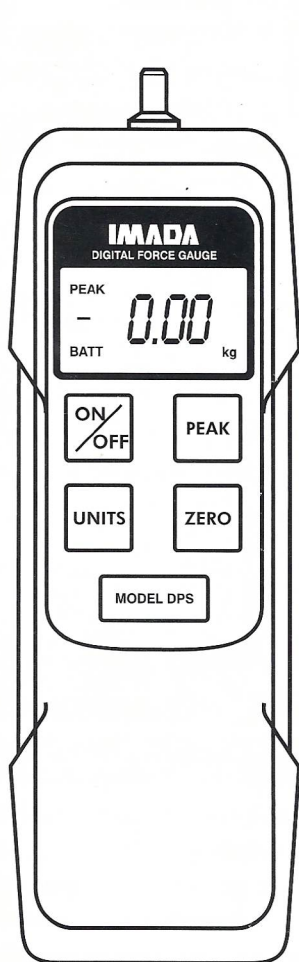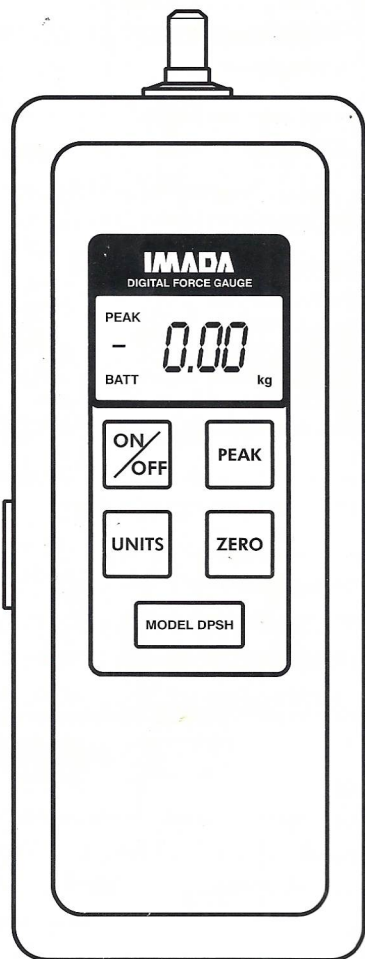INNOVATIONS IN FORCE MEASUREMENT

IMADA

Model DPS

Model DPSH

INSTRUCTION MANUAL

GENERAL OPERATION

1 Press [ON/OFF]. The capacity of the gauge is displayed and the gauge will automatically enter into the measuring mode. Press and hold [UNITS] for at least four (4) seconds each time you wish to select between pounds (ounces), kilograms (grams) and Newtons.

2 *Hand tighten* (no tool!) attachments to the measuring shaft.

3 When the gauge is turned on, it will go directly to its real time measuring mode. Press [PEAK] to measure peak forces. "Peak icon" on the display indicates peak measuring mode, whereas the peak reading will not change until a higher value is measured. To delete the last peak reading, press [ZERO]. To end peak reading mode and go to real time measuring mode, press [PEAK] again.
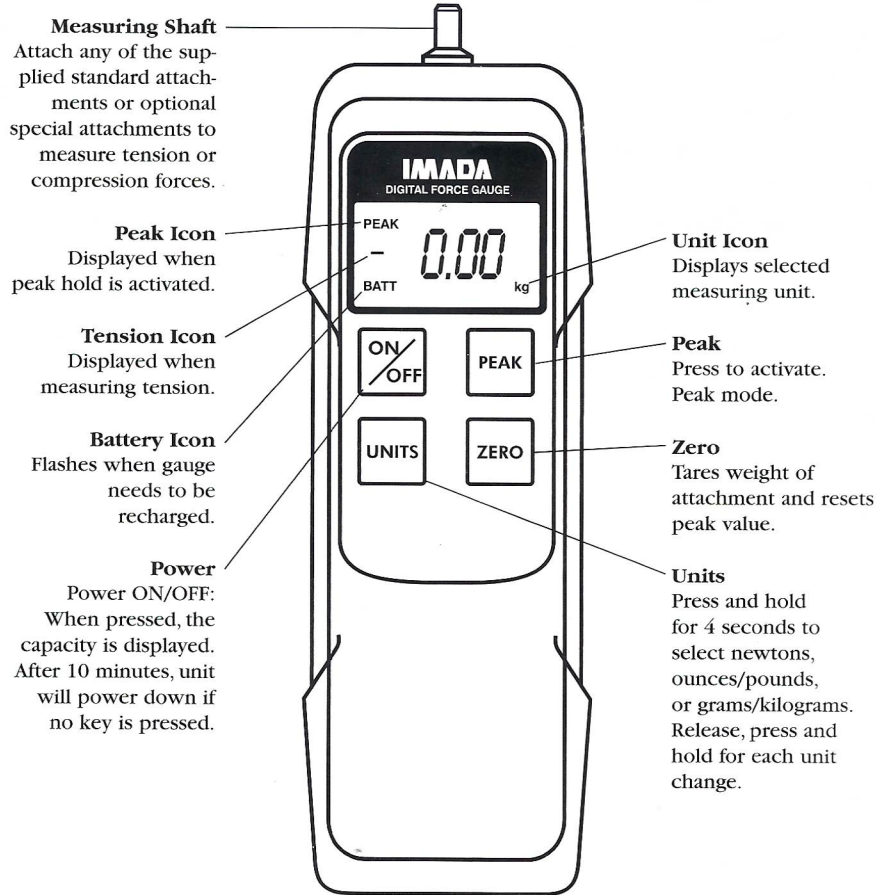
0.34	PEAK 0.34
real time mode display	peak mode display

4 If necessary, press [ZERO] to tare the weight of the attachment and shaft orientation. Pressing [ZERO] will also clear the peak reading.

5 Make sure to apply tension and compression (-) forces to the gauge in line with the measuring shaft. DO NOT attempt to measure forces at an angle to the measuring shaft - damage to load cell and/or shaft may result.
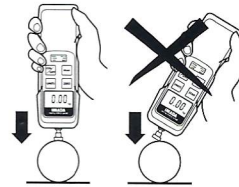
IMPORTANT

1 **WARNING!** REGARDLESS of whether the unit is ON or OFF, *do not* exceed the capacity of the gauge. At 105% of the rated capacity, the display will flash. *Never* exceed 200% of the rated capacity, or the load cell will be damaged. Avoid shock load.

2 **WARNING!** Failure to allow for sufficient overload capacity in the load, structure and mounting elements, may result in property damage, serious injury, and death. For applications involving suspension of equipment, additional safeguards are also a necessity.

3 When mounting, use M4 mounting screws with a maximum insertion depth of 5 mm into the gauge. Use mounting hardware

Measuring Shaft
Attach any of the supplied standard attachments or optional special attachments to measure tension or compression forces.

Peak Icon
Displayed when peak hold is activated.

Tension Icon
Displayed when measuring tension.

Battery Icon
Flashes when gauge needs to be recharged.

Power
Power ON/OFF: When pressed, the capacity is displayed. After 10 minutes, unit will power down if no key is pressed.

Unit Icon
Displays selected measuring unit.

Peak
Press to activate. Peak mode.

Zero
Tares weight of attachment and resets peak value.

Units
Press and hold for 4 seconds to select newtons, ounces/pounds, or grams/kilograms. Release, press and hold for each unit change.

(Display shows: PEAK, BATT, 0.00 kg; buttons ON/OFF, PEAK, UNITS, ZERO)

4   Hand tighten attachments only. ***Do not*** use tools.

5   Measure in line tension and compression forces only. ***Do not*** attempt to measure forces at an angle to the measuring shaft - damage to load cell and/or shaft may result.

6   Make sure this gauge and all peripherals are powered down before attaching any cables.

7   Recommended recalibration cycle is one year.

8   ***Do not*** remove the warranty seal or disassemble the gauge. Disassembly voids warranty.

9   Specifications subject to change without notice.

RECHARGING NI-CAD BATTERY

1 To maximize the life of the battery, power will automatically shut off after 10 minutes of non-use. This automatic shut off feature can be bypassed and the gauge may be used continuously when the AC adapter/charger is used.

2 "BATT" icon will flash when gauge needs to be recharged. To maximize battery life, do not recharge until "BATT" icon flashes. With proper recharging, battery can be recharged 500 times.

```
 0.00 kg
BATT
```

3 Push ⬛ to turn off power.
   IMPORTANT! Use the provided IMADA AC adapter/charger exclusively and plug into the correct AC output. It takes 8 hours to charge fully. *Do not* recharge for more than 12 hours.

4 When the gauge is turned off, make sure the AC adapter/charger is disconnected to avoid overcharging.

COMMUNICATIONS PORT

The communications port is divided into three separate data formats. Pins one, two and five are assigned to the full duplex, RS-232C serial interface. Pins three and six represent the ±1VDC analog output and pins four, seven and eight provide digimatic signal.

PORT PIN ASSIGNMENTS

1 RS-232C and Digimatic Ground
2 RS-232C Transmit Data
3 Analog Output (±1VDC)
4 Digimatic Data Request
5 RS-232C Receive Data
6 Analog Ground
7 Digimatic Clock
8 Digimatic Transmit Data
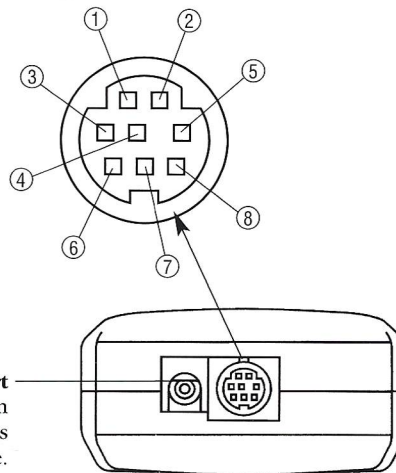
Charger Port
Recharge the internal battery or run from external source. Eight hours is required to fully recharge.

IMADA

1 RS-232C bi-directional interface functions

All gauge functions can be duplicated from a remote location by utilizing RS-232C interface. All commands must be sent in uppercase ASCII character format followed by a carriage return (CR).

Signal level: RS-232C
Data bits: 8 bits
Stop bits: 1 bit
Parity bits: No
Baud Rate: 2400 bps

RS232 COMMAND/RESPONSE

COMMAND*	FUNCTION	RESPONSE
K [CR]	Select "kg/g" units	
N [CR]	Select "N" units	
L [CR]	Select "lb" units	
O [CR]	Select "oz" units (DPS - 0.5 and DPS - 1 only)	R [CR] executed E [CR] error
P [CR]	Select peak mode	
T [CR]	Select real time mode	
Z [CR]	Tare display	
Q [CR]	Turn off power	
D [CR]	Transmit display data	[value] [units] [mode] [CR]

[mode] = T: Real time, P: Peak
[units] = K: Kg, g: grams, N: Newtons, L: Pounds, o: Ounces

2 MITUTOYO DIGIMATIC

Connect the CB-301 cable to the communications port and the device receiving the data. Set up parameters as instructed from the Mitutoyo processor manual.

3 ±1 VDC ANALOG SIGNAL

Connect the CB-101 analog cable to the communications port and the device receiving the data.

DPS/DPSH SPECIFICATIONS

|	
Accuracy	± 0.2% F.S. ± 1 LSD
Selectable Units	Pounds/Ounces, Grams/Kilograms or Newtons
Overload Capacity	200% of F.S. Display flashes beyond 105% of F.S.
Display Update	20 times/second
Power	Rechargeable NiCad battery pack or AC adapter
Low Battery Indicator	Display flashes BAT when battery is low
CPU	8-bit C-MOS
A/D Converter	13-bit Delta Sigma system
Outputs	RS-232, Mitutoyo Digimatic and ±1 VDC analog output
Operating Temperature	30° to 100°F (0° to 40°C)
Display	4-digit LCD
Weight	20 oz.
Shipping Weight	4 lbs.
Output Port	RS232C: full duplex, 2400 baud, 8 databits, no parity bit, 1-stop bit. Digimatic: Mitutoyo interface Analog: ± 1VDC
Included Accessories	AC adapter/charger, hook, flat tip, conical tip, chisel tip, notched tip, extension shaft

DPS/DPSH Ranges (Resolution) ± 0.2% F.S. ± 1 LSD

| Model	Capacity (Resolution)		
	Pounds Ounces	**Kilograms Grams**	**Newtons**
DPS-0.5	8.819 oz (0.001 oz)	250.0 g (0.1 g)	2.452 N (0.001 N)
DPS-1	17.64 oz (0.01 oz)	500.0 g (0.1 g)	4.903 N (0.001 N)
DPS-4	4.409 lb (0.001 lb)	2.000 kg (0.001 kg)	19.61 N (0.01 N)
DPS-11	11.02 lb (0.01 lb)	5.000 kg (0.001 kg)	49.03 N (0.01 N)
DPS-44	44.09 lb (0.01 lb)	20.00 kg (0.01 kg)	196.1 N (0.01 N)
DPS-110	110.2 lb (0.1 lb)	50.00 kg (0.01 kg)	490.3 N (0.1 N)
DPS-220	220.5 lb (0.1 lb)	100.0 kg (0.1 kg)	980.6 N (0.1 N)
DPSH-440	441.0 lb (0.1 lb)	200.0 kg (0.1 kg)	1960 N (1 N)
DPSH-1100	1102 lb (1 lb)	500.0 kg (0.1 kg)	4900 N (1 N)

Note: Use an "R" suffix for reverse display units (for use on vertical test stand)
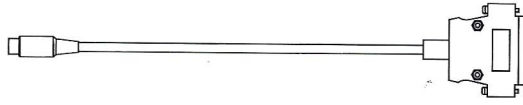
OPTIONAL HANDLE

The **OH-1** fits DPS gauges. Constructed of high quality steel for rugged use, the handle facilitates measurements of heavy loads. Complete with mounting screws.
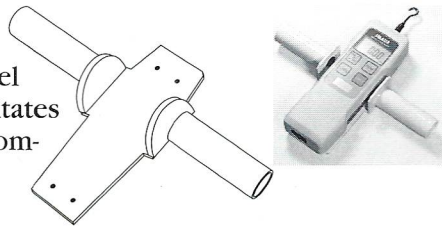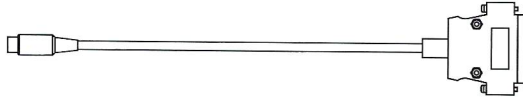
OPTIONAL CABLES
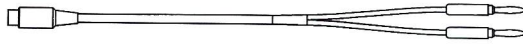
Analog cable (10')
CB-101

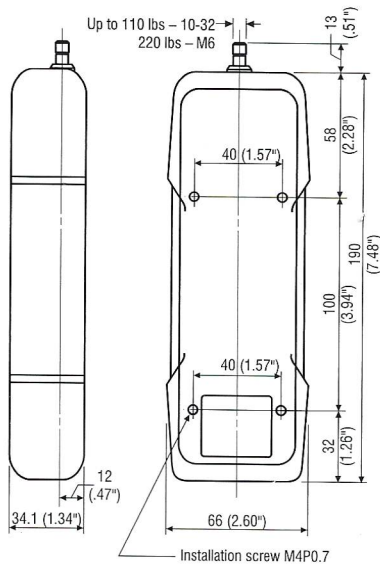RS-232C cable (10')
9 pin female
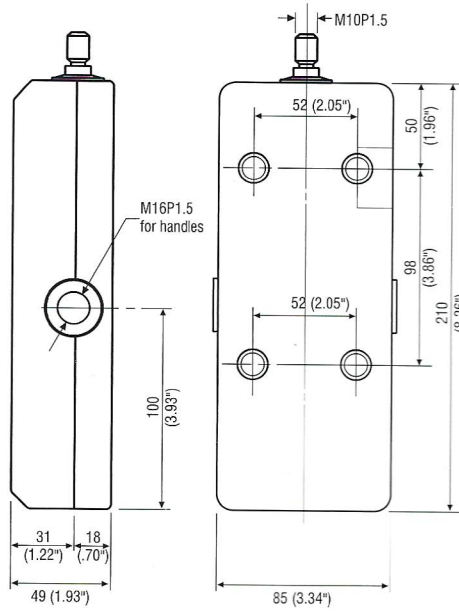**CB-203**

RS-232C Cable (10')
25 pin male
CB-202

Digimatic Cable (10')
CB-301

DIMENSIONS

DPS

Up to 110 lbs – 10-32
220 lbs – M6

13 (.51")
58 (2.28")
40 (1.57")
190 (7.48")
100 (3.94")
40 (1.57")
32 (1.26")
12 (.47")
34.1 (1.34")
66 (2.60")
Installation screw M4P0.7

DPSH

M10P1.5

M16P1.5
for handles

52 (2.05")
50 (1.96")
98 (3.86")
52 (2.05")
210 (8.26")
100 (3.93")
31 (1.22")
18 (.70")
49 (1.93")
85 (3.34")

Specifications subject to change without notice

AP-001 Adapter Plate mounts IMADA low capacity gauges to most other brands of test stands.

Use the 4 screws (supplied) to mount the IMADA gauge to the AP-001 adapter plate. Then utilize the 2 PEM nuts on the AP-001 adapter plate to mount to other brands of test stand.

AP-001

IMADA GAUGE
GAUGE MOUNTING SCREWS (4)

OTHER BRAND TEST STAND 2 MOUNTING PLATE BOLTS

PEM NUTS
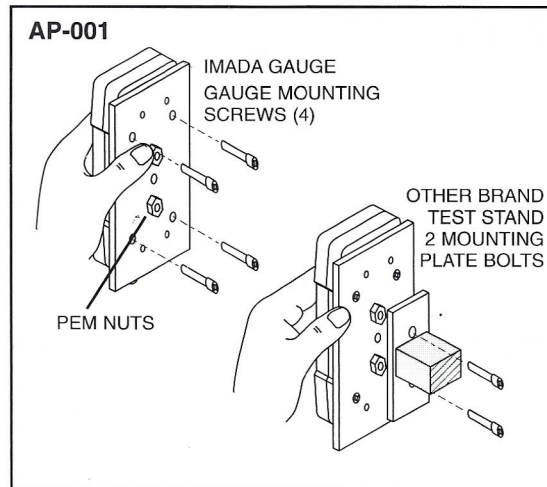
WARRANTY AND WARRANTY LIMITATION

Imada, Inc. warrants its products to be free from defects in workmanship and material under normal use and proper maintenance for two years from original purchase. This warranty shall not be effective if the product has been subject to overload, misuse, negligence or accident.

During the warranty period, we will, at our option, either repair or replace defective products. Please call our customer service department for a return authorization number and return the defective product to us with freight prepaid.

The foregoing warranty constitutes the SOLE AND EXCLUSIVE WARRANTY, and we hereby disclaim all other warranties, express, statutory or implied, applicable to the products, including but not limited to all implied warranties of merchantability and fitness. In no event shall Imada, Inc. be liable for any incidental or consequential damages.

An ISO9000 Certified Company

IMADA

Complete color catalog available. Call 800-373-9989 or E-mail us.

450 Skokie Blvd., Suite 503, Northbrook, IL 60062 USA
Telephone: (847) 562-0834   Fax: (847) 562-0839
E-mail: imada@imada.com
www.imada.com

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