

MEASURING DEVICES & BAROMETERS/THERMOMETERS

DIGITAL BREAST BRIDGE



The Digital Breast Bridge aids in setting up tangential breast treatment fields. After the borders of the tangential fields are determined place the digital breast bridge to these skin marks. The digital readout will give the angles needed for the gantry. The field separation is determined by the scale on the rails.

The acrylic plates are 20 cm wide x 15 cm high and have 1 cm inscribed markings.

Separations can be measured from 13 cm to 31 cm.

Weight: 3.2 lbs

Item #	Description
270-001	Digital Breast Bridge

BREAST BRIDGE



The Breast Bridge aids in setting up portals for tangential breast treatment. After the area to be treated has been marked, the bridge is placed on the patient's chest and adjusted to the skin markings, thus, determining the separation of the fields. The angulation of the portals is determined from the ball protractor.

The acrylic plates are 20 cm wide x 15 cm high and have 1 cm inscribed markings.

Separations can be measured from 15 cm to 35 cm.

The ball protractor provides angulation readings from 15° to 80°.

Item #	Description
270-000	Breast Bridge

BREAST BRIDGE COMPRESSOR



The Breast Bridge Compressor is used to compress the breast, particularly when it is desired to increase the dose to the residual mass at the end of a course of treatment. The aluminum mesh and frame are coated with a smooth blue vinyl plastic for minimum skin dose.

Specifications

Treatment Area Size: 10 cm H x 15 cm W

Compression Distance: 1 cm to 13 cm

Item #	Description
272-100	Breast Bridge Compressor

MAMMO CALIPER WITH DIGITAL LEVEL



The Mammo Caliper is a rugged and accurate caliper designed to provide measurements for breast simulation or as general purpose caliper. Separations can be measured between 0 cm and 45.5 cm. The measurement is locked in position by tightening a thumb screw attached to the slide.

The digital level measures the angle of a line drawn between the tips of the caliper jaw. The HOLD button freezes the measurement on the level display. The level is attached with a thumb screw and can easily be removed. The level also has a magnetic base.

The Mammo Caliper has an accuracy measurement of $\pm 0.1^\circ$.

Item	Description
705-801	Mammo Caliper with Digital Level

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MEASURING DEVICES & BAROMETERS/THERMOMETERS

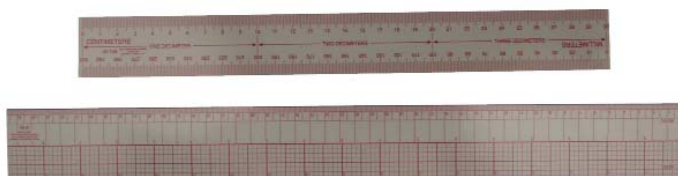
WHITE RULERS



The white plastic rulers start at zero, and allow easy viewing of the light field edges. Rulers are checked for total accuracy of 1 mm.

Item	Description	Quantity
720-000	2.9 cm W x 20 cm L Rulers	12
721-000	7.6 cm W x 15 cm L Rulers	12
722-000	5.1 cm W x 45 cm L Ruler	1
722-000-12	5.1 cm W x 45 cm L Rulers	12

TRANSPARENT PLASTIC RULERS



Item	Description	Quantity
723-001	30 cm Transparent Plastic Rule	1
723-001-12	30 cm Transparent Plastic Rules	12
723-002	45 cm/18" Transparent Plastic Graph Rule	1
723-002-12	45 cm/18" Transparent Plastic Graph Rules	12

ALUMINUM RULERS



The Aluminum Rulers are extremely accurate and have large, easy to read black numbers.

Item	Description	Graduations
723-020	30 cm Aluminum Ruler, 35 mm Wide	1 mm - 1 cm
723-022	60 cm Aluminum Ruler, 35 mm Wide	1 mm - 1 cm
723-024	100 cm Aluminum Ruler, 35 mm Wide	1 mm - 1 cm
723-026	200 cm Aluminum Ruler, 35 mm Wide	1 mm - 1 cm

STAINLESS STEEL FLEXIBLE RULERS



Item	Description	Graduations
723-030	150mm Ruler with Pocket Clip	1mm - 0.5mm
723-031	6"/15cm Ruler w/o Pocket Clip	1/16" - 1mm
723-032	12"/30cm Ruler w/o Pocket Clip	1/32"-1/64" & 1mm-0.5mm
723-033	6" Ruler with Pocket Clip	1/32" - 1/64"
723-034	150mm Ruler with Plastic Case	1mm - 0.5mm

METRIC TAPES

Graduations in Millimeters



Item	Description	Scale
723-043	Vinyl Measuring Ta	150cm/60"
723-044	Wooden Metric/Inch Folding Rule	2m/78"
723-045	Metric Measuring Tape	5m/196"

MEASURING DEVICES & BAROMETERS/THERMOMETERS

TRIANGLES



723-010

723-013

723-016

Item	Description	Degree
723-010	6" Plastic Triangle	30/60
723-013	12" Plastic Triangle	30/60
723-016	12" Plastic Triangle	45/45

RADIOLOGIST'S POCKET CALIPER/ANGLE RULE



Inches: Up to 6.5"

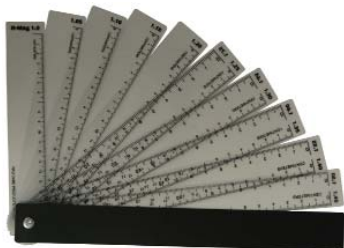
cm: 16 cm closed, 32 cm open

mm: Up to 50 mm

Angle: Measurements

Item	Description
718-000	Radiologist's Pocket Caliper/Angle Rule

MAGNIFICATION RULES



The Magnification Rules includes 15 cm scales (1.0, 1.05, 1.10, 1.15, 1.20, 1.25, 1.30, 1.35, and 1.40) magnified in increments of hundredth from 1.0 to 1.75. One scale will correspond to the magnification of most films to allow direct measurements. All scales are printed on clear mylar and can be superimposed on the area of interest, enabling measurements to be taken directly on the film.

Item	Description
719-000	Magnification Rules

CT-MAG RULES

For CT and MRI Images



The CT-Mag Rules consist of 22 point scales (3.5-5, 5.5-6, 6.5-7, 7.5-8, 8.5-9, 9.5-10, 10.5-11, 11.5-12, 12.5-13, and 13.5-14), and can be expanded to 40 cm for use with CT and MRI images.

Item	Description
719-002	CT-Mag Rules

D-MAG RULES



The D-Mag Rules consist of 11 scales (0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95 and 1.00), graduated in demagnification from 1 to 0.5 cm.

Item	Description
719-003	D-Mag Rules

MEASURING DEVICES & BAROMETERS/THERMOMETERS

HEAD-NECK CALIPER



The Head-Neck Caliper is useful in measurements of either patient diameter or surface to tumor depth. The depth of a tumor or intraoral structure relative to either the lateral or anterior/posterior surfaces can be easily determined.

Specifications

Vertical Adjustment: 23 cm

Horizontal Adjustment: 26 cm

Item	Description
706-000	Head-Neck Caliper

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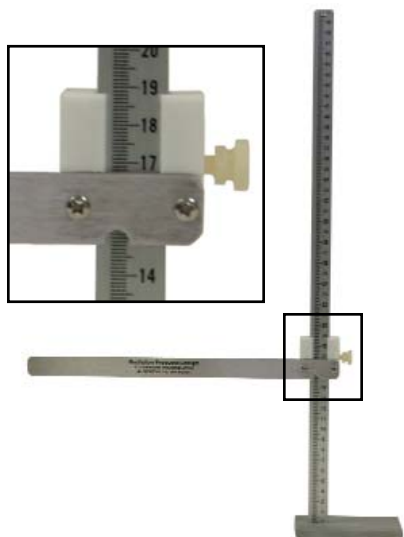
HEAD AND NECK PLASTIC CALIPER



The Head and Neck Plastic Caliper can be locked tight in any opening. Measurement is accomplished by using a separate scale to measure between the rounded tips.

Item	Description
704-000	Head and Neck Plastic Caliper

TABLE TOP CALIPER



The 55cm Table Top Caliper measures from the table top to the surface of patient.

Item	Description	Scale
705-660	Table Top Caliper	55 cm

MEASURING DEVICES & BAROMETERS/THERMOMETERS

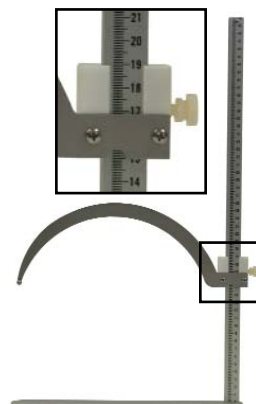
UNDER/OVER TABLE BODY CALIPER



The 55cm Under/Over Table Body Caliper measures 6.5" from the base plate to the curved blade. The blade is 15.5" long.

Item	Description	Scale
705-700	Under/Over Table Body Caliper	55 cm

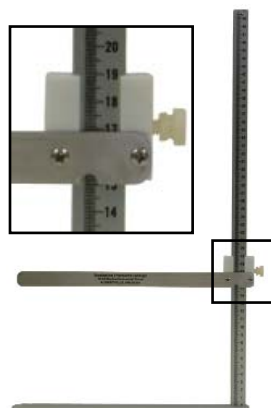
CURVED BLADE BODY CALIPERS



This lightweight precision Curved Blade Body Caliper has one scale and a non-removable slider which prevents errors caused by reading the wrong scale on a dual scale caliper. The slider can be locked at any position. The rigid leg that slips under the patient is 1/8" thick and 11" long.

Item	Description	Scale
705-546	Curved Blade Body Caliper	45 cm
705-551	Curved Blade Body Caliper	55 cm

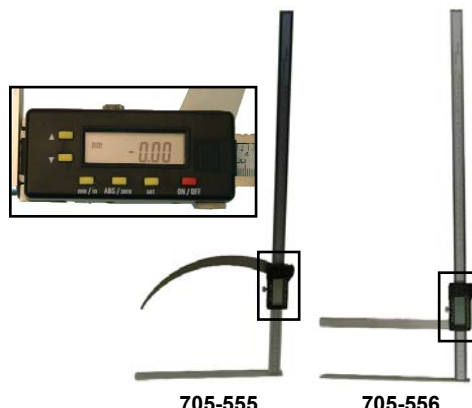
FLAT BLADE BODY CALIPERS



The lightweight Body Caliper with flat blade has one scale on a non-removable slider that prevents errors caused by reading the wrong scale on a dual scale caliper. The slider can be locked at any position. The rigid leg that slips under the patient is 1/8" thick and 11" long.

Item	Description	Scale
705-545	Body Caliper with Flat Blade	45 cm
705-550	Body Caliper with Flat Blade	55 cm

DIGITAL CALIPER



This precision digital caliper has a scale on one side and a non-removable slider with a digital display. The caliper is 74.5cm or 29.3" long. The scale reads to 600mm or 24". The maximum reading of the digital display is 643mm/25.31". The slider can be locked at any position. The flat blade base that goes under the patient is 1/8" thick and 11" long. Includes a replacement battery.

Slider Functions

ON / OFF, ABS / INC, ZERO, mm/in, SET, and HOLD.
RS232 output for connection via cable to computer.

Cable and software are sold separately from the caliper.

Item	Description
705-555	Digital Caliper with Curved Blade
705-556	Digital Caliper with Straight Blade
705-557	Digital Caliper with Level and Straight Blade

MEASURING DEVICES & BAROMETERS/THERMOMETERS

DIGITAL CALIPERS



723-062



723-063

The main body is made of hardened steel and the reference scale is marked with easy to read lines and numerals in millimeter and inches. A thumb screw on top of the caliper locks the display unit in position anywhere along the scale. Flashing digits shows low battery. Uses 1.55 V button cell battery (p/n 357) - included.

The LCD Display mode functions include:

- "IN/MM" inches or millimeters measurement
- "H" for the HOLD function
- Power On/Off and Zero Setting

Specifications

The Caliper Offers: Outside, inside, depth measurement

Resolution: 0.01 mm / 0.0005"

Accuracy: ±0.02 mm / 0.001" (<100 mm); ±0.03 mm / 0.001" (>100-200 mm); ±0.04 mm / 0.0015" (>200-300 mm)



Item	Description	Scale
723-062	Digital Caliper	20 cm/8"
723-063	Digital Caliper	30.5 cm/12"

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DUAL SCALE VERNIER CALIPER



The Dual Scale Vernier Caliper is made of polished hardened steel with permanent black graduations and comparison scales. It has an automatic thumb lock, and can be used for inside, outside, and depth measurements. The upper bar scale is graduated in mm with vernier to 1/20 mm. The lower bar scale is graduated in inches with vernier to 0.001". Plastic case included.

Item	Description	Scale
723-060	Dual Scale Vernier Caliper	15 cm/6"

MICROMETERS



723-051



723-052

Specifications

Item 723-051

Scale: 1"

Graduations: 0.001"

Item	Description
723-051	Inch Economy Micrometer
723-052	Digital Micrometer

MEASURING DEVICES & BAROMETERS/THERMOMETERS

RETRACTABLE TAPE MEASURE TRAY



The 3 meter Retractable Tape Measure Tray is used to measure the distance between the source of radiation and the point of interest on a patient. It is very useful in extended field dosimetry, enabling one to obtain an accurate measurement of source to skin distance. It can also be used for setting source to phantom distances for calibration and experimentation.

This measuring device is mounted on a lexan (polycarbonate) tray which slides into the block tray slot. Attached to the center of the tray is a 3 meter tape measure. The tape measure has an adjustable stainless steel end. This can be positioned at any point along the tape, allowing the tape to be cut at the desired length to compensate for the source to tape measure distance.

Item	Retractable Tape Measure Tray
701-622	for Siemens, Digital Coding
701-631	for Varian Clinac, No Coding
701-632	for Varian II, No Coding, no MLC
701-633	for Varian III, Optical Coding with MLC
701-634	for Varian III - Wedge Slot with MLC

INCLINOMETER



The dial of the 10cm diameter Inclinometer swings 0 to 90 in either direction for fast accurate readings up to 1°. It is constructed of high impact plastic. The pointer and face are enclosed and protected with clear tough plastic. It can magnetically attach itself to the treatment machine or it can be used to set the angle of a film cassette.

Item	Description
352-118	Inclinometer

PLUMB BOB - NICKEL-PLATED



The Plumb Bob can be used to align gantries, couches, laser lights and more. Gantry vertical alignment can be accomplished by marking the cross hair projection spot on the ceiling and floor, then dropping the Plumb Bob line from the ceiling spot to the floor spot. The machine alignment is vertical when the Plumb Bob line intersects with the ceiling and floor spots.

Item	Description
352-120	Plumb Bob, Nickel-Plated

BULLS EYE CIRCULAR LEVEL



The all purpose Bulls Eye Circular Level will show level of any surface in all directions at once.

Item	Description
352-104	Bulls Eye Circular Level

MEASURING DEVICES & BAROMETERS/THERMOMETERS

6CM LEVEL



The 6cm Level has a level vial mounted in an anodized hard drawn 3/8" (0.97 cm) hexagonal aluminum tubing. The bottom surface is perfectly flat for accurate surface leveling.

CE

Item	Description
352-108	6cm Level

POCKET LEVEL



The pen-size, 12cm Pocket Level comes in a hexagonal aluminum case. The bottom surface is perfectly flat for accurate surface leveling. A large easy to read glass vial is mounted in an anodized hexagonal tube with a black plastic clip.

Item	Description
352-112	12cm Pocket Level with Clip

MAGNETIC GANTRY LEVEL



The 9" magnetic torpedo level is durable and accurate. Its bi-material body with rubber end caps protect finished work surfaces from damage. With a heavy-duty aluminum frame, open, top-read vial, and pipe groove for use on rounded surfaces, this tool is built for accuracy, ease of use and durability.

Item	Description
352-233	Magnetic Gantry Level

HIGH PRECISION FOUR-SIDED GANTRY LEVEL

1/40 Degree Accuracy



The four-sided High Precision Gantry Level has a main vial that has graduated divisions of 0.005" per foot per division and is wrench adjustable. The level housing consists of a satin chrome brass tube with a friction fit closing cover to prevent breakage. The level frame is made of aluminum with a black anodized finish, accurately machined and finished on all four sides.

This level is used to check the gantry angle indicators at four locations: 0, 90, 180, and 270 degrees, with accuracy to 1/40 of a degree.

Specifications

Size: 6" square x 0.75" thick (15.29 x 1.91 cm)

Item	Description
352-200	High Precision Four-Sided Gantry Level
352-201	Vinyl Case for High Precision Gantry Level

MEASURING DEVICES & BAROMETERS/THERMOMETERS

MAGNETIC DIGITAL LEVEL



- Units of measure: degrees, percent, mm/m, in/ft in decimal, in/ft in fractional
- Small and handy
- Push button calibration
- Audible indicator for level 0° and plumb 90°
- Automatic digit inversion for overhead measurements
- Hold function to freeze measurement
- Strong holding magnetic edge allows hands free use on Ferrous metal surfaces
- Working range 4 x 90°
- 1/4" - 20 thread for connection to tripod
- 6" Long (15.3 cm)

Specifications

Accuracy: ±0.1° for 0° and 90°, ±0.2° for 1° and 89°

Working Range: 0° to 90°

Power Supply: 3 "AAA" alkaline batteries (included)

Working Temperature: 14° to 113°F (-10° to 45°C)

Item	Description
352-240	Magnetic Digital Level

LEVEL DIGITAL - DUAL/SINGLE AXIS PROTRACTOR WITH MAGNETIC BASE



Specifications

Accuracy:

0° ±20°: ± 0.05°

20° to 70°: ± 0.1°

90° ±20°: ± 0.05°

Measuring Range: Single axis: 360°, Dual axis: ±40°

Resolution: 0.01°

Response time: <0.4 second

Audio Sound: 60db @ 30cm

Zero Offset Drift Angle Per °C: 0.0058° (typical)

Operating Temperature: 0 to 50°C

Storage Temperature: -10 to 60°C

LCD with backlight

Supply Power: Rechargeable Li-Polymer 3.7V

Charger Port: 5V 500mA Mini type-B USB port

Power Consumption: Standby: 200uA, Operation: 20mA

Standby Battery Life: 4000 hours

Operating Battery Life: 40 hours

Dimensions: 2.8" x 2.8" x 0.9" (70 L x 70 W x 23 mm H)

Magnetic Base: Affix at 4 corner

Magnetic Force: N48

Weight: 4.2 oz (120 gram)

Item	Description
352-245	Level Digital, Dual/Single Axis Protractor w/Mag.Base

- Radiation Therapy 2 axis table tilt
- High accuracy 0° ±20° (±0.05°), high resolution 0.01°
- Dual and Single axis with LCD back lighted angle display
- V Shape case to fit on pipe
- 5 Side Magnetic base
- Audible alarming at settable angle range, any angle measurement
- Rechargeable by connecting the USB cable to level and a computer's USB port

The level is used in Radiation therapy on the 2 axis treatment table tilt, gantry rotation and collimator rotation. The level provides a digital readout of angle in the X and Y axis simultaneously. Gyro technique are used for measurements of any angle.

Includes: Digital Protractor and USB cable for charging battery.

MEASURING DEVICES & BAROMETERS/THERMOMETERS

SELF LEVELING 5 BEAM DOT LASER LEVEL



710-851 Includes

- Multi-functional magnetic base
- 3 "AA" alkaline batteries
- Mounting strap
- Magnetic target
- Tinted glasses
- Instruction manual with warranty card
- Soft-sided carrying case

Specifications

Number of Beams: 5

Leveling Method: Self-Leveling (Pendulum)

Laser Wavelength: 650nm ± 10nm (Red)

Laser Classification: Class IIIa

Maximum Power Output: <=5mW

Accuracy: ± 1/8"/50ft. (± 2mm/10m)

Interior Range: Up to 200ft. (60m) depending on light conditions

Self-Leveling Range: ± 4.5°

Power Supply: 3 "AA" alkaline batteries (included)

Battery Life: Approximately 20 hours with alkaline batteries

Dimensions: 3.15" x 3.858" x 4.0" (80 x 98 x 101.6mm)

Weight: 1.1 lb (0.5 kg)

Working Temperature: 14°F to 113°F (-10°C to +45°C)

Center Screw Thread: 5/8"-11, 1/4"-20

IP Protection Class: 55

Item	Description
710-851	Self-Leveling Laser Level with 5 Beam Dot Laser

- F**
- Lock that turns laser off and secures mirrors for handling
 - Self-leveling laser
 - Laser projects five self-leveling beams simultaneously
 - Audible alarms when beyond leveling range
 - Laser can be rotated 360°

This 5 Beam Laser Level projects a vertical beam straight up and straight down to easily transfer a point from the floor to the ceiling plus will project 3 horizontal beams, one from left, one from right and one straight on to give you a perfect 90° angle in a room. This level is self-leveling with accuracy of 1/8" at 50 feet, plus has locking compensators so the laser level won't shake or be damaged while not in use.

TRACEABLE JUMBO DIGIT STOPWATCH



Largest stopwatch digits ever developed (0.5" or 1.3 cm high) provides ease in reading. Times to 24 hours. Unit features single-action, time-out, cumulative-split, and continuous timing. Timing resolutions is 1/100 of a second for the first 30 minutes, continues timing to 23 hours, 59 minutes, 59 seconds with a 1-second resolution.

Accuracy is 0.001%. To assure accuracy an individually serial-numbered Traceable Certificate is provided from our ISO 17025 calibration laboratory accredited by A2LA. It indicates traceability to standards provided by NIST (National Institute of Standards and Technology). Water-resistant, O-ring sealed, and shock resistant ABS plastic case has non-slip rubber sides. Supplied with a detachable clip for clipping onto notebooks or clipboards. Also comes with Velcro™ for vertical mounting anywhere.

As a chronograph, the unit displays time of day in hours, minutes, seconds, AM/PM, date, and day of the week. It also has a time-of-day alarm. Supplied with Traceable Certificate, 2-year, "always-on" battery, lanyard, and clip.

Specifications

Size: 3" x 2.5" x 7/8" (7.65 x 6.37 x 2.24 cm)

Weight: 2.5 oz (70.9 g)

Item	Description
469-510	Traceable Jumbo-Digit Stopwatch

MEASURING DEVICES & BAROMETERS/THERMOMETERS

THERMOMETERS

470-207



470-052

Thermometers are accurate to within N.I.S.T tolerances and are individually serialized.

Item #	Thermometer	Length	Degrees	Accuracy	Graduations	Fill	Immersion
470-207	Pocket Test	165 mm / 6.5"	+30°F to 120°F	±2.0°F	1.0°F	Spirit	Total
470-052	Room	300 mm / 11.8"	-35°C to 50°C	±1.0°C	1.0°C S/B 0.5°C	Enviro-Safe [®]	Total
470-133	Room	460 mm / 18"	-1°C to 51°C	±0.3°C	0.1°C	Blue Organic	Total

THERMOMETER ARMORS

The thermometer armors are Nickel Plated Brass. They are open cases that have a screw cap with ring and small openings around bulb for circulation.



Item	Thermometer Armor
470-075	for 12" (305 mm) Thermometer
470-077	for 15.9" (405 mm) Thermometer
470-079	for 18" (460 mm) Thermometer

DIGITAL LOLLIPOP™ THERMOMETERS



- **Water-Resistant**
- **Shockproof**
- **Max/Min Temperature Memory**

The new heads-up Lollipop™ Traceable® Water-Resistant/Shockproof Thermometer replaces hazardous mercury units. Stainless-steel probe is resistant to most laboratory chemicals.

Records minimum/maximum reading

At the touch of a button, memory recalls highest and lowest temperature readings over any time period. Solid-state construction eliminates dangers inherent in breakable glass and toxic mercury thermometers.

All-weather compatible

Operates without fail in any lab condition-outdoors too. Water-Resistant construction is ideal for wet labs, wash-down areas, and virtually all field applications. Engineered to be shockproof in drop tests up to 5 feet. Bright 1/4" (0.635 cm) high display is easy to view.

Traceable to NIST for accuracy

To assure accuracy an individually serial-numbered Traceable® Certificate is provided from an ISO 17025 calibration laboratory accredited by A2LA. It indicates traceability to standards provided by NIST (National Institute of Standards and Technology).

Supplied complete with stainless-steel probe, probe cover, and silver-oxide battery (runs continuously for one year).

Specifications

Range: -58 to 572°F and -50 to 300°C

Resolution: 0.1° from -20 to 200°; 1° outside this range

Stem Diameter: 0.14"

Stem Length: 8"

Overall Size: length: 1 3/4" W x 10 1/4" L x 1/2" D

Weight: 7/8 oz (0.03 kg)

Item #	Description	Accuracy
470-350	Thermometer, Digital Lollipop, Water-Resistant	±1°C
470-351	Thermometer, Digital Ultra Lollipop, Water-Resistant	±0.4°C

MEASURING DEVICES & BAROMETERS/THERMOMETERS

TRACEABLE WORKHORSE THERMOMETER WITH TYPE-K PROBE



High accuracy meter.

F Thermometer offers sharp readout in dim or bright light and covers a wide temperature range. Compatible with all Type-K probes.

Includes

- Type-K probe
- Bench stand
- 9V Battery with 150 to 200 hours continuous-use life span
- Carrying case

Specifications

- Front-panel adjustable offset allows setting of temperature, in-house calibration, or particular sensor for increased accuracy
- HOLD button freezes display to capture current reading
- Range: -58° to +2372°F (-50° to +1300°C)
- Accuracy: $\pm 1^{\circ}\text{C} + 0.75\%$ between 0° and 500°C; $\pm 1^{\circ}\text{C} + 1\%$ between 500° and 750°C; $\pm 1^{\circ}\text{C} + 2\%$ between 750° and 1000°C; $\pm 3^{\circ}\text{C} + 4\%$ between 1000° and 1200°C; $\pm 2^{\circ}\text{C}$ at -20°; $\pm 3^{\circ}\text{C}$ at -40°; $\pm 4^{\circ}\text{C}$ at -50°
- Resolution: 0.1° between -50° and +200°; (otherwise 1°)
- Dimensions: 2.75" x 5.5" x 1.25" (69 x 138 x 31mm)
- Weight: 6 oz. (0.2kg)
- Probe dimensions: 1/8" dia. x 5" overall length (0.32 x 12.7 cm)
- Cable Length: 40" (101.6 cm)
- Stainless Steel probe is waterproof

Certifications

Certificate of traceability to NIST* standards. Calibrated by an ISO 17025 calibration laboratory accredited by A2LA*.

Item	Description
470-315	Traceable Workhorse Thermometer w/Type-K Probe

DIGITAL THERMOMETER



For those applications where only one temperature is read at a time, the Digital Thermometer is an industry standard. It features Min/Max memory, hold, auto shut-off. It is housed in a rugged polyethylene storage case with a sealed membrane and has a backlight for dark environments. This handheld thermometer is a battery powered unit with a detachable immersion probe. Temperature readings appear in Centigrade or Fahrenheit with $\pm 0.2^{\circ}\text{C}/0.3^{\circ}\text{F}$ or $\pm 0.5\%$ of reading, whichever ever is greater. The LED display eliminates problems that can result from the misreading of stem-type thermometers.

Detachable immersion probes are time savers for x-ray departments that have several film processors. The use of multiple probes, each remaining in a specific tank, also eliminates the possible cross-contamination of chemicals. You can quickly and easily display the lowest and highest temperatures measured by the probe since the unit was turned-on. Our digital thermometer also enables you to "freeze" the current temperature reading on the display. The thermometer display can be easily illuminated, making it perfect for use in the darkroom. You can also program the Digital Thermometer for auto or manual shut-off.

The Digital Thermometer is a shock resistant, solid-state unit that needs no adjustments to maintain accuracy. Calibration is traceable to the National Institute of Standards and Technology (NIST). The unit includes a high-impact plastic case with a recess for storing one probe, and is equipped with a power jack that will accept the optional AC power supply. The jack should be used when the unit will be in use for extended periods of time (in order to prevent battery failure).

Item 470-320 Digital Thermometer includes

- Thermometer
- General purpose probe
- Carry case

Specifications

Instrument

Display: Four-digit LED, plus decimal point

Auto Shut-Off: After 5 minutes of non-use (can be disabled)

Switchable °F/°C

Temperature Range: -40° to 302°F / -40° to 150°C

Temperature Accuracy: $\pm 0.3^{\circ}\text{F}/0.2^{\circ}\text{C}$ or $\pm 0.5\%$ of Reading whichever ever is greater

Resolution: 0.1°F/°C

Battery Type: 9v (2) AAA

Battery Life: 1800 hrs

Housing Material: ABS plastic

Dimensions: 5" x 2" x 10" (12.75 x 5.1 x 25.5 cm)

Weight: 5oz (without probe)

Warranty: 5 year instrument warranty

Certifications: CE, Rohs, NIST, WEEE

Probe

Temperature Accuracy: $\pm .4^{\circ}\text{F}$

Max Tip Temperature: 300°F (149°C)

Max Cable Temperature: 200°F (93°C)

Response Time: 6 seconds in liquid

Shaft Length: 3.75" (9.525cm)

Shaft Diameter: 0.140" (.356cm)

Cable Length: 6' (1.8 m) uncoiled

Cable Material: Polyurethane

Dimensions: 7.1" x 1" x 0.7" (18.1 x 2.5 x 1.8 cm)

Weight: 1.764 oz (50 g)

Warranty: 1 year probe warranty

Item	Description
470-320	Digital Thermometer

MEASURING DEVICES & BAROMETERS/THERMOMETERS

TRACEABLE® THERMOMETER/BAROMETER PEN



- Measures temperature, humidity, barometric pressure, and dew point
- Portable - Easy Operation
- Quick Response
- Minimum and Maximum
- Lightweight and compact

Compact design features an electronic capacitance polymer film sensor not affected by condensation. Tough ABS plastic housing and water-resistant design with O-ring seal and membrane keypad assure a long life in severe lab or harsh plant environments. HOLD button freezes the reading on the display. High contrast LCD digits are easy to read. At the press of a button, unit recalls minimum/maximum readings.

User selectable dual display shows humidity/temperature, humidity/dew point, barometer/temperature, or barometer/humidity.

To assure accuracy an individually serial-numbered Traceable® Certificate is provided from our ISO 17025 calibration laboratory accredited by A2LA. It indicates traceability to standards provided by NIST (National Institute of Standards and Technology). Supplied with a Traceable® Certificate and batteries.

Specifications

Temperature range: 32.0 -122.0°F (0.0 - 50.0°C), resolution of 0.1°; accuracy of ±1°C.

Relative humidity range: 10.0 - 95.0%, resolution of 0.1% ; accuracy of ±3% RH mid-range to ±4% RH elsewhere.

Barometer measures pressure in 3 different units:

Inches of mercury (inHg): 0.29 to 32.48, resolution of 0.01

Millibars (hPa): 10.0 to 1100, resolution of 0.1 and 1 hPa

Millimeters of mercury (mmHg): 7.5 to 825.0, resolution of 0.1 mmHg.

Accuracy: ±4 hPa between 550 to 1100 hPa.

Dew point range: 13.5 to 120.1°F (-25.3 to 48.9°C), resolution of 0.1°.

Power: 4 AAA batteries

LCD digits: 3/8" H (0.97 cm)

Size: 1.5" diameter x 8" L (3.82 x 20.39 cm)

Weight: 5 oz (142 g)

Item	Description
469-007	Traceable Thermometer/Barometer Pen

ANEROID PRECISION BAROMETER



- Anti-parallax ring
- Previous setting indicator hand
- Rack and pinion movement
- Extremely accurate ±0.76mm Hg (±0.03" Hg or 1mb)

The Aneroid Precision Barometer comes in a 5" diameter (12.75 cm) chromed/brass case with an easy to read dial. It has an adjustable previous setting indicator hand and high precision due to the rack and pinion movement.

The dual range is 930-1090 hPa and 700-820 mm Hg. Instrument accuracy is ± 0.76 mm Hg. or ± 0.03" Hg. This will indicate the actual pressure from 0 to 2000 feet. **MERCURY FREE.**

Aneroid barometers operate on the principle of a capsule which changes dimension as barometric pressure rises or falls. This capsule is sealed cell made of special alloys which minimize the effects of temperature. Such barometers are said to be "temperature compensated." The cell expands during periods of low pressure, and contracts with high pressure. A mechanical linkage between the cell and the dial pointer amplifies very small changes in cell dimension into pointer movement.

Calibration instructions are included, for in house calibration.

Item	Description
469-021	Aneroid Precision Barometer, 700-820mm, ±0.3" Hg

MEASURING DEVICES & BAROMETERS/THERMOMETERS

TRACEABLE® HANDHELD DIGITAL BAROMETER



The Handheld Digital Barometer measures altitude, temperature, and barometric pressure. It also has a stopwatch/time-of-day clock and graphically displays the barometric pressure trend. A Traceable Certificate is provided to indicate instrument traceability to NIST (National Institute of Standards and Technology).

BAROMETER

Measures barometric pressure from 15.90 to 31.01 in inches of mercury (inHg) with a resolution of 0.03 inHg and from 400 to 1070 millibars (mbar) with a resolution of 1 mbar. Accuracy is ± 0.1477 inHG (± 5 mbar). Display may be switched to inHg or mbar.

Barometric pressure trend shows present readings and previous 2, 4, 6, 8, 10, and 12 hours in bar-chart format. Barometric pressure reading is updated every 15 minutes.

ALTIMETER

The handheld digital unit measures altitude from -500 to 7000 meters and -1640 to 22,965 feet, with a resolution of 1 meter from -500 to 1000 meters and a resolution of 2 meters from 1001 to 7000 meters. Altitude is displayed in meters or feet. Reading is updated every 2 seconds. Features a minimum maximum memory for the altitudes reached during any time period, and the altitude trend shows present reading and previous 2, 4, 6, 8, 10, and 12 hours in bar-chart format.

THERMOMETER

Thermometer displays from -4.0 to 158.0°F and -20.0 to 70.0°C with a resolution of 0.1°, accuracy is $\pm 1^\circ\text{C}$. Temperature display is updated every 10 seconds.

STOPWATCH AND CLOCK

Stopwatch times events from 1 second to 99 hours, 59 minutes, 59 seconds. Resolution is 1 second and accuracy is 0.01%. Clock displays the time of day to the minute, and shows the day and month. The clock also features a format of 12-/24 hour timing and an alarm.

Rugged shock-resistant case, compact size (4" x 2.5" x 0.75" or 10.2 x 6.4 x 1.9 cm), and lightweight (3.7 oz or 105 g) make this the perfect portable unit. Supplied complete with lanyard, batteries, and instructions.

Item	Description
469-005	Traceable® Handheld Digital Barometer

PRECISION DIGITAL BAROMETER / THERMOMETER



- Employs the latest in pressure and temperature sensor technology
- Wide Range: 300 mbar to 1100 mbar
- ± 0.5 mbar accuracy
- $\pm 0.2^\circ\text{C}$ accuracy
- Lightweight, rugged, hand-held design
- NIST Traceable

Item 469-200 is a portable digital barometer/thermometer possessing a combination of handheld calculator size, digital display, high accuracy and wide choice of units, making it ideal as a portable absolute pressure reference. It operates on two 9-Volt alkaline batteries for 100 hours. The TOGGLE UNITS button allows the user to choose mmHg or mbar. The rugged, ABS molded case has been designed for handheld use in field applications.

Both the probe and 2 meter cable are waterproof

Item 469-210 features a variety of pressure scales to enable the operator to display the atmospheric pressure in units of mmHg or mbar, as the most widely used units in radiation therapy. It also displays ambient temperature in $^\circ\text{C}$ with 0.1 degree resolution. A wall adapter is also included with this unit. It is enclosed in a sturdy metal enclosure for bench top application.

Specifications

Display: 16 x 2 LCD, 0.2" high segments

Selectable units: mmHg or mbar,

Range, Resolution: 600 to 790 mmHg, 0.1mmHg, 800 to 1050mbar, 0.1 mbar, 0 - 70° C, 0.1° C

Accuracy: ± 0.5 mbar, includes non-linearity, hysteresis, and repeatability; $\pm 0.2^\circ\text{C}$, includes non-linearity

Altitude Range: infinite

Operating Range: -9 to 49° C

Power: Two 9.0 Volt alkaline cells (469-200 only), 9 Volt wall adapter (Included with 469-210)

Battery Life: 100 hours of use (469-200 only)

Dimensions:

Item 469-200: 8" L x 4.6" W x 2.1" H (20.3 x 11.7 x 5.3 cm)

Item 469-210: 3.6" L x 4.5" W x 2.0" H (9.1 x 11.4 x 5.1 cm)

Weight:

Item 469-200: 1.1 lb (0.5 kg)

Item 469-210: 1.1 lb (0.5 kg)

Item	Description
469-200	Handheld Precision Digital Barometer/Thermometer
469-204	Case for Digital Barometer/Thermometer
469-210	Bench Top Precision Digital Barometer/Thermometer

MEASURING DEVICES & BAROMETERS/THERMOMETERS

TRACEABLE® DIGITAL BAROMETER



469-152

The 469-150 Digital Barometer is the perfect unit for plants, labs, and all other environments where there is a need to monitor conditions of environmental air parameters. A four-line LCD continuously and simultaneously shows barometric pressure, temperature, relative humidity, barometric pressure trend and time-of-day. Minimum/Maximum readings for barometric pressure, temperature and relative humidity are stored every hour for the last 24 hours and are available for recall at the touch of a button. HI/LO alarms can be set for barometric pressure, temperature, and relative humidity.

- **A four-line LCD continuously and simultaneously shows barometric pressure, temperature, relative humidity, barometric pressure trend and time-of-day.**
- **Minimum/Maximum readings for barometric pressure, temperature and relative humidity are stored every hour for the last 24 hours and are available for recall at the touch of a button.**
- **Computer output allows unit to be connected to a computer using the accessory Computer Data Acquisition System to permanently capture readings.**

Measuring Ranges

Barometric pressure range from 500 to 1030 millibars (mbar) with a resolution of 1 mbar. Accuracy is ± 4 mbar. Barometric pressure trend shows in bar-chart format the current and past 1-, 3-, 6-, 12- and 24-hour readings. Switching permits viewing in millibars (mbar), inches of mercury (inHg), or hectopascals (hPa). Altitude compensation is -100 to 2500 meters.

Temperature range is 32 to 131°F and 0 to 55°C. Resolution is 0.1° and accuracy is ± 0.4 °C. Relative humidity range is 5 to 95%. Resolution is 1% RH and accuracy is ± 3 % RH between 5 to 75%, otherwise ± 5 % RH.

Computer output allows unit to be connected to a computer using the accessory Computer Data Acquisition System to permanently capture readings.

Tracable to NIST for Accuracy

An individually-numbered Traceable® Certificate is provided which assures accuracy from an ISO/IEC 17025:2005 calibration laboratory accredited by A2LA. It indicates traceability to standards provided by NIST (National Institute of Standards and Technology).

Supplied With Traceable® Certificate, wall mount, flip open stand and batteries.

Item 469-152 Computer Data Acquisition System

- **Allows up to eight unique Traceable® meters to simultaneously capture data and send it directly to email to any smartphone or computer**
- **Readings are saved to a file that can be viewed, printed as-is, or merged in a report or spreadsheet format**
- **Data continues to be collected in background even when user works on other software programs**
- **24/7 audible/visual alarm reminds user to check on data**

Powerful and easy to use computer data capture program works with Traceable® Instruments with computer output. Records interval readings from 1 to 10,000 seconds; displays minimum/maximum readings; and utilizes an alarm mode that permits the user to be notified visually, audibly, and by email when an alarm is triggered. Networking server/client capability allows the captured data to be monitored on a remote workstation. Readings may be streamed to cell phones or anywhere via email every minute or in any time interval. 24/7 notification of audible/visual alarms are sent to user's computer, remote computer, via email anywhere, and by email to cell phones. Program automatically installs in less than two minutes. Absolutely no user programming, no user keystrokes, no user entries are required. Simply connect the cable to the instrument and to a USB port (or serial port) and data is captured. Operation is straight forward plug and play. It is that easy. It is designed to work with Windows® 98/Me/NT/2000/XP/Vista/Windows 7. Includes a CD, a 6-foot cable (supplied USB, serial, and instrument connections) cable plugs into the instrument and computer.

Specifications

Item 469-150

Temperature Range: 32 to 131°F (0 to 55°C)

Temperature Resolution: 0.1°

Temperature Accuracy: ± 0.8 °F (± 0.4 °C)

Humidity Range: 5 to 95% RH

Humidity Resolution: 1% RH

Humidity Accuracy: ± 3 % RH (5 to 75% RH), otherwise ± 5 % RH

Pressure Type: Absolute

Barometric Press. Range: 500 - 1030 mbar (14.77 - 30.41 inHg)

Barometric Press. Resolution: 1 mbar (0.01 inHg)

Barometric Press. Accuracy: ± 4 mbar (± 0.12 inHg)

Altitude Compensation: -100 to 2500 meters

Temp MIN/MAX Memory: Yes

Data Logging: Yes

Exportable Data: Yes

Size: 4" x 3" x 1" (10.16 x 7.62 x 2.54 cm)

Weight: 7 oz

Item #	Description
469-150	Traceable® Digital Barometer
469-152	Computer Data Acquisition System

MEASURING DEVICES & BAROMETERS/THERMOMETERS

HANDHELD DIGITAL BAROMETER-ALTIMETER



This instrument measures atmospheric pressure very accurately, to within 0.015" Hg. The 316 stainless steel pressure sensor has extremely low sensitivity to shock, vibration, acceleration, and changes in orientation or temperature, yet features high sensitivity to pressure variations. The device is temperature compensated over its operating temperature range. Each unit comes with a certificate of calibration traceable to NIST.

Specifications

Units	Full Scale	Accuracy	Resolution
Pressure			
mm Hg	1000	± .015	.1
in Hg	39.37	± .01	.01
mb	1333	± .2	.1
kPa	133	± .02	.01
psi	19.33	± .01	.001
Altitude			
feet	36,000	± 9	1.0
meters	10,973	± 3	1.0

Approvals: CE compliant

Display: 5 significant digit LCD (0.25" high) 2 line x 16 alphanumeric characters

NIST traceability: NIST certificate supplied

Power: 4 AA alkaline batteries (included) with user enabled automatic shut-off

Temperature:

Storage: -40° to +140° F (-40° to +60° C)

Operating: 23° to +122° F (-5° to +50° C)

Process connections: 1.8" female NPT, 316SS

Enclosure: 14 ounce (6.5" x 3.6" x 2.25") ABS plastic case

Media compatibility: Isolated AI sensor for fluids compatible with 316SS

Pressure limits: 77 PSIA (4,000 mm Hg Abs)

Tare: Nulls applied pressure to allow measurement of vacuum, gauge pressure, or change in pressure or altitude from a reference point

Min/Max Capture: Capture speed is equal to the selected damping rate

Damping rates: User selectable from 0.1 to 25 seconds

Backlight: Green, changes to Red for over pressure

Engineering unit selection: mm Hg, PSI, in Hg, mbar, bar, kPa, Torr, feet, meters

Altitude: Displayed in feet or meters. Can be set by user based on map or trig marker information or standard altitude uses U.S. Standard Atmosphere of 1962 data

Contrast Adjustment: Adjusts display for best viewing

Accuracy: (Full Scale = 38.674 PSIA or 2,000 mm Hg Abs)

± 0.015% F.S. from 0-1,000 mm HgA

± 0.025% F.S. 0-1,000 - 2,000 mm HgA

Field recalibration: Supported through firmware feature

Weight / Shipping: 1.6 lb / 3 lb

Item #	Description
469-455	Handheld Digital Barometer - Altimeter

- Easy to use
- Rugged and sensitive
- Highly accurate
- Ideal portable pressure reference for weather station site certification and production process monitoring
- Displays station or sea level pressure
- Altitude in feet or meters
- NIST certificate included
- CE compliant

The Handheld Digital Barometer-Altimeter combines accurate pressure sensing with the power of microprocessor-based computations to provide instantaneous pressure and altitude readings. A combination of small size, digital display, versatility, and high accuracy make it ideal for field measurements or as a portable pressure reference.

Keypad controls provide access to the operating functions. Pressure or altitude may be displayed in a variety of units. The LCD display shows the data output and operating mode. Data logging mode stores up to 240 readings for future recall. The unit is powered by four AA alkaline batteries (included) which provide approximately 100 hours of continuous use.

The Barometer - Altimeter includes features for minimum and maximum (Min/Max) value capture, tare readings, and user selectable engineering units. A selectable altitude function allows users to enter site altitude above sea level in order to display local barometric pressure or barometric pressure corrected to sea level. User referenced altitude (referenced to map or trig markers) or altitude based on US Standard Atmosphere of 1962 can be selected for display. Using the altitude function with the Min/Max and Tare features makes this Barometer - Altimeter very useful for accurately measuring changes in altitude.

MEASURING DEVICES & BAROMETERS/THERMOMETERS

DPI 705 HANDHELD DIGITAL BAROMETER



- Employs the latest in pressure sensor technology
- Wide range: 0 to 1551 mmHg
- $\pm 0.1\%$ of F.S. accuracy
- 16 pressure units
- Impact resistant, sealed to Type 12/IP54
- Rugged, lightweight handheld design
- Leak test, tare, max/min and filter
- Ambient temperature measurement in °F or °C

The DPI 705 is a portable digital barometer possessing a combination of handheld calculator size, digital display, high accuracy and wide choice of units, making it ideal as a portable absolute pressure reference. It combines tough and rugged design with accurate and reliable pressure measurement. New materials and technical innovations from over fifteen years experience with portable pressure testers has resulted in this advanced new product. The DPI 705 pressure indicator uses a micro-machined silicon transducer to produce a pressure reading in units of pressure measurement.

Compact, robust and lightweight with a rugged, ABS molded case, the DPI 705 is designed for single handed operation and provides many essential features required for routine maintenance and system troubleshooting. The unit has an integral folding stand.

The DPI 705 features a variety of pressure scales to enable the operator to display the atmospheric pressure in a variety of units, including inHg, mmHg, mb, as the most widely used units in radiation therapy. It also displays ambient temperature in °C and °F with one degree resolution.

The DPI 705 operates on three AA alkaline batteries for 300 hours. The Auto-Off automatic timeout prolongs battery life, but the feature can be disabled by holding the LEAK button while pressing the ON-OFF button. The UNITS button sequentially selects up to 16 units of measurement. The LEAK button sequentially selects maximum reading, minimum reading and initiates a 60-second countdown for leak test. The TARE button sets a zero reading for use as reference.

Calibration Standards: Instruments are calibrated against precision pressure calibration equipment, which is traceable to the international standards.

Specifications

Selectable Units: inHg, mmHg, mHg, mbar, bar, Pa, hPa, KPa, MPa, psi, inH₂O (4°C, 20°C and 60°F), ftH₂O (4°C, 20°C and 60°F), mH₂O, Kg/cm² and an optional user defined scale

Operating Range: 0 to 1551 mmHg

Ambient Temperature: °F and °C reading of local condition $\pm 3^\circ\text{F}$ ($\pm 1.5^\circ\text{C}$)

Accuracy: $\pm 0.1\%$ (± 1.55 mmHg) FS non-linearity, hysteresis and repeatability

Display: 5-digit Clear high resolution LCD, 12.7 mm high, with additional unit legends

Over Range: Safe to 2 x FS. Display flashes at 110% FS

Resolution: 0 to 1551 mmHg, 0.1 mmHg

0 to 2068 mb, 0.1 mb

0 to 61 inHg, 0.001 inHg

Temperature Range: Operating: 15°F to 122°F (-10°C to 50°C)

Storage: -5°F to 140°F (-20°C to 60°C)

Power: Three 1.5 V alkaline AA batteries

Battery Life: 300 hours of use, selectable Auto-Off powers down after

10 minutes of inactivity

Battery Low Indicator: Display symbol

Readout: Max/Min-captures both maximum and minimum readings

Altitude Range: Infinite

Pressure Connection: 6 mm O.D. and 4 mm I.D. hose, G1/8 or 1/8" NPT female thread

Reading Sensor: Micro-machined silicon transducer

Includes: User guide and calibration certificate

Safety Conformance: EN61010, EN50081-1, EN50082-2, CE marked

Dimensions: 7.5" x 3.5" x 1.4" (19 x 8.9 x 3.5 cm)

Weight: 1.1 lb (0.5 kg)

Item #	Description
469-100	DPI 705 Handheld Digital Barometer
469-103	DPI 705 Carrying Case

F

MEASURING DEVICES & BAROMETERS/THERMOMETERS

INNOVACELLI® PRECISION BAROMETER

F



- **Mercury-Free - Completely Non-Toxic**
- **Reads Absolute Pressure at any Altitude**
- **NIST/ BALAC Traceable Calibration**
- **Expanded Scale for Easy, Accurate Readings**
- **Simple to Use - No Offsets or Calculations**
- **Developed for Hospital/Lab Use**
- **Sturdy Acrylic Protective Frame**
- **Adjustable Mounting Plate for Plum/Leveling**
- **No Batteries or Mechanical Gears, Just Physics**
- **Hospital Tested in Major US and Canadian Cancer Centers**

The new Innovacelli Precision Barometer (pronounced inno-vachelly) is the latest development in true pressure, pure physics barometers. Developed especially for hospitals and laboratories, these barometers contain no hazardous mercury and are just as accurate as a fine mercury barometer. They may be even more accurate as they require no offsets or calculations that can lead to errors. Also, the Innovacelli scale is 4 times larger than a mercury barometer, allowing for a more precise reading of the actual air pressure. Eight vacuum chambers sense the smallest pressure changes and translate those changes to a liquid readout scale. The dual scale has a 70mm/950 hPa range centered on your altitude. For example, sea level locations have a scale reading from 720 - 790 mm and 960 - 1055 hPa. The entire barometer is surrounded by a protective clear acrylic frame.

Specifications

- Accuracy:** ±1 mm
- Height:** 31" (79 cm)
- Diameter:** 4.25" (10.8 cm)
- Distance from wall in mounting bracket:** 6.5" (16.5 cm)
- Scale Range:** 70mm/95hPa
- Weight:** 9 lb (4.1 kg)

Item	Description
469-300	Innovacelli Precision Barometer