

# Coolant-proof Micrometer

**SERIES 293 — with Dust/Water Protection Conforming to IP65 Level**



## FEATURES

- IP65 protection level, enabling use in environments exposed to cutting oil, etc\*.  
\*Anti-corrosion treatment is required after use.
- Measurement data output function is available with a water-resistant connection cable.
- Auto power ON/OFF function.
- A nonslip surface is employed for the frame cover and surface panel to achieve stable handheld measurement.
- Certificate of inspection\* is included. (2" /50mm or less range models)\*\*  
\*It is not the type used to obtain calibration certificates.  
\*\* except 293-349-30
- With a standard bar except for 0-1"/0-25mm model.
- Supplied in fitted case. Plastic case up to 6"/150mm, wooden box over 6"/150mm.



293-330-30



293-252-30



Oil-resistant materials are used in all plastic components.



Measurement data output function is available with a water-resistant connection cable.



Employed nonslip surface



Mitutoyo		CERTIFICATE OF INSPECTION / 検査成績書	
1. Item / 品名	Digital Micrometer	Inspected Value / 検査値	0.20mm
Model Name / 型番	293-330	Manufacturer / 製造元	Mitutoyo
Lot No. / ロット番号	293-330	Date / 日付	2018/08/20
2. Name of Inspector / 検査者名	Y. S. Lee	Standard Temperature / 標準温度	20 °C
3. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
4. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
5. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
6. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
7. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
8. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
9. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
10. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
11. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
12. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
13. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
14. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
15. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
16. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
17. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
18. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
19. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee
20. Name of Inspector / 検査者名	Y. S. Lee	Inspected by / 検査者	Y. S. Lee

Certificate of inspection

## Technical Data

- Accuracy: Refer to the list of specifications.
- Resolution: .00005"/0.001mm or 0.001mm (up to 4" models)  
.0001" / 0.001mm (over 4" models)
- Flatness: .000012"/0.3µm
- Parallelism: .00004"/1µm for models up to 2"/50mm  
.00008"/2µm for models up to 4"/100mm  
.00012"/3µm for models up to 7"/175mm  
.00016"/4µm for models up to 11"/275mm  
.0002"/5µm for models over 12"/300mm
- Measuring faces: Carbide tipped
- Display: LCD
- Battery: SR44 (1 pc.), **938882**
- Battery life: Approx. 2.4 years under normal use
- Dust/Water protection level: IP65

## Function

- Origin-set, Zero / ABS, Hold, Auto power on/off,
- Data output (output models),
- inch/mm conversion (on inch/metric models only)
- Alarm: Low voltage, Counting value composition error

## Optional Accessories

- 05CZA662:** SPC cable with data switch (40"/1m)
- 05CZA663:** SPC cable with data switch (80"/2m)



SPC cable with data switch

## SPECIFICATIONS

**Metric** With ratchet stop

Range	Resolution	Order No.	Accuracy
0 - 25mm	0.001mm	<b>293-230-30 / 293-240-30*</b>	±1µm
25 - 50mm	0.001mm	<b>293-231-30 / 293-241-30*</b>	±1µm
50 - 75mm	0.001mm	<b>293-232-30 / 293-242-30*</b>	±1µm
75 - 100mm	0.001mm	<b>293-233-30 / 293-243-30*</b>	±2µm
100 - 125mm	0.001mm	<b>293-250-30</b>	±2µm
125 - 150mm	0.001mm	<b>293-251-30</b>	±2µm
150 - 175mm	0.001mm	<b>293-252-30</b>	±3µm
175 - 200mm	0.001mm	<b>293-253-30</b>	±3µm
200 - 225mm	0.001mm	<b>293-254-30</b>	±3µm
225 - 250mm	0.001mm	<b>293-255-30</b>	±4µm
250 - 275mm	0.001mm	<b>293-256-30</b>	±4µm
275 - 300mm	0.001mm	<b>293-257-30</b>	±4µm

\*without SPC data output

**Metric** With ratchet thimble

Range	Resolution	Order No.	Accuracy
0 - 25mm	0.001mm	<b>293-234-30 / 293-244-30*</b>	±1µm
25 - 50mm	0.001mm	<b>293-235-30 / 293-245-30*</b>	±1µm
50 - 75mm	0.001mm	<b>293-236-30 / 293-246-30*</b>	±1µm
75 - 100mm	0.001mm	<b>293-237-30 / 293-247-30*</b>	±2µm

\*without SPC data output

**Metric** Micrometer Set

Range	Order No.	Included in set
0-50mm (2pcs. Set)	<b>293-966-30</b>	293-230-30, 293-231-30, 25mm CERA block, plastic case
0-75mm (3pcs. Set)	<b>293-962-30</b>	293-230-30, 293-231-30, 293-232-30, 2 standard bars, plastic case
0-100mm (4pcs. Set)	<b>293-963-30</b>	293-230-30, 293-231-30, 293-232-30, 293-233-30, 3 standard bars, wooden box

**Inch/Metric** With ratchet stop

Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005" / 0.001mm	<b>293-330-30 / 293-340-30*</b>	±.00005"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	<b>293-331-30 / 293-341-30*</b>	±.00005"
2" - 3" / 50.8 - 76.2mm	.00005" / 0.001mm	<b>293-332-30 / 293-342-30*</b>	±.00005"
3" - 4" / 76.2 - 101.6mm	.00005" / 0.001mm	<b>293-333-30 / 293-343-30*</b>	±.0001"
4" - 5" / 101.6 - 127.0mm	.0001" / 0.001mm	<b>293-350-30</b>	±.0001"
5" - 6" / 127.0 - 152.4mm	.0001" / 0.001mm	<b>293-351-30</b>	±.0001"
6" - 7" / 152.4 - 177.8mm	.0001" / 0.001mm	<b>293-352-30</b>	±.00015"
7" - 8" / 177.8 - 203.2mm	.0001" / 0.001mm	<b>293-353-30</b>	±.00015"
8" - 9" / 203.2 - 228.6mm	.0001" / 0.001mm	<b>293-354-30</b>	±.00015"
9" - 10" / 228.6 - 254.0mm	.0001" / 0.001mm	<b>293-355-30</b>	±.0002"
10" - 11" / 254.0 - 279.4mm	.0001" / 0.001mm	<b>293-356-30</b>	±.0002"
11" - 12" / 279.4 - 304.8mm	.0001" / 0.001mm	<b>293-357-30</b>	±.0002"

\*without SPC data output

**Inch/Metric** With ratchet thimble

Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005" / 0.001mm	<b>293-334-30 / 293-344-30*</b>	±.00005"
0 - 1" / 0 - 25.4mm	.0001" / 0.001mm	<b>293-349-30*</b>	±.0001"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	<b>293-345-30*</b>	±.00005"
2" - 3" / 50.8 - 76.2mm	.00005" / 0.001mm	<b>293-346-30*</b>	±.00005"
3" - 4" / 76.2 - 101.6mm	.00005" / 0.001mm	<b>293-347-30*</b>	±.0001"

\*without SPC data output

**Inch/Metric** With friction thimble

Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005" / 0.001mm	<b>293-335-30 / 293-348-30*</b>	±.00005"
1" - 2" / 25.4 - 50.8mm	.00005" / 0.001mm	<b>293-336-30</b>	±.00005"

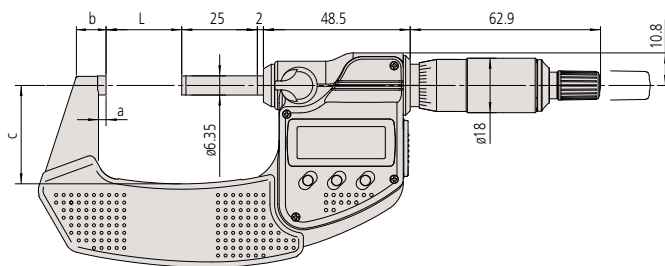
\*without SPC data output

**Inch/Metric** Micrometer Set .00005" / 0.001mm graduation model

Range	Order No.	Included in set
0 - 3" / 0 - 76.2mm (3 pcs. set)	<b>293-960-30</b>	293-330-30, 293-331-30, 293-332-30, 2 standard bars, plastic case
0 - 4" / 0 - 101.6mm (4 pcs. set)	<b>293-961-30</b>	293-330-30, 293-331-30, 293-332-30, 293-333-30, 3 standard bars, wooden box

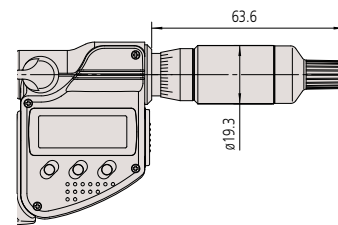
## DIMENSIONS AND MASS

Ratchet-stop type (up to 100mm/4")

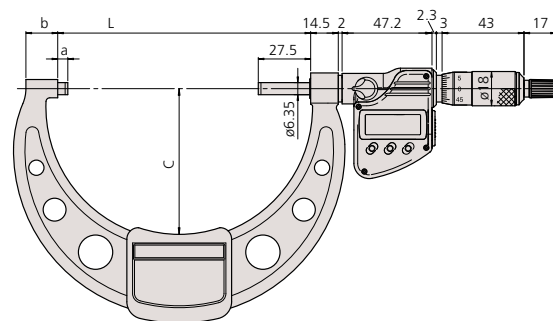


Ratchet-thimble type and friction-thimble type

Unit: mm



Ratchet stop type (over 100mm/4" to 300mm/12")



Range (Metric / Inch)	L	a	b	c	Mass (g)
0 - 25mm / 0-1"	0	2.5	9	(25)	270
25 - 50mm / 1-2"	25	2.5	9.8	(32.5)	330
50 - 75mm / 2-3"	50	2.5	12.6	(47)	470
75 - 100mm / 3-4"	75	2.5	14	(60)	625
100 - 125mm / 4-5"	132.8	5.3	16.7	(76.5)	600
125 - 150mm / 5-6"	158.2	5.7	18.8	(91)	740
150 - 175mm / 6-7"	183.6	6.1	19.1	(103.1)	800
175 - 200mm / 7-8"	208.8	6.3	18.2	(115.3)	970
200 - 225mm / 8-9"	234.2	6.7	16.8	(126.8)	1100
225 - 250mm / 9-10"	258	5.5	18	(139.8)	1270
250 - 275mm / 10-11"	284	18	28	(152.3)	1340
275 - 300mm / 11-12"	309	18	28	(166)	1540

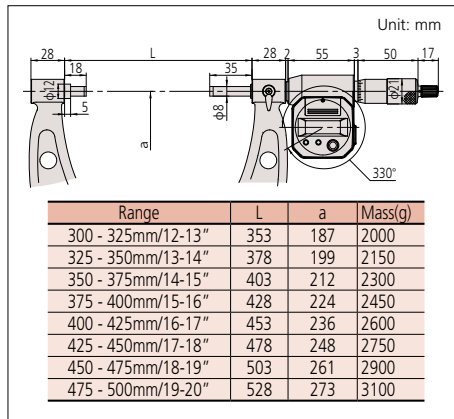
# Digimatic Micrometer

**SERIES 293**



293-582

## DIMENSIONS



## SPECIFICATIONS

Metric  With ratchet stop			
Range	Resolution	Order No.	Accuracy
300 - 325mm	0.001mm	<b>293-582</b>	±6μm
325 - 350mm	0.001mm	<b>293-583</b>	±6μm
350 - 375mm	0.001mm	<b>293-584</b>	±6μm
375 - 400mm	0.001mm	<b>293-585</b>	±7μm
400 - 425mm	0.001mm	<b>293-586</b>	±7μm
425 - 450mm	0.001mm	<b>293-587</b>	±7μm
450 - 475mm	0.001mm	<b>293-588</b>	±8μm
475 - 500mm	0.001mm	<b>293-589</b>	±8μm

Inch/Metric  With ratchet stop			
Range	Resolution	Order No.	Accuracy
12" - 13" / 304.8 - 330.2mm	.0001" / 0.001mm	<b>293-782</b>	±.0003"
13" - 14" / 330.2 - 355.6mm	.0001" / 0.001mm	<b>293-783</b>	±.0003"
14" - 15" / 355.6 - 381.0mm	.0001" / 0.001mm	<b>293-784</b>	±.0003"
15" - 16" / 381.0 - 406.4mm	.0001" / 0.001mm	<b>293-785</b>	±.00035"
16" - 17" / 406.4 - 431.8mm	.0001" / 0.001mm	<b>293-786</b>	±.00035"
17" - 18" / 431.8 - 457.2mm	.0001" / 0.001mm	<b>293-787</b>	±.00035"
18" - 19" / 457.2 - 482.6mm	.0001" / 0.001mm	<b>293-788</b>	±.0004"
19" - 20" / 482.6 - 508.0mm	.0001" / 0.001mm	<b>293-789</b>	±.0004"

## Technical Data

Accuracy: Refer to the list of specifications.  
 Resolution: .0001"/0.001mm or 0.001mm  
 Flatness: .000024" / 0.6μm  
 Parallelism: .0002"/5μm for models up to 15"/375mm  
 .00024"/6μm for models up to 19"/475mm  
 .00028"/7μm for models over 20"/500mm  
 Measuring faces: Carbide tipped  
 Display: LCD  
 Battery: SR44 (2 pcs.), **938882**  
 Battery life: Approx. 1.8 years under normal use

## Function

Preset, Zero-setting, Power ON/OFF, Data hold, Data output, inch/mm conversion (on inch/metric models only)  
 Alarm: Low voltage, Counting value composition error

## Optional Accessories

**959149:** SPC cable (40"/1m) Straight type  
**959150:** SPC cable (80"/2m) Straight type  
**04AZB512:** SPC cable L-type (40"/1m)  
**04AZB513:** SPC cable L-type (80"/2m)



# Digimatic Micrometer

**SERIES 293 MDC-Lite**

## FEATURES

- Provided only with zero set and in/mm (inch/metric models only) keys.
- A ratchet stop or friction thimble for a constant measuring force.
- Measurement readout with large characters on the LCD.
- No spindle clamp. No data output.
- Supplied in fitted plastic case.



293-831-30



## SPECIFICATIONS

Metric  With ratchet stop			
Range	Resolution	Order No.	Accuracy
0 - 25mm	0.001mm	<b>293-821-30</b>	±2μm

Inch/Metric  With ratchet stop			
Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005" / 0.001mm	<b>293-831-30</b>	±.0001"

Inch/Metric  With friction thimble			
Range	Resolution	Order No.	Accuracy
0 - 1" / 0 - 25.4mm	.00005" / 0.001mm	<b>293-832-30</b>	±.0001"

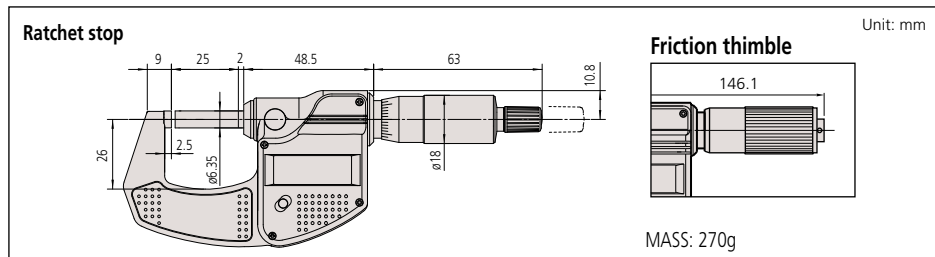
## Technical Data

Accuracy: Refer to the list of specifications  
 Resolution: .00005"/0.001mm or 0.001mm  
 Flatness: .000012" / 0.3μm  
 Parallelism: .00008" / 2μm  
 Measuring faces: Carbide tipped  
 Display: LCD  
 Battery: SR44 (1 pc.), **938882**  
 Battery life: Approx. 2.4 years under normal use

## Function

Origin-set, Automatic power on/off, inch/mm conversion (on inch/metric models only)  
 Alarm: Low voltage, Counting value composition error

## DIMENSIONS AND MASS



# MDH Micrometer

## SERIES 293 — High-Accuracy Sub-Micron Digimatic Micrometer

### Technical Data

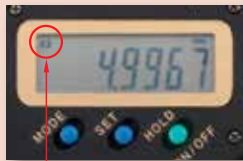
Flatness: 0.3µm/0.00012"  
 Parallelism: 0.6µm/0.00024  
 Measuring force: 7 to 9N

### Functions

Preset (ABS measurement system)  
 Zero-setting (INC measurement system)  
 Hold, Resolution switching, Function lock, On/off, Auto power off, Measurement data output, Error alarm

### Optional Accessories

**05CZA662:** SPC cable with data switch (1m/40")  
**05CZA663:** SPC cable with data switch (2m/80")



Function lock

Heat shield



### FEATURES

- Enabling .000005"/0.1µm resolution measurement, this micrometer is ideal for customers who need to make highly accurate measurements with a handheld tool.
- A highly rigid frame and high-performance constant-force mechanism\* enable more stable measurements, while the clicks emitted while the workpiece is being measured assure the operator that measurement is proceeding normally.

\* Patent pending in Japan, the United States of America, the European Union and China.

- Body heat transferred to the instrument is reduced by a (removable) heat shield, minimizing the error caused by thermal expansion of the frame when performing handheld measurements.
- The ABS (absolute) rotary sensor also eliminates the need to perform origin setting each time the power is turned on, letting you start measuring right away. With no possibility of overspeed errors, the High-Accuracy Digimatic Micrometer also delivers a high level of reliability.



293-130-10



"d2" is the name for Mitutoyo Digimatic output compatible with up to 8 digits of I/O data.

### SPECIFICATIONS

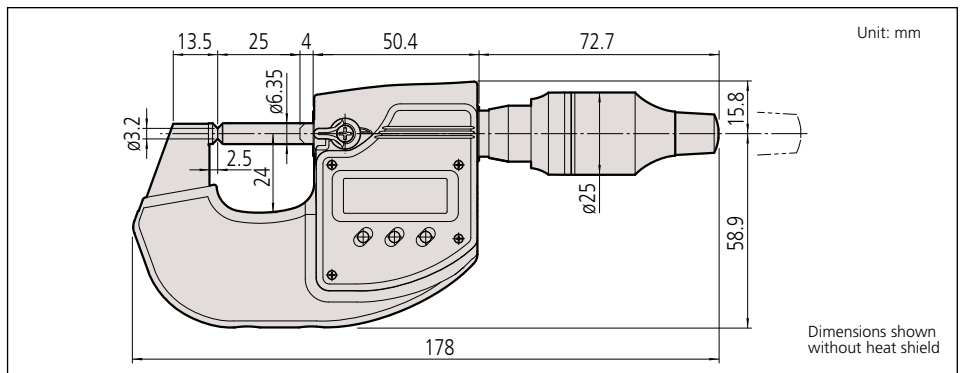
#### Metric

Order No.	Range	Resolution	Accuracy	Measuring surface	Mass
293-100-10	0 - 25mm	0.0001mm/0.0005mm (switchable)	±0.5µm	ø3.2mm	400g (440g w/Heat shield)

#### Inch/Metric

Order No.	Range	Resolution	Accuracy	Measuring surface	Mass
293-130-10	0 - 1" / 0 - 25.4mm	.000005"/.00002" / 0.0001mm/0.0005mm (switchable)	±.00002"	ø3.2mm	400g (440g w/Heat shield)

### DIMENSIONS





# QuantuMike

## SERIES 293 — Coolant-proof Micrometer

### FEATURES

- Faster measurement with 2mm per revolution instead of the standard 0.5mm.
- A patented ratchet thimble mechanism helps ensure repeatability.
- A function lock helps prevent error.
- IP-65 protection level.
- Certificate of inspection provided.
- With a standard bar except for 0-25mm/0-1" model.
- Supplied in fitted plastic case.



293-180-30



293-187-30

### SPECIFICATIONS

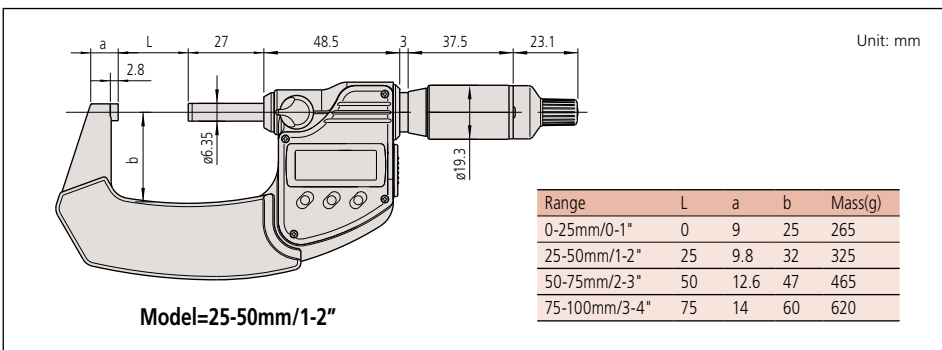
Metric			
Range	Resolution	Order No.	Accuracy
0-25mm	0.001mm	293-140-30	1µm
0-25mm	0.001mm	293-145-30*	1µm
25-50mm	0.001mm	293-141-30	1µm
25-50mm	0.001mm	293-146-30*	1µm
50-75mm	0.001mm	293-142-30	2µm
50-75mm	0.001mm	293-147-30*	2µm
75-100mm	0.001mm	293-143-30	2µm
75-100mm	0.001mm	293-148-30*	2µm

\* without SPC data output

Inch/Metric			
Range	Resolution	Order No.	Accuracy
0-1"/0 - 25.4mm	.00005"/0.001mm	293-180-30	.00005"
0-1"/0 - 25.4mm	.00005"/0.001mm	293-185-30*	.00005"
1-2"/25.4 - 50.8mm	.00005"/0.001mm	293-181-30	.00005"
1-2"/25.4 - 50.8mm	.00005"/0.001mm	293-186-30*	.00005"
2-3"/50.8 - 76.2mm	.00005"/0.001mm	293-182-30	.0001"
2-3"/50.8 - 76.2mm	.00005"/0.001mm	293-187-30*	.0001"
3-4"/76.2 - 101.6mm	.00005"/0.001mm	293-183-30	.0001"
3-4"/76.2 - 101.6mm	.00005"/0.001mm	293-188-30*	.0001"

\* without SPC data output

### DIMENSIONS AND MASS



Certificate of inspection provided for 0-1" and 1-2" models only.

### Technical Data

Accuracy: Refer to the list of specifications  
 Resolution: 0.001mm or .00005"/0.001mm  
 Flatness: 0.3µm/.000012"  
 Parallelism: 1µm/.00004" for models up to 50mm/2"  
 2µm/.00008" for models up to 100mm/4"  
 Measuring force: 7-12N  
 Measuring faces: Carbide tipped  
 Display: LCD  
 Battery: SR44 (1 pc.), 938882  
 Battery life: Approx. 2.4 years under normal use  
 Dust/Water protection level: IP65

### Function

Origin-set, Zero / ABS, Hold, Function lock, Auto power on/off, Data output (output models), inch/mm conversion (on inch/metric models only)  
 Alarm: Low voltage, Counting value composition error

### Optional Accessories

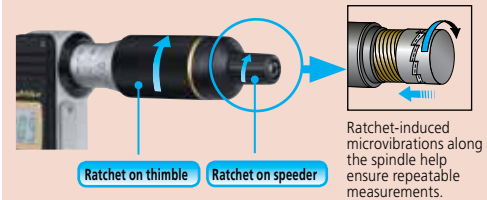
- 05CZA662: SPC cable with data switch (1m/40")
- 05CZA663: SPC cable with data switch (2m/80")



SPC cable with data switch

516-529-26 Inspection Gage Block Set  
 Rectangular Steel Gage Block  
 10 pc. blocks and 1 pc. optical parallel

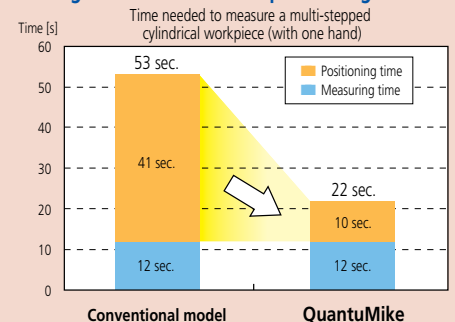
516-319-26 Inspection Gage Block Set  
 Rectangular Cera Gage Block  
 10 pc. blocks and 1 pc. optical parallel



Ratchet on thimble Ratchet on speeder

Ratchet-induced microvibrations along the spindle help ensure repeatable measurements.

### Significant reduction in positioning time



Conventional model QuantuMike