

MEASURING TOOLS

SENSOR SYSTEMS

Linear Gages

LGK - Slim type	K-006
LGB2 - Slim type	K-007
LGF - Economical Design	K-008-009
LGF- (with Origin Point Mark)	K-010
LG - Long Stroke Type	K-011
LGD - ABSOLUTE / Standard Type	K-012
LGS-1012P	K-013
LGH - High accuracy/resolution Type	K-014-015

Display Units

EC Counter	K-016
EG Counter	K-016
EB Counter	K-017
EH Counter	K-018
EV-16P/Z/D Counter	K-019
D-EV Display Units	K-020
SENSORPAK	K-021

LITEMATIC

VL-50-B / 50S-B Litematic	K-022
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Mu-Checker

Lever/Cartridge Probe Heads	K-023-024
Analog/digital amplifier/Display	K-025
EV-16A Counter (6 channel, No display type)	K-026

Laser Scan Micrometers

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LSM-503S	K-028
LSM-506S	K-028
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LSM-6902H	K-030
LSM-9506	K-031
LSM-5200	K-032
LSM-6200	K-032
Option Accessories	K-033-034

Resolution	Gage Heads				Gage Heads				Display unit		
	Measuring range				Measuring range				Point measurement	Calculation measurement (addition and subtraction)	Multi-point measurement
	5mm / .2"	10mm / .4"	25mm / .1"		50mm / 2"	100mm / 4"					
0.00005mm (0.005 μm)	LGH Series Page P-014		542-720 542-721 (Low measuring force) Page P-014, P-015						Dedicated counter (sold in sets with Gage Head) SENSORPAK		
0.00001mm (0.01 μm)	LGH Series Page P-014		542-715 542-716 (Low measuring force) Page P-014, P-015								
0.0001mm (0.1 μm)	LGB2 series (nut clamp) Page P-007 LGK series Page P-006 LGF series Page P-009	542-246 Refer to Page P-007	542-158 542-181 Page P-006, P-009	542-182 Page P-009			542-312 542-316 Page P-011		EG Counter 542-015 Page P-016		
0.0001mm (0.1 μm)	LG series Long Stroke series (Motor-drive type) Page P-011										
0.0005mm (0.5 μm)	LGK series Page P-006 LGF series Page P-008		542-171 542-157 Page P-006, P-008	542-172 Page P-008		542-173 Page P-008			EB Counter 542-092-2 P-017	EH Counter 542-071 Page P-018 SENSORPAK	EV Counter 542-063 Page P-019 SENSORPAK
0.001mm (1 μm)	LGK series Page P-006 LGF series Page P-008		542-156 542-161 Page P-006, P-008	542-162 Page P-008		542-163 Page P-008			EH Counter 542-075 Page P-018 SENSORPAK		
0.001mm (1 μm)	Long Stroke series (Motor-drive type) Refer to page P-011										
0.001mm (1 μm)	LGB2 series (nut clamp) Page P-007	542-244 Refer to Page P-007	542-262 542-262H (High accuracy) 542-264 (Low measuring force) 542-270 (Air drive) Page P-010								
0.005mm (5 μm)	LGF series Page P-008			542-612 Page P-008		542-613 Page P-008					
0.0005mm (0.5 μm)	LGF-Z series Series with reference point mark Page P-010		542-174 Page P-010	542-175 Page P-010		542-176 Page P-010			EG Counter 542-017 Page P-016	EH Counter 542-073 Page P-018 SENSORPAK	EV Counter 542-067 Page P-019 SENSORPAK
0.001mm (1 μm)	LGF-Z series Series with reference point mark Page P-010		542-164 Page P-010	542-165 Page P-010		542-166 Page P-010			EB Counter 542-094-2 Page P-017		

Resolution	Gage Heads Measuring range				Gage Heads Measuring range				Display unit		
	5mm / .2"	10mm / .4"	25mm / .1"		50mm / 2"	100mm / 4"			Point measurement	Calculation measurement (addition and subtraction)	Multi-point measurement
0.01mm (10 µm)	LGD series Page P-012 ABSOLUTE™	575-326  Page P-012	575-327  Page P-012		542-328  Page P-012				EC Counter 542-007  Page P-016		
		LGS-1012P series Page P-013 ABSOLUTE™	575-303  Page P-013						EG Counter 542-016  Page P-016	EH Counter 542-072  Page P-018 SENSORPAK	EV Counter 542-064  Page P-019 SENSORPAK

SENSORPAK : Compatible with Measurement data loading software SENSORPAK. Refer to page P-021 for detail.

Linear Gages
ลิเนียร์เกจ

Display Units
จอแสดงผล

LITEMATIC
LITEMATIC

Mu-Checker
Mu-Checker

Laser Scan
Micrometers
เลเซอร์สแกน

Optional
Accessories
อุปกรณ์เสริม

Linear Gages
ลิเนียร์เกจ

Display Units
จอแสดงผล

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Mu-Checker
Mu-Checker

Laser Scan
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Optional
Accessories
อุปกรณ์เสริม



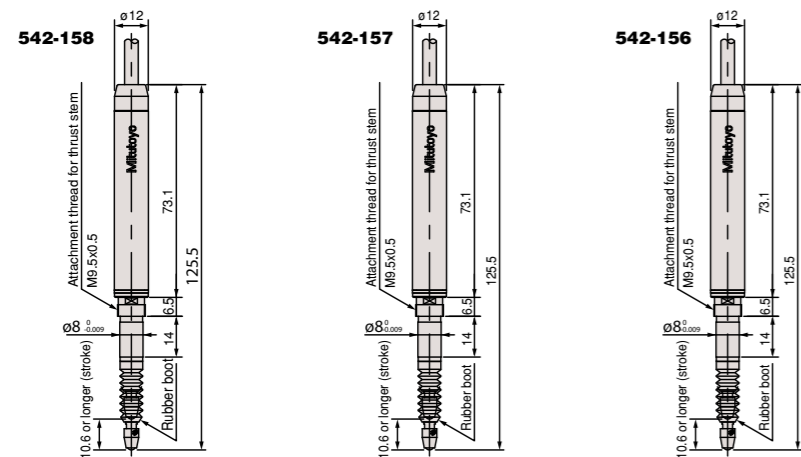
ลิเนียร์เกจ SERIES 542 — Slim type LGK

FEATURE

- Compact model offers the vibration/shock resistance of the proven LGF series. Cross-sectional area is approx 1/5 compared to 542-181.
- Resolution of each model can be selected from 0.1µm, 0.5µm, or 1µm.
- Excellent Sliding durability improved to remain serviceable for at least 15 million Cycles (in-house testing).
- Excellent shock resistance, 100G/11ms (IEC60068-2-27)

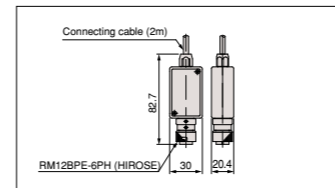


DIAMENSIONS



Order No.	542-158	542-157	542-156
Measuring range	0.1µm	0.5µm	1µm
Resolution	(0.8+L/50) µm (L=mm)	(1.5+L/50) µm (L=mm)	
Measuring accuracy (20 °C)	±1 count		
Quantizing error	0.8N or less		
Measuring force	Contact point downwards	0.75N or less	
	Contact point horizontal	0.7N or less	
	Contact point upwards	0.7N or less	
Position detection method	Photoelectric linear encode		
Response speed*1	400mm/s	1500mm/s	
Output signal	90° phase difference, differential square wave (RS-422A equivalent), minimum edge intervals: 200ns for 0.1µm model, 200ns for 0.5µm model, 400ns for 1µm model		
Output signal pitch	0.4µm	2µm	4µm
Mass	Approx. 175g		
Contact point	ø3mm carbide-tipped (fixing screw: M2.5 (P=0.45)x5), standard contact point: 901312		
Stem dia.	ø8mm		
Bearing type	Linear ball bearing		
Output cable length	2m (directly from casing)		
Connector	Plug: RM12BPE-6PH (HIROSE), Compatible receptacle: RM12BRD-6S (HIROSE)		
Operating temperature (humidity) range	0 to 40°C (RH 20 to 80%, no condensation)		
Storage temperature (humidity) range	-10 to 60°C (RH 20 to 80%, no condensation)		

Connector



Optional Accessories

- Air lifter 10: **02ADE230**
- Required air pressure: 0.2 to 0.4MPa
- Spindle extends when air is supplied.



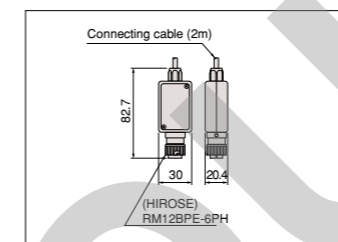
- Rubber boot: **238772** (spare)
- Thrust stem set: **02ADB680**
- Thrust stem: **02ADB681**
- Clamp nut: **02ADB682**
- Special spanner: **02ADB683**
- * A thrust stem set is a combination of thrust stem and a clamp nut. A special spanner is required for tightening. If using multiple gages, a thrust stem set for each gage and one special spanner are required.
- Extension cable (5m): **902434**
- Extension cable (10m): **902433**
- Extension cable (20m): **902432**
- Connectable up to 3 pieces, 20m at maximum.

ลิเนียร์เกจ SERIES 542 — Slim Type LGB2

Optional Accessories

- Rubber boot (spare)
- For 5 mm range models: **238772**
- For 10 mm range models: **238772**
- Extension cable (5 m): **902434**
- Extension cable (10 m): **902433**
- Extension cable (20 m): **902432**
- Connectable up to 3 pieces, 20m at maximum.
- Wrench for tightening nut: **200168**

Optional Accessories



FEATURE

- Slim design, nut clamp type (Stem dia. is ø9.5mm)
- The spindle guide uses high precision linear ball bearings for extremely smooth movement and exceptional durability.



Type	L-Shaped		Straight		Low measuring force	Air-driven contact point*1
Order No.	542-246	542-244	542-262	542-262H	542-264	542-246
Measuring range	5mm (.2")		10mm (.4")			
Resolution	0.1µm		1µm			
Measuring accuracy (20 °C)	0.8µm		2µm		1µm	
Quantizing error	±1 count					
Maximum response speed	380mm/s		900mm/s			
Measuring force	Contact point downwards	0.65N or less		0.8N or less		0.6N or less 0.8N or less
	Contact point horizontal	0.6N or less		0.75N or less		0.55N or less 0.75N or less
	Contact point upwards	0.55N or less		0.7N or less		0.5N or less 0.7N or less
Mass	160g		155g		170g	
Contact point	ø3 mm carbide tipped (fixing screw: M2.5 (P=0.45) 5), standard contact point: 901312					
Stem	ø9.5 mm					
Bearing type	ball bearing					
Output cable length	2 m (directly from casing)					
Connector	Plug: RM12BPE-6PH (HIROSE), Compatible receptacle: RM12BRD-6S (HIROSE)					
erating temperature (humidity) range	0 to 40 °C (RH 20 to 80 %, non-condensing)					
Storage temperature (humidity) range	-10 to 60 °C (RH 20 to 80 %, non-condensing)					
Standard Accessories	Wrench for contact point: 538610					

- *1: Required air pressure: 0.3 to 0.4 MPa
- *2: Spindle extends when air is supplied.

Example of slim head low measuring force (made to order)

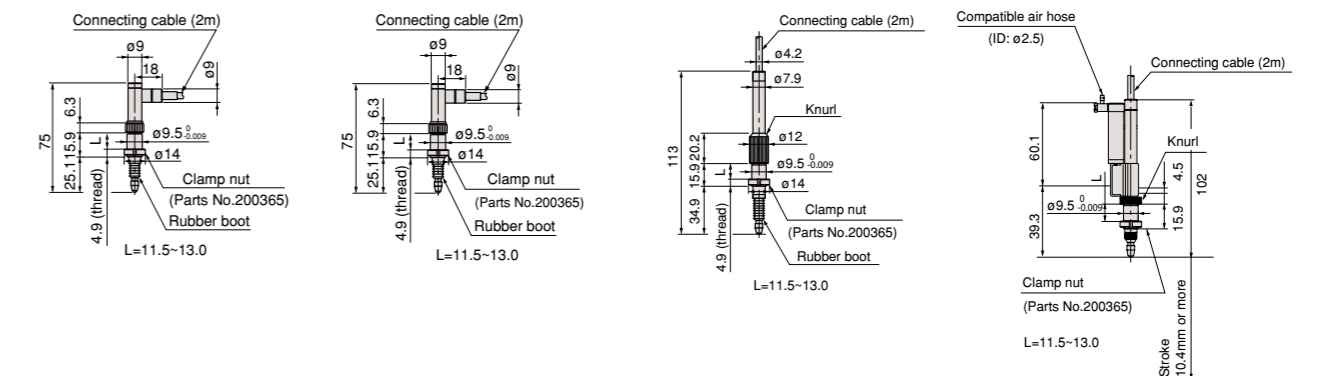
- Low measuring force, suitable for measurement of soft-material workpieces (Consult us for other measuring forces).

Model	L-shaped model	Air-driven contact point model
Measuring range	5µm	10µm
Resolution	1µm	1µm
Measuring force	Contact point downwards	0.5N or less
	Contact point horizontal	0.45N or less
	Contact point upwards	0.4N or less

Depending on the operating method, the spindle forward speed of low measuring force model may become slow compared to the standard model. Please check if this restriction is compatible with the application. Please contact Mitutoyo to verify the application.

*Measuring force at the retraction of the spindle.

DIAMENSIONS



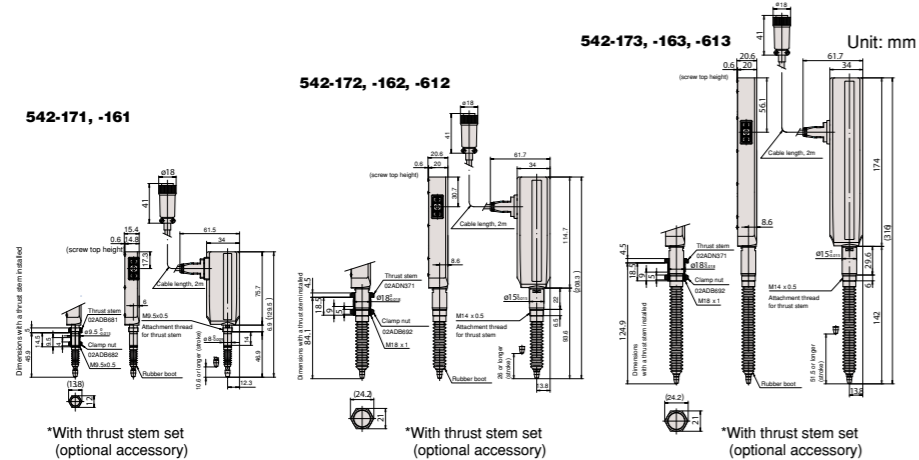
ลิเนียร์เกจ SERIES 542 — Economical Design LGF

FEATURE

- Excellent vibration/shock resistance due to the design of the spindle guide.
- Sliding durability improved to remain serviceable for at least 15 million cycles (inhouse testing).
- Shock resistance, 100 G / 11 ms (IEC 60068-2-27)
- The LGF-Z series, which is equipped with a reference point mark on the linear encoder (refer to page P-010), and includes a 0.1 μm resolution type (refer to page P-009) is also available.

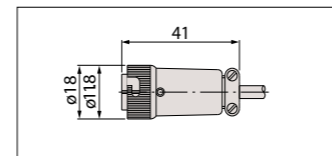


DIAMENSIONS



Order No.	542-171	542-161	542-172	542-162	542-612	542-173	542-163	542-613
Measuring range	10mm (.4")		25mm (1")		50mm (2")			
Resolution	0.5μm	1μm	0.5μm	1μm	5μm	0.5μm	1μm	5μm
Measuring accuracy (20°C) L= arbitrary measuring length (mm)	(1.5+L/50) μm				(7.5+L/50) μm	(1.5+L/50) μm		(7.5+L/50) μm
Quantizing error	±1 count							
Measuring force	Contact point downwards	1.2N or less		4.6N or less		5.7N or less		
	Contact point horizontal	1.1N or less		4.3N or less		5.3N or less		
	Contact point upwards	1.0N or less		4.0N or less		4.9N or less		
Position detection method	Photoelectric linear encoder							
Response speed*1	1500mm/s							
Output	90° phase difference, differential square wave (RS-422A equivalent), minimum edge intervals: 1000ns for 5μm model, 500ns for 1μm model, 250ns for 0.5μm model							
Output square wave pitch	2 μm	4 μm	2 μm	4 μm	20 μm	2 μm	4 μm	20 μm
Mass	Approx. 260g		Approx. 300g		Approx. 400g			
Dust/water resistance	Equivalent to IP66 (only gage head)							
Contact point	ø3mm carbide-tipped (fixing screw: M2.5 (P=0.45)x5), standard contact point: 901312							
Stem dia.	ø8mm		ø15mm					
Bearing type	Linear ball bearing							
Output cable length	2m (directly from casing)							
Connector	Plug: RM12BPE-6PH (HIROSE), Compatible receptacle: RM12BRD-6S (HIROSE)							
Operating temperature (humidity) range	0 to 40°C (RH 20 to 80%, no condensation)							
Storage temperature (humidity) range	-10 to 60°C (RH 20 to 80%, no condensation)							

Connector



Optional Accessories

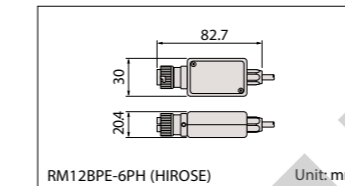
- Air drive unit
For 10 mm range models: **02ADE230**
For 25 mm range models: **02ADE250**
For 50 mm range models: **02ADE270**
Required air pressure: 0.2 to 0.4 MPa
Spindle extends when air is supplied.



- Rubber boot (spare)
For 10mm range models: **238772**
For 25mm range models: **962504**
For 50mm range models: **962505**
- Thrust stem set
For 10mm range models: **02ADB680**
Thrust stem: **02ADB681**
Clamp nut: **02ADB682**
For 25/50mm range models: **02ADN370**
Thrust stem: **02ADN371**
Clamp nut: **02ADB692**
External dimensions are described in the dimensional drawing of the product.
- Special spanner
For 10mm range models: **02ADB683**
For 25/50mm range models: **02ADB693**
- Thrust stem set is a combination of thrust stem and a clamp nut. A special spanner is required for tightening. If using multiple gages, a thrust stem set for each gage and one special spanner are required.
- Extension cable (5m): **902434**
- Extension cable (10m): **902433**
- Extension cable (20m): **902432**
- Connectable up to 3 pieces, 20m at maximum.

ลิเนียร์เกจ SERIES 542 — Economical Design LGF (0.1 μm resolution)

Connector

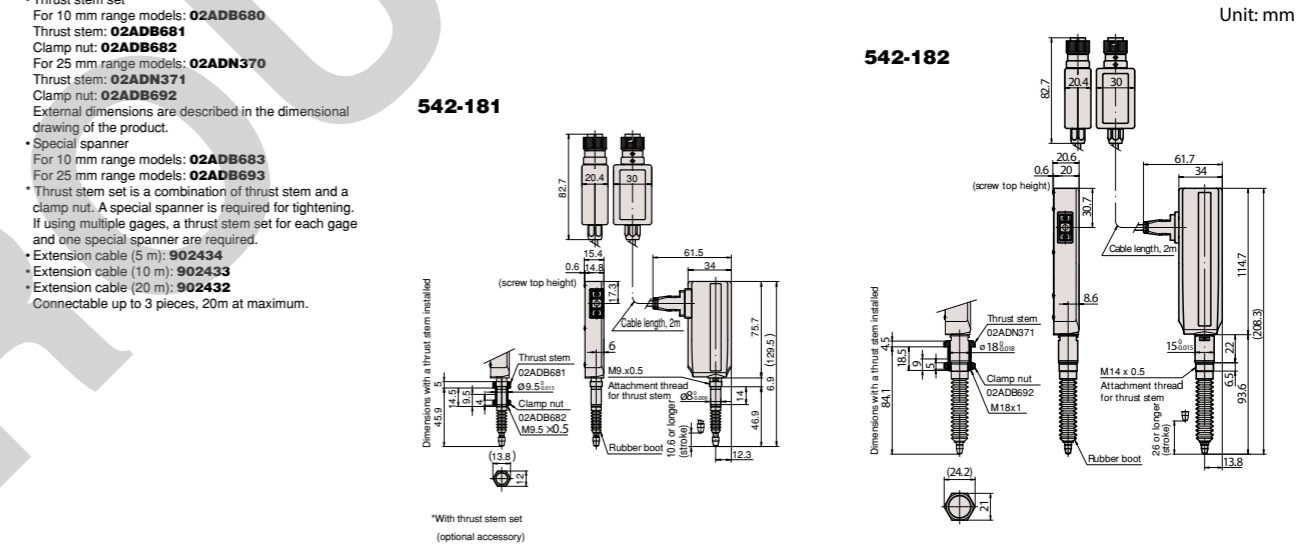


Optional Accessories

- Rubber boot (spare)
For 10 mm range models: **238772**
For 25 mm range models: **962504**
For 50 mm range models: **962505**
- Thrust stem set
For 10 mm range models: **02ADB680**
Thrust stem: **02ADB681**
Clamp nut: **02ADB682**
For 25 mm range models: **02ADN370**
Thrust stem: **02ADN371**
Clamp nut: **02ADB692**
External dimensions are described in the dimensional drawing of the product.
- Special spanner
For 10 mm range models: **02ADB683**
For 25 mm range models: **02ADB693**
- Thrust stem set is a combination of thrust stem and a clamp nut. A special spanner is required for tightening. If using multiple gages, a thrust stem set for each gage and one special spanner are required.
- Extension cable (5 m): **902434**
- Extension cable (10 m): **902433**
- Extension cable (20 m): **902432**
- Connectable up to 3 pieces, 20m at maximum.

FEATURE

- 0.1 μm resolution type from the reliable LGF Linear Gage series.



Order No.	542-181	542-182
Measuring range	10mm (.4")	25mm (1")
Resolution	0.1μm	
Measuring accuracy (20°C) L= arbitrary measuring length (mm)	(0.8+L/50)μm (L=arbitrary measuring length (mm))	
Quantizing error	±1 count	
Measuring force	Contact point downwards	1.2N or less
	Contact point horizontal	1.1N or less
	Contact point upwards	1.0N or less
Position detection method	Photoelectric linear encode	
Response speed*1	400mm/s	
Output signal	90° phase difference, differential squarewave (RS-422A equivalent) Minimum edge-to-edge interval, 200 ns	
Output signal pitch	0.4μm	
Mass	Approx. 310g	Approx. 350g
Contact point	ø3 mm carbide tipped (fixing screw: M2.5 (P=0.45)x5), standard contact point: 901312	
Stem dia.	ø8mm	ø15mm
Bearing type	Linear ball bearing	
Output cable length	2m (directly from casing)	
Connector	Plug: RM12BPE-6PH (HIROSE), Compatible receptacle: RM12BRD-6S (HIROSE)	
Operating temperature (humidity) range	0 to 40°C (RH 20 to 80%, no condensation)	
Storage temperature (humidity) range	-10 to 60°C (RH 20 to 80%, no condensation)	

ลิเนียร์เกจ

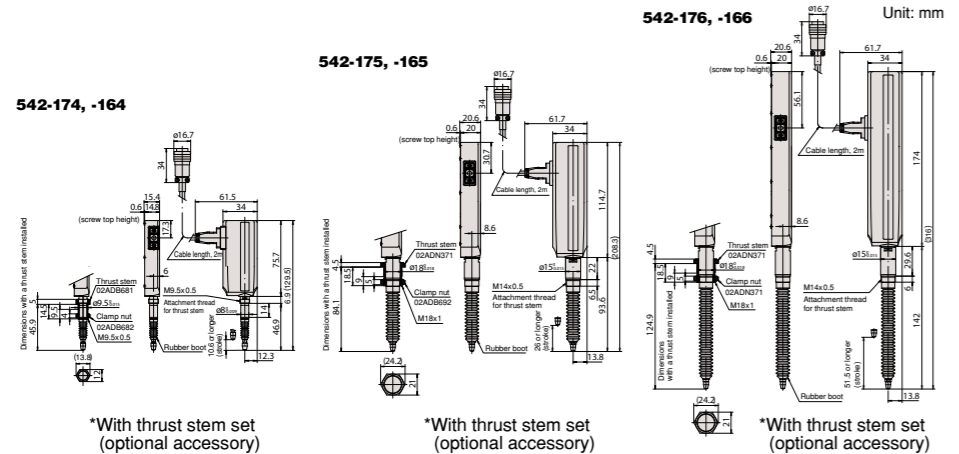
SERIES 542 — Linear Gage Head with Origin Point Mark LGF-Z

FEATURE

- LGF series with reference point signal output function.
- The master setting to use it, incorporated in the unit, is easy to operate. The origin point can be easily detected even when a fault, such as over-speed error, etc. occurs.
- Sliding durability improved to remain serviceable for at least 15 million Cycles (inhouse testing).
- Shock resistance, 100g/11ms (IEC 60068-2-27)
- Resolutions are available in 0.5µm or 1µm.

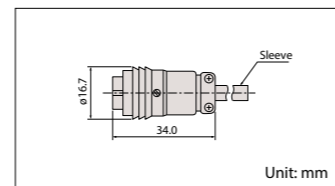


DIAMENSIONS



Order No.	542-174	542-164	542-175	542-165	542-176	542-166
Measuring range	10mm (4")		25mm (1")		50mm (2")	
Resolution	0.5µm	1µm	0.5µm	1µm	0.5µm	1µm
Measuring accuracy (20°C)	(1.5+L/50)µm (L=arbitrary measuring length (mm))					
Quantizing error	±1 count					
Measuring force	Contact point downwards	1.2N or less	4.6N or less	4.6N or less	5.7N or less	5.7N or less
	Contact point horizontal	1.1N or less	4.3N or less	4.3N or less	5.3N or less	5.3N or less
	Contact point upwards	1.0N or less	4.0N or less	4.0N or less	4.9N or less	4.9N or less
Position detection method	Photoelectric linear encoder					
Reference mark position	3mm from contact point tip (lowest rest point)		5mm from contact point tip (lowest rest point)			
Reference mark repeatability (20°C): σ	$\sigma \leq 0.5\mu\text{m}$ (at a constant reference point passing speed less than 300mm/s in the same direction)					
Response speed	1500mm/s					
Output signal	90° phase difference, differential square wave (RS-422A equivalent), minimum edge intervals: 250ns for 0.5µm model, 500ns for 1µm model					
Output signal pitch	2µm	4µm	2µm	4µm	2µm	4µm
Mass	Approx. 260g		Approx. 300g		Approx. 400g	
Dust/water resistance*2	Equivalent to IP66 (only gage head)					
Contact point	ø3mm carbide-tipped (fixing screw: M2.5 (P=0.45) 5), standard contact point: 901312					
Stem dia.	ø8mm		ø15mm			
Bearing type	Linear ball bearing					
Output cable length	2m (directly extended from the main unit)					
Connector	Plug: PRC05-P8M (TAJIMI), Compatible receptacle: PRC05-R8F (TAJIMI)					
Operating temperature (humidity) range	0 to 40°C (RH 20 to 80%, no condensation)					
Storage temperature (humidity) range	-10 to 60 °C (RH 20 to 80%, no condensation)					

Connector



Optional Accessories

- Air drive unit
- For 10mm range models: **02ADE230**
- For 25mm range models: **02ADE250**
- For 50mm range models: **02ADE270**
- * Required air pressure: 0.2 to 0.4MPa
- * Spindle extends when air is supplied.

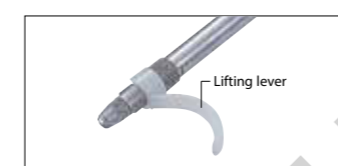


- Rubber boot (spare)
- For 10 mm range models: **02ADB680**
- For 25 mm range models: **02ADB681**
- For 50 mm range models: **02ADB682**
- Thrust stem set*
- For 10 mm range models: **02ADB680**
- Thrust stem: **02ADB681**
- Clamp nut: **02ADB682**
- For 25/50 mm range models: **02ADN370**
- Thrust stem: **02ADN371**
- Clamp nut: **02ADB692**
- External dimensions are described in the dimensional drawing of the product.
- Special spanner
- For 10 mm range models: **02ADB683**
- For 25/50 mm range models: **02ADB693**
- * Thrust stem set is a combination of thrust stem and a clamp nut. A special spanner is required for tightening. If using multiple gages, a thrust stem set for each gage and one special spanner are required.
- Extension cable (5 m): **02ADF260**
- Extension cable (10 m): **02ADF280**
- Extension cable (20 m): **02ADF300**
- Connectable up to 3 pieces, 20m at maximum.

ลิเนียร์เกจ

SERIES 542 — Long Stroke Type LG

Lifting lever attachment



Optional Accessories

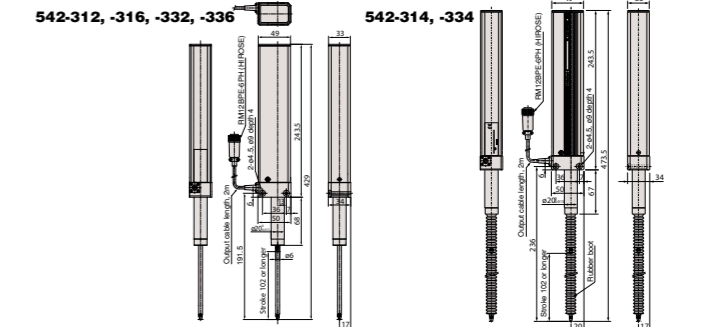
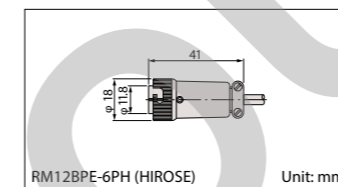
- Rubber boot: **02ADA004** (for rubber boot type)
- Extension cable (5 m): **902434**
- Extension cable (10 m): **902433**
- Extension cable (20 m): **902432**
- Connectable up to 3 pieces, 20m at maximum.

FEATURE

- A series to cover maximum measuring range, 100mm.
- Three versions are available; standard model, low measuring force model, and rubber boot type (made to order).
- The resolution of each model can be selected from 0.1µm and 1µm.

DIMENSION

Lifting lever attachment



Type	Standard spar type	Low measuring force	Rubber boot type	Standard spar type	Low measuring force	Rubber boot type
Order No.	542-312	542-316	542-314	542-332	542-336	542-334
Measuring range	100mm (4")					
Resolution	0.1µm			1µm		
Measuring accuracy (20°C)	(2+L/100)µm 2.5µm L=arbitrary measuring length (mm)		(2+L/100)µm 2.5µm L=arbitrary measuring length (mm)			
Quantizing error	±1 count					
Measuring force	Contact point downwards	8.0N or less	3.0N or less	8.0N or less	8.0N or less	8.0N or less
	Contact point horizontal	6.5N or less	Not applicable	6.5N or less	6.5N or less	6.5N or less
	Contact point upwards	5.0N or less	Not applicable	5.0N or less	5.0N or less	5.0N or less
Position detection method	Photoelectric linear encoder					
Response speed*1 (max. electrical response speed)	Approx. 400mm/s			Approx. 800mm/s		
Output signal	90° phase difference, differential squarewave (RS-422A equivalent)					
Spindle drive	Helical extension spring					
Spindle guide	Bearing guide					
Stem diameter	ø20					
Contact point	ø3mm carbide-tipped (fixing screw: M2.5 (P=0.45)×5), standard contact point: 901312					
Shock resistance	60g (in-house testing)					
Cable length	Approx. 2m (directly extended from the gage unit)					
Spindle Sealing method	Scraper type		Rubber boot type	Scraper type		Rubber boot type
Dust/water resistance*2	Equivalent to IP54		Equivalent to IP66	Equivalent to IP54		Equivalent to IP66
Operating temperature (humidity) range	0 to 40°C (RH 20 to 80%, no condensation)					
Storage temperature (humidity) range	-10 to 60°C (RH 20 to 80%, no condensation)					
Input/output connector	For calculation: RM12BPE-6PH (HIROSE) Compatible receptacle: RM12BRD-6S (HIROSE)					
Mass (including cables)	Approx. 750g		Approx. 780g	Approx. 750g		Approx. 780g

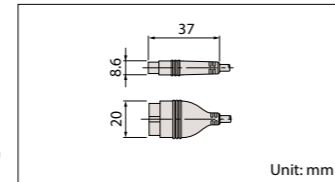
ลิเนียร์เกจ SERIES 542 — ABSOLUTE / Standard Type LGD

FEATURE

- Absolute position detection makes it possible to maintain the reference point even when the power is switched off.
- Excellent protection against dust and splashing water (IP66) in the factory floor.
- The spindle guide uses high precision linear ball bearings for extremely smooth movement and exceptional durability.
- Sliding durability improved to remain serviceable for at least 15 million cycles (inhouse testing).
- Shock resistance, 100g/11ms (IEC 60068-2-27)

ABSOLUTE™

Connector



Unit: mm

Optional Accessories

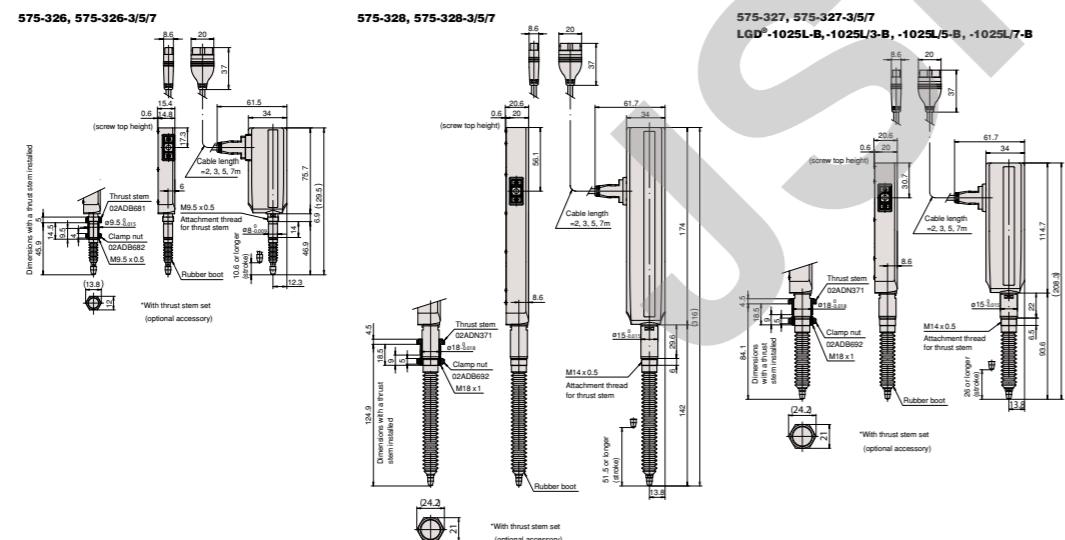
- Air drive unit
 - For 10 mm range models: **02ADE230**
 - For 25 mm range models: **02ADE250**
 - For 50 mm range models: **02ADE270**
 - Required air pressure: 0.2 to 0.4 MPa
 - Spindle extends when air is supplied.
- Rubber boot (spare)
 - For 10 mm range models: **238772**
 - For 25 mm range models: **962504**
 - For 50 mm range models: **962505**
- Extension cable
 - SPC cable extension adapter: **02ADF640**
 - Extension cable (0.5 m): **02ADD950**
 - Extension cable (1 m): **936937**
 - Extension cable (2 m): **965014**
 - When connecting an extension cable, an SPC cable extension adapter is required.
- Thrust stem set*
 - For 10 mm range models: **02ADB680**
 - Thrust stem: **02ADB681**
 - Clamp nut: **02ADB682**
 - For 25/50 mm range models: **02ADN370**
 - Thrust stem: **02ADN371**
 - Clamp nut: **02ADB692**
 - External dimensions are described in the dimensional drawing of the product.
- Special spanner
 - For 10 mm range models: **02ADB683**
 - For 25/50 mm range models: **02ADB693**
- * The thrust stem set is a combination of thrust stem and a clamp nut. A special spanner is required for tightening. If using multiple gages, a thrust stem set for each gage and one special spanner are required.



Order No.*1	575-326	575-326-5	575-327	575-327-5	575-328	575-328-5
Measuring range	10mm		25mm		50mm	
Resolution			10 μm			
Measuring accuracy (20°C)			20 μm		30 μm	
Quantizing error			±1 count			
Measuring force	Contact point downwards	1.2N or less	4.6N or less	5.7N or less		
	Contact point horizontal	1.1N or less	4.3N or less	5.3N or less		
	Contact point upwards	1.0N or less	4.0N or less	4.9N or less		
Position detection method	ABSOLUTE electrostatic capacitance type linear encoder					
Response speed	Unlimited (not applicable to scanning measurement)					
Output	Digimatic code					
External input	Reference-setting signal (Absolute reference position*2 can be changed externally.)					
Mass*3	Approx. 260 g		Approx. 300 g		Approx. 400 g	
Contact point	ø3 mm carbide tipped (fixing screw: M2.5 (P=0.45) 5), standard contact point: 901312					
Stem dia.	ø8 mm		ø15 mm			
Bearing type	Linear ball bearing					
Output cable length (directly extended from the main unit)	2m	5m	2m	5m	2m	5m
Operating temperature (humidity) range	0 to 40 °C (RH 20 to 80 %, non-condensing)					
Storage temperature (humidity) range	-10 to 60 °C (RH 20 to 80 %, non-condensing)					

*1: The last digit of the Code No. represents a special cable length in meters.
*2: The absolute reference point is near the lowest rest point at shipment.
*3: Mass including 2 m cable.

DIMENSION

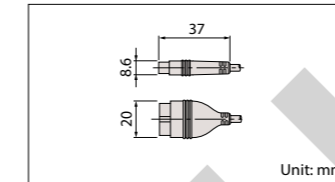


Unit: mm

ลิเนียร์เกจ SERIES 542 — 0.01 mm Resolution Type LGS-1012P

ABSOLUTE™

Connector



Unit: mm

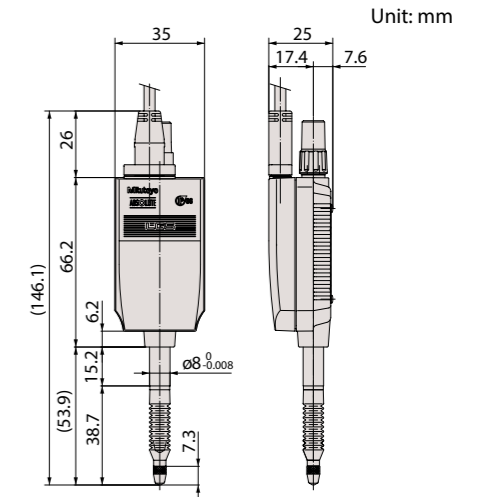
Optional Accessories

- Rubber boot: **238774** (spare)
- Air drive unit (metric): **903594**
- Air drive unit (inch): **903598**
- SPC cable extension adapter: **02ADF640**
- Extension cable (0.5m): **02ADD950**
- Extension cable (1m): **936937**
- Extension cable (2m): **965014**
- * When connecting an extension cable, an SPC cable extension adapter is required.



575-303
IP66

DIMENSION



Unit: mm

FEATURE

- ABSOLUTE electrostatic capacitance type encoder makes it possible to maintain the reference point even when the power is switched off.
- Excellent protection against dust and splashing water (IP66) on the factory floor.

Order No.	575-303	
Measuring range	12.7mm	
Resolution	10μm	
Measuring accuracy (20°C)	15μm	
Quantizing error	±1 count	
Measuring force	Contact point downwards	2N or less
	Contact point horizontal	1.8N or less
	Contact point upwards	1.6N or less
Position detection method	ABSOLUTE electrostatic capacitance type linear encoder	
Response speed	Unlimited (not applicable to scanning measurement)	
Output	Digimatic output	
Mass	Approx. 190g	
Contact point	ø3mm carbide-tipped (fixing screw: M2.5 (P=0.45)×5), standard contact point: 901312	
Stem dia.	ø8mm	
Bearing type	Slide bearing	
Output cable length	2m (directly extended from the main unit)	
Operating temperature (humidity) range	0 to 40°C (RH 20 to 80%, no condensation)	
Storage temperature (humidity) range	-10 to 60°C (RH 20 to 80%, no condensation)	

* IP Code is a standard which classifies and rates the degree of protection provided against the intrusion of solid objects and water. This may not be applicable depending on the kind of liquid.

ลิเนียร์เกจ SERIES 542 — High-accuracy/resolution Type LGH (0.01/0.005 μm resolution)

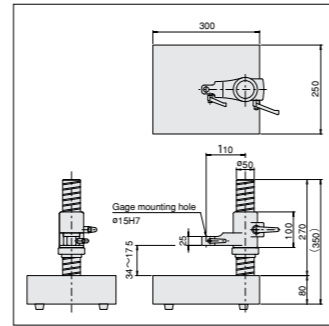
FEATURE

- This series has achieved the outstanding accuracy of 0.2 μm combined with a resolution of 0.01/0.005 μm (according to model), practically equivalent to that of a laser interferometer, and a wide measuring range of 10 mm.
- A compact body design makes a significant contribution to a downsizing of this gage itself, which is best suited for calibration/evaluation of master gages as well as measurement of high-precision parts and as a length measuring sensor incorporated into high-precision positioning/control units.
- A low measuring force model is available for those applications where measurement of easily deformed or damaged workpieces is required.
- Every LGH series gage is bundled with a dedicated counter.

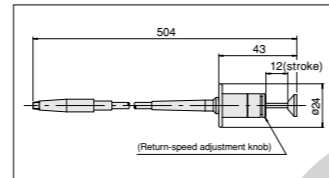


Optional Accessories

- LGH stand: **971753**



- Spindle lifting cable: **971753**



- I/O connector: **02ADB440**



- **SENSORPAK**



- Refer to page P-021 for more details.
- Rubber boot: **238772**
(Spare for **542-715** and **542-720**)



This model is equipped with a newly developed photoelectric reflection-type linear encoder, achieving an excellent resolution of 0.01 μm, a measuring accuracy of 0.2 μm and a measuring range of 10 mm at a low price.

Responsivity has been improved by 2.8 times (250 mm/s => 700 mm/s) compared to the previous model.



This model is equipped with a newly developed ultra-high precision transmission type linear encoder, achieving the outstanding resolution of 0.005 μm (5 nm).

A measuring accuracy of 0.1 μm has been attained over the wide measuring range of 10 mm. This series is most suited for calibration/evaluation of master gages where its wide measuring range is a great advantage.

Gage head: **542-715**

Gage head: **542-720**



Dedicated counter

APPLICATION

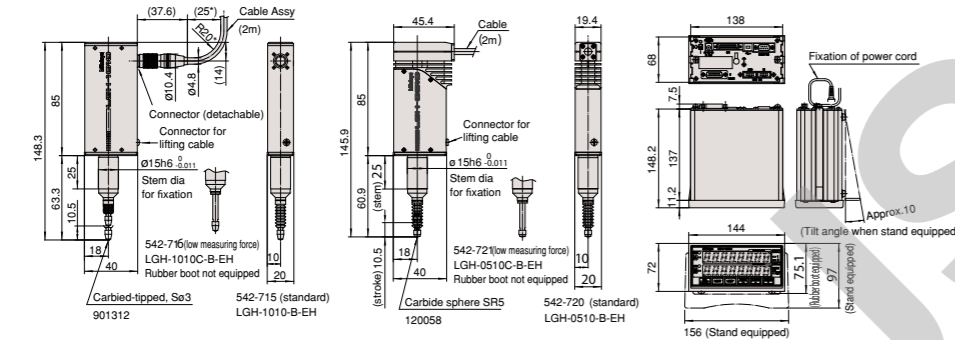
Master gage calibration/evaluation

Inspection of high-precision parts



* Needle contact-point mounting example

DIMENSIONS



* Minimum bending radius or minimum dressed dimension

Linear gauge		Resolution 0.01 μm / Accuracy 0.2 μm model	
Order No.	542-715 (Standard)	542-716 (Low measuring force)	
Measuring range	10mm		
Resolution	0.01μm (0.05μm, 0.1μm, 0.5μm, 1μm can be selected from the counter)		
Measuring accuracy (20°C)*1	0.2μm		
Repeatability (20°C)*1	0.1μm (2 σ)		
Retrace error (20°C)*1	1μm		
Measuring force	Contact point downwards	0.65N or less	Approx. 0.12N
	Contact point horizontal	0.55N or less	Not applicable
	Contact point upwards	0.45N or less	Not applicable
Position detection method	Photoelectric reflection type linear encoder		
Detectable operation speed	In normal measurement: 700mm/sec; for peak detection: 120mm/sec		
Mass of gage head	220g (excluding cable of approx. 150g)		
Contact point	φ3mm carbide-tipped (fixing screw: M2.5 (P=0.45) 5)		
Stem	φ15mm		
Bearing	Linear ball type		
Output cable length	Approx. 2m		
Operating temperature/humidity	0 to 40°C/RH 20 to 80% (no condensation)		
Storage temperature	-10 to 60°C/RH 20 to 80% (no condensation)		
Counter Specifications			
Display range	±999.99999mm		
Functions	Presetting, tolerance judgment, peak measurement, analog output		
Peak hold function	Yes		
Interface	RS-232C, USB (only for SENSORPAK), Digimatic (Printer: DP-1VA LOGGER)*3, I/O Connector		
External output	•RS-232C: counting data •Digimatic output: counting data*3 • I/O connector: counting data (simplified BCD), tolerance judgment result, simplified analog output		
External control	Zero-setting, presetting, data hold, peak measurement mode selection, peak clear		
Power supply	Supplied AC Adapter, or +12 to 24 V DC, max. 700mA		
Current Consumption	8.4 W (MAX 700 mA), Ensure at least 1 A power supply per unit.		
Mass	Approx. 900g (AC Adapter excluded)		
Standard accessories	Wrench for contact point, rubber boot, stand, washer (for counter), AC Adapter, AC cord, DC plug, user's manual, inspection certificate		

Linear gauge		Resolution 0.005 μm / Accuracy 0.1 μm model	
Order No.	542-720 (Standard)	542-721 (Low measuring force)	
Measuring range	10mm		
Resolution	0.005 μm (0.01 μm, 0.05 μm, 0.1 μm can be selected from the counter)		
Measuring accuracy (20°C)*1	0.1μm		
Repeatability (20°C)*1	0.02 μm (2 σ)		
Retrace error (20°C)*1	0.05μm		
Measuring force	Contact point downwards	0.65N or less	Approx. 0.1N
	Contact point horizontal	0.55N or less	Not applicable
	Contact point upwards	0.45N or less	Not applicable
Position detection method	Ultra-high accuracy transmission type linear encoder		
Detectable operation speed	In normal measurement: 250 mm/sec		
Mass of gage head	Approx. 370 g		
Contact point	Carbide sphere SR5 (M2.5 (P=0.45) 5 mm), standard contact point: 120058		
Stem	φ15mm		
Bearing	Linear ball type		
Output cable length	Approx. 2m		
Operating temperature/humidity	15 to 25 °C (Reference temperature 20 °C) / 30 to 60 %RH (non-condensing)		
Storage temperature	10 to 60 °C / 20 to 80 % (non-condensing) *2		
Counter Specifications			
Display range	±99.999995mm		
Functions	Zero-setting, presetting, direction changeover, tolerance judgment (3 steps/5 steps), RS-RINK		
Peak hold function	No		
Interface	RS-232C, USB (only for SENSORPAK), Digimatic (Printer: DP-1VA LOGGER)*3, I/O Connector		
External output	•RS-232C: counting data •Digimatic output: counting data*3 • I/O connector: counting data (simplified BCD), tolerance judgment result, simplified analog output		
External control	Zero-setting, presetting, data hold		
Power supply	Supplied AC Adapter, or +12 to 24 V DC, max 700 mA		
Current Consumption	8.4 W (MAX 700 mA), Ensure at least 1 A power supply per unit.		
Mass	Approx. 900 g (AC Adapter excluded)		
Standard accessories	Wrench for contact point, rubber boot, stand, washer (for counter), AC Adapter, AC cord, DC plug, user's manual, inspection certificate		

*1: Applies when used with counter (excluding quantizing error).

*2: The storage temperature/humidity range after unpacking is the same as the operating temperature/humidity range.

*3: Digimatic output shall be up to 6 digits of data. For data of 7 digits or more, all digits will not be output to the display.

จอแสดงผล SERIES 542 — Panel mount, Single function Type EC Counter

FEATURE

- This Digimatic display can be connected to Linear gages with Digimatic output (LGD and LGS).
- Employs DIN size (96x48 mm) and mount-on-panel configuration to facilitate system integration.
- It has a data output and tolerance evaluation function.



Order No.	542-007*	
Quantizing error	±1 count	
Resolution () indicates maximum display range	0.01 mm (±9999.99) / 0.0005 in (±99.9995 in) / 0.001 in (±999.999 in) 0.001 mm (±9999.999) / 0.00005 in (±9.99995 in) / 0.0001 in (±99.999 in) [Automatic setting by gage]	
Display	Sign plus 6 digits (Green LED)	
Tolerance judgment display	LED display (3 steps: Amber, Green, Red)	
External output (switching type)	Tolerance judgment output	-NG, OK, +NG (open-collector)
	Data output	Digimatic output
Control input	External PRESET, external HOLD	
Rating	Power supply voltage	Supplied AC adapter, or 9 - 12V DC
	Power consumption	4.8W (max. 400mA) Ensure at least 1A is available per unit.
Operation temperature range	0 - 40°C (RH 20 to 80%, no condensation)	
External dimensions	96 (W) × 48 (H) × 84.6 (D) mm	
AC adapter / AC cable	AC adapter: (Japan/North America) 06AEG302JA / (EU) 06AEG302D / (UK) 06AEG302E / (Korea) 06AEG302K / (China) 06AEG302DC	
Applicable head	LGD, LGS, ID	
Mass	220g	

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, K for KC, C and No suffix are required for PSE.

จอแสดงผล SERIES 542 — Panel mount, Single function Type EG Counter

FEATURE

- Produces 3-step/5-step, 3 kinds of tolerance output and BCD output.
- A smoothing function reduces display digit fluctuations (**542-015** and **542-017**)
- Employs DIN size (96x48 mm) and mount-on-panel configuration to facilitate system integration.



Order No.	542-015	542-017	542-016
Quantizing error	±1 count		
Maximum input frequency	1.25MHz, response speed depends on gage specification.		
Resolution () indicates maximum display range	0.01 mm (±9999.99 mm) / 0.0005 in (±99.9995 in) / 0.001 in (±999.999 in) 0.005 mm (±9999.995 mm) / 0.00005 in (±9.99995 in) / 0.0001 in (±99.999 in) 0.001 mm (±999.999 mm) / 0.00005 in (±9.99995 in) / 0.0001 in (±99.999 in)	0.005 mm (±9999.995 mm) / 0.00005 in (±9.99995 in) / 0.0001 in (±99.999 in) 0.001 mm (±999.999 mm) / 0.00005 in (±9.99995 in) / 0.0001 in (±99.999 in)	0.01 mm (±9999.99 mm) / 0.0005 in (±99.9995 in) / 0.001 in (±999.999 in) 0.005 mm (±9999.995 mm) / 0.00005 in (±9.99995 in) / 0.0001 in (±99.999 in) 0.001 mm (±999.999 mm) / 0.00005 in (±9.99995 in) / 0.0001 in (±99.999 in)
Tolerance judgment display	LED display (3 steps: Amber, Green, Red / 5 steps: Amber, Amber flashing, Green, Red flashing, Red)		
Tolerance judgment output	L1 to L5 (Open-collector / Switchover between L1 to L5 and BCD output with parameter)		
Control output	Normal operation signal (NOM): open-collector		
BCD output	Open-collector / Switchover between 6-digit (positive/negative-true logic) and tolerance judgment output with parameter		
Control input	Presetting, display hold, peak value clear, tolerance judgment BANK switch		
Rating	Power supply voltage	12 - 24V DC	
	Power consumption	6W or less (500mA max.) Ensure at least 1A is available per unit.	
Operating temperature range	0 to 40°C (RH 20 to 80%, no condensation)		
Storage temperature range	-10 to 50°C (RH 20 to 80%, no condensation)		
External dimensions	96 (W) × 48 (H) × 156 (D) mm		
Applicable gage head	LGE, LGF, LGK, LGB, LGM, LG, LGH (LGH110 excluded) Models with reference point mark, sine wave output type are excluded.	LGF with reference point mark	LGD, LGS, ID, SD
Number of gage inputs	1		
Mass	Approx. 400g		

*1: When a gage of 0.1μm resolution is connected, the maximum display range will be ±99.9999.

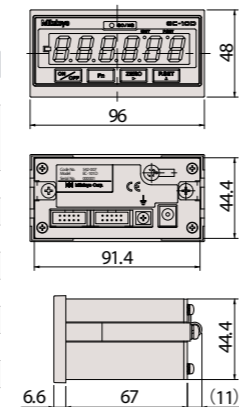
Function

- Preset
- Tolerance judgment (3 steps, 3 kinds)
- Digimatic output

Optional Accessories

- Connecting cable for digimatic mini-processor: **936937** (1 m), **965014** (2 m)
- DC plug: **214938**
- I/O cable (2 m): **C162-155**

Function



Function

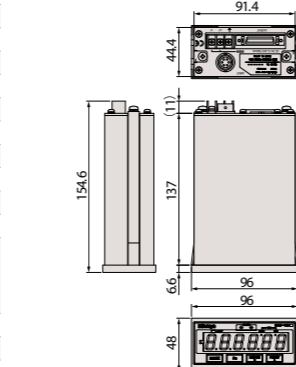
- Preset
- Direction switch
- Tolerance judgment (3/5-step, 3 kinds)
- Peak (max., min., runout) measurement
- Constant number
- Smoothing
- Error display/output
- Key protection

Optional Accessories

- I/O output connector (with cover): **02ADB440**
- AC adapter: **357651**
- AC cable (Japan): **02ZAA000***
- AC cable (USA): **02ZAA010***
- AC cable (EU): **02ZAA020***
- AC cable (UK): **02ZAA030***
- AC cable (China): **02ZAA040***
- AC cable (Korea): **02ZAA050***
- Terminal connecting cable: **02ADD930***
- * Required when using AC adapter.

Function

542-015



จอแสดงผล SERIES 542 — Panel mount, Multi-function Type EB Counter

Function

- Preset
- Tolerance judgment output (3/5-step, 7 kinds)
- Limit value output (2 kinds independently for each of the 7 channels)
- Peak (max., min., runout) measurement
- Diverse data output (Serial BCD, Simplified analog, Digimatic)

Optional Accessories

- Optional Accessories
- I/O output connector (with cover): **02ADB440**
- AC adapter: **357651**
- AC cable (Japan): **02ZAA000***
- AC cable (USA): **02ZAA010***
- AC cable (EU): **02ZAA020***
- AC cable (UK): **02ZAA030***
- AC cable (China): **02ZAA040***
- AC cable (Korea): **02ZAA050***
- Terminal connecting cable: **02ADD930***
- External switch box
- The tolerance values or preset values can be easily input. **02ADF180** (with 2 m cable)

FEATURE

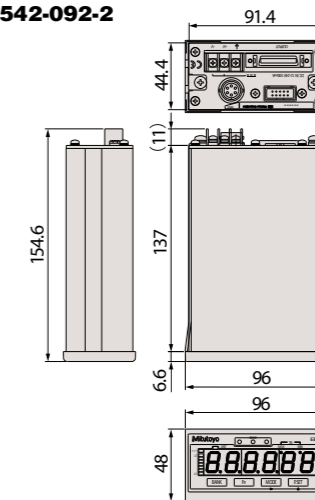
- Produces 3-step/5-step, 7 kinds of tolerance output and limit value output independently for each of 7 channels.
- Comes with serial BCD output capability, for connection to a programmable controller or personal computer, etc.

- Dynamic measurement possible with simplified analog output.
- Employs DIN size (96x48mm) and mount-on-panel configuration to facilitate system integration.



DIMENSION

542-092-2



Order No.	542-092-2	542-094-2	542-093-2
Quantizing error	±1 count		
Maximum input frequency	1.25 MHz (2-phase square wave), response speed depends on gage specification.	Response speed depends on gage specification.	
Resolution () indicates maximum display range	0.01 mm (±9999.99 mm) / 0.0005 in (±99.9995 in) 0.005 mm (±9999.995 mm) / 0.00005 in (±9.99995 in) 0.001 mm (±999.999 mm) / 0.00005 in (±9.99995 in) 0.0005 mm (±99.9995 mm) / 0.000005 in (±0.999995 in) 0.0001 mm (±9.9999 mm) / 0.000005 in (±0.999995 in)	0.01 mm (±9999.99 mm) / 0.0005 in (±99.9995 in) 0.005 mm (±9999.995 mm) / 0.00005 in (±9.99995 in) 0.001 mm (±999.999 mm) / 0.00005 in (±9.99995 in) 0.0005 mm (±99.9995 mm) / 0.000005 in (±0.999995 in) 0.0001 mm (±9.9999 mm) / 0.000005 in (±0.999995 in)	0.01 mm (±9999.99 mm) / 0.0005 in (±99.9995 in) 0.005 mm (±9999.995 mm) / 0.00005 in (±9.99995 in) 0.001 mm (±999.999 mm) / 0.00005 in (±9.99995 in) 0.0005 mm (±99.9995 mm) / 0.000005 in (±0.999995 in) 0.0001 mm (±9.9999 mm) / 0.000005 in (±0.999995 in) [Automatic setting by gage]
Tolerance judgment display	LED display (3 steps: Amber, Green, Red / 5 steps: Amber, Amber flashing, Green, Red flashing, Red)		
Input/output	Tolerance judgment output	L1 to L5, open-collector	
	Control output	Normal operation signal (NOM), open-collector	
Interface	Control input	Presetting, display hold, peak value clear, tolerance judgment BANK switch, open-collector or novoltage contact signal (with/without contact point)	
	Serial BCD	Bit serial format, open-collector	
Rating	Analog output	2.5V+Counting value Voltage resolution (25 mV / 2.5 mV): Full-scale 0 to 5V	
	Digimatic input/output	<ul style="list-style-type: none"> Connecting to the external switch box (02ADF180) makes it easy to enter tolerance limits and preset values. Note) This function is not available when the gage is connected to Digimatic Mini-Processor DP-1VA LOGGER (264-505). It can be connected to DP-1VA LOGGER (264-505) and to IT-016U. 	
Operating temperature range	Power supply voltage	12 to 24 V DC, terminal block (M3 screw)	
	Power consumption	6 W or less (500 mA max.) Ensure at least 1 A is available per unit.	
Applicable gage head	LGF, LGK, LGE, LGB Models with reference point mark, sine wave output type are excluded.	LGF with reference point mark	LGS, LGD, LGD-M
Mass	Approx. 400g	Approx. 400g	Approx. 400g

*1: When a gage of 0.1μm resolution is connected, the maximum display range will be ±99.9999.

จุดแสดงผล

SERIES 542 — Panel mount, Multi-function Type EH Counter

FEATURE

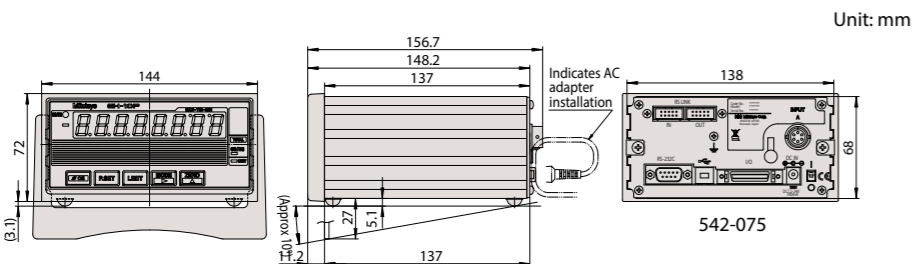
- Two types are available for this model: a 1-axis display and a 2-axis display, both of which enable addition or subtraction calculations between two gages.
- Multifunctional counter equipped with zerosetting, presetting, tolerance judgment.
- RS-232C and USB are equipped as standard. Data transfer to a PC is possible. (USB is supported only by Mitutoyo SENSORPAK.)
- A multi-point (max. 20 points) measuring system can easily be configured with the builtin RS Link networking function.
- Employs DIN size (144x72 mm) and mounton- panel configuration to facilitate system integration.

Optional Accessories

- I/O output connector (with cover): **02ADB440**
- SPC cable (0.5 m): **02ADD950**
- SPC cable (1 m): **936937**
- SPC cable (2 m): **965014**
- Measurement data loading software: **SENSORPAK**
The Digimatic connecting cable doubles as a RS Link cable.



DIMENSION



Order No.	542-075*	572-071*	542-073*	542-072*
Number of axes to be displayed	1 axis		2 axes	
Quantizing error	±1 count			
Maximum input frequency	2.5MHz (2-phase square wave)			
Resolution () indicates maximum display range	0.01 mm (±9999.99 mm) / 0.0005 in (±99.9995 in) 0.001 mm (±999.999 mm) / 0.00005 in (±9.99995 in)		Automatic setting by gage	
Tolerance judgment display	LED display (3 steps: Amber, Green, Red/ 5 steps: Amber, Amber flashing, Green, Red flashing, Red)			
Interface	RS-232C/USB/parameter selection via digimatic (only DP-1VA LOGGER, digimatic mini-processor can be connected) (USB used only with SENSORPAK.) Selection by parameter from 3-step, 5-step, or simple BCD Total tolerance judgment output (when tolerance function is enabled) Analog output (1 V to 4 V)			
Input/output	Control output	Open-collector		
	Control input	Display BANK switching, peak mode, presetting, display hold, hold per axis: open-collector or no-voltage contact signal (with/without contact point)		
Rating	Power supply voltage	Supplied AC adapter, or 12 to 24 V DC		
	Power consumption	8.4 W (max. 700 mA) Ensure at least 1 A is available per unit.		
Operating temperature (humidity) range	0 to 40°C (RH 20 to 80%, no condensation)			
Storage temperature(humidity) range	-10 to 50°C (RH 20 to 80%, no condensation)			
AC adppter / AC cable	AC adapter: 357651 / AC cable: 02ZAA000 , AC cable (Japan): 02ZAA000* , AC cable (USA): 02ZAA010* , AC cable (EU): 02ZAA020* , AC cable (UK): 02ZAA030* , AC cable (China): 02ZAA040* , AC cable (Korea): 02ZAA050*			
Applicable gage head	LGF, LGK, LGB, LG Models with reference point mark, sine wave output type are excluded.		LGF with reference point mark	LGD, LGS, ID
Mass	Approx. 760g	Approx. 800g	Approx. 800g	Approx. 800g

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, K for KC, C and No suffix are required for PSE. For those models of the Order No. with Suffix "1", AC adapter is not attached as a standard accessory.

จุดแสดงผล

SERIES 542 — 6-channel, No-display Type EV-16P/Z/D Counter

Function

- External Control (Zero-set, Preset etc.)
- Direction switch
- Error display
- Tolerance judgment output
- Diverse data output (RS-232C, BCD, Segment)
- Peak measurement
Maximum value, minimum value, runout, and differential measurement between two gages
Addition, averaging, maximum value, minimum value, and maximum width

Optional Accessories

- I/O output connector (with cover): **02ADB440**
- ID-EV External display unit: **02ADD400**
- SPC cable (0.5 m): **02ADD950**
- SPC cable (1 m): **936937**
- SPC cable (2 m): **965014**
- AC adapter: **357651**
- AC cable (Japan): **02ZAA000***
- AC cable (USA): **02ZAA010***
- AC cable (EU): **02ZAA020***
- AC cable (UK): **02ZAA030***
- AC cable (China): **02ZAA040***
- AC cable (Korea): **02ZAA050***
- Terminal connecting cable: **02ADD930***
- * Required when using AC adapter.

SENSORPAK

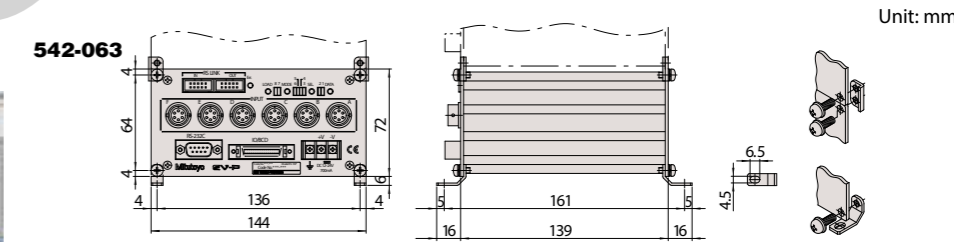


FEATURE

- Up to six gages can be connected to one unit, extendable up to 10 units (60 gages at maximum) using the RS Link function* to facilitate the configuration of a multi-point measurement system.
- A range of output modes to choose from: I/O output for tolerance judgment and segment output, BCD data output and RS-232C output are available.
- Other than normal measurement, peak measurement or differential measurement between gages can be performed.



DIMENSION



Order No.	542-063	542-067	542-064
Number of input channels	6		
Maximum input frequency	1.25MHz (2-phase square wave), response speed depends on gage specification. Max. counting speed: 5MHz	1.25MHz (2-phase square wave), response speed depends on gage specification. Max. counting speed: 5MHz	Response speed depends on gage specification.
Quantizing error	1 count		
Resolution () indicates maximum display range	10 μm (±99999.99 mm) / 0.0005 in (±9999.9995 in) 5 μm (±99999.995 mm) / 0.00005 in (±999.99995 in) 0.5 μm (±9999.9995 mm) / 0.000005 in (±99.999995 in)*1 [Parameter set]	10 μm (±99999.99 mm) / 0.0005 in (±9999.9995 in) 5 μm (±99999.995 mm) / 0.00005 in (±999.99995 in) 1 μm (±9999.999 mm) / 0.00005 in (±99.99995 in) 0.5 μm (±999.9995 mm) / 0.000005 in (±99.99995 in) [Parameter set]	Depends on gage specification.
Error message	Overspeed, gage error etc.		
External display	Dedicated external display unit D-EV (optional) can be connected.		
Number of input switches	4		
Function of input switches	Measurement mode switching, parameter setting		
Input/output	Tolerance judgment output	1 to 6 channels (L1, L2, L3), open-collector	
	BCD output	Parallel BCD output (positive/negative-true logic), open-collector	
	Segment output	Function to set on only the terminals corresponding to the counting values, open-collector	
	Control output	Normal operation signal (NOM), open-collector	
	Control input	Output channel designation (segment, in the BCD mode), presetting, peak value clear, range changeover (at segment output), holding counting value open-collector or no-voltage contact signal (with/without contact point)	
Interface	RS-232C	Measurement data output and control input EIA RS-232C-compatible Use cross cables for home position, DTE (terminal definition).	
	RS link	Max. connecting unit: 10 Connecting cable length: Max. 10 m (sum of link cable length) Data transfer time: 1sec./60ch (when transmission rate is 19200 bps)	
Rating	Power supply voltage	12 to 24 V DC, terminal block (M3 screw)	
	Power consumption	8.4 W or less (700 mA max.) Ensure at least 1 A is available per unit.	
Operating temperature (humidity) range	0 to 40°C (RH 20 to 80%, no condensation)		
Storage temperature (humidity) range	-10 to 50°C (RH 20 to 80%, no condensation)		
Mass	Approx. 910g	Approx. 910g	Approx. 830g
Standard Accessories	Fixing foot (4), connecting bracket (4), fixing screw M4x12 (8)		
Applicable gage head	LGF, LGK, LGB, LG Models with reference point mark, sine wave output type are excluded.	LGF with reference point mark	LGD, LGS

*1: Available when using D-EV.

จุดแสดงผล

Display unit for the EV counter D-EV Display Unit

FEATURE

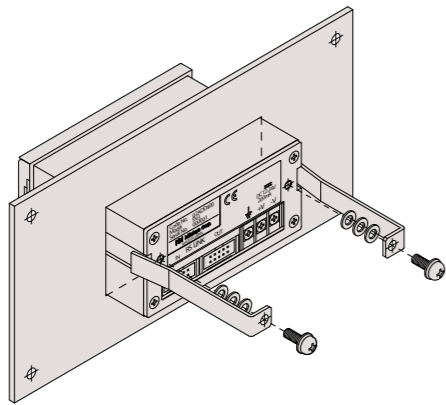
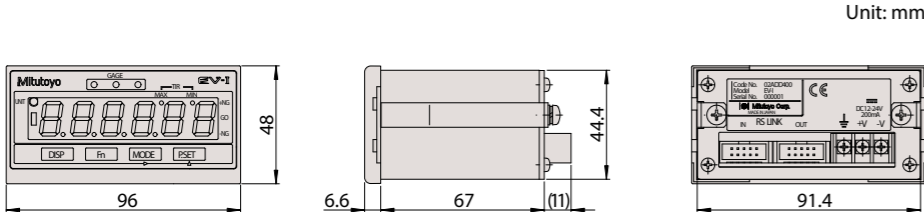
• Allows set-up of EV counter without a personal computer or other equipment.

• Able to display each gage measurement value and GO/NG judgment result, total GO/NG judgment result for all gages, setting details, and errors.



02ADD400

DIMENSION



Optional Accessories

- SPC cable (0.5 m): **02ADD950***1
 - SPC cable (1 mm): **936937***1
 - SPC cable (2 m): **965014***1
 - AC adapter: **357651**
 - AC cable (Japan): **02ZAA000***2
 - AC cable (USA): **02ZAA010***2
 - AC cable (EU): **02ZAA020***2
 - AC cable (UK): **02ZAA030***2
 - AC cable (China): **02ZAA040***2
 - AC cable (Korea): **02ZAA050***2
 - Terminal connecting cable: **02ADD930***2
- *1: Required when connecting with **EV-16P/D/Z**.
*2: Required when using AC adapter.

Order No.	02ADD400
Number of connections	1 EV counter per unit
Number of digits	Sign plus 6 digits (8 digits internal to EV counter)
LED display	Channel display (also for judgment result display): 3 (3-color LED) Measurement mode display (current data, maximum value, minimum value, runout): 2 Status display: 1 (2 colors)
Operation switches	4
Function of operation switch	Channel switching, measurement mode switching (current data, maximum value, minimum value, runout), parameter setting, presetting, tolerance setting
Input/output	RS Link connectors: 1 each for IN, OUT
Error message	Overspeed, gage error etc.
Power supply	Terminal block (M3 screw), 12 to 24 V DC, 200 mA
Operating temperature (humidity) range	0 to 40°C (RH 20 to 80%, no condensation)
Storage temperature/humidity range	-10 to 50°C (RH 20 to 80%, no condensation)
External dimensions	96(W)x48(H)x84.6(D)mm
Mass	150g

MeasurLink ENABLED
Data Management Software by Mitutoyo

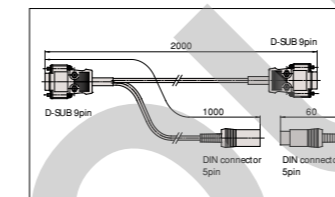
โปรแกรม

Measurement data loading software for EH, EV, VL SENSORPAK



Optional Accessories

- I/O cable: **21HZA137**

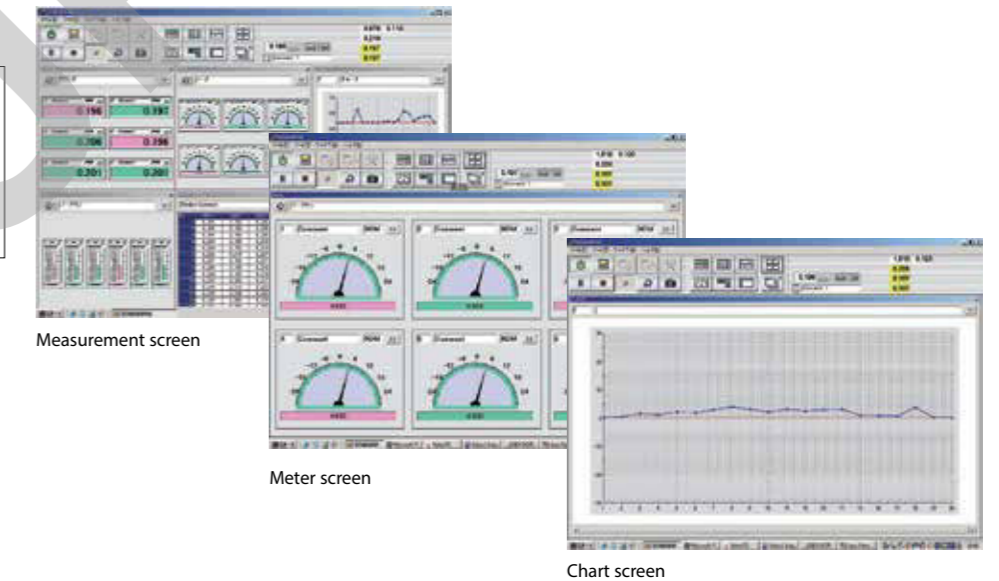


Communication cable (1 pc.)
Connection between PC and counter: 2 m
Input/output cable: 1 m
Input/output connector (1 pc.)

FEATURE

• This software facilitates loading measurement data onto a personal computer from a linear gage counter with RS-232C output (EH, EV), with USB output (EH), or from a Litematic display (VL).

- 60 channels (max.) of measurement data can be processed.
- Arithmetical calculations and maximum width calculations can be performed using the measurement data.
- Exporting measurement data into MS-Excel format is supported.
- Real time graphical display by means of bargraph or meter is provided.



Order No.	02NGB072
Product Configuration	Program disk (CD), license key, operation manual
Compatible devices	Mitutoyo RS_LINK compatible devices • LGH Series (USB, RS-232C) • EH counter (USB, RS-232C) • EV counter (RS-232C) • Litematic VL (RS-232C)
Connecting cable	Separately prepare the cable with the following specifications: Accessory • RS-232C connection: I/O cable (21HZA137)*1 Commercial product • USB connection: USB cable (type A - type B) • RS-232C connection: RS-232C cross cable*1
Number of connectable gages	Max. 60 units (when 10 units of EV counter for linear gage are connected via RS-Link)
Display*2	Display format: counting, bar graph, indicator, chart, and table Display cycle: 1s (when 60 gage units are connected, 1-window display, and no Excel output)
Calculation	Calculation (up to 30 items) between designated gages is available. Calculation items: Sum, difference, total, average, maximum, minimum, range (maximum-minimum), calculation with a constant
Functions	Tolerance judgment Per item: Displays the result in colors (3-step tolerance: red/green/red; 5-step tolerance: red/yellow/green/yellow/red) Total judgment: Displays in colors (red/green) by monitoring the multiple gages and calculation result
Recording*2	Items: channel values, calculation result, tolerance judgment, total tolerance judgment, timestamp Max. number of records: 60000 for software recording (with 6 gages connected); up to 9000 (with 60 gages connected) Output function: Direct output to Excel, CSV file output (compatible with MeasurLink) Recording trigger: key, timer, external TRG
Input/output*3	Input: TRG for recording (HOLD) Output: Total tolerance judgment result
System Environment	DOS/V compatible PC environment CPU: Pentium4 2 GHz or more, Memory: 2 GB or more, Hard disk: 2 GB or more free space OS: Windows7 (32bit/64bit), Windows 8.1 (32bit/64bit), Windows 10 (64bit)

*1: If the PC is not equipped with an RS-232C port, please contact the nearest Mitutoyo sales office / service center.

*2: Display cycle and the maximum number of records differ depending on the environment (specification of PC, number of connected gages, display format and communication setting).

*3: With use of the I/O cable (accessory). When an I/O cable is not used, the I/O connector of the counter alternatively functions. (Refer to the user's manual of the counter in use.)

ไลเมติก

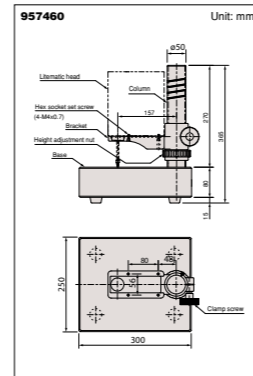
SERIES 318 — High-accuracy/resolution Measuring Machine VL-50-B/50S-B Litematic

FEATURE

- The Litematic is primarily designed for measuring easily-deformed workpieces and high-precision parts using an extra-low measuring force of 0.01 N.
- 0.15 N and 1 N models are available as factory-installed options if a greater measuring force is required.
- The motor-driven spindle moves up/down and stops when the contact point touches the workpiece. Then the maximum, minimum and runout values are measured under a constant force.

- High resolution of 0.01 μm , and wide measuring range of 50 mm.
- Measuring system VL-50-B, integrated display type, and VL-50S-B, a separate display type, are available.
- The measuring table supplied with VL-50-B is ceramic, which is corrosion free, for easier maintenance and storage.
- The spindle is made of low thermal expansion material.
- Motor life is approximately 100,000 operations, after which replacement is advisable. This machine is not suitable for continuous use, such as on a production line.

Optional Stand for VL-50S-B



Optional Accessories

- Foot switch: **937179T**
- Dedicated stand: **957460*4**
- SPC cable (1 mm): **936937*5**
- SPC cable (2 m): **965014*5**
- VL weight part: **02AZE375*6**
- Recommended spare contact points:
Shell type: **101118** (Approx. 0.02 N)
Carbide tipped spherical contact point, $\phi 7.5$: **120059** (Approx. 0.03 N)
Carbide tipped spherical contact point, $\phi 10.5$: **120060** (Approx. 0.06 N)
Carbide tipped needle contact point, $\phi 0.45$: **120066** (Approx. 0.01 N)

*4: Only VL-50S is available.
*5: Refer to page G-23 for details of the RS link.
*6: Not applicable to 318-223 and 318-228



318-221



318-226

Order No.	318-221*	318-222*	318-223*	318-226*	318-227*	318-228*
Model	VL-50-B	VL-50-15-B	VL-50-100-B	VL-50S-B	VL-50S-15-B	VL-50S-100-B
Measuring range	0 to 50 mm (0 to 2 in)					
Resolution	0.01/0.1/1.0 μm (0.0000005 in/0.000005 in/0.00005 in)					
Display unit	8 digits / 14 mm (0.6 in) character height (without signs)					
Scale type	Reflection type linear encoder					
Stroke	51.5 mm (2 in) (when using a standard contact point)					
Indication accuracy (20°C)*1	(0.5+L/100) μm L=arbitrary measuring length (mm)					
Accuracy guaranteed temperature*2	20 \pm 1°C					
Repeatability*1	$\sigma = 0.05 \mu\text{m}$					
Measuring force*1	0.01N	0.15N*3	1N*3	0.01N	0.15N*3	1N*3
Feed	Measurement: Approx. 2 mm/s (0.08 in/s) or 4 mm/s (0.16 in/s) (changeable by parameter)					
Speed	Fast feed: Approx. 8 mm/s (0.3 in/s)					
Contact point	$\phi 3$ mm carbide tipped (fixing screw: M2.5 (P=0.45) 5), standard contact point: 901312					
Measuring table	$\phi 100$ (ceramic, grooved, removable)					
Input	Foot switch input (when optional foot switch is used) External Control					
Output	Digimatic output / RS-232C output (changeable by parameter)					
Rating	Power supply: 85 to 264 V AC (depends on AC adapter)					
Power consumption	Max. 12 W (12 V, 1 A)					
Standard Accessories	AC adapter: 357651 , Power cable: 02ZAA000 , Grounding wire: 934626 , AC cable (Japan): 02ZAA000* , AC cable (USA): 02ZAA010* , AC cable (EU): 02ZAA020* , AC cable (UK): 02ZAA030* , AC cable (China): 02ZAA040* , AC cable (Korea): 02ZAA050* , Hex wrench (2 pcs, for fixing contact point and for removing fixing bracket)					

*1: Normal measurement using standard contact point.

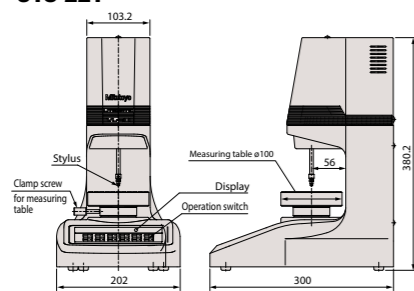
*2: Under less temperature change, and hot or cold direct air flow should be avoided.

*3: 0.15 N, 1 N types are factory-installed option.

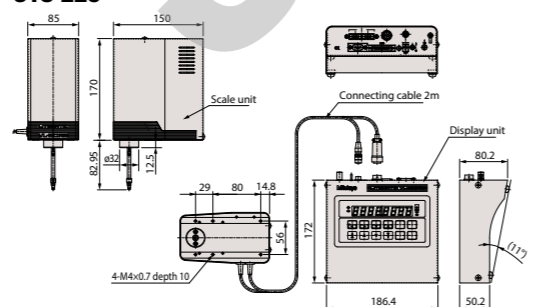
Note: To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.

DIMENSION

318-221



318-226



Unit: mm

Mu-Checker

SERIES 519 — Electronic micrometer Lever/Cartridge Probe Heads

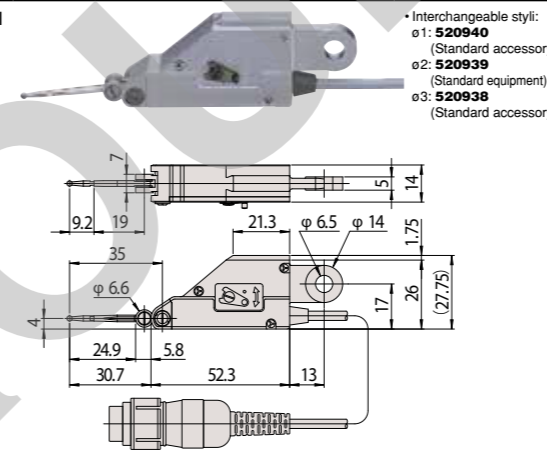
Common specifications

- Connection: Half-bridge
- Cable length: 2m
- Connector type: **MAS-5100** (DIN5P) or equivalent

Order No.	519-521	519-522	519-326	519-327
Measuring range (mm)	± 0.5			
Stroke (mm)	± 0.6			± 0.65
Measuring force (N)	Approx. 0.2	Approx. 0.02	Approx. 0.15	
Linearity (%)	± 0.3			
Stylus support	Pivot bearing	Pivot bearing	Parallel-leaf spring	Pivot bearing

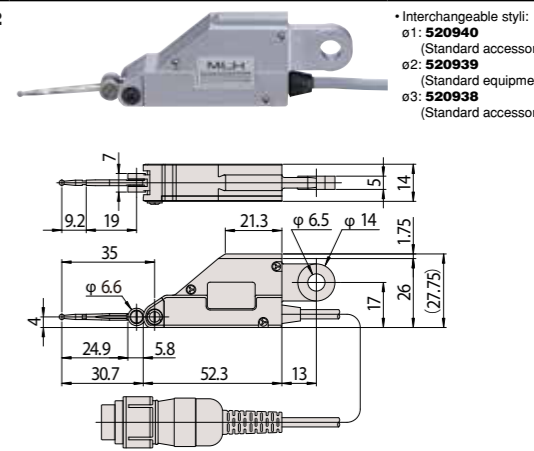
Note: A $\phi 2$ mm ball-ended stylus is supplied as standard with all probes.

519-521



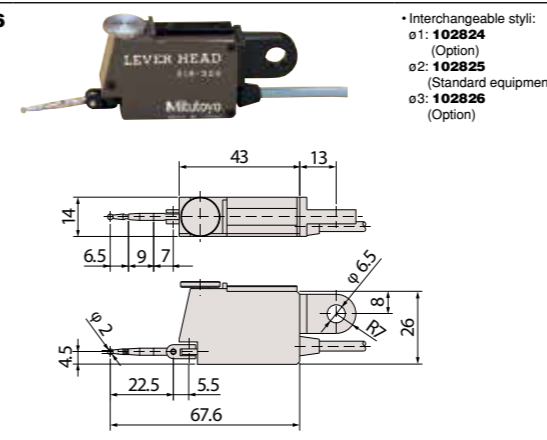
- Interchangeable stylus:
 $\phi 1$: **520940** (Standard accessory)
 $\phi 2$: **520939** (Standard equipment)
 $\phi 3$: **520938** (Standard accessory)

519-522



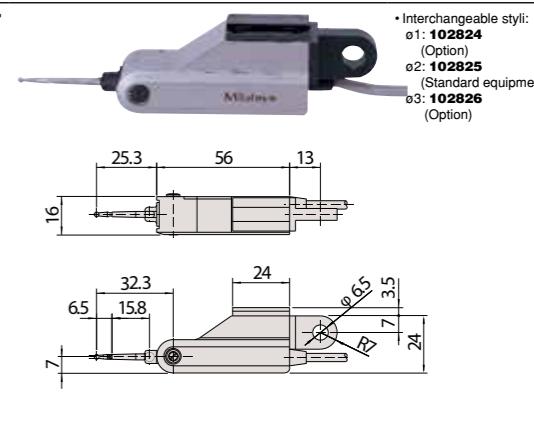
- Interchangeable stylus:
 $\phi 1$: **520940** (Standard accessory)
 $\phi 2$: **520939** (Standard equipment)
 $\phi 3$: **520938** (Standard accessory)

519-326



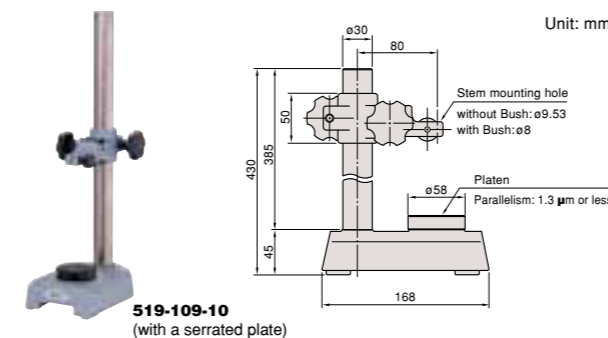
- Interchangeable stylus:
 $\phi 1$: **102824** (Option)
 $\phi 2$: **102825** (Standard equipment)
 $\phi 3$: **102826** (Option)

519-327



- Interchangeable stylus:
 $\phi 1$: **102824** (Option)
 $\phi 2$: **102825** (Standard equipment)
 $\phi 3$: **102826** (Option)

Transfer Stand



519-109-10 (with a serrated plate)

Main Specifications

Order No.	Effective transfer range [mm]	Fine adjustment range [mm]	Mounting hole [mm]
519-109-10	0 - 320	1	Without Bush: $\phi 9.53$ With Bush: $\phi 8$

Note on stylus angle

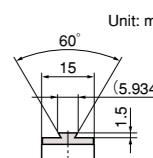
If the stylus of a pivot bearing type probe makes an angle with a workpiece surface, as in the figure, calibration should be performed for accurate measurement. Alternatively, the displayed value may be corrected by multiplying it by the appropriate correction factor as given in the table. Model **519-326** does not need correction.

Angle (θ)	Correction factor
0°	1.00
10°	0.98
20°	0.94
30°	0.87
40°	0.77
50°	0.64
60°	0.50

Display value x Correction factor = Corrected value

Dimensions of dovetail plate on probe body

Enables mounting on a lever head mounting bracket or stem.



Unit: mm

SPECIFICATIONS

Cartridge heads (special order only)

Order No.	519-331	519-332	519-346	519-347	519-385	519-341	519-348
Measuring range (mm)	±0.5	±0.5	±0.25	±0.5	±1.5	±2.5	±1.0
Stroke (mm)	±0.65	±0.65	+0.34 -0.26	+0.85 -0.65	+2.35 -1.65	+3.2 -2.8	+1.35 -1.15
Measuring force (N)	Approx. 0.25	Approx 0.25	Approx 0.7	Approx 0.7	Approx 0.7	Approx 0.9	Approx 0.7
Stem Dia. (mm)	ø8	ø9.52	ø8	ø8	ø8	ø8	ø8
Linearity (%)	±0.5	±0.5	±0.3	±0.3	±0.3	±0.5	±0.3
Plunger support	Plain bearing		Linear ball-bearing				

519-331 Unit: mm

M2.5x5 interchangeable contact points for dial indicators can be used.

519-346 Unit: mm

519-347 Unit: mm

519-385 Unit: mm

• M2.5x5 interchangeable contact points for dial indicators can be used.

519-341 Unit: mm

• M2.5x5 interchangeable contact points for dial indicators can be used.

519-348 Unit: mm

• M2.5x5 interchangeable contact points for dial indicators can be used.

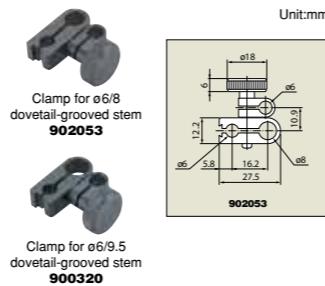
Lever-head mounting brackets (optional)

Optional accessories for Mitutoyo test indicators can be used.

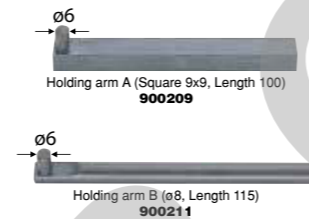
Stems



Clamp



Holder



Mu-Checker

SERIES 519 — Electronic micrometer Analog/digital amplifier/displays

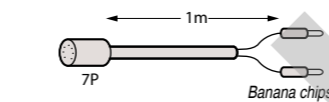
Optional Accessories

- Vertical stand (271214) Attached to the bottom surface of the Mu-checker, it can be vertically mounted on the base.
- SPC Cable for connecting digital Mu-checker (936937) Used for connecting to the Digimatic mini-processor.
- Output cable A (934795) Used for connecting to external devices, such as data recorders, etc.

FEATURE

- Single touch zero-set function is standard.
- Switchable measurement ranges make the Mu-checker suitable for a range of applications, especially those that involve

- moderately fastchanging measurement values which suit the use of analog readout.
- Two types of analog display are available and one digital type.



- Analog, limit out (7P) connector (529035) Used for output to external data recorders, sequencers, etc.

Analog Mu-checker



Standard type 519-551



Differential type 519-553

Order No.	519-551*	519-553*
Type	Standard type (one probe required)	Differential type (one/two probes required)
Display range	±5µm/±15µm/±50µm/±150µm/±500µm/±1500µm	
Graduation	0.1µm/0.5µm/1µm/5µm/10µm/50µm	
Differential mode	±A	±A, ±B, ±A±B
Display accuracy (linearity)	±1% of full-scale reading	
Analog output	±1V at full-scale reading	
Analog output accuracy	Within ±0.1% of full-scale reading (excluding probe)	
Zero-setting adjustment range	Manual Instant zero setting: 1/3 of full scale for each range	
External dimensions	134(W) x 183(D) x 208(H) mm	
Mass	2.4kg	
Power input	AC adapter 100, 120, 220, 240 VAC 50/60 Hz	
Probe	Various probes (refer to pages G-25 and G-26)	

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, K for KC, C and No suffix are required for PSE.

Digital Mu-checker



Digital Mu-checker 519-561

Order No.	519-561*
Type	Differential type digital Mu-Checker (2 connecting heads)
Display range	±2.000mm/±0.2000mm
Resolution	0.001 mm/0.0001 mm
Differential mode	±A, ±B, ±A±B
Measurement mode	ABS/CMP
Analog output	±1V at full-scale reading
Digital output	Digimatic code out
External dimension	134(W) x 183(D) x 208(H) mm
Mass	Approx. 2.6kg
Power input	AC adapter 100, 120, 220, 240 VAC 50/60 Hz
Probe	Various probes (refer to pages G-25 and G-26)

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, K for KC, C and No suffix are required for PSE.

Mu-Checker SERIES 519 — 6-channel, No-display Type EV-16A Counter



FEATURE

- Up to six probes can be connected to one unit. Up to ten counters can be connected to one personal computer using the RS Link function to enable the configuration of a multi-point measurement system comprising a maximum of 60 gages.
- I/O outputs for RS-232C, BCD, tolerance judgment and segment output are available.
- Maximum, minimum and runout measurement between channels (in the same unit) is possible in addition to normal measurement on individual channels.

Main features

- External control (Zero-set, Preset etc.)
- Direction switching
- Error messaging
- Tolerance judgment output
- Each data output (RS-232C, BCD, segment)
- Peak measurement (maximum value, minimum value, runout) and arithmetic operation (addition, average, maximum value, minimum value, maximum width) between axes

Optional Accessories

- I/O output connector: **02ADB440**
- D-EV external unit: **02ADD400**
- SPC cable, 0.5m: **02ADD950**
- SPC cable, 1m: **936937**
- SPC cable, 2m: **965014**

Note 1: To perform calibration a **D-EV** display unit is required.
At least one **D-EV** unit is required when using multiple **EV-16A**.

Note 2: As a power supply is not supplied as standard, an appropriate power supply with a current capacity of 1A or more must be provided for each **EV-16A**.

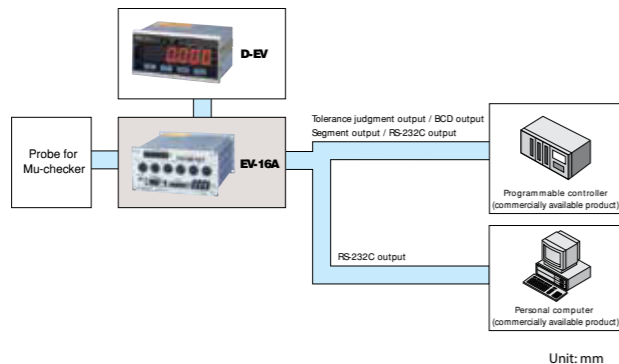
• SENSORPAK



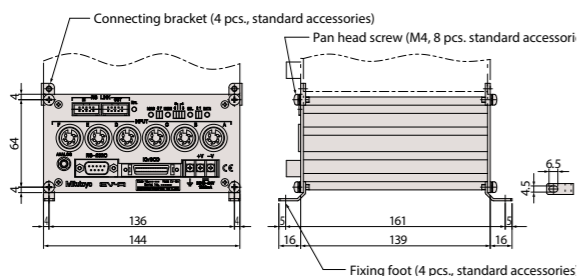
Refer to page G-20 for more details.

SYSTEM CONFIGURATION

Mitutoyo probes, EV-16A counters and D-EV display units combined with commercial controllers and personal computers enable construction of a powerful, multi-channel system that can be built to meet the needs of almost any measurement application.



DIMENSION



Order No.	519-335
Number of gage inputs	Six
Quantizing error	±1 LSD
Display range (mm)	±2.000, ±0.200
Resolution (mm)	0.001, 0.0001
Display processing	8 digits for parameters (display setting), 1 for error display
Error messaging	Power supply voltage error, Gage error, etc.
External display	Dedicated external display unit D-EV (optional) can be connected
Number of input switches	4
Input switch function	Measurement mode switching, Parameter settings
	Tolerance judgment output 1 to 6 gages (L1, L2, L3), open-collector
	BCD output Parallel BCD output (positive/negative-true logic), open-collector
I/O	Segment output A function to enable only output from the terminal corresponding to the counting values, open-collector
	Control output Normal operation signal (NOM), open-collector
	Control input Output channel designation (segment, in BCD mode), presetting, peak value clear, range changeover (at segment output), holding counting value, open-collector or no-voltage contact signal (with/without contact point)
Interface	RS-232C Measurement data output and control input, EIA RS-232C-compatible Use cross cables for home position DTE (terminal definition)
	RS link Max. connected units: 10 (6 when using EF counter) Connecting cable length: Max. 10 m (sum of link cable length) Data transfer time: 1.1 sec./60 ch (when transmission rate is 19200 bps)
Rating	Power supply voltage Terminal (M3 screw), 12-24VDC
	Current consumption 1A
Operating temperature (humidity) range	0 to 40 °C (RH 20 to 80%, no condensation)
Storage temperature (humidity) range	-10 to 50 °C (RH 20 to 80%, no condensation)
External dimensions	144(W) x 72(H) x 139(D) mm
Mass	Approx. 1000 g
Standard accessories	Fixing foot (4), connecting bracket (4), fixing screw M4 8 (8)
Applicable probes	For probes, refer to pages G-25 and G-26.

เลเซอร์สแกนไมโครมิเตอร์ SERIES 544 — 5 μm to 2 mm Measuring Unit LSM-500S Measuring Unit

Optional Accessories

Order No.	Display type	Remarks
544-071	Japanese mm/E	Japanese user's manual
544-071*	English mm/E	English user's manual
544-072*	English mm/inch	English user's manual

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.*

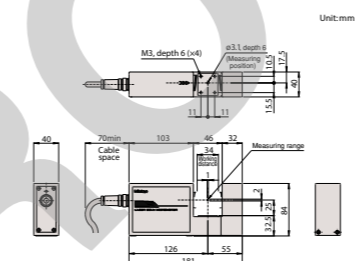
• Easy-to-operate display unit, LSM-5200:

Order No.	Remarks
544-046	Japanese user's manual
544-047	English user's manual

- Standard calibration gage set (ø0.1, ø2.0) : **02AGD110**
- Guide pulley : **02AGD200**
- Air blower : **02AGD220**

Order No.	Cable length
02AGN780A	5m
02AGN780B	10m
02AGN780C	15m

DIMENSIONS



FEATURE

- Capable of measuring down to 5 μm outside diameter*1.
- Provides ultra-high accuracy of ±0.3 μm over the entire measuring range (5 μm to 2 mm).

Order No.	544-531	544-532
Applicable laser standards	JIS	IEC, FDA
User's Manual	Japanese version	English version
Measuring range	0.005 to 2mm*1	
Resolution	0.01 to 10μm (selectable)	
Repeatability*2	±0.03μm	
Accuracy (20°C)*3	±0.3μm	
Positional error*4	±0.4μm	
Measuring range*5	1x2mm (0.005 to 2mm)	
Scanning rate	3200 scans/s	
Laser wavelength	650nm (Visible)	
Laser scanning speed	76m/s	
Operating Temperature	0 to 40°C	
environment Humidity	RH 35 to 85% (no condensation)	
Protection Level	IP64*6	

*1: The measuring range for a transparent object is 0.05 mm to 2 mm. Please consult your local Mitutoyo office for objects smaller than 0.05 mm. The measuring range is 0.1 mm to 2 mm in the 1 to 255 edge measurement mode or when activating automatic workpiece detection. If using the optional dual connection unit for LSM-6200, the measuring range will be 0.05 mm to 2 mm.

*2: Determined at the level of 2 (σ standard deviation) when measuring ø2 mm at the interval of 0.32 sec. (average 1024 times).

*3: Applies at the center of the measuring range when measuring outside diameters.

*4: An error in outside diameter measurement due to variation in workpiece position either in the optical axis direction or in the scanning direction.

*5: The area given by [optical axis direction] [scanning direction].

*6: The protection level provided for the interior. If the workpiece or glass of the measuring unit window is soiled by water or dust, the unit may malfunction.

Note: When using the extra-line line measurement function (FINE), guide messages for setting the following will not be displayed: dual-measurement, segment designation, automatic workpiece detection, and group judgment.



เลเซอร์สแกนไมโครมิเตอร์ SERIES 544 — 50 μm to 10 mm Measuring Unit LSM-501S Measuring Unit

Optional Accessories

Order No.	Display type	Remarks
544-071	Japanese mm/E	Japanese user's manual
544-071*	English mm/E	English user's manual
544-072*	English mm/inch	English user's manual

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.*

• Easy-to-operate display unit, LSM-5200:

Order No.	Remarks
544-046	Japanese user's manual
544-047	English user's manual

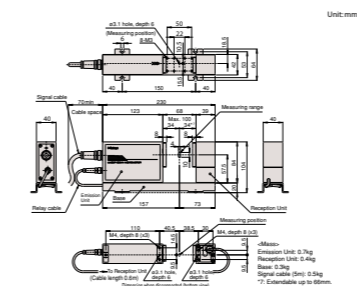
- Standard calibration gage set (ø0.1, ø10.0) : **02AGD120**
- Wire guiding pulley : **02AGD210**
- Adjustable workstage : **02AGD400**
- Air blower : **02AGD230**
- Workstage : **02AGD270**
- Extension signal cable

Order No.	Cable length
02AGN780A	5m
02AGN780B	10m
02AGN780C	15m

• Extension relay cable

Order No.	Cable length
02AGC150A	1m

DIMENSIONS



FEATURE

- Provides ultra-high accuracy of ±0.5 μm over the entire measuring range (0.05 to 10 mm).
- Narrow range accuracy of ±(0.3+0.1ΔD) μm for high-precision measurement.

Order No.	544-533	544-534
Applicable laser standards	JIS	IEC, FDA
User's Manual	Japanese version	English version
Measuring range	0.05 to 10mm	
Resolution	0.01 to 10μm (selectable)	
Repeatability*1	±0.04μm	
Accuracy (20°C)*2	Whole range	±0.5μm
	Small range	±(0.3+0.1ΔD)μm*3
Positional error*4	±0.5μm	
Measuring range*5	2x10mm (ø0.05 to ø0.1mm) 4x10mm (ø0.1 to ø10mm)	
Scanning rate	3200 scans/s	
Laser wavelength	650nm (Visible)	
Laser scanning speed	113m/s	
Operating Temperature	0 to 40°C	
environment Humidity	RH 35 to 85% (no condensation)	
Protection Level	IP64*6	

*1: Determined at the level of ±2σ(σ standard deviation) when measuring ø10 mm at the interval of 0.32 sec. (average 1024 times).

*2: Applies at the center of the measuring range when measuring outside diameters.

*3: ΔD=Difference in diameter between the master gage and workpiece. (Unit: mm)

*4: An error in outside diameter measurement due to variation in workpiece position either in the optical axis direction or in the scanning direction.

*5: The area given by [optical axis direction] [scanning direction].

*6: The protection level provided for the interior. If the workpiece or glass of the measuring unit window is soiled by water or dust, the unit may malfunction.



เลเซอร์สแกนไมโครมิเตอร์

SERIES 544 — 0.3 mm to 30 mm Measuring Unit LSM-503S Measuring Unit



FEATURE

- Ensures $\pm 1.0 \mu\text{m}$ accuracy over the entire measuring range (0.3 to 30 mm).
- Narrow range accuracy of $\pm(0.6+0.1\Delta D) \mu\text{m}$ for high-precision measurement.

Order No.	544-535	544-536
Applicable laser standards	JIS	IEC, FDA
User's Manual	Japanese version	English version
Measuring range	0.3 to 30mm	
Resolution	0.02 to 100 μm (selectable)	
Repeatability*1	$\pm 0.11 \mu\text{m}$	
Accuracy	Whole range	$\pm 1.0 \mu\text{m}$
(20°C)*2	Small range	$\pm(0.6+0.1\Delta D) \mu\text{m}^3$
Positional error*4	$\pm 1.5 \mu\text{m}$	
Measuring range*5	10x30mm (0.3 to 30mm)	
Scanning rate	3200 scans/s	
Laser wavelength	650nm (Visible)	
Laser scanning speed	226m/s	
Operating Temperature	0 to 40°C	
environment Humidity	RH 35 to 85% (no condensation)	
Protection Level	IP64*6	

*1: Determined at the level of $\pm 2\sigma$ (σ : standard deviation) when measuring $\phi 30 \text{ mm}$ at the interval of 0.32 sec. (average 1024 times).
 *2: Applies at the center of the measuring range when measuring outside diameters.
 *3: ΔD = Difference in diameter between the master gage and workpiece (Unit: mm)
 *4: An error in outside diameter measurement due to variation in workpiece position either in the optical axis direction or in the scanning direction.
 *5: The area given by [optical axis direction] [scanning direction].
 *6: The protection level provided for the interior. If the workpiece or glass of the measuring unit window is soiled by water or dust, the unit may malfunction.

Optional Accessories

• Multifunctional display unit, **LSM-6200**:

Order No.	Display type	Remarks
544-071	Japanese mm/E	Japanese user's manual
544-071*	English mm/E	English user's manual
544-072*	English mm/inch	English user's manual

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.

• Easy-to-operate display unit, **LSM-5200**:

Order No.	Remarks
544-046	Japanese user's manual
544-047	English user's manual

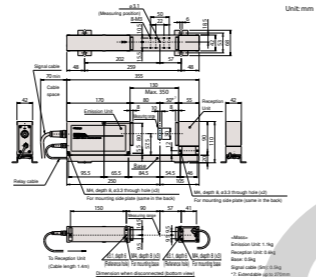
- Standard calibration gage set ($\phi 0.1, \phi 30.0$) : **02AGD130**
- Adjustable workstage : **02AGD490**
- Air blower : **02AGD240**
- Workstage : **02AGD270**
- Extension signal cable

Order No.	Cable length
02AGN780A	5m
02AGN780B	10m
02AGN780C	15m
02AGN780D	20m

• Extension relay cable

Order No.	Cable length
02AGC150A	1m
02AGC150B	3m
02AGC150C	5m

DIMENSIONS



เลเซอร์สแกนไมโครมิเตอร์

SERIES 544 — 1 mm to 120 mm Measuring Unit LSM-512S Measuring Unit



FEATURE

- Ensures $\pm 6 \mu\text{m}$ accuracy over the entire measuring range (1 to 120 mm).
- Narrow range accuracy of $\pm(4.0+0.5\Delta D) \mu\text{m}$ for high-precision measurement.

Optional Accessories

• Multifunctional display unit, **LSM-6200**:

Order No.	Display type	Remarks
544-071	Japanese mm/E	Japanese user's manual
544-071*	English mm/E	English user's manual
544-072*	English mm/inch	English user's manual

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.

• Easy-to-operate display unit, **LSM-5200**:

Order No.	Remarks
544-046	Japanese user's manual
544-047	English user's manual

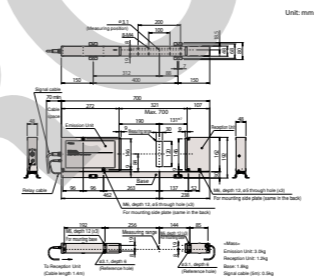
- Standard calibration gage set ($\phi 20.0, \phi 120.0$) : **02AGD150**
- Air blower : **02AGD260**
- Extension signal cable

Order No.	Cable length
02AGN780A	5m
02AGN780B	10m
02AGN780C	15m
02AGN780D	20m

• Extension signal cable

Order No.	Cable length
02AGC150A	1m
02AGC150B	3m
02AGC150C	5m

DIMENSIONS



เลเซอร์สแกนไมโครมิเตอร์

SERIES 544 — 1 mm to 60 mm Measuring Unit LSM-506S Measuring Unit



FEATURE

- Ensures $\pm 3 \mu\text{m}$ accuracy over the entire measuring range (1 to 60 mm).
- Narrow range accuracy of $\pm(1.5+0.5\Delta D) \mu\text{m}$ for high-precision measurement.

Order No.	544-537	544-538
Applicable laser standards	JIS	IEC, FDA
User's Manual	Japanese version	English version
Measuring range	1 to 60mm	
Resolution	0.05 to 100 μm (selectable)	
Repeatability*1	$\pm 0.36 \mu\text{m}$	
Accuracy	Whole range	$\pm 3 \mu\text{m}$
(20°C)*2	Small range	$\pm(1.5+0.5\Delta D) \mu\text{m}^3$
Positional error*4	$\pm 4 \mu\text{m}$	
Measuring range*5	20x60mm (1 to 60mm)	
Scanning rate	3200 scans/s	
Laser wavelength	650nm (Visible)	
Laser scanning speed	452m/s	
Operating Temperature	0 to 40°C	
environment Humidity	RH 35 to 85% (no condensation)	
Protection Level	IP64*6	

*1: Determined at the level of $\pm 2\sigma$ (σ : standard deviation) when measuring $\phi 60 \text{ mm}$ at the interval of 0.32 sec. (average 1024 times).
 *2: Applies at the center of the measuring range when measuring outside diameters.
 *3: ΔD = Difference in diameter between the master gage and workpiece (Unit: mm)
 *4: An error in outside diameter measurement due to variation in workpiece position either in the optical axis direction or in the scanning direction.
 *5: The area given by [optical axis direction] [scanning direction].
 *6: The protection level provided for the interior. If the workpiece or glass of the measuring unit window is soiled by water or dust, the unit may malfunction.

Optional Accessories

• Multifunctional display unit, **LSM-6200**:

Order No.	Display type	Remarks
544-071	Japanese mm/E	Japanese user's manual
544-071*	English mm/E	English user's manual
544-072*	English mm/inch	English user's manual

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.

• Easy-to-operate display unit, **LSM-5200**:

Order No.	Remarks
544-046	Japanese user's manual
544-047	English user's manual

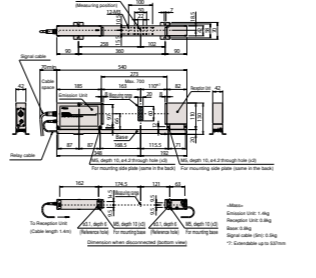
- Standard calibration gage set ($\phi 1.0, \phi 60.0$) : **02AGD140**
- Adjustable workstage : **02AGD520**
- Air blower : **02AGD250**
- Extension signal cable

Order No.	Cable length
02AGN780A	5m
02AGN780B	10m
02AGN780C	15m
02AGN780D	20m

• Extension relay cable

Order No.	Cable length
02AGC150A	1m
02AGC150B	3m
02AGC150C	5m

DIMENSIONS



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SERIES 544 — 1 mm to 160 mm Measuring Unit LSM-516S Measuring Unit



FEATURE

- Ensures $\pm 7 \mu\text{m}$ accuracy over the entire measuring range (1 to 160 mm).
- Narrow range accuracy of $\pm(4.0+2.0\Delta D) \mu\text{m}$ for high-precision measurement.

Optional Accessories

• Multifunctional display unit, **LSM-6200**:

Order No.	Display type	Remarks
544-071	Japanese mm/E	Japanese user's manual
544-071*	English mm/E	English user's manual
544-072*	English mm/inch	English user's manual

* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.

• Easy-to-operate display unit, **LSM-5200**:

Order No.	Remarks
544-046	Japanese user's manual
544-047	English user's manual

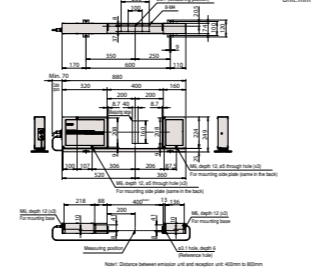
- Standard calibration gage set ($\phi 20.0, \phi 160.0$) : **02AGM300**
- Extension signal cable

Order No.	Cable length
02AGN780A	5m
02AGN780B	10m
02AGN780C	15m
02AGN780D	20m

• Extension signal cable

Order No.	Cable length
02AGC150A	1m
02AGC150B	3m
02AGC150C	5m

DIMENSIONS



Order No.	544-541	544-542
Applicable laser standards	JIS	IEC, FDA
User's Manual	Japanese version	English version
Measuring range	1 to 160mm	
Resolution	0.1 to 100 μm (selectable)	
Repeatability*1	$\pm 1.4 \mu\text{m}$	
Accuracy	Whole range	$\pm 7 \mu\text{m}$
(20°C)*2	Small range	$\pm(4.0+2.0\Delta D) \mu\text{m}^3$
Positional error*4	$\pm 8 \mu\text{m}$	
Measuring range*5	40x160mm (1 to 160mm)	
Scanning rate	3200 scans/s	
Laser wavelength	650nm (Visible)	
Laser scanning speed	1206m/s	
Operating Temperature	0 to 40°C	
environment Humidity	RH 35 to 85% (no condensation)	
Protection Level	IP64*6	

*1: Determined by the value of $\pm 2\sigma$ (σ : standard deviation) when measuring $\phi 160 \text{ mm}$ at the interval of 0.32 sec. (average 1024 times).
 *2: Center of the measuring range for cylindrical workpieces outside diameter.
 *3: ΔD = Difference in diameter between the master gage and workpiece (Unit: mm)
 *4: An error in outside diameter due to variation in workpiece position either in the optical axis direction or in the scanning direction.
 *5: The area given by [optical axis direction] x [scanning direction].
 *6: The protection level provided for the interior. If the workpiece or glass of the measuring unit window is soiled by water or dust, the unit may malfunction.

เลเซอร์สแกนไมโครมิเตอร์

SERIES 544 — 0.1 mm to 25 mm High Accuracy LSM-6902H Measuring Unit and 6900 Display



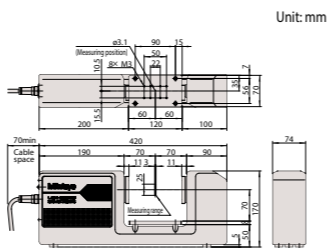
FEATURE

- Demonstrates the best repeatability available in the 25 mm class.
- The ultra-precise scanning motor enables the highest measurement accuracy to be realized.
- Thanks to excellent linearity, an accuracy of $\pm 0.5 \mu\text{m}$ over the entire measuring range and a higher accuracy of $\pm (0.3+0.1\Delta D)$ over a narrow range are guaranteed.
- The optimal solution for measuring the outside diameter of pin gages or plug gages.

Optional Accessories

- (Refer to page G-36 for details.)
- Standard calibration gage set ($\phi 1.0, \phi 25.0$) : **02AGD180**
- Workstage : **02AGD270**
- Adjustable workstage : **02AGD280**
- Digimatic code output unit (2-ch) : **02AGC840**

Measuring Unit External Dimensions



Unit: mm

Order No.	544-497	544-498	544-499
Measuring unit			
Type	mm	mm	inch/mm
Applicable standards	JIS	IEC, FDA	
Measuring range	0.1 to 25 mm (0.004 to 1.0 in)		
Resolution	0.01 to 10 μm (selectable) (0.00001 to 0.0005 in)		
Repeatability ¹⁾	Whole range: $\pm 0.045 \mu\text{m}$ (± 0.0000018 in) ($\phi 25$ mm) Narrow range: $\pm 0.03 \mu\text{m}$ (± 0.0000012 in) ($\phi 10$ mm)		
Accuracy ²⁾ (20 °C)	Whole range: $\pm 0.5 \mu\text{m}$ (± 0.000020 in) Narrow range: $\pm (0.3+0.1\Delta D)$ [D: mm] $\pm (0.000012+0.01\Delta D)$ [D: inch]*5		
Positional error ³⁾	$\pm 0.5 \mu\text{m}$ (± 0.000020 in)		
Measuring range ⁴⁾	± 1.5 mm x 25 mm (± 0.006 x1.0 in)		
Scanning rate	1600 scans/s		
Laser wavelength	650 nm (Visible)		
Laser scanning speed	112 m/s		
Operating environment	Temperature	0 to 40 °C	
	Humidity	RH 35 to 85 % (non-condensing)	

*1: At the 2 level in the case where $\phi 25$ mm and $\phi 10$ mm diameters are measured using a measurement time of 1.28 seconds (2048 scans on average).
*2: The value at the center of the measuring range.
*3: The additional error (in outside diameter) caused by workpiece movement within the measuring envelope during the measuring cycle.
*4: Length along optical axis x Scanning length (Measuring range)
*5: ΔD is the difference in outside diameter between the master gage and workpiece.
Note: To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.

เลเซอร์สแกนไมโครมิเตอร์

SERIES 544 — 0.5 mm to 60 mm High Accuracy LSM-9506 Integrated Display/Measuring Unit



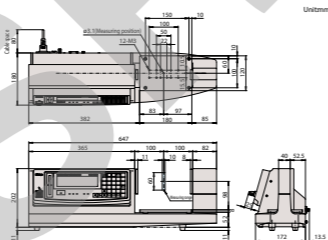
FEATURE

- High accuracy of $\pm 2.5 \mu\text{m}$, integrated display unit with many functions equivalent to the multifunction display unit.

Optional Accessories

- Standard calibration gage set ($\phi 1, \phi 60$): **02AGD170**

DIMENSIONS



Unit: mm

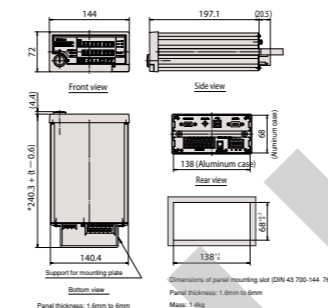
Order No.	544-115*	544-116**
Type	mm	inch/mm
Measuring range	0.5 to 60mm	0.02 in to 2.36 in/0.5 to 60 mm
Resolution	0.05 to 100 μm (selectable)	0.000002 in to 0.005/0.00005 to 0.1 mm
Repeatability ¹⁾	$\pm 0.6 \mu\text{m}$ (± 0.00003 ")	
Accuracy ²⁾ (20 °C)	$\pm 2.5 \mu\text{m}$ (± 0.0001 ")	
Positional error ³⁾ (optical axis/scanning direction)	$\pm 2.5 \mu\text{m}$ (± 0.0001 ")	
Measuring range ⁴⁾	± 5 x60mm (± 2 x2.36")	
Scanning rate	1600 scans/s	
Laser wavelength	650nm (Visible) ⁵⁾	
Laser scanning speed	226m/s (8900" / s)	
Display unit	16-digit dot matrix (upper column) + 7 segment 11-digit (lower column), guidance LEDs	
Standard interface	RS-232C, Digimatic code output unit (1ch)	
Optional interface	No	
Power supply	AC100V-240V $\pm 10\%$, 40VA, 50/60Hz	
Operating environment	0 to 40 °C, RH 35 to 85% (no condensation)	

*1: Determined at the level of $\pm 2\sigma$ (standard deviation) when measuring $\phi 10$ mm at the interval of 0.32 sec. (average 512 times).
*2: Applies at the center of the measuring range when measuring outside diameters.
*3: ΔD —Difference in diameter between the master gage and workpiece (Unit: mm)
*4: An error in outside diameter measurement due to variation in workpiece position either in the optical axis direction or in the scanning direction.
*5: FDA Class II (544-116-1A)/IEC Class 2 (All models except 544-116-1A) semiconductor laser for scanning (Maximum power: 1.0 mW)
* To denote your AC power cable add the following suffixes to the order No.: D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.
** To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, K for KC, C and No suffix are required for PSE.

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SERIES 544 — Panel-mount Type LSM-5200 Display Unit

DIMENSIONS



FEATURE

- A compact controller which could be used for multi-unit system configurations.
- A panel-mount type display unit designed for the LSM-S series.
- Analog I/O and RS-232C is standard.
- Measurement of odd fluted parts, and simultaneous measurement / 2-program function are equipped.



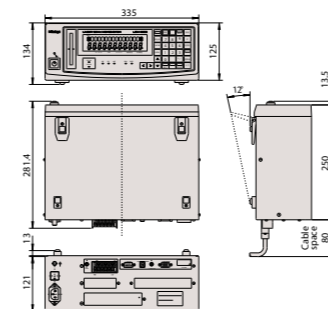
Order No.	544-047
Display	9 digits plus 8 digits LED, guide message LED
Segment	1 to 7 (1 to 3, transparent) or 1 to 255 edges ¹⁾
Averaging times	Arithmetic average: from 4 to 2048; Moving average: from 32 to 2048 (Arithmetic average is from 16 to 2048 when using LSM-500S .)
Judgment	Selecting from "target value \pm tolerance value" or "lower limit/upper limit".
Measurement mode	Standby, Single measurement, Continuous measurement
Statistical analysis	Calculation result is output via USB or RS-232C.
External dimensions	144 (W)x72 (H)x197.1 (D)mm
Power supply ³⁾	24V DC $\pm 10\%$, 1.3A or more
Standard I/F	USB2.0, RS-232C, I/O analog
Operating environment	0 to 40 °C, RH 35 to 85% (no condensation)
Preservation environments	20 to 70 °C, RH 35 to 85% (no condensation)
Others	Measurement of odd fluted parts, simultaneous measurement, nominal setting, sample setting, selection of unnecessary digits, transparent object measurement ²⁾ Automatic workpiece detection (dimension/position detected) ¹⁾ , abnormal data elimination, mastering, statistical processing (when using USB, RS-232C), output timer, automatic measurement in edge mode, presetting Note that every function is limited in its combination possibilities. See the user manual for details.
Mass	1.4 kg

*1: The measuring range will be 0.1mm to 2mm in the 1 to 255 edge measurement mode or when activating the automatic workpiece detection with **544-531, 544-532**. Each function has its combination limit.
*2: The measuring range is 50 mm to 2mm when using **544-531, 544-532**. For smaller ranges, contact your local Mitutoyo sales office.
*3: DC24V external power supply (commercial item) is required separately.
Note 1: Cannot be connected to **544-495, 544-496**.
Note 2: Previous models such as **544-451** cannot be connected.
Note 3: For USB communication with a PC, a dedicated device driver is required. For details, contact your local Mitutoyo sales office.

เลเซอร์สแกนไมโครมิเตอร์

SERIES 544 — Multi-function Type LSM-6200 Display Unit

DIMENSIONS



FEATURE

- 2-axis display unit enables 2 items to be displayed simultaneously.
- Capable of statistical analysis such as: average, maximum value, minimum value, range (max. to min.).
- Segment measurement (7 points) or edge measurement (1 to 255 edges) can be selected.
- A function to eliminate abnormal values is standard.
- 100 tolerance values, preset values, or settings can be stored.



Order No.	544-071*	544-072*
Type	mm	inch/mm
Display	16-digit plus 11-digit fluorescent display, and guide message LED	
Segment	1 to 7 (1 to 3, transparent) or 1 to 255 edges ¹⁾	
Averaging times	Arithmetic average: per 2 to 2048/ Moving average: per 32 to 2048 (Arithmetic average is per 16 to 2048 when using 544-531, 544-532)	
Judgment	Selection from "target value + tolerance", "lower tolerance + upper tolerance", or "7 classes multi-limit tolerance zone".	
Measurement mode	Standby, Single measurement, Continuous measurement	
Statistical analysis	Maximum, Minimum, Average, Dispersion, σ (S.D)	
Size	335 (W)x134 (H)x250 (D)mm	
Power supply	100 - 240 V AC $\pm 10\%$, 40VA, 50/60Hz	
Standard I/F	RS-232C, Analog I/O	
Optional I/F	Digimatic code output unit (2-ch), 2nd I/O analog I/F, BCD I/F	
Operating environment	0 to +40 °C, RH 35 to 85% (no condensation)	
Others	Nominal setting, sample setting, selection of unnecessary digits, transparent object measurement ²⁾ , measurement of odd fluted parts, automatic measurement in edge mode, output timer, abnormal data elimination, SHL change, group judgment, simultaneous measurement, statistical processing, mastering, buzzer function, automatic workpiece detection (dimension/position) ¹⁾ , zero-set/offset, dual measurement (optional)	

*1: The measuring range will be 0.1mm to 2mm in the 1 to 255 edge measurement mode or when activating the automatic workpiece detection with **544-531, 544-532**. Each function has its combination limit.
*2: The measuring range is 50 mm to 2mm when using **544-531, 544-532**. For smaller range, contact your local Mitutoyo sales office.
Note* To denote your AC power cable add the following suffixes to the order No.: A for UL/CSA, D for CEE, DC for CCC, E for BS, F for SAA, K for KC, C and No suffix are required for PSE.
Note** Cannot be connected to **544-495, 544-496**.
Note*** Previous models such as **544-451** cannot be connected.

อุปกรณ์เสริม SERIES 544 — Laser Scan Micrometer (Measuring Unit) Optional Accessories



Standard calibration gage set

- Standard cylinder gage set suitable for calibration of Laser Scan Micrometers.
- Nominal gage diameters (1 to 160mm) are as given in Specifications.

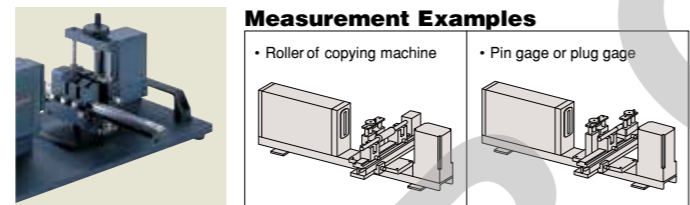
For calibrating models		LSM-6902H	LSM-500S	LSM-501S	LSM-503S	LSM-506S	LSM-512S	LSM-516S	LSM-9506
Set No.		544-498, 544-499	544-531, 544-532	544-533, 544-534	544-535, 545-536	544-537, 544-538	544-539, 544-540	544-541, 544-542	544-115, 544-116
Stand		02AGD180	02AGD110	02AGD120	02AGD130	02AGD140	02AGD150	02AGM300	02AGD170
Configuration (Order No.)	Gages	ø1: 02AGD920 ø25: 02AGD963	ø0.1: 958200 ø2: 958202	ø0.1: 958200 ø10: 229317	ø1: 02AGD920 ø30: 02AGD961	ø1: 02AGD920 ø60: 02AGD962	ø20: 229730 ø120: 234072	ø20: 229730 ø160: 02AGM303	ø1: 02AGD920 ø60: 02AGD962
	Carrying case	02AGD190	958203	958203	02AGD980	02AGD980	02AGD990	02AGM310	02AGD970



Workstage

- Easy set-up and height adjustment enables high-precision measurement.

Model	LSM-501S LSM-503S LSM-6902H
Order No.	02AGD270



Measurement Examples

- Roller of copying machine
- Pin gage or plug gage

Adjustable workstage

- Vertical/horizontal slide mechanism enables easy measurement of various workpiece diameters.
- Best suited for quality assurance of high precision pin gages.

Basic configuration

Basic set	Order No.	Model	Standard Accessories	Measuring range (mm)	Horizontal stroke (mm)	Vertical stroke (mm)
	02AGD280	LSM-6902H		0.1 - 25	130	47
(1) Main unit	02AGD400	LSM-501S	V-block (02AGD420), 2 pcs	0.05 - 10	130	32
(2) V-block	02AGD490	LSM-503S	Stopper (02AGD430), 1 pc	0.3 - 30	200	35
(3) Stop	02AGD520	LSM-506S*	V-block A (02AGD550), 2 pcs	1 - 60	300	45
	02AGD370	LSM-9506*	V-block B (02AGD560), 1 pc	0.5 - 60	200	45
	02AGD680	LSM-9506*	V-block C (02AGD570), 1 pc	0.5 - 60	300	45

* The stop is not included in the basic set for these models.
Note: Optional part for the adjustable workstage, such as center support, adjustable V-block (up/down) etc., are available.

Guide pulley

- Used for supporting measurement of outside diameter of fine wirelike materials such as magnetic wire or fiber.

Model	LSM-500S	LSM-501S
Order No.	02AGD200	02AGD270

Each measurement range is as follows:
LSM-500S: ø5 m to ø1.6 mm
LSM-501S: ø50 m to ø2 mm
 For calibration, the calibration gage set for **LSM-500S (02AGD110)** is required.



Air shield

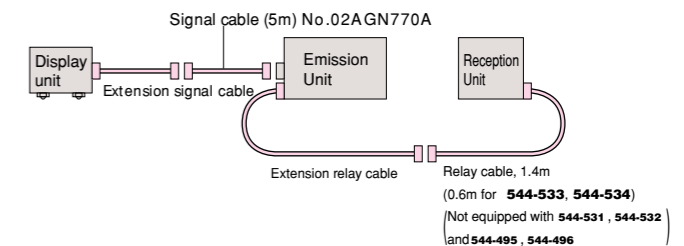
- Air blows from the air outlet installed on the laser section to clear dust adhering to the laser window.

Air supply unit	Air shield	Applicable models
957608	02AGD220	LSM-500S (544-531, 544-532)
	02AGD230	LSM-501S (544-533, 544-534)
	02AGD240	LSM-503S (544-535, 544-536)
	02AGD250	LSM-506S (544-537, 544-538)
	02AGD260	LSM-512S (544-539, 544-540)

Note: Air shield is supplied with 5 m air tube (Outside Diameter: 6 mm).

Extension signal cable / Extension relay cable

- Extension signal cables are necessary when the measuring unit and display unit are separated in operation; Extension relay cables are necessary when the optical section is separated in operation.



Extension signal cable

Order No.	Cable length
02AGN780A	5m
02AGN780B	10m
02AGN780C	15m
02AGN780D	20m

- * For 544-531, 544-532, 544-533, 544-534 the allowable maximum length for signal cable is 20 m; relay cable is 2 m.
- * For 544-535, 544-536, 544-537, 544-538, 544-539, 544-540, 544-541, 544-542 the allowable maximum length for signal cable is 30 m; relay cable is 5 m.
- * The maximum extension length of the signal cable and relay cable is 32 m in total.
- * Cannot be used with 544-498 and 544-499.

Extension relay cable

Order No.	Cable length
02AGC150A	5m
02AGC150B	3m
02AGC150C	5m

อุปกรณ์เสริม SERIES 544 — Laser Scan Micrometer (Display Unit) Optional Accessories

Thermal printer DPU-414

- Measurement data can be printed.

Order No.	02AGD600A, 02AGD600B, 02AGD600C, 02AGD600D
Printing method	Thermal dot matrix
Printing capacity	40 Columns (Normal)
Character configuration	9x8 dot matrix
Printing direction	Bidirectional
Interface	RS-232C
Power supply	AC 100 to 240V 50/60 Hz (AC adapter)
Standard Accessories	Printer cable 2m (02AGD620A), Printer paper 1 roll, AC adapter
Printer paper (optional)	Order No. 223663 (10-roll set)



Foot switch

- For **LSM-6200 (544-071, 544-072)**, **LSM-6902H (544-498, 544-499)** and **LSM-9506 (544-115, 544-116)**.



SENSOR SYSTEMS

ระบบเครื่องเซ็นเซอร์



อุปกรณ์เสริม

SERIES 544 Laser Scan Micrometer (Measuring Unit) Optional Accessories

Interface for LSM6200, 6900 BCD Interface

- Outputs measurement data in BCD output (7-digit) or HEX output.
- Data logic can be switched.
- Isolated I/O circuitry
- Available for **LSM-6200 (544-071, 544-072)** and **LSM-6902H (544-498, 544-499)**.

Order No.	02AGC910
Standard Accessories	Connector (DDK) 57-30360 (214188)

Digimatic code output unit

- 2-channel Digimatic code output
- In simultaneous measurement, measurement data are output as follows:
Program No. 0 to No. 4 in OUTPUT-1
Program No. 5 to No. 9 in OUTPUT-2
(10 programs operated)
- 10 pin MIL type connector.
- Output cable is not supplied.
- Connecting cable (optional) 1 m (**936937**)
- Available for **LSM-6200 (544-071, 544-072)** and **LSM-6902H (544-498, 544-499)**.
- * Output is 6 digits of measurement data.
- * Displaying 6th and 7th digit after the decimal point is not supported.

Order No.	02AGC840
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Dual connection unit

- Enables second unit connection to **LSM-6200 (544-071, 544-072)**. (both units must be the same model)
- * Cannot be used for **LSM-6902H (544-498, 544-499)**.
- Depending on the layout of the two measuring units, large-diameter measurement, XY measurement, and parallel measurement are possible.
- Both of the measuring units and display units can be simultaneously operated.

Order No.	02AGP150
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2nd I/O analog I/F

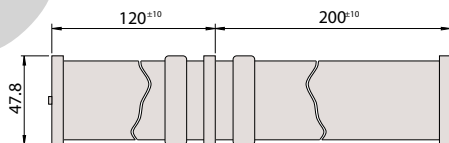
- I/O, analog output.
- Simultaneous measurement is supported by two pairs of GO/NG judgment outputs.
- Available for **LSM-6200 (544-071, 544-072)** and **LSM-6902H (544-498, 544-499)**.

Order No.	02AGC880
Standard Accessories	Connector (DDK) 57-30360 (214188)

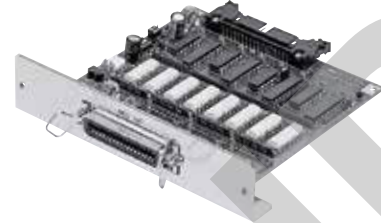
Cable for BCD and 2nd I/O simultaneous mount

- Both BCD (02AGC910) and 2nd I/O analog I/F (**02AGC880**) can be mounted on **LSM-6200 (544-071, 544-072)** and **LSM-6902H (544-498, 544-499)** using this cable.
- * If using this cable, the dual connection unit (**02AGP150**) cannot be used.

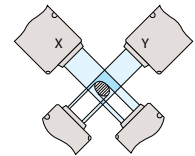
Order No.	02AGE060
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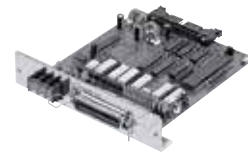
Unit:mm



XY Measurement



(X-Y): flatness
(X+Y)/2: average
* XY requires 10mm-interval.



Parallel Measurement

