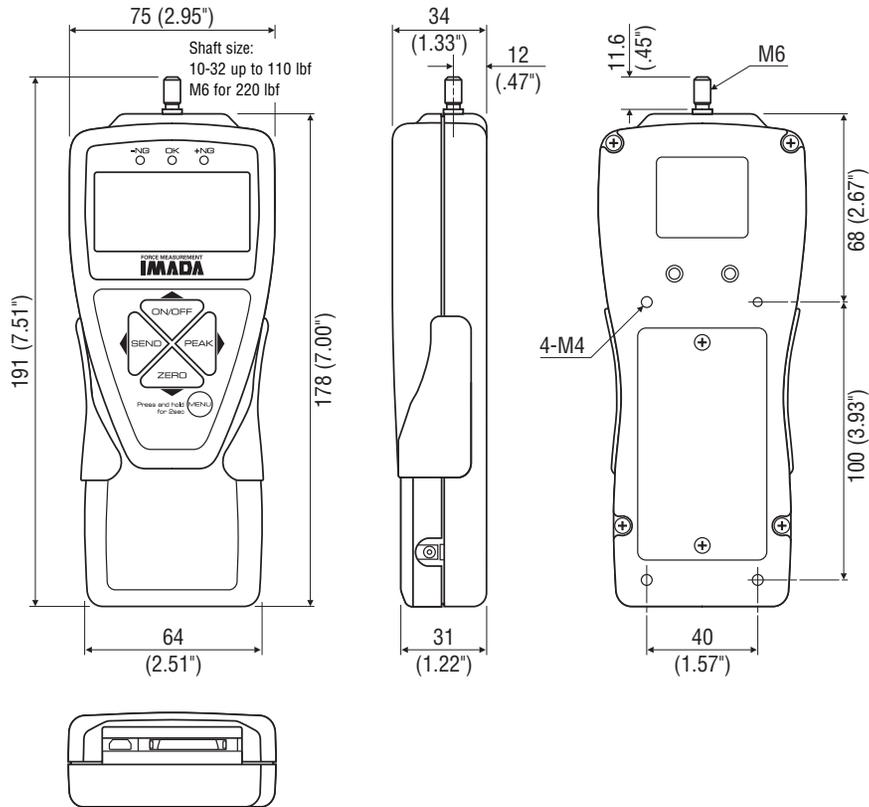
Accuracy	± 0.2% F.S. ± 1 LSD
Selectable Units	ozf or lbf, gf or kgf, and Newtons
Overload Capacity	200% of F.S. Overload indicator flashes beyond 110% of F.S.
Setpoints	Programmable high/low setpoints with color-coded LED indicators and output signal
Setpoint Output	-NG, OK, +NG, 2nd & 3rd setpoints 1st & 2nd Peaks Overload
Outputs	USB, RS-232C, Digimatic and ± 2 VDC analog output (D/A converter analog output), direct analog output is available
Memory	Non-volatile, recall up to 1000 data
Auto Zero Reset	1.0 to 60 seconds (selectable)
Sensitivity	Max, High, Medium, Low (selectable)
Auto Power Off	5, 10, 30, 60 minutes or OFF (selectable)
Display Update	10/second
Data Processing Speed	Actual 2,000 data/second through the USB port
Power	Rechargeable Ni-MH battery pack or Imada ADW6010 adapter
Battery Indicator	Indicates three charge states high, medium and low
Battery Life	approx. 8 hours (recharge time approx. 10 hours)
Operating Temp.	32° to 100°F (0° to 40°C) 20-80% relative humidity

ZTA Ranges (Resolution) Accuracy: ±0.2% F.S., ±1 LSD;
ZTA-DPU-2200, ZTA-DPU-4400, ZTA-LM, ±0.5% F.S., ±1 LSD

Model	Pounds/Ounces	Capacity (Resolution)	
		Kilograms/Grams	Newtons (N)
ZTA-0.4, ZTA-DPU-0.4	7.00 (0.01 ozf)	200.0 (0.1 gf)	2.000 (0.001 N)
ZTA-1, ZTA-DPU-1	18.00 (0.01 ozf)	500.0 (0.1 gf)	5.000 (0.001 N)
ZTA-LM-2	2.200 (0.01 lbf)	1.000 (0.1 gf)	10.00 (0.001 N)
ZTA-4, ZTA-DPU-4, ZTA-LM-4	4.400 (0.001 lbf)	2.000 (0.001 kgf)	20.00 (0.01 N)
ZTA-11, ZTA-DPU-11, ZTA-LM-11	11.00 (0.01 lbf)	5.000 (0.001 kgf)	50.00 (0.01 N)
ZTA-44, ZTA-DPU-44, ZTA-LM-44	44.00 (0.01 lbf)	20.00(0.01 kgf)	200.0 (0.1 N)
ZTA-110, ZTA-DPU-110, ZTA-LM-110	110.0 (0.1 lbf)	50.00 (0.01 kgf)	500.0 (0.1 N)
ZTA-220, ZTA-DPU-220, ZTA-LM-220	220.0 (0.1 lbf)	100.0 (0.1 kgf)	1000 (1 N)
ZTA-550, ZTA-DPU-550, ZTA-LM-550	550.0 (0.1 lbf)	250.0 (0.1 kgf)	2500 (1 N)
ZTA-1100, ZTA-DPU-1100, ZTA-LM-1100	1100 (1 lbf)	500.0(0.1 kgf)	5000 (1 N)
ZTA-DPU-2200, ZTA-LM-2200	2200 (1 lbf)	1000 (1 kgf)	10.00 (0.01 KN)
ZTA-DPU-4400, ZTA-LM-4400	4400 (1 lbf)	2000 (1 kgf)	20.00 (0.01 KN)

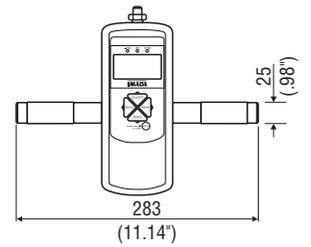
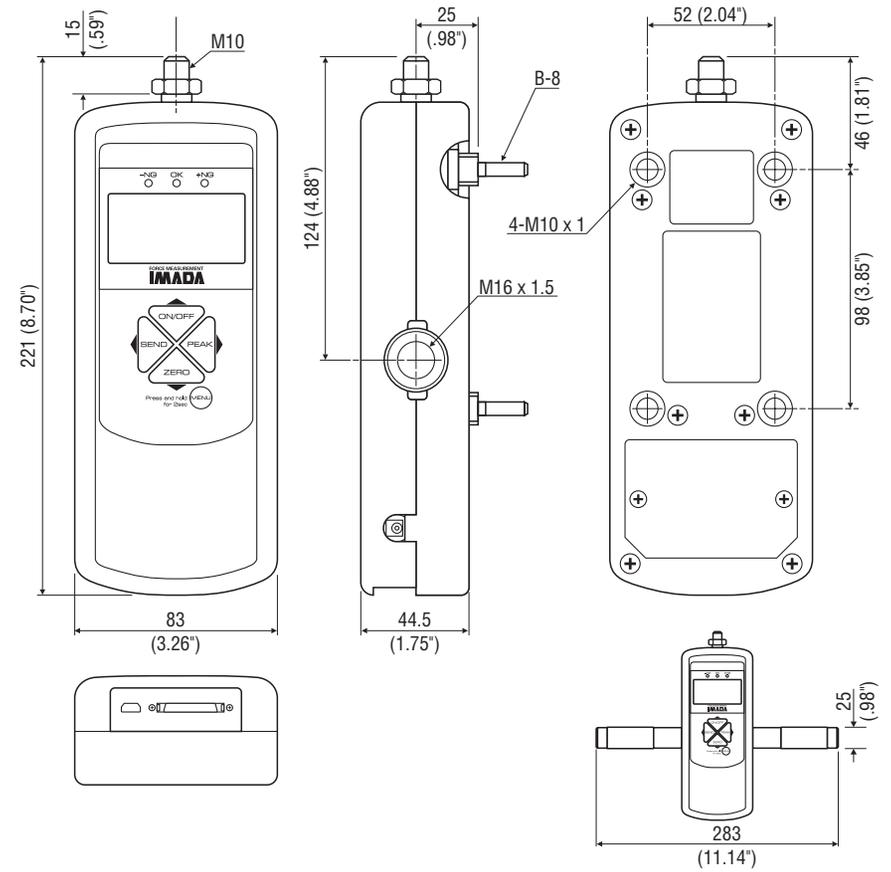
Specifications subject to change without notice.

ZTA DIMENSIONS



ZTA HIGH CAPACITY DIMENSIONS

Models: ZTA-550 & ZTA-1100



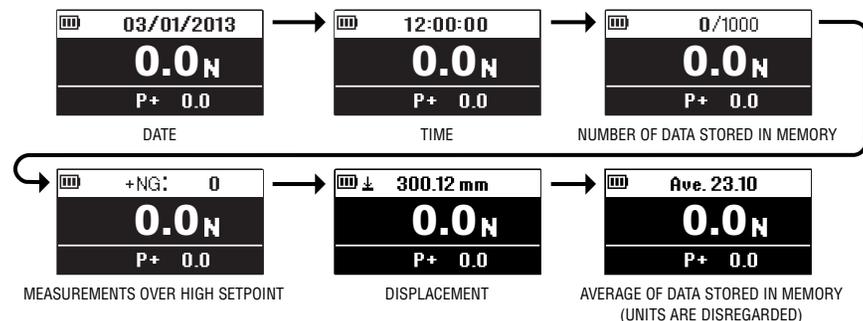
High Capacity with handles

Using Multi Display

Multi Display (factory default) divides the screen into three sections: upper, middle and lower. Selectable data can be displayed in the upper and lower sections. See the next page for Single Display.

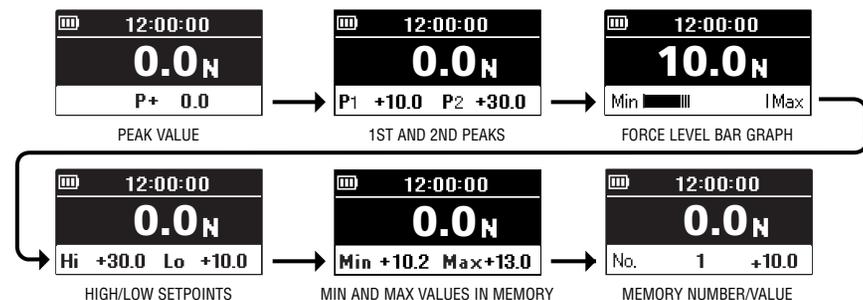
Upper Section

Turn on the gauge, then press (do not hold) the **MENU** key to highlight the upper section. Press the left (**SEND**) or right (**PEAK**) arrow keys to cycle the screens below. Press the **MENU** key to select a screen and highlight the lower section. See page 6 to change date and time.

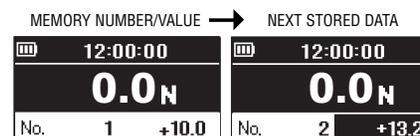


Lower Section

After highlighting the upper section, press the **MENU** key and the lower section is highlighted. Press the left (**SEND**) or right (**PEAK**) arrow keys to cycle the screens below. Press the **MENU** key to select.



When memory number/value are highlighted, press (do not hold) the **MENU** key and the data location number becomes highlighted. Press the up (**ON/OFF**) or down (**ZERO**) arrow keys to view other locations and values if more than one are stored. If no data is stored '-' appears. Press the **MENU** key to highlight min/max values.



Press (do not hold) **MENU** until high/low setpoints are highlighted. Press **MENU** again and high setpoint becomes highlighted. Press the up (**ON/OFF**) or down (**ZERO**) arrow keys to change the value. Press **MENU** again to highlight the low setpoint and the up or down arrow keys to change the value. Press the **MENU** key to exit. Multi display highlighting must be off for proper gauge operation.



Selecting Single Display

Displays force value, unit, and peak indicator.

(Select Multi Display to view displacement values.)



1. Press **ON/OFF** to turn ON the gauge.
2. Press and hold the **MENU** key two seconds to enter the Program Menu.
3. Press the up (**ON/OFF**) or down (**ZERO**) arrow keys to highlight Display Functions then press the right arrow key to select.
4. Press the up or down arrow keys to highlight Display Format then press the right arrow key (**PEAK**), to select.
4. Press the up or down arrow keys to select Single Display and press the **MENU** key to input your selection.
5. Press the left arrow key until the door icon appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

1 High Low Setpoints

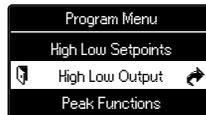
High/Low setpoints enable Go/No Go tests. Orange LED lights for values under the low setpoint (-NG), green lights for values within low and high (OK), and red lights for values over high (+NG). See page 8.



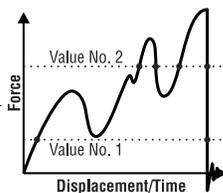
1. Turn ON the gauge, then press and hold **MENU** two seconds to enter the Program Menu. High/Low Setpoints, is highlighted, press the right arrow key to select.
2. High is highlighted; press the right arrow key to select.
3. Press the up/down arrow keys to change the High value and press **MENU** to input your selection.
4. Press the down arrow key to highlight Low, then press the right arrow key to select.
5. Press the up/down arrow keys to change the Low value and press **MENU** to input your selection.
6. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

2 High Low Output (2nd & 3rd Setpoints)

High Low Output sends a signal when Values No. 1 or No. 2 are reached during a test.



1. Turn ON the gauge. Press and hold **MENU** two seconds to enter the Program Menu. Press down arrow key to highlight High Low Output then press the right arrow key to select.
2. Value No.1 is highlighted; press the right arrow key to select.
3. Press the up/down arrow keys to change the value and press **MENU** to input your selection.
4. Press the down arrow key to highlight Value No.2, then press the right arrow key to select.
5. Press the up/down arrow keys to change the Low value and press **MENU** to input your selection.
6. Follow High Low Setpoints step 6 (above) to exit the menu.

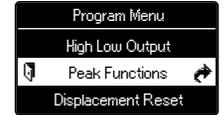


3 Peak Functions

[and][or] Peak Factory Default='Or'

'Or Peak' captures peak compression OR tension.

'And Peak' captures both compression AND tension peaks. See page 10 for instructions.



1. Turn ON the gauge. Press and hold **MENU** two seconds to enter the Program Menu. Press down arrow key to highlight Peak Functions then press the right arrow key to select.
2. [and][or] Peak is highlighted; press the right arrow key to select.
3. Press the up/down arrow keys to select and press **MENU** to input your selection.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

Auto Peak Memory Factory Default='OFF'

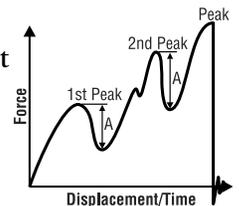
Sends peak value to memory when **ZERO** is pressed.

1. Follow [and][or] Peak step 1.
2. Press the up/down arrow keys to highlight Auto Peak Memory, then press the right arrow key to select.
3. Press the up/down arrow keys to select and press **MENU** to input your selection.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

1st Peak/2nd Peak Drop Factory Default='0'

Sets the amount of drop (A) required to record 1st and 2nd peak values.

1. Follow [and][or] Peak step 1.
2. Press the up/down arrow keys to highlight 1st Peak/2nd Peak Drop, then press the right arrow key to select.
3. Press the up/down arrow keys to change the Drop value and press **MENU** to input your selection.
4. Follow Auto Peak Memory step 4 (above) to exit the menu.

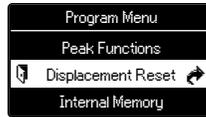


4 Displacement Reset

Reset Value

Set the force value to trigger auto displacement reset.

1. Turn ON the gauge. Press and hold **MENU** two seconds to enter the Program Menu. Press down arrow key to highlight Displacement Reset then press right arrow key to select.
2. Reset Value is highlighted; press the right arrow key to select.
3. Press the up/down arrow keys to change the value.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



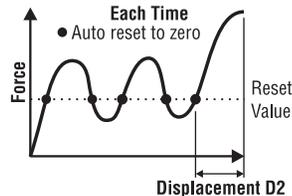
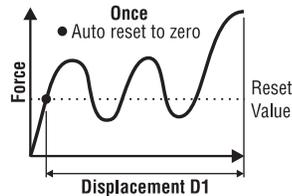
Reset Condition Factory Default='OFF'

Once: auto displacement resets to zero the first time Reset Value is reached. Reset Value is required.

Each Time: auto displacement resets to zero each time Reset Value is reached. Reset Value is required.

OFF: Displacement meter starts immediately. Press **ZERO** at any time to reset manually.

1. Follow Reset Value step 1.
2. Press the down arrow key to highlight Reset Condition, then press the right arrow key (**PEAK**), to select.
3. Press the up/down arrow keys to select the condition.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



5 Internal Memory

Data Recall

Display up to 1,000 data from non-volatile memory.

1. Turn ON the gauge, then press and hold **MENU** two seconds to enter the Program Menu. Press down arrow key to highlight Internal Memory then press the right arrow key to select.
2. Data Recall is highlighted; press the right arrow key to select.
3. Press the up/down arrow keys to view stored data.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



Data Delete

Clear the last data or all data stored in memory.

1. Follow Data Recall step 1.
2. Press the up/down arrow keys to highlight Data Delete, then press the right arrow key (**PEAK**), to select.
- 3a. **Last Data Delete** is displayed; press **MENU** to clear the last data.
- 3b. **All Data Delete** press the up/down arrow keys to display All Data Delete; press **MENU** to clear all data.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

6 USB Memory

Save Data Setting

Select the data rate: Single Data, Continuous Data

1 Hz, Continuous Data 50 Hz, or Continuous Data 100 Hz.

Factory Default='Single Data'

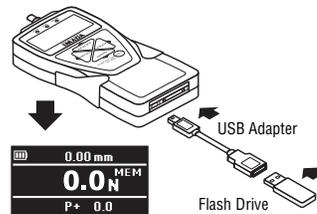
1. Press **ON/OFF** to turn on the gauge.
2. Press and hold **MENU** two seconds to enter the Program Menu.
3. Press the up or down arrows on the keypad to highlight USB Memory, then press the right arrow key.
4. Press the up or down keys to highlight SaveData Setting and then press the right arrow key.
5. Press the down arrow to select Single Data, Cont-Data 1hz, Cont-Data 50 Hz, Cont-Data 100 Hz and press **MENU** to save.
6. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



Connect the gauge and USB flash drive with the USB adapter. MEM appears on screen and flashes 'Data Saved' when either single or continuous data is being sent.

Press **SEND** to save a single data.

Press **SEND** to begin saving continuous data, then press **SEND** again to stop.



Export to USB

Export gauge memory to USB device.

1. Follow Save Data Setting steps 1-3.
2. Press the down arrow key to highlight Export to USB then press the right arrow key to select.
3. Start Transferring Memory Data? displays. Press **MENU** to continue.
4. Do not remove the USB device or turn off the gauge while transferring data. Gauge returns to ready mode when finished.

USB mass storage class 2.0/1.1 compliant,
Max current 200mA, FAT16/FAT32 Format.

USB Disconnect

Disconnects USB device.

1. Follow Save Data Setting steps 1-3.
2. Press the up or down keys to highlight USB Disconnect and then press the right arrow key to select.
3. Press **MENU** to disconnect and return gauge to ready mode. The USB adapter and flash drive can now be disconnected.

7 Auto Zero Timer

Automatically clear peak values. Stopwatch icon appears on screen when a value is set.

Select: 1~60 seconds or OFF Factory Default='OFF'

1. Turn ON the gauge, then press and hold **MENU** two seconds to enter the Program Menu. Press the down arrow key (**ZERO**), to highlight Auto Zero Timer, then press the right arrow key (**PEAK**), to select.
2. Press the up/down arrow keys to change the value and press **MENU** to input your selection.
3. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



8 Sound

Keypad Beep Factory Default='ON'
Beep confirms when keys are pressed.

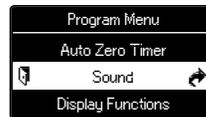
Select: ON or OFF

1. Turn ON the gauge, then press and hold **MENU** two seconds to enter the Program Menu. Press the down arrow key to highlight Sound, then press the right arrow key to select.
2. Keypad Beep is highlighted; press the right arrow key to select.
3. Press the up/down arrow keys to select and press **MENU** to input your selection.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

High/Low Alarm Factory Default='OFF'

Beeps when high setpoint is exceeded. Select: ON or OFF

1. Follow Keypad Beep step 1, above.
2. Press the up/down arrow keys to highlight High/Low Alarm and press the right arrow key to select.
3. Press the up/down arrow keys to select and press **MENU** to input your selection.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

**9 Display Functions**

Display Format Factory Default='Multi'
Single Display displays force value, unit, peak and battery indicators.

Multi Display divides the screen into three sections.

Top section displays date, time, data storage, or +NG count.

Middle section displays unit and value.

Lower section displays peak, min/max, stored data, or high/low set-points. See pages 36-37, Using Multi Display.

Select: Single or Multi

1. Turn ON the gauge, then press and hold **MENU** two seconds to enter the Program Menu. Press the down arrow key to highlight Display Functions, then press the right arrow key to select.
2. Press the up/down arrow keys to highlight Display Format and press the right arrow key to select.
3. Press the up/down arrow keys to select and press **MENU** to input your selection.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

Brightness Factory Default='Power Save'

Select bright or power save.

1. Follow Display Format step 1, above.
2. Press the up/down arrow keys to highlight Brightness and press the right arrow key to select.
3. Press the up/down arrow keys to select and press **MENU** to input your selection.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



9 Display Functions (continued)

Reverse Display Factory Default='OFF'

Invert the screen so it can be read when the gauge is mounted to a test stand.

Select: Normal or Reverse.

1. Turn ON the gauge, then press and hold **MENU** two seconds to enter the Program Menu. Press the down arrow key to highlight Display Functions, then press the right arrow key to select.
2. Press the up/down arrow keys to highlight Reverse Display and press the right arrow key to select.
3. Press the up/down arrow keys to select and press **MENU** to input your selection.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

If the display has been reversed the left/right and up/down keys are transposed.

Auto Shut Off Factory Default='10 Min'

The interval of non-use before auto shut off.

Select: 5, 10, 30, 60 minutes or OFF

1. Follow Reverse Display step 1, above.
2. Press the up/down arrow keys to highlight Auto Shut Off and press the right arrow key to select.
3. Press the up/down arrow keys to select and press **MENU** to input your selection.
4. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



10 Date and Time

Date Set

1. Turn ON the gauge, then press and hold **MENU** two seconds to enter the Program Menu. Press the down arrow key to highlight Date and Time, then press the right arrow key to select.
2. Press the up/down arrow keys to highlight Date Set and press the right arrow key to select.
3. Press the up/down arrow keys to select year and press **MENU** to input your selection.
4. Press the up/down arrow keys to select month and press **MENU** to input your selection.
5. Press the up/down arrow keys to select day and press **MENU** to input your selection.
6. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

Time Set

Set time in military format.

1. Follow Date Set step 1, above..
2. Press the up/down arrow keys to highlight Time Set and press the right arrow key to select.
3. Press the up/down arrow keys to select hour and press **MENU** to input your selection.
4. Press the up/down arrow keys to select minute and press **MENU** to input your selection.
5. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



1 Units

Select Force: lbf (ozf), N, kgf (gf)
Displacement: mm, inch

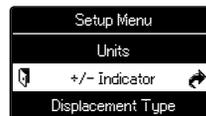


Factory Default Force='lbf', Displacement='in'

1. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Units is highlighted, press the right arrow key to select.
2. Force Units is highlighted, press the right arrow key to select.
3. Press the up/down arrow keys to select Units and press **MENU** to input your selection.
4. Press the down arrow key to highlight Displacement Units and press the right arrow key to select.
5. Press the up/down arrow keys to select units and press **MENU** to input your selection.
6. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

2 +/- Indicator

Normal: compression (+) tension (-)
Reverse: compression (-) tension (+)
Factory Default='Normal'



1. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Press the down arrow key to highlight +/- Indicator, then press the right arrow key to select.
2. +/- Force is highlighted, press the right arrow key to select.
3. Press the up/down arrow keys to select +/- Normal or +/- Reverse and press **MENU** to input your selection.
4. Press the down arrow key to select +/- Displacement then press the right arrow key to select.
5. Press the up/down arrow keys to select +/- Normal or +/- Reverse and press **MENU** to input your selection.
6. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

3 Sensitivity

Some applications may yield more consistent results with less sensitivity.

Select: Max, High, Medium, Low

Factory Default='Max' (best for destructive tests)

1. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Press the down arrow key to highlight Sensitivity, then press the right arrow key to select.
2. Press the up/down arrow keys to select and press **MENU** to input your selection.
3. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



4 Displacement Type

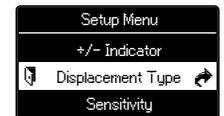
Select: OFF for non-displacement applications

Factory Default='OFF'

Contact Imada for distance meter setups with Imada motorized test stands.

Email: imada@imada.com or Call: 800-373-9989

1. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Press the down arrow key to highlight Displacement Type, then press the right arrow key to select.
2. Press the up/down arrow keys to select and press **MENU** to input your selection.
3. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



5 Zero/Tare Reset

Select: All Reset or Peak Only

All Reset: zeroes and tares all values

Peak Only: zeroes the peak value without tare (see note below)

Factory Default='All Reset'

1. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Press the down arrow key to highlight Zero Tare Reset, then press the right arrow key to select.
2. Press the up/down arrow keys to select and press **MENU** to input your selection.
3. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.

Note:

All Reset: Press **ZERO** to tare the weight of a preload or attachment and zero the display.

Peak Only: Press **ZERO** to zero the display without tare.

Press and hold **ZERO** for two seconds to zero the weight of a preload or attachment.



6 Send Functions

Store current value(s) in memory when **SEND** is pressed.

Select: Display Value, + Peak, - Peak, +/- Peak,

1st Peak, 2nd Peak, 1st/2nd Peak

Factory Default='Display Value'

1. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Press the down arrow key to highlight Send Functions, then press the right arrow key to select.
2. Press the up/down arrow keys to select and press **MENU** to input your selection.
3. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



7 Date Format

Select: YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY

Factory Default='YY/MM/DD'

1. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Press the down arrow key to highlight Date Format, then press the right arrow key to select.
2. Press the up/down arrow keys to select and press **MENU** to input your selection.
3. Press the left arrow key until the door icon  appears, then press and hold **MENU** two seconds to exit. Or press the left arrow key and when 'Exit Menu' appears, press **MENU** to exit.



8 Language

Select: English, Chinese, Korean, German, French, Italian, Spanish, Japanese

Factory Default='English'

1. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Press the down arrow key to highlight Language, then press the right arrow key to select.
2. Press the up/down arrow keys to select and press **MENU** to input your selection.
3. Follow Date Format step 2 (above) to exit the menu.



9 Setting LOCK (optional)

Prevents gauge settings from being changed.

Select: ON or OFF

Factory Default='OFF'

1. Press and hold **MENU**, then press **ON/OFF** to turn ON the gauge and enter the Setup Menu. Press the down arrow key to highlight Setting LOCK, then press the right arrow key to select.
2. Press the up/down arrow keys to select and press **MENU** to input your selection.
3. Follow Date Format step 2 (above) to exit the menu.



twilight

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