Mitutoyo

Mitutoyo Quality

High-Performance Height Gage
QM-Height Series

Small Tool Instruments and Data Management

• Design registered in Japan, EU and China

Catalog No. E12027(3)

Mitutoyo

High-Performance Height Gage
QM-Height Series

NEW Products

- **Best-in-class accuracy ±(2.4+2.1L/600) µm**
- **Built-in air-suspension feature using an internal pump enables smooth movement over a surface plate.** (Lower-cost version without air suspension also available)
- **Easy-to-view, simple control panel enables most measurements to be made with a single keystroke.**
- **Eco-friendly product, operable for approximately 1200 hours with four AA alkaline batteries.** (Four commercially available nickel hydride batteries can also be used.)
- **By installing the U-WAVE-T measurement data wireless communication system or USB communication driver in your PC, the optional functions that enhance operability, including output of measurement data to your PC, become available.**
  The USB communication driver can be downloaded from the Mitutoyo website. (Communication software is separately required.)
  https://www.mitutoyo.co.jp/eng/contact/products/usb/index.html

GO/±NG judgment by LED and display symbols

- LEDs indicate tolerance judgment status – green for GO, red for +NG, and orange for -NG. Status is also indicated by corresponding symbols appearing on the display.

Simple button layout and easy-to-understand pictorial keys

- The pictographs are for frequently-used keys.
- Cross-keys based on human engineering concepts are used to achieve better operability.

Inside/outside diameters, maximum/minimum heights and displacement can be measured using a standard probe

- Besides height measurement, Mitutoyo's proprietary mechanism and firmware enables scanning measurement of inside/outside diameters, maximum/minimum heights, and height differences.


ID measurement


OD measurement

d2

"d2" is a generic term given to Digimatic output that supports up to eight input/output digits.

QM-Height measures height, height difference (step), inside/outside widths, inside/outside diameters, circle pitch and also free-form surface maximum/minimum heights and height difference by scanning measurement*.
QM-Height also remembers the immediately preceding measurement and displays the difference between results.

*Scanning measurement stroke is approx. 1 mm above and below from the start point of measurement.

No need to set the origin after turning on the power

- The electromagnetic induction type ABSOLUTE encoder maintains the origin. Therefore origin setting when turning on the power is not required.
  (Except when there is a considerable environmental change.)

External output

- Digimatic and USB ports are provided as standard. Using the **U-WAVE-T** measurement data wireless communication system enables instant transmission of measurement data to a PC via wireless communication, which reduces manual input errors and improves data reliability and operational efficiency.

To install **U-WAVE-T**, separately purchase the optional mounting plate (**02AZE990**).

Power supply

- Four alkaline AA/LR6 batteries (standard accessories)
- Also operates on four NiMH AA rechargeable batteries
- AC adapter (optional accessory)

Probe elevation wheel

- Used for measurement, allowing fine or coarse adjustment of probe height.

Air-suspension feature

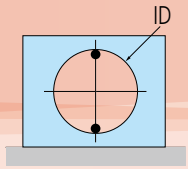
- Pressing a button on the grip activates the internal air pump. The base rises on a cushion of air and is able to be moved smoothly over the surface plate.

Note: Measurements should not be made while this function is in use as it will cause measurement error.

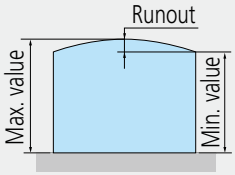
Measurement examples

Height measurement

ID measurement

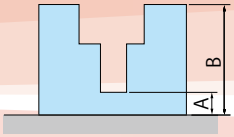


Runout measurement



After scanning the surface, the runout will be shown in the display as (Max. value - Min. value)

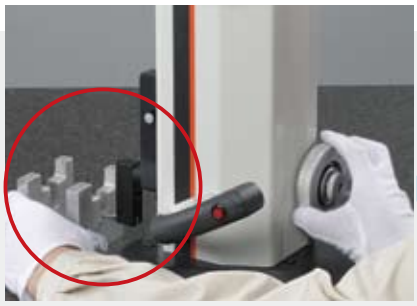
Height difference measurement (1)



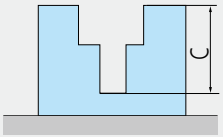
Height A and height B from the surface plate will be displayed.

Height A

Height B



Height difference measurement (2)

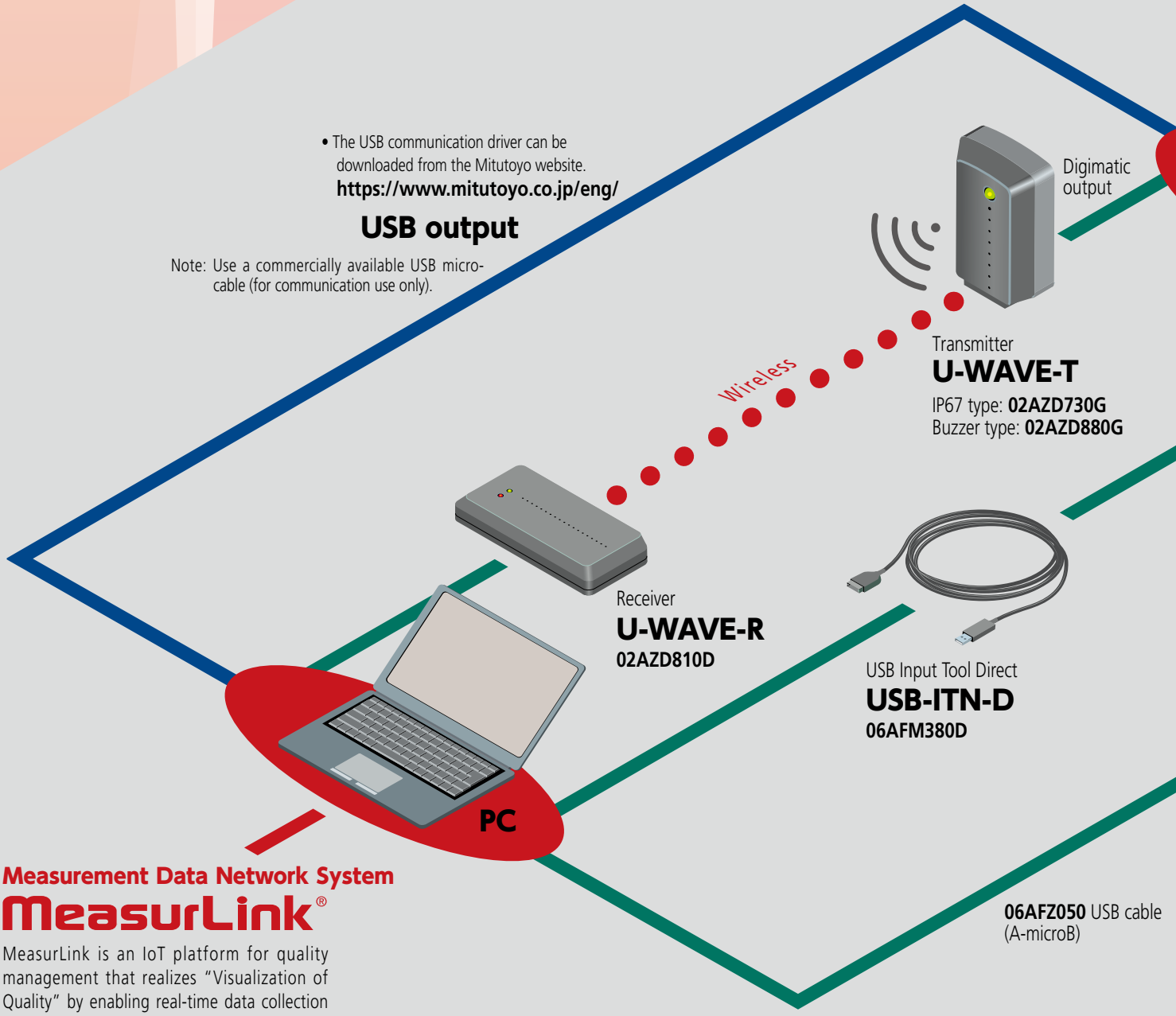


After measuring heights A and B, the height difference C between them can be shown in the lower row of the display.

Centralized Data Management

Misinput due to manual input can be eliminated, and therefore operational efficiency is dramatically improved.

600 mm stroke type
Without air-suspension: **518-242, 518-243**
With air-suspension: **518-246, 518-247**



- The USB communication driver can be downloaded from the Mitutoyo website.
  https://www.mitutoyo.co.jp/eng/

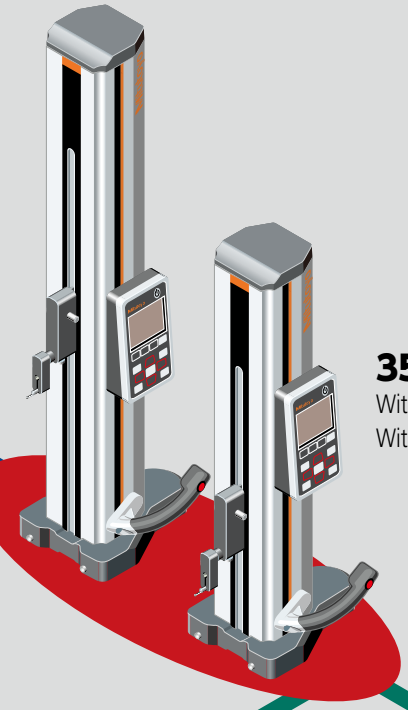
USB output

Note: Use a commercially available USB micro-cable (for communication use only).

Measurement Data Network System
MeasurLink®

MeasurLink is an IoT platform for quality management that realizes "Visualization of Quality" by enabling real-time data collection from the networked Digimatic gages and global control and analysis.

MeasurLink® is a registered trademark of Mitutoyo Corporation in Japan and Mitutoyo America Corporation in the United States.



350 mm stroke type

Without air-suspension: **518-240, 518-241**
With air-suspension: **518-244, 518-245**

Wired communication

Digimatic output

Wired communication

Digimatic output

936937 Digimatic connecting cable (1 m)
965014 Digimatic connecting cable (2 m)

Digimatic Mini-Processor

DP-1VA LOGGER

264-505

Equipped with the data logger function able to store up to 1000 records of measurement data.

Optional parts that enable centralized data management

Order No.	Item name
Small printer equipped with Data Logger	
264-505	**DP-1VA LOGGER**
936937	Digimatic connecting cable (1 m)
965014	Digimatic connecting cable (2 m)
06AFZ050	USB cable (A-microB)
Measurement Data Input Unit	
06AFM380D	USB Input Tool Direct **USB-ITN-D**
Measurement data wireless communication system	
02AZD730G	**U-WAVE-T** (Transmission unit) (IP67 type)
02AZD880G	**U-WAVE-T** (Transmission unit) (Buzzer type)
02AZD790D	**U-WAVE-T** dedicated cable (Standard use)
02AZE140D	**U-WAVE-T** dedicated cable (For foot switch)
02AZD810D	**U-WAVE-R** receiver
02AZE990	**U-WAVE** mounting plate
Measurement data collection software for Excel **USB-IT PAK V2.1**	
Measurement data network system **MeasurLink**	

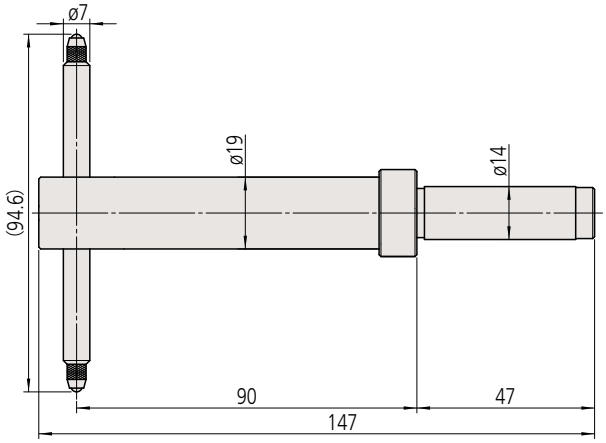
Contact points for a wide range of measurements (Refer to page 8.)

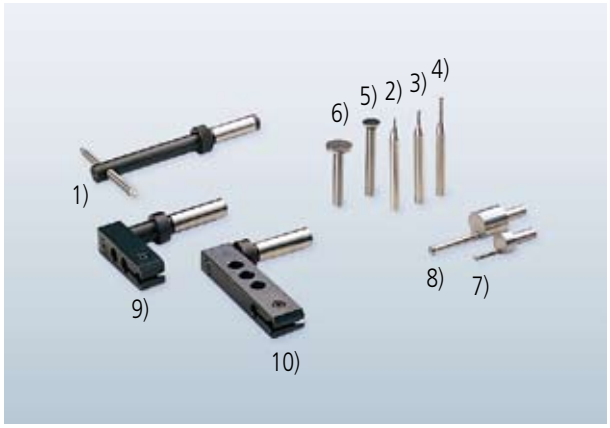
No.	Order No.	Item description
	Depth probe	
(1)	**12AAC072**	Depth probe
	Interchangeable contact points for ø5 stepped probe	
(2)	**957261**	ø2 mm ball (coaxial type)
(3)	**957262**	ø3 mm ball (coaxial type)
(4)	**957263**	ø4 mm ball (coaxial type)
(5)	**957264**	ø14 mm disk
(6)	**957265**	ø20 mm disk
(7)	**12AAA788**	ø4 mm ball (eccentric type)
(8)	**12AAA789**	ø6 mm ball (eccentric type)
	Special holder	
(9)	**12AAA792**	Holder for dial indicator
(10)	**12AAA793**	Holder (Long)
	AC Adapter	
	06AFZ950JA	AD620JA for Japan/U.S.
	06AFZ950D	AD620D for the EU
	06AFZ950E	AD620E for the UK
	06AFZ950K	AD620K for Korea
	06AEG180DC	AD620DC for China
	Others	
	05HZA143	9x9 mm adapter (clamp underneath is required)
	05GZA033	Clamp (for 9x9 mm adapter)
	05HZA144	6.35x12.7 mm adapter (clamp underneath is required)
	901385	Clamp (for 6.35x12.7 mm adapter)
	05HZA173	Scriber*

Note: A gauge block may be required for the zero-setting depending on the probe or contact point to be used.
* Used for measurements, cannot be used for scribing.

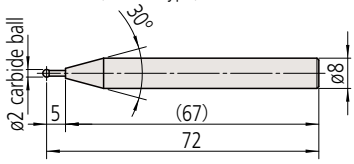
Contact points for a wide range of measurements

1) **12AAC072**
Depth probe

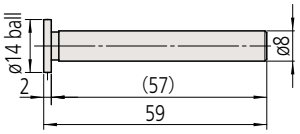




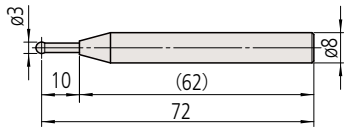
2) **957261**
ø2 mm ball (coaxial type)



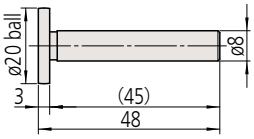
5) **957264**
ø14 mm disk



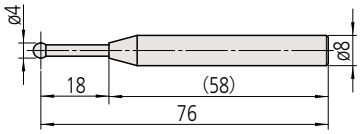
3) **957262**
ø3 mm ball (coaxial type)

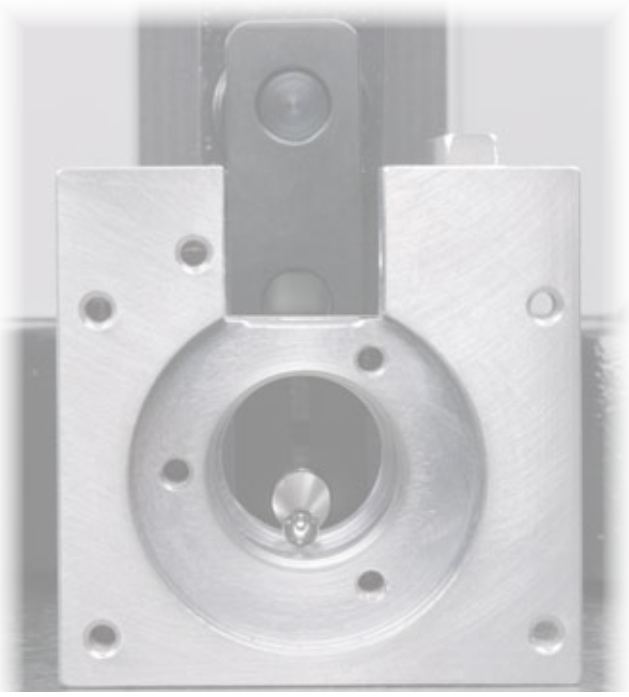


6) **957265**
ø20 mm disk

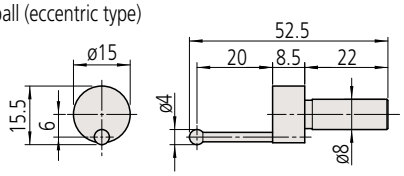


4) **957263**
ø4 mm ball (coaxial type)

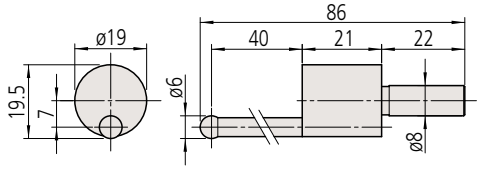




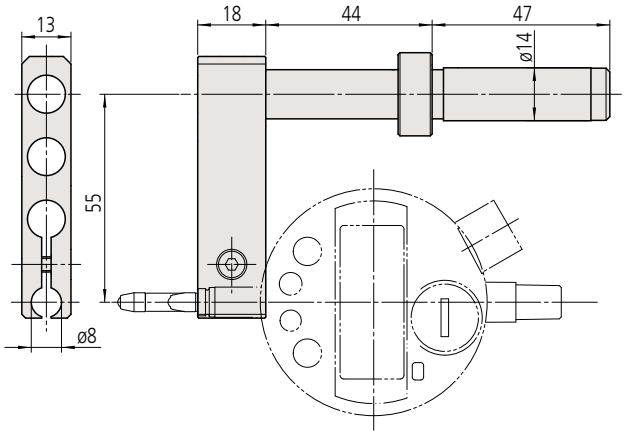
7) **12AAA788**
ø4 mm ball (eccentric type)



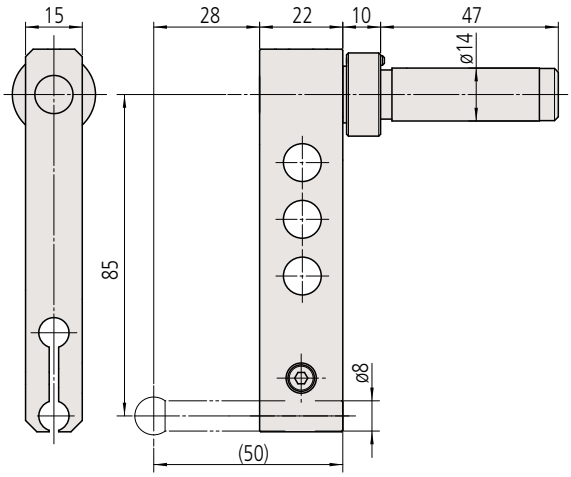
8) **12AAA789**
ø6 mm ball (eccentric type)



9) **12AAA792**
Holder for dial indicator



10) **12AAA793**
Holder (Long)



Specifications

Order No.		518-240	518-242	518-244	518-246
	Metric / Inch/Metric	518-241	518-243	518-245	518-247
Measuring range (Stroke)		0-465 mm (350 mm / 14 in)	0-715 mm (600 mm / 24 in)	0-465 mm (350 mm / 14 in)	0-715 mm (600 mm / 24 in)
Resolution	Metric	0.001/0.005 mm			
	Inch/Metric	0.001/0.005 mm 0.00005/0.0001/0.0002 in			
Accuracy at 20 ˚C	Measurement*1	± (2.4 + 2.1L/600) µm			
	Repeatability*1	2σ ≤ 1.8 µm			
Perpendicularity*2 (20 ˚C)		7 µm	12 µm	7 µm	12 µm
Guiding method		Roller bearing			
Drive method		Manual (wheel)			
Measurement principle		Electromagnetic induction absolute encoder			
Measuring force		1.5±0.5 N			
Data output ports		Digimatic / Digimatic 2 / USB*3			
Air-suspension feature		Not included		Included (for positioning only)*4	
Power supply		Alkaline AA /LR6 batteries x 4 (standard accessories) / AC adapter (optional accessory)*5 / Supports NiMH (HR6) rechargeable batteries x 4			
Battery life guidelines*6		Approx. 1200 hours (without using the air-suspension feature)			
		Approx. 90 hours (when using the air-suspension feature)			
Mass		25 kg	29 kg	26 kg	30 kg
Size (mm)		Stroke 350 mm type: 280(W) x 273(D) x 784(H) mm Stroke 600 mm type: 280(W) x 273(D) x 1016(H) mm			
Operating temperature range (recommended)		0 to 40 ˚C (10 to 30 ˚C)			
Operating humidity range		20 to 80 % RH (non-condensing)			
Storage temperature range		-10 ˚C to 50 ˚C			
Storage humidity range		5 to 90 % RH (non-condensing)			

518-246

518-244

*1 The indication accuracy and repeatability represent the values obtained from the height measurement of a flat surface using the standard holder with ø5 ball contact point. In the case of diameter, minimum (maximum) value, circle pitch or difference measurement, measuring errors may be larger than the accuracy ratings listed in the table due to variations in measuring force during a scanning measurement, which differs from height measurement.

*2 Indicates the value obtained from the measurement of a straight surface placed perpendicular to the the base reference surface using the Lever Head (MLH-521) and Mu-checker (M-551).

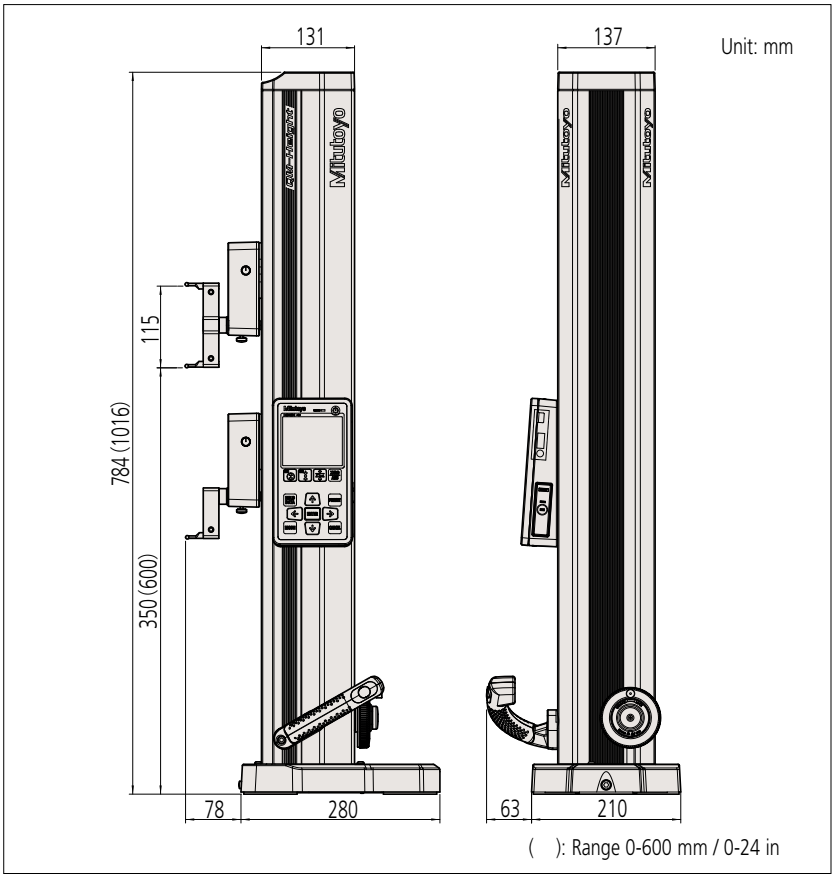
*3 Requires special communication driver and software. Consult your local Mitutoyo Sales Office for details. These can be downloaded from the Mitutoyo web site. https://www.mitutoyo.co.jp/eng/contact/products/usb/index.html

*4 When using a model with the air-suspension feature, it is advisable to use a JIS 1 class, or higher, surface plate. Using on surfaces with scratches or unevenness may prevent the system operating to the specified performance.

*5 The AC adapter cannot be used to recharge rechargeable batteries.

*6 Battery life depends on the operating conditions. In particular, it is more economical to use the optional AC adapter to power the instrument if the application requires prolonged use of the air-suspension feature.

Dimensions



Standard accessories

Order No.	Item
12AAA715	Probe diameter calibration block
05HZA148	ø5 mm stepped probe
—	Alkaline batteries x 4 (AA/LR6)

078 1906(1)A-(CH)HS, Printed in Japan

Coordinate Measuring Machines

Vision Measuring Systems

Form Measurement

Optical Measuring

Sensor Systems

Test Equipment and Seismometers

Digital Scale and DRO Systems

Small Tool Instruments and Data Management

Whatever your challenges are, Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

Find additional product literature and our product catalogue

http://www.mitutoyo.co.jp/global.html

Our products are classified as regulated items under Japanese Foreign Exchange and Foreign Trade Law. Please consult us in advance if you wish to export our products to any other country.
If the purchased product is exported, even though it is not a regulated item (Catch-All controls item), the customer service available for that product may be affected. If you have any questions, please consult your local Mitutoyo sales office.

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