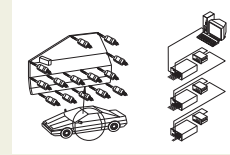
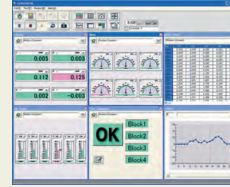


Linear Gauge Application Examples
Page 381



SENSORPAK
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Digimatic Linear Gauge
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Incremental Linear Gauge
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Linear Gauge with Reference Point
Page 397



Laser Hologage
Page 399

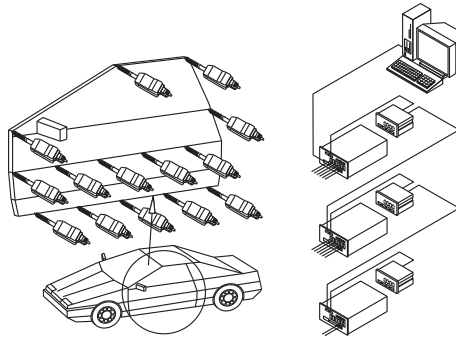


Motorized Low Force High Precision Gauges LITEMATIC
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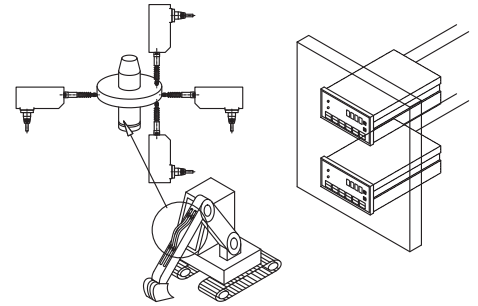


Linear Gauge Application Examples

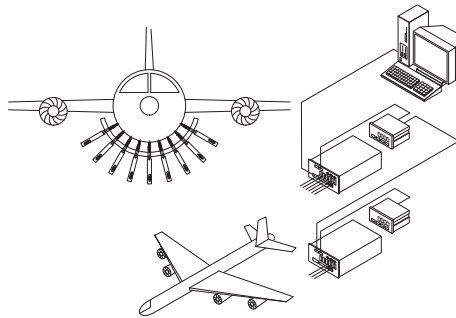
Linear Gage Applications



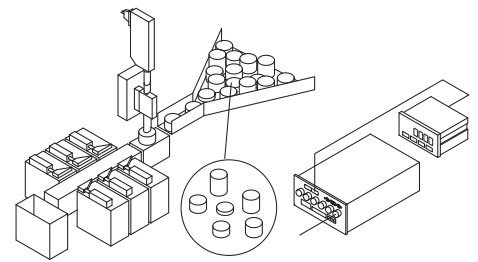
Multi-point measurement on car doors



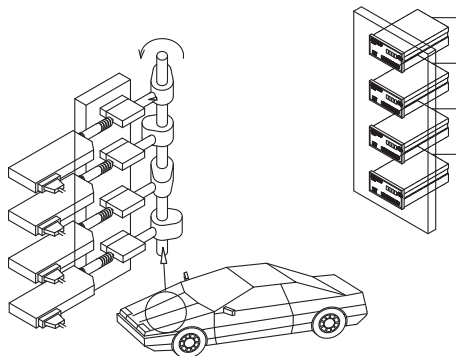
Dimensional measurement of fluid flywheels



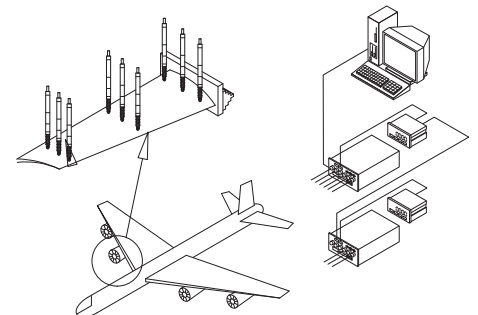
Measurement of aeroplane body deformation



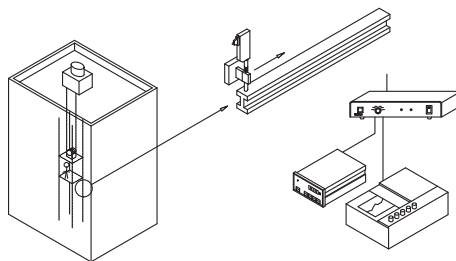
Sorting of parts according to size



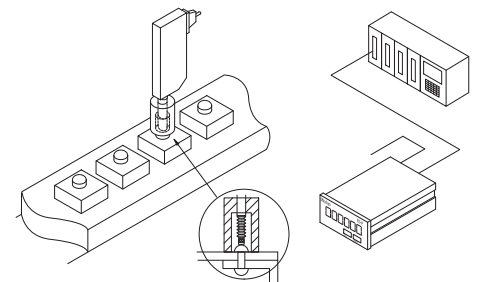
Cam measurement



Multi-point measurement on turbine blades



Measurement of deflection of lift guiding rails



Rivet head testing

SENSORPAK

The SENSORPAK supports the development of measuring facilities and measuring stations. It offers you the following benefits:

- It can simultaneously display measurement values from up to 60 sensors in real time.
- You can make calculations using measurement values from up to 30 sensors in real time.
- It enables a huge range of different graphical presentations of using measurement, such as number representation, pointer representation, scale representation.
- Data registration can be made in control cards or data tables.
- You can also carry out further data processing with external software, such as Microsoft® Excel® or MeasurLink.



Measurement screen



Meter screen

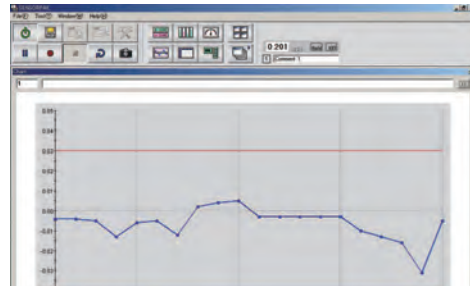


Chart screen

Model	SENSORPAK
No.	02NGB030
Price [€]	743,00
Output function	Direct output to Microsoft® Excel® spreadsheet, CSV file output (compatible with MeasurLink)
Calculation function	Calculation items : Sum, difference, total, average, maximum, minimum, range (maximum-minimum), calculation with a constant. Connectable gauges : Max. 30 calculation items (between desired gauges)
Total tolerance judgement	GO/NG judgement (by specifying gauges to be used for total tolerance judgement) GO/NG signal output with optional I/O cable
Input function	Trigger function : by means of keys timer or external TRG (with optional I/O cable). Data input frequency : Max. 9999 times (with 60 gauges connected) to 60000 times (with 6 gauges connected).
Connectable items	Various Mitutoyo counters (those compatible with RS LINK)
Applicable counter types	Counters with RS-232C interface, EH and EV
Display	Display type : Counter, bar graph, meter, chart (capable of simultaneous display). Tolerance judgement result : Color display (green/red) Connectable gauges : Max. 60 gauges

Optional accessories

No.	Description	Price €
12AAA807D	RS-232C cable (2m)	56,00

ABSOLUTE Digimatic Linear Gauge LGS Series



Series 575

The LGS is a compact ABS linear gauge that offers you the following benefits:

- Its patented ABSOLUTE Digimatic data output and IP-66 protection class give you best-of-breed technology.
- You can set up the LGS using holes in a plate or fixture, with its optional mounting accessories.

Specifications

Scale	Capacitance-type ABSOLUTE linear encoder
Max. response speed	1600 mm/s; (measuring by scanning not possible)
Contact point	Ø3 mm carbide < (fixing thread : M 2,5 x 0,45 mm)
Cable length	2 m
Power supply	5 to 10 V, 5 mA max.
Digital step	0,01 mm
Output signal	Digimatic output
Environmental conditions	0 °C to 40 °C (20 % to 80 % rel. humidity, no condensation)
Bearing type	Slide bearing

Optional accessories

No.	Description	Price €
02ADF640	SPC cable extension adapter	54,00
936937	Digimatic cable (1 m)	44,00
965014	Digimatic cable (2 m)	58,00

Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00
238774	Silicon rubber boot	11,00



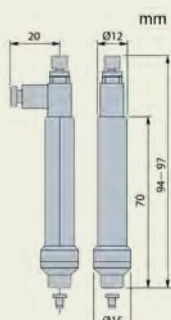
02ADF640



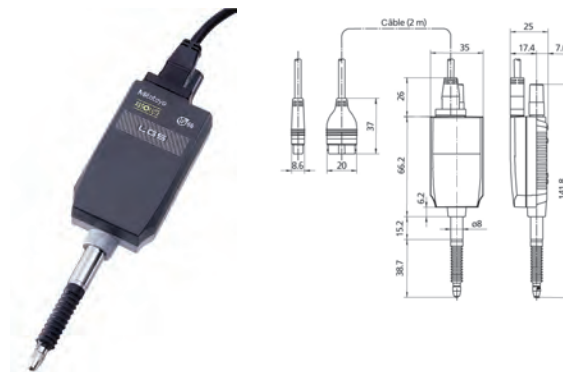
Refer to the Linear Gauge documentation for more details

Specifications

Throttle	Interior Ø 2,5 mm Exterior Ø 3,2 mm
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903594



575-303

Metric

No.	Range [mm]	Measuring force *1	Stem Ø	Accuracy	Direction of counting	Price [€]
575-303	0-12,7	2 N/1,8 N/1,6 N	8 mm	0,015 mm	positive	182,00
575-304	0-12,7	2 N/1,8 N/1,6 N	8 mm	0,015 mm	negative	182,00

*1 Spindle DOWN/Horizontal/Spindle UP



Air Drive Unit

- Provides smooth lifting and lowering of the contact point of a gauge by pneumatic cylinder.
- The speed of lift can be regulated by the throttle on the remote cylinder.
- Enables automatic measurement by using a single solenoid valve.

No.	Range [mm]	Suitable for gage model	Air supply [MPa]	Mass [g]	Price [€]
903594	10	LGS	0,49	60	153,00

ABSOLUTE Digimatic Linear Gauge LGD Series

Series 575

The ABSOLUTE Digimatic Linear Gauge LGD is compact measuring instrument that you can use for a wide range of measuring tasks.

It offers you the following benefits:

- Built-in ABSOLUTE capacitive measuring system.
- Suitable for installation in machines, measuring devices and multi-position measurements.
- IP-66 protection class.
- Zero-setting via external display unit (542-007) is possible.
- You can output data in Digimatic format, so you can document and determine measurement values, as well as carry out statistical evaluation via connected Digimatic data processing units.

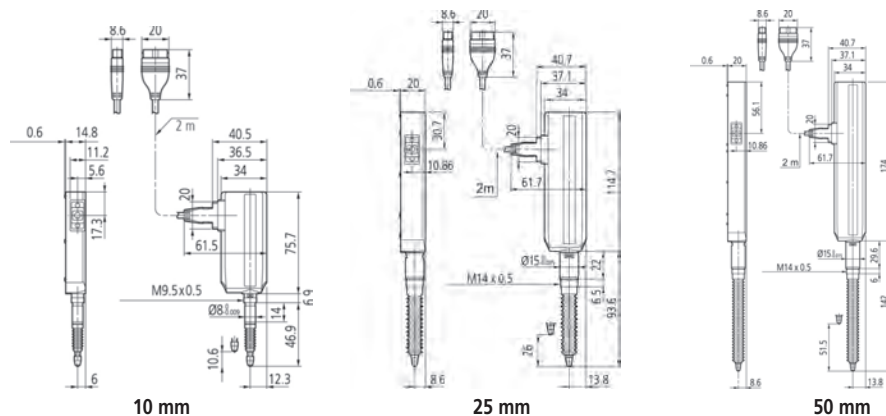


575-326

Metric

No.	Range [mm]	Measuring force *1	Stem Ø	Accuracy	Cable length [m]	Mass [g]	Price [€]
575-326	0-10	1,2 N/1,1 N/1 N	8 mm	20 µm	2	260	499,00
575-326-3	0-10	1,2 N/1,1 N/1 N	8 mm	20 µm	3	310	520,00
575-326-5	0-10	1,2 N/1,1 N/1 N	8 mm	20 µm	5	360	536,00
575-326-7	0-10	1,2 N/1,1 N/1 N	8 mm	20 µm	7	410	552,00
575-327	0-25	4,6 N/4,3 N/4 N	15 mm	20 µm	2	300	562,00
575-327-3	0-25	4,6 N/4,3 N/4 N	15 mm	20 µm	3	350	584,00
575-327-5	0-25	4,6 N/4,3 N/4 N	15 mm	20 µm	5	400	599,00
575-327-7	0-25	4,6 N/4,3 N/4 N	15 mm	20 µm	7	450	615,00
575-328	0-50	5,7 N/5,3 N/4,9 N	15 mm	30 µm	2	400	610,00
575-328-3	0-50	5,7 N/5,3 N/4,9 N	15 mm	30 µm	3	450	631,00
575-328-5	0-50	5,7 N/5,3 N/4,9 N	15 mm	30 µm	5	500	647,00
575-328-7	0-50	5,7 N/5,3 N/4,9 N	15 mm	30 µm	7	550	663,00

*1 Spindle DOWN/Horizontal/Spindle UP



Specifications

Scale	Capacitance-type ABSOLUTE linear encoder
Max. response speed	Unlimited; measurement by scanning cannot be performed
Contact point	Ø3 mm carbide
Power supply	5 V (4,8 V to 5,2 V)
Digital step	0,01 mm
Output signal	Digimatic
Environmental conditions	0 °C to 40 °C (20 % to 80 % rel. humidity, no condensation)
External input	Origin-setting signal
Bearing type	Linear ball bearing

Standard accessories

No.	Description
538610	Wrench for contact point (for 10 range models)
04GAA857	Wrench for contact point (for 25/50 range models)

Optional accessories

No.	Description	Price €
Data cable		
02ADF640	SPC cable extension adapter	54,00
936937	Digimatic cable (1 m)	44,00
965014	Digimatic cable (2 m)	58,00
Fixing set		
02ADB680	Fixing set Ø 9,5 (for 10 models)	20,00
02ADN370	Fixing set Ø 18 (for 25/50 models)	25,00
Pneumatic drive		
02ADE230	Pneumatic drive CAP 10	313,00
02ADE250	Pneumatic drive CAP 25	451,00
02ADE270	Pneumatic drive CAP 50	499,00
Thrust stem		
02ADB683	Thrust stem wrench (for 10 range models)	12,00
02ADB693	Thrust stem wrench (for 25/50 range models)	12,00

Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00
Rubber boots		
238772	10 rubber boot	8,00
962504	25 rubber boot	25,00
962505	50 rubber boot	27,00



02ADF640

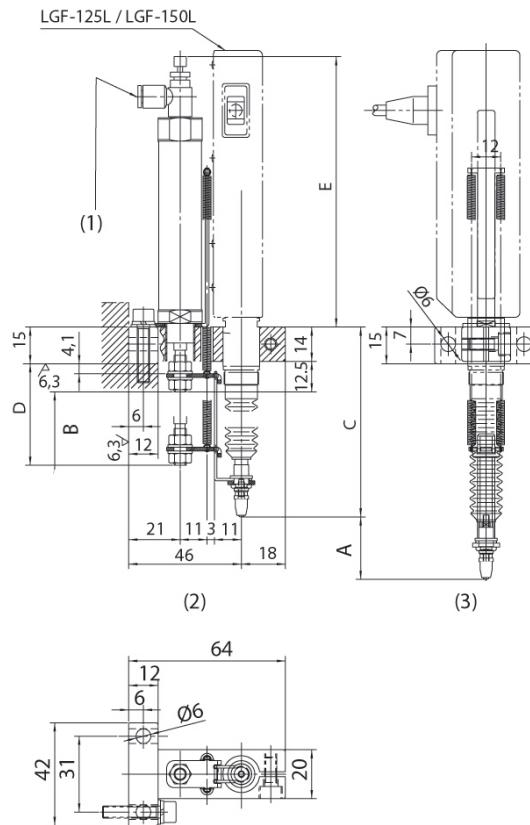
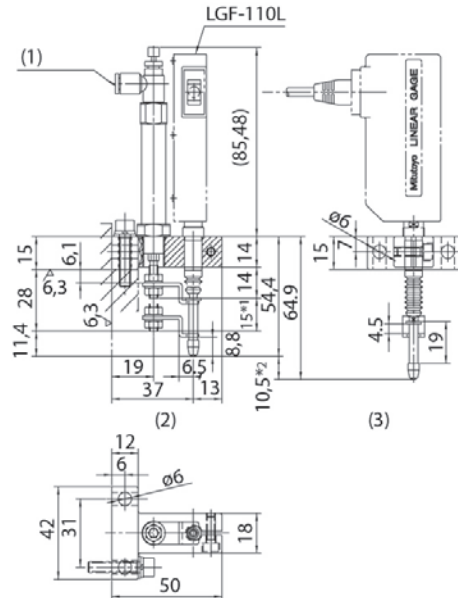


Refer to the Linear Gauge documentation for more details

Air Drive Unit for Linear Gauges



Refer to the Linear Gauge documentation for more details



1. Speed controller
2. At air supply off
3. At air supply on

No.	Range [mm]	Air supply [MPa]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Price [€]
02ADE230	0-10	0,2 to 0,4						313,00
02ADE250	0-25	0,2 to 0,4	25,5	30	77,6	41,5	110,5	451,00
02ADE270	0-50	0,2 to 0,4	51	50	95,9	66,5	159,5	499,00

EH/EC Counters for Linear Gages LGD and LGS

Series 542

This Digimatic display can be connected to any device with Digimatic output, including many micrometers, dial indicators and measuring gauges.

It offers you the following benefits:

- DIN-compatible compact front panel assembly (96 x 48mm).
- It has a data output and tolerance evaluation function (542-007).



542-007



542-007

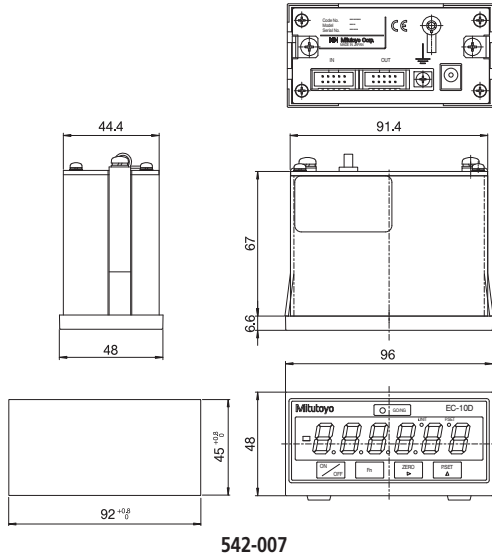


542-072

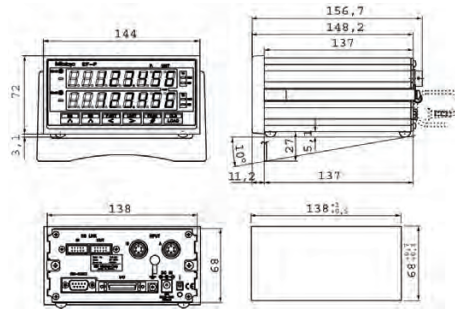


542-072

No.	Number of axis	Description	Price [€]
542-007D	1	EC Counter	330,00
542-072D	2	EH Counter	999,00



542-007



542-072

Functions	Series 542
Digimatic data output	●
Digimatic data input	●
Zero set	●
Counting direction switchable	●
Key lock	●
mm / inch switching	●
Tolerance limit input	●

Specifications

Resolution [µm]	0,01 mm or 0,001 mm depending on the connected measuring instrument
Applicable input	For 542-072 Differential square-wave Green LED display, 6 digits, with (-) sign
Power supply	+ 9 - 12 V DC 400 mA or AC adapter
Display	For 542-0007 Green LED display, 6 digits, with (-) sign

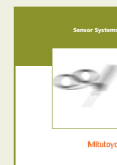
Standard accessories

No.	Description
526688D	AC adapter 9V 500mA
02ADN460	AC adapter
02ZAA020	AC cable

02ADN460/02ZAA020/02ZAA030 : for 542-072
526688D/526688UK : for 542-007

Optional accessories

No.	Description	Price €
06ADV380D	USB Input Tool Direct cable (2 m)	100,00
02AZD790D	Connecting cable U-Wave	85,00
936937	Digimatic cable (1 m)	44,00
965014	Digimatic cable (2 m)	58,00
For 542-007		
C162-155	I/O cable (2 m)	47,00
For 542-072		
12AAA807D	RS-232C cable (2m)	56,00
02ADB440	BCD-I/O-Data connector	43,00



Refer to the Linear Gauge documentation for more details

EG/EB Counter

Series 542

This is a compact counter with a control panel that offers you the following benefits:

- Control panel according to DIN (96 x 48 mm).
- Its I/O control function enables tolerance judgement evaluation (3 or 5 steps) or parallel BCD output function.

	Series 542	
	542-016	542-093-2
Functions		
PRESET (preselection)	●	●
Digimatic data input	●	●
Calculation of sum	●	●
Counting direction switchable	●	●
Error display	●	●
GO/±NG signal output (3 or 5 step)	●	●
MAX / MIN / Difference measurement	●	●
mm / inch switching	●	●
Key lock	●	●
External control	●	●
Output I/O	●	●
Analogue output		●
Tolerance judgement (3 or 5 step)	●	●
Tolerance limit input	●	●

Specifications

For 542-016

Display Green LED display, 6 digit, with (-) sign, character height : 15 mm

542-093-2 has the same technical specifications as 542-092-2

Optional accessories

No.	Description	Price €
02ADB440	BCD-I/O-Data connector	43,00
02ADD930	Three-wire cable for power supply via AC adapter	33,00
02ZAA020	AC cable	12,00
For 542-093-2		
02ADF180	10-key unit	244,00
02ADN460	AC adapter	65,00
06ADV380D	USB Input Tool Direct cable (2 m)	100,00
02AZD790D	Connecting cable U-Wave	85,00
965014	Digimatic cable (2 m)	58,00
936937	Digimatic cable (1 m)	44,00



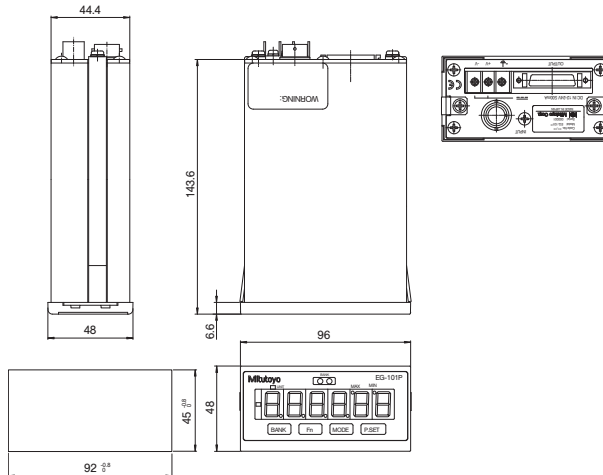
Refer to the Linear Gauge documentation for more details



542-016



542-016



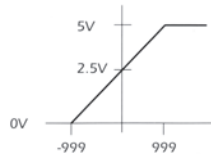
542-016 + 542-093-2

Output applicable input for counter 542-093-2 (series EB)

Specifications :

- Output voltage 2.5 V + [Counting value x voltage resolution (25 mV or 2.5 mV)]
- Full scale : 0 V to 5 V, accuracy is indicated by full scale 5 V
- Accuracy : ± 5 % (0 V to 5 V) ± 0.5 % (2.5 V ± 200 mV after setting the gap)
- Charge resistance : 300 kΩ or more

No.	Gage inputs	Resolution (Depending on gage type connected)	Mass [g]	Price [€]
542-016	1	0,01 mm, 0,001 mm	400	493,00
542-093-2	1	0,01 mm, 0,001 mm	400	556,00



542-093-2



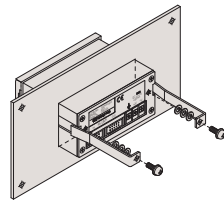
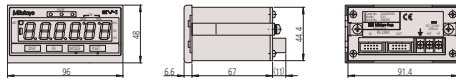
542-093-2

Display Unit for Multi-Gauge System

Series 542



02ADD400



02ADD400

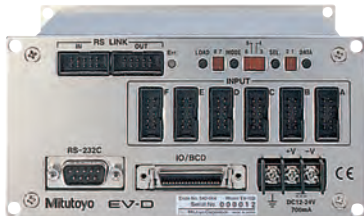
Specifications for 02ADD400

No.	Description	Price [€]
02ADD400	One display unit allows external display and setting for one EV counter LED display : Channel display. Measurement mode display (current, maximum, minimum, runout) Functions : Channel switching, measurement mode switching (current value, maximum value, minimum value, and runout), parameter setting, preset, and tolerance setting Input/output : RS Link connector : 1 in and 1 out Error display : Overspeed, Linear gage error and others	430,00

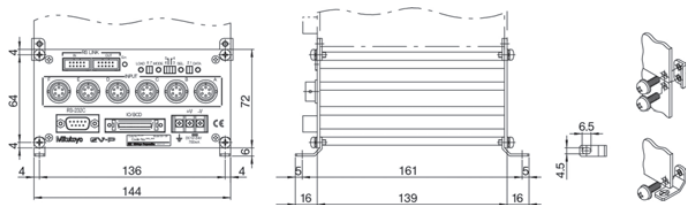
Linear Gages EV Counter

Series 542

- You can connect up to six gauges, and by using the RS Link function, you can connect up to 10 EV Counters to one PC.
- Multi-point measuring systems with a maximum of 60 gauges can be configured.
- You can select several different output modes, including I/O output for tolerance judgement and segment output, BCD data output and RS-232C output.
- Terminal connector (M3 screws), DC+12 to +24V, 700 mA (max.)
- Up to 10 EV counters can be connected via a single RS-232 port. (daisy chain). EV and EF counters can be mixed (in which case a total of six counters can be connected).



542-064 EV-D



542-064

No.	Input signal type	Gage inputs	Resolution (internal) - no display capability	Mass [g]	Price [€]
542-064	Digimatic code (SPC)	6	0,001 mm, 0,01 mm	830	1288,00



Refer to the Linear Gauge documentation for more details

Functions	Series 542
Digimatic data input	●
Zero set	●
PRESET	●
Sum/difference of two probes	●
Calculation of sum	●
ABS/INC	●
Counting direction switchable	●
Error display	●
MAX / MIN / Difference measurement	●
mm / inch switching	●
Tolerance limit setting (3 or 5 step)	●
External control	●
RS-232C Output	●
I/O Output	●
+NG/-NG/GO Output on open collector	●
Error output	●
Tolerance limit input	●

Optional accessories

No.	Description	Price €
02ADB440	BCD-I/O-Data connector	43,00
02ADD930	Three-wire cable for power supply via AC adapter	33,00
965014	Digimatic cable (2 m)	58,00
06ADV380D	USB Input Tool Direct cable (2 m)	100,00
02AZD790D	Connecting cable U-Wave	85,00
02ADD400	Display for series 542	430,00
12AAA807D	RS-232C cable (2m)	56,00
936937	Digimatic cable (1 m)	44,00
02ADN460	AC adapter	65,00
02ZAA020	AC cable	12,00



Refer to the Linear Gauge documentation for more details

Linear Gauge LGF Series



Functions	Series 542
Counting direction switchable	

Specifications

Scale	Photoelectric linear encoder
Contact point	Ø3 mm carbide (mounting threads M 2,5 x 0,45)
Cable length	2 m
Power supply	+ 5 V (4,8 V to 5,2 V), 120 mA max.
Output signal	90° phase difference, differential square wave (RS-422A equivalent), edge distance 200 ns for 1 µm model, 250 ns for 0,5 µm model, 200 mV p-p max.
Environmental conditions	0 °C to 40 °C (20 % to 80 % rel. humidity, no condensation)
Bearing type	Linear ball bearing

Standard accessories

No.	Description
538610	Wrench for contact point (for 10 range models)
04GAA857	Wrench for contact point (for 25/50 range models)

Optional accessories

No.	Description	Price €
Extension cable		
902432	Extension cable (20 m)	310,00
902433	Extension cable (10 m)	222,00
902434	Extension cable (5 m)	175,00
Fixing set		
02ADB680	Fixing set Ø 9,5 (for 10 models)	20,00
02ADN370	Fixing set Ø 18 (for 25/50 models)	25,00
Pneumatic drive		
02ADE230	Pneumatic drive CAP 10	313,00
02ADE250	Pneumatic drive CAP 25	451,00
02ADE270	Pneumatic drive CAP 50	499,00
Thrust stem		
02ADB683	Thrust stem wrench (for 10 range models)	12,00
02ADB693	Thrust stem wrench (for 25/50 range models)	12,00

Consumable spares

No.	Description	Price €
238772	10 rubber boot	8,00
962504	25 rubber boot	25,00
962505	50 rubber boot	27,00
901312	Standard contact point	11,00



Refer to the Linear Gauge documentation for more details

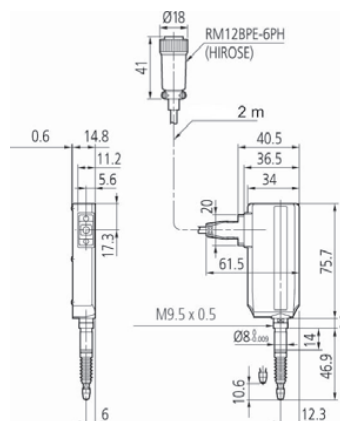
Series 542

This is very robust and economical linear gauge that offers you the following benefits:

- The advanced construction of the plunger guidance assembly makes it very resistant to external shocks and vibration.
- IP-66 protection class.
- Its differential square-wave signal output allows you to use it for a wide range of applications.
- It is very long lasting due to linear ball-bearings in the spindle unit.



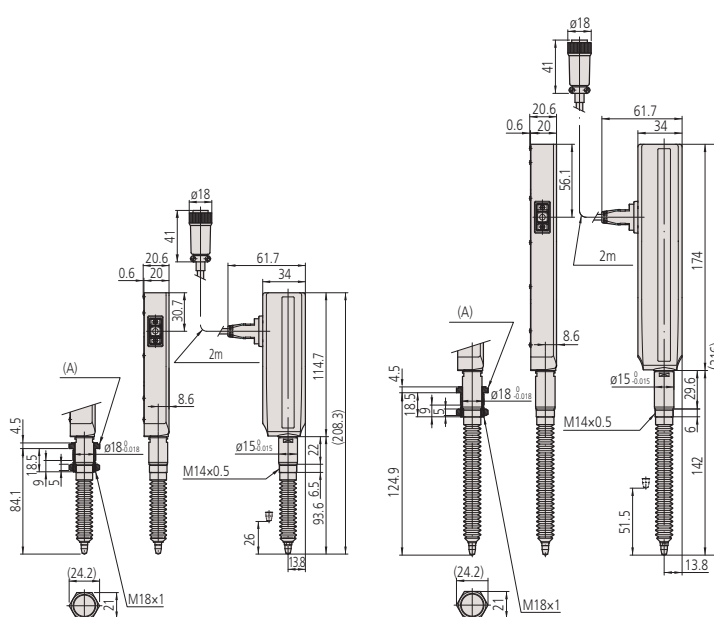
542-161



10 mm (A) Optional fixing set

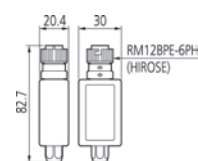
No.	Range [mm]	Measuring force *1	Resolution [mm]	Stem Ø	Max. re- sponse speed	Accuracy	Signal pitch [µm]	Mass [g]	Price [€]
542-612	0-25	4,6/4,3/4 N	0,005	15 mm	1500 mm	(7,5 + L/50) µm	20	300	474,00
542-613	0-50	4,6/4,3/4 N	0,005	15 mm	1500 mm	(7,5 + L/50) µm	20	400	530,00
542-161	0-10	1,2/1,1/1 N	0,001	8 mm	1500 mm	(1,5 + L/50) µm	4	260	530,00
542-162	0-25	4,6/4,3/4 N	0,001	15 mm	1500 mm	(1,5 + L/50) µm	4	300	752,00
542-163	0-50	5,7/5,3/4,9 N	0,001	15 mm	1500 mm	(1,5 + L/50) µm	4	400	762,00
542-123	0-50	5,7/5,3/4,9 N	0,001	15 mm	1500 mm	(1,5 + L/50) µm	4	380	
542-171	0-10	1,2/1,1/1 N	0,0005	8 mm	1500 mm	(1,5 + L/50) µm	2	260	556,00
542-172	0-25	4,6/4,3/4 N	0,0005	15 mm	1500 mm	(1,5 + L/50) µm	2	300	783,00
542-173	0-50	5,7/5,3/4,9 N	0,0005	15 mm	1500 mm	(1,5 + L/50) µm	2	400	822,00
542-181	0-10	1,2/1,1/1 N	0,0001	8 mm	400 mm	(0,8 + L/50) µm	0,4	310	881,00
542-182	0-25	4,6/4,3/4 N	0,0001	15 mm	400 mm	(0,8 + L/50) µm	0,4	350	1112,00

*1 Spindle DOWN/Horizontal/Spindle UP



25 mm (A) Optional fixing set

50 mm (A) Optional fixing set



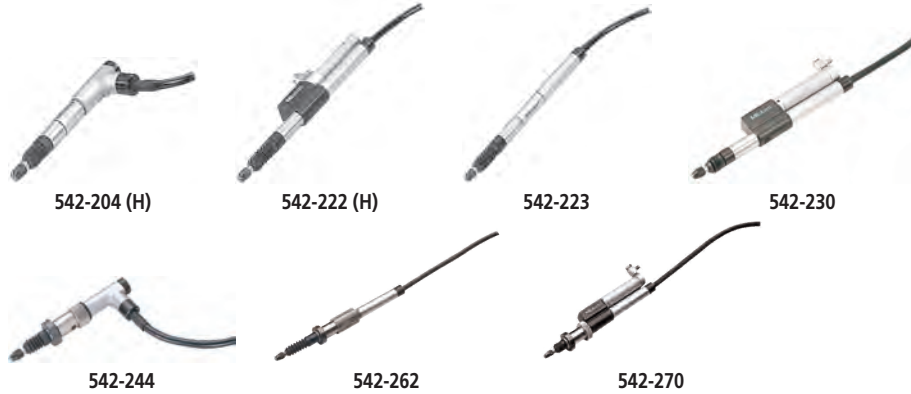
Connector 542-181/542-182

Slim Head Linear Gauge LGB Series

Series 542

This is an extra slim linear gauge that offers you the following benefits:

- Its differential square-wave signal output allows you to use it for a wide range of applications.
- You can fit it into tight spaces due to its extra compact design and diameter of only 8 mm.
- Its photoelectric scale gives it high precision across the entire measuring range.
- It is very long lasting due to linear ball-bearings in the spindle unit.



No.	Range	Measuring force *1	Stem Ø	Accuracy	Remarks	Mass [g]	Price [€]
542-244	0-5 mm	0,65 N/0,6 N/0,55 N	9,5 mm	2 µm	-		855,00
542-204	0-5 mm	0,65 N/0,6 N/0,55 N	8 mm	2 µm	-	145	711,00
542-204H	0-5 mm	0,8 N/0,75 N/0,7 N	8 mm	1 µm	-	145	855,00
542-222	0-10 mm	0,8 N/0,75 N/0,7 N	8 mm	2 µm	-	150	711,00
542-222H	0-10 mm	0,8 N/0,75 N/0,7 N	8 mm	1 µm	-		948,00
542-224	0-10 mm	0,6 N/0,55 N/0,5 N	8 mm	2 µm	Low measuring force	165	752,00
542-230	0-10 mm	0,8 N/0,75 N/0,7 N	8 mm	2 µm	w/pneumatic cylinder		1420,00
542-223	0-10 mm	0,8 N/0,75 N/0,7 N	8 mm	2 µm	w/pneumatic cylinder	165	886,00
542-262	0-10 mm	0,8 N/0,75 N/0,7 N	9,5 mm	2 µm	-		1029,00
542-262H	0-10 mm	0,8 N/0,75 N/0,7 N	9,5 mm	1 µm	-		1226,00
542-264	0-10 mm	0,6 N/0,55 N/0,5 N	9,5 mm	2 µm	Low measuring force		773,00
542-270	0-10 mm	0,8 N/0,75 N/0,7 N	9,5 mm	2 µm	w/pneumatic cylinder		922,00

*1 Spindle DOWN/Horizontal/Spindle UP

Specifications

Resolution [µm]	0,001 mm
Scale	Photoelectric linear encoder
Max. response speed	900 mm/s
Contact point	Ø3 mm carbide Ø8 mm or Ø9,5 mm
Cable length	2 m
Power supply	5 V (4,5 V to 5,2 V), 80 mA max.
Output signal	90° phase difference, differential square wave (RS-422A equivalent) (Sine-wave output : 542-401, 542-421)
Environmental conditions	0°C to 40°C (20% to 80% rel. humidity, no condensation)
Bearing type	Linear ball bearing

Standard accessories

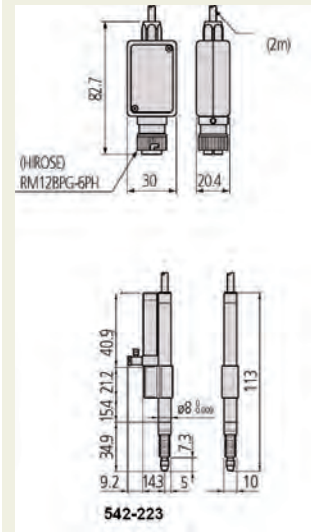
No.	Description
538610	Wrench for contact point (for 10 range models)

Optional accessories

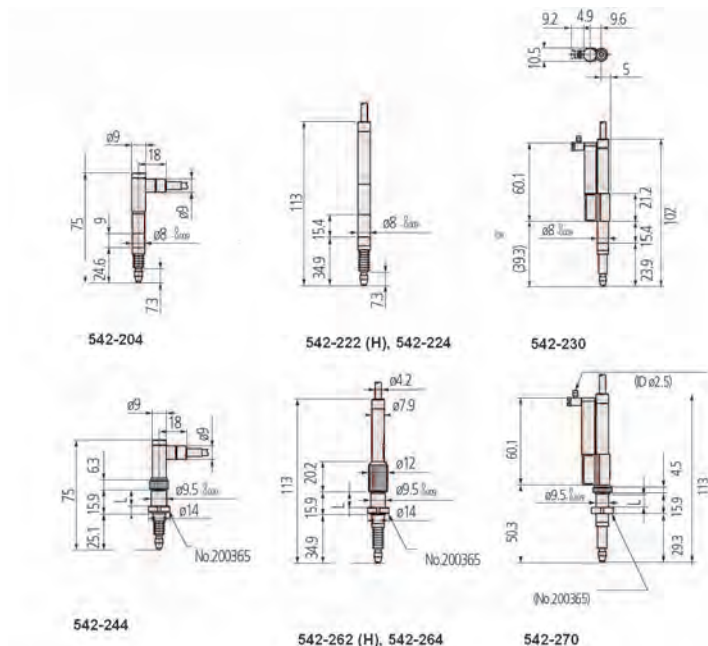
No.	Description	Price €
902434	Extension cable (5 m)	175,00
902433	Extension cable (10 m)	222,00
902432	Extension cable (20 m)	310,00
02ADE230	Pneumatic drive CAP 10	313,00

Consumable spares

No.	Description	Price €
238772	10 rubber boot	8,00
238773	5 rubber boot	5,50
901312	Standard contact point	11,00



Refer to the Linear Gauge documentation for more details



High Resolution Linear Gauge LGB Series



Specifications

Scale	Photoelectric linear encoder
Max. response speed	380 mm/s
Contact point	Ø3 mm carbide (mounting threads M 2,5 x 0,45)
Cable length	2 m
Power supply	5 V (4,5 V to 5,2 V), 150 mA max.
Digital step	0,1 mm
Output signal	90° phase difference, 200 mV p-p max.
Environmental conditions	0°C to 30°C (20% to 80% rel. humidity, no condensation)
Bearing type	Linear ball bearing

Series 542

The Linear Gauge LGB offers you the following benefits:

- It has an extra compact design, and its small photoelectric scale lets you measure at high precision across the entire range.
- Differential square-wave signal output allows you to use it for a wide range of applications.
- You can install it in machines and measuring devices.
- Very long life due to the linear ball-bearings in the spindle unit.



Standard accessories

No.	Description
538610	Wrench for contact point (for 10 range models)

Optional accessories

No.	Description	Price €
902434	Extension cable (5 m)	175,00
902433	Extension cable (10 m)	222,00
902432	Extension cable (20 m)	310,00

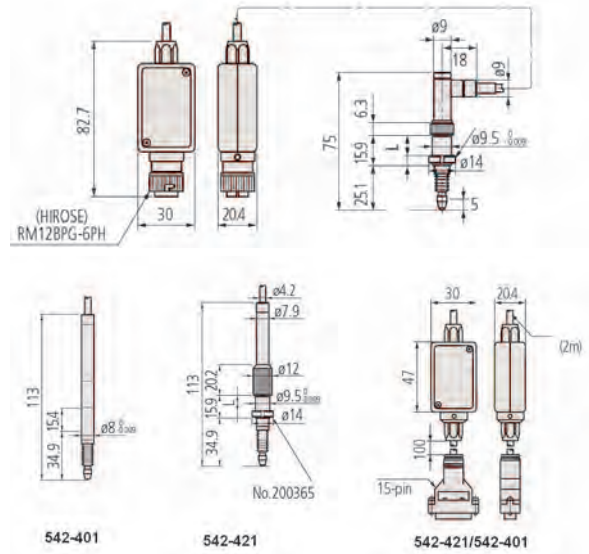
Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00
238773	5 rubber boot	5,50



Refer to the Linear Gauge documentation for more details

542-246



No.	Range	Measuring force *1	Stem Ø	Accuracy	Remarks	Mass [g]	Price [€]
542-401	0-10 mm	0,8 N/0,75 N/0,7 N	8 mm	2 µm	Sine wave output		
542-421	0-10 mm	0,8 N/0,75 N/0,7N	9,5 mm	2 µm	Sine wave output		
542-246	0-5 mm	0,65 N/0,6 N/0,55 N	9,5 mm	0,8 µm		160	2101,00

*1 Spindle DOWN/Horizontal/Spindle UP

Slim Head Linear Gauge LGK Series

Series 542

This is a slim type linear gauge that allows you to meet a variety of measurement needs.

The Linear Gauge SLIM HEAD LGK offers you the following benefits:

- Differential square-wave signal output enables to use it for a wide range of applications.
- You can install it even where space is restricted, thanks to its small size.
- IP-66 protection class.
- Its photoelectric scale gives it high precision across the entire measuring range.
- It is very long lasting due to linear ball-bearings in the spindle unit.



Specifications

Scale	Photoelectric linear encoder
Max. response speed	1500 mm/s
Stem Ø	8 mm
Contact point	Ø 3 mm carbide (mounting threads M 2,5 x 0,45)
Cable length	2 m
Power supply	5 V (4,5 V to 5,2 V), 80 mA max.
Output signal	90° phase difference, differential square wave (RS-422A equivalent)
Environmental conditions	0° C to 40° C (20% to 80% rel. humidity, no condensation)
Bearing type	Linear ball bearing

Standard accessories

No.	Description
538610	Wrench for contact point (for 10 range models)

Optional accessories

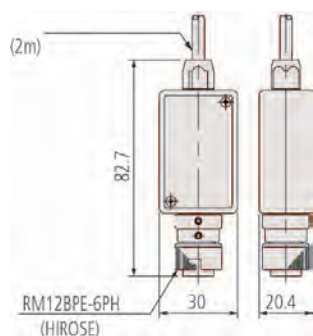
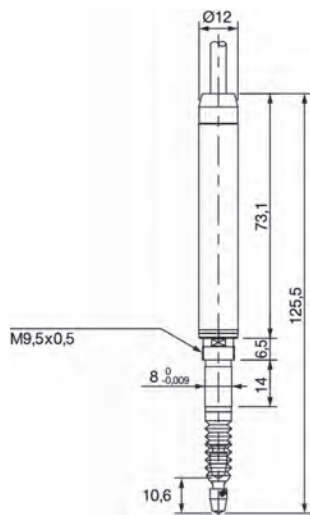
No.	Description	Price €
902434	Extension cable (5 m)	175,00
902433	Extension cable (10 m)	222,00
902432	Extension cable (20 m)	310,00
02ADE230	Pneumatic drive CAP 10	313,00
02ADB680	Fixing set Ø 9,5 (for 10 models)	20,00
02ADB683	Thrust stem wrench (for 10 range models)	12,00

Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00
238772	10 rubber boot	8,00



542-156
542-157
542-158



No.	Range	Measuring force *1	Resolution [mm]	Accuracy	Signal pitch [µm]	Mass [g]	Price [€]
542-156	0-10 mm	0,8 N/0,75 N/0,7 N	0,001	(1,5 + L/50) µm	4	175	639,00
542-157	0-10 mm	0,8 N/0,75 N/0,7 N	0,0005	(1,5 + L/50) µm	2	175	649,00
542-158	0-10 mm	0,8 N/0,75 N/0,7 N	0,0001	(0,8 + L/50) µm	0,4	175	999,00

*1 Spindle DOWN/Horizontal/Spindle UP



Refer to the Linear Gauge documentation for more details

Large Measuring Range Linear Gauge LG / LGM Series

Series 542



542-314/-334
542-315D/-335D

This linear gauge has a large measuring range, and offers you the following benefits:

- Your options include both manual and motorised versions.
- It has a large measuring range of 100mm.

Specifications

Scale	Photoelectric linear encoder
Max. response speed	400 mm/s (542-312/542-313D/542-315D/542-316/542-314), 800 mm/s (542-332/542-333D/542-335D/542-336/542-334)
Contact point	Ø 3 mm carbide (mounting threads M 2,5 x 0,45)
Dimensions (WxDxH)	90 x 175 x 74 mm (control unit)
Cable length	2 m
Power supply	5 V (4,8 V to 5,2 V) (Control unit No. 542-313D: 230 V 50/60 Hz)
Output signal	90° phase difference, differential square wave (RS-422A equivalent)
Environmental conditions	0°C to 40°C (20% to 80% rel. humidity, no condensation)
Bearing type	Bearing type

Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00
02ADA004	Rubber boot	93,00



Control unit for 542-313D/-315D/-333D/-335D (standard accessory)



Refer to the Linear Gauge documentation for more details



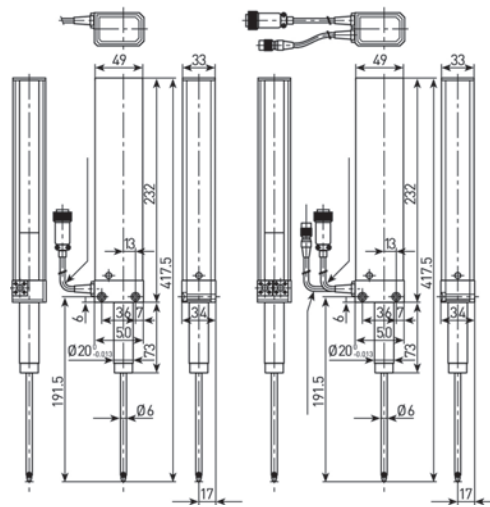
542-312



542-313D

No.	Range	Measuring force *1	Resolution [µm]	Stem Ø	Accuracy	Remarks	Mass [g]	Price [€]
542-312	0-100 mm	8 N/6,5 N/5 N	0,1	20 mm	$(2 + L/100) \mu\text{m} \leq 2,5 \mu\text{m}$	Standard	640	2440,00
542-316	0-100 mm	3 N/-/-	0,1	20 mm	$(2 + L/100) \mu\text{m} \leq 2,5 \mu\text{m}$	Low measuring force	750	2441,00
542-314	0-100 mm	8 N/6,5 N/5 N	0,1	20 mm	$(2 + L/100) \mu\text{m} \leq 2,5 \mu\text{m}$	w/ rubber boot	750	2490,00
542-332	0-100 mm	8 N/6,5 N/5 N	1	20 mm	$(2,5 + L/100) \mu\text{m} \leq 3 \mu\text{m}$	Standard	750	2369,00
542-336	0-100 mm	3 N/-/-	1	20 mm	$(2,5 + L/100) \mu\text{m} \leq 3 \mu\text{m}$	Low measuring force	750	2369,00
542-334	0-100 mm	8 N/6,5 N/5 N	1	20 mm	$(2,5 + L/100) \mu\text{m} \leq 3 \mu\text{m}$	w/ rubber boot	750	2560,00
542-313D	0-100 mm	3 N/6,5 N/9,5 N	0,1	20 mm	$(2 + L/100) \mu\text{m} \leq 2,5 \mu\text{m}$	Motor-driven type	1640	4285,00
542-315D	0-100 mm	4,5 N/-/6 N	0,1	20 mm	$(2 + L/100) \mu\text{m} \leq 2,5 \mu\text{m}$	Motor-driven type	1640	5099,00
542-333D	0-100 mm	3 N/6,5 N/9,5 N	1	20 mm	$(2,5 + L/100) \mu\text{m} \leq 3 \mu\text{m}$	Motor-driven type	940	3909,00
542-335D	0-100 mm	4,5 N/-/6 N	1	20 mm	$(2,5 + L/100) \mu\text{m} \leq 3 \mu\text{m}$	Motor-driven type	1640	4712,00

*1 Spindle DOWN/Horizontal/Spindle UP



542-312
542-332

542-313D
542-333D

EH Counter

Series 542

This EH Counter is easy to use and gives you flexible options. It offers you the following benefits:

- It uses DIN (144 x 72mm) and panel-mount configuration to make system integration quicker and easier.
- You can use its counter on a desktop mounted on an included display stand.
- Counter can be used on a desktop mounted on a display stand (included).
- The standard RS-232C and USB interfaces allows easy communication with an external PC (the USB can only be used with SENSORPAK).
- The built-in networking function allows you to easily create a multi-point measuring system (RS link, max. 12 points).
- The 2-gage input type lets you perform 2-axis display and calculate additions and subtractions between two gauges.



542-075D



542-075D

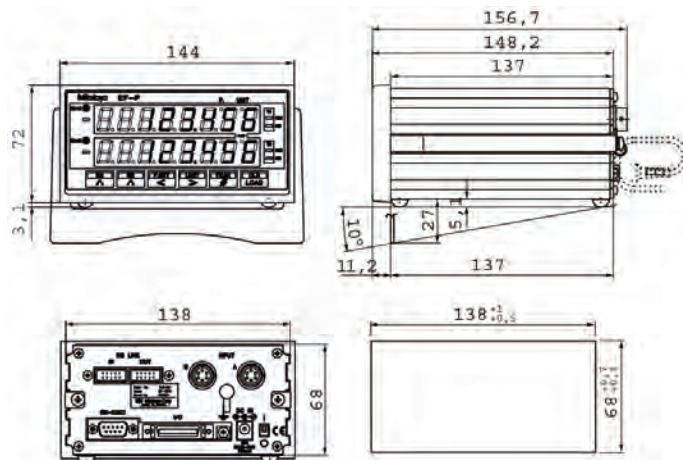


542-071D



542-071D

No.	Gage inputs	Resolution (Depending on gage type connected)	Mass [g]	Price [€]
542-075D	1 (single display)	0,0001/0,0005/0,001/0,005/0,01 mm	760	822,00
542-071D	2 (double display)	0,0001/0,0005/0,001/0,005/0,01 mm	800	999,00



Functions	Series 542
Zero set	●
mm / inch switching	●
Tolerance judgement (3 or 5 step)	●

Specifications

Power supply	Via AC Adapter (12-24 V DC, 700 mA No. 527428 Standard Accessories)
RS-Link	Up to six EH counters may be connected via one RS-232C or USB port (daisy chained)
Maximum input frequency	2,5 MHz (2-phase square wave)
Display	8 digit and a negative [-] sign, LED (green)

Standard accessories

No.	Description
02ADN460	AC adapter
02ZAA020	AC cable

Optional accessories

No.	Description	Price €
02ADB440	BCD-I/O-Data connector	43,00
936937	Digimatic cable (1 m)	44,00
965014	Digimatic cable (2 m)	58,00
12AAA807D	RS-232C cable (2m)	56,00
06ADV380D	USB Input Tool Direct cable (2 m)	100,00
02AZD790D	Connecting cable U-Wave	85,00



Refer to the Linear Gauge documentation for more details

EG/EB Counters and Display Unit for Linear Gages

Series 542

This is a compact counter with a control panel that offers you the following benefits:

- Control panel according to DIN (96 x 48 mm).
- Its I/O control function enables tolerance judgement evaluation (3 or 5 steps) or parallel BCD output function.



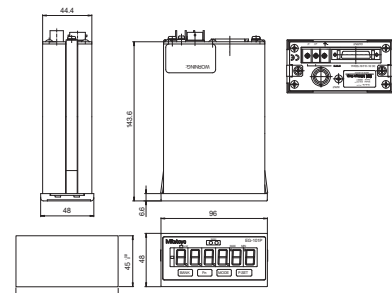
542-092-2



542-015



542-015



542-015 - 542-092-2

Model	EG	EB
No.	542-015	542-092-2
Price [€]	493,00	556,00
Resolution mm	0,0001/0,0005/0,001/0,005/0,01	0,0001/0,0005/0,001/0,005/0,01
Power supply	Terminal block (M3 screws) 12 to 24 VDC, 500 mA (max.) via an external supply	Terminal block (M3 screws) 12 to 24 VDC, 500 mA (max.) via an external supply
Display	LED (green) 6 digit and sign (-)	LED (green) 6 digit and sign (-)
Maximum input frequency	750 KHz (2-phase square wave)	750 KHz (2-phase square wave)
Input signal type	Differential square-wave	Differential square-wave
Applicable gage	LGK, LGF, LGB, LGM (excluding origin point and sine wave types)	LGK, LGF, LGB
Gage inputs	1	1
Mass g	400	400

Output applicable input for counter 542-092-2 Type EB

Gauge resolution setup	Range/resolution			Voltage per step
3 2 1	Linear Gauge 0,01 mm	Linear Gauge 0,005 mm	Linear Gauge 0,005 mm	
0 0 0	± 0,99/0,01	± 0,095/0,005	± 0,099/0,001	2,5 mV
0 0 1	± 9,99/0,01	± 0,995/0,005	± 0,999/0,001	25 mV
0 1 0	± 99,90/0,1	± 9,950/0,05	± 9,990/0,01	25 mV
0 1 1	± 999,00/1	± 99,500/0,5	± 99,900/0,1	25 mV
1 0 0	± 9990,00/10	± 995,000/5	± 999,000/1	25 mV

	Series 542	
	542-015	542-092-2
Functions		
PRESET (preselection)	●	●
Digimatic data output	●	●
Calculation of sum	●	●
Counting direction switchable	●	●
Error display	●	●
GO/±NG signal output (3 or 5 step)	●	●
MAX / MIN / Difference measurement	●	●
Key lock	●	●
mm / inch switching	●	●
External control	●	●
Output I/O	●	●
Analogue output	●	●
Tolerance judgement (3 or 5 step)	●	●
Tolerance limit input	●	●

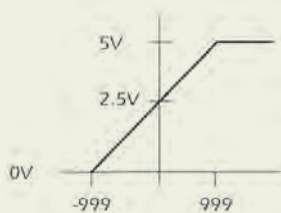
Specifications

Specifications	For 542-092-2
Accuracy	± 5 % (0 V to 5 V) and ± 0,5 % (2,5 V ± 200 mV after setting the gap)
Charge resistance	300 kΩ or more
Output voltage	2,5 V + [Counting value x voltage resolution (25 mV or 2,5 mV)]
Full scale (!)	0 V to 5 V
Response time	5 ms to 10 Hz

(!) accuracy is indicated by full scale 5 V

Optional accessories

No.	Description	Price €
02ADB440	BCD-I/O-Data connector	43,00
02ADD930	Three-wire cable for power supply via AC adapter	33,00
02ADF180	10-key unit	244,00
02ADN460	AC adapter	65,00
02ZAA020	AC cable	12,00
For 542-092-2		
936937	Digimatic cable (1 m)	44,00
965014	Digimatic cable (2 m)	58,00
06ADV380D	USB Input Tool Direct cable (2 m)	100,00
02AZD790D	Connecting cable U-Wave	85,00



Refer to the Linear Gauge documentation for more details

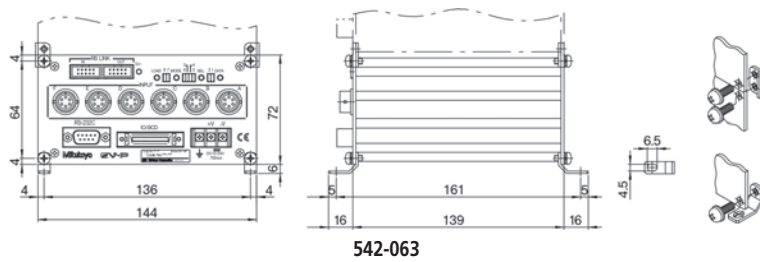
Linear Gages EV-Counter

Series 542

- Up to six gages can be connected. By using the RS Link function, up to 10 EV Counters can be connected to one PC. Multi-point measuring systems with a maximum of 60 gages can be configured.
- The following output modes are selectable : I/O output for tolerance judgement and segment output, BCD data output and RS-232C output.



542-063

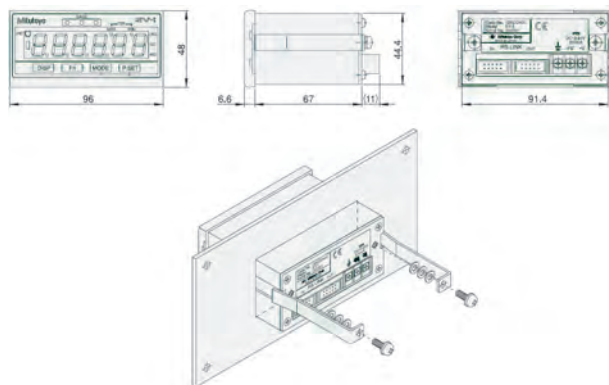


542-063

No.	Input signal type	Gage inputs	Resolution (internal) - no display capability	Mass [g]	Price [€]
542-063	Differential square-wave	6	0,0001/0,0005/0,001/0,005/0,01 mm	910	1288,00



02ADD400



02ADD400

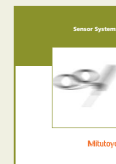
Functions	Series 542
Counting direction switchable	●
MAX / MIN / Difference measurement	●
mm / inch switching	●
Tolerance judgement (3 or 5 step)	●

Specifications

Power supply	Terminal connector (M3 screws), DC+12 to +24V, 700 mA (max.)
Model	For 542-063
RS link	Up to 10 EV counters may be connected via a single RS-232 port (daisy chained) EV and EF counters can be mixed (in which case a total of six counters can be connected).

Optional accessories

No.	Description	Price €
02ADB440	BCD-I/O-Data connector	43,00
02ADD400	Display for series 542	430,00
02ADD930	Three-wire cable for power supply via AC adapter	33,00
02ADN460	AC adapter	65,00
02ZAA020	AC cable	12,00
936937	Digimatic cable (1 m)	44,00
965014	Digimatic cable (2 m)	58,00
06ADV380D	USB Input Tool Direct cable (2 m)	100,00
02AZD790D	Connecting cable U-Wave	85,00
12AAA807D	RS-232C cable (2m)	56,00



Refer to the Linear Gauge documentation for more details

Linear Gauge with Reference Point LGF-Z Series



Series 542

This is a very robust and economical linear gauge with a reference point. The Linear Gauge LGF-Z offers you the following benefits:

- The advanced construction of the plunger guidance assembly makes it very resistant to external shocks and vibration.
- IP-66 protection class.
- Its differential square-wave signal output allows you to use it for a wide range of applications.
- It is very long lasting due to linear ball-bearings in the spindle unit.
- The origin point mark on its scale gives you a reference point.

Functions		Series 542
Counting direction switchable		
Specifications		
Scale	Photoelectric linear encoder	
Max. response speed	1500 mm/s	
Contact point	Ø3 mm carbide (mounting threads M 2,5 x 0,45)	
Cable length	2 m	
Power supply	+ 5 V (4,8 V to 5,2 V), 120 mA max.	
Output signal	90° phase difference, differential square wave (RS-422A equivalent), edge distance 200 ns for 1 µm model, 250 ns for 0,5 µm model, 200 mV p-p max.	
Environmental conditions	0 °C to 40 °C (20 % to 80 % rel. humidity, no condensation)	
Bearing type	Linear ball bearing	
Display	6 digit	

Standard accessories

No.	Description
538610	Wrench for contact point (for 10 range models)
04GAA857	Wrench for contact point (for 25/50 range models)

Optional accessories

No.	Description	Price €
Extension cable		
02ADF260	Extension cable (5 m)	276,00
02ADF280	Extension cable (10 m)	318,00
02ADF300	Extension cable (20 m)	414,00
Fixing set		
02ADB680	Fixing set Ø 9,5 (for 10 models)	20,00
02ADB690	Fixing set Ø 18 for 25/50 type	27,00
Pneumatic drive		
02ADE230	Pneumatic drive CAP 10	313,00
02ADE250	Pneumatic drive CAP 25	451,00
02ADE270	Pneumatic drive CAP 50	499,00
Thrust stem		
02ADB683	Thrust stem wrench (for 10 range models)	12,00
02ADB693	Thrust stem wrench (for 25/50 range models)	12,00

Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00
238772	10 rubber boot	8,00
962504	25 rubber boot	25,00
962505	50 rubber boot	27,00



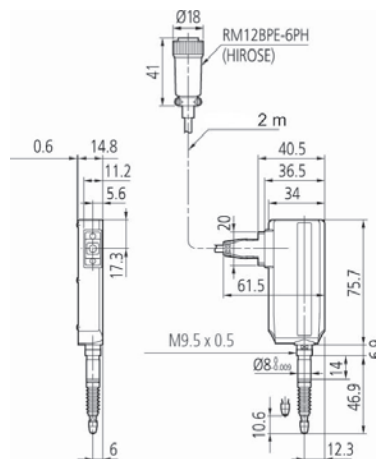
Refer to the Linear Gauge documentation for more details



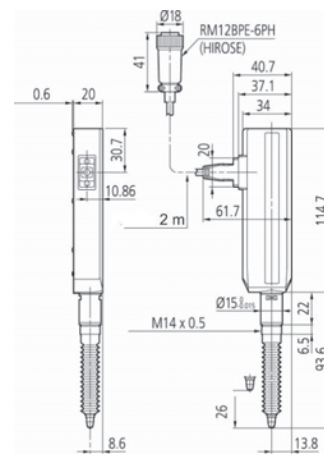
542-164

No.	Range [mm]	Measuring force *1	Resolution [mm]	Stem Ø	Accuracy	Signal pitch [µm]	Mass [g]	Price [€]
542-174	0-10	1,2 N/1,1 N/1 N	0,0005	8 mm	(1,5 + L/50) µm	2	260	649,00
542-164	0-10	1,2 N/1,1 N/1 N	0,001	8 mm	(1,5 + L/50) µm	4	260	618,00
542-175	0-25	4,6 N/4,3 N/4 N	0,0005	15 mm	(1,5 + L/50) µm	2	300	788,00
542-165	0-25	4,6 N/4,3 N/4 N	0,001	15 mm	(1,5 + L/50) µm	4	300	762,00
542-176	0-50	5,7 N/5,3 N/4,9 N	0,0005	15 mm	(1,5 + L/50) µm	2	400	968,00
542-166	0-50	5,7 N/5,3 N/4,9 N	0,001	15 mm	(1,5 + L/50) µm	4	400	948,00

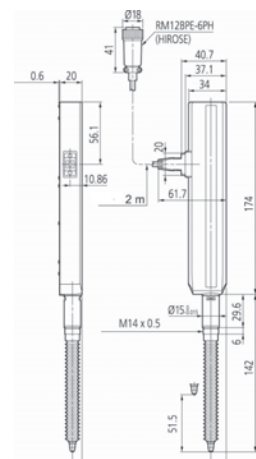
*1 Spindle DOWN/Horizontal/Spindle UP



542-164/542-174
10 mm



542-165/542-175
25 mm



542-166/542-176
50 mm

Linear Gauge with Reference Point LGF-Z Series

Series 542

These counters and displays are easy to use and configure, and offer you the following benefits:

- DIN (144 x 72 mm) and mount-on-panel configuration make system integration quick and easy.
- You can use its counter on a desktop mounted on an included display stand.
- The standard RS-232C serial port and USB interfaces allow easy communication with an external PC.
- You can easily create a multi-point measuring system with the built-in networking function (RS link, max. 12 points).
- The 2-gage input type lets you perform 2-axis display and calculate additions and subtractions between two gauges.



542-073



542-073



542-067



02ADD400



542-017



542-017



542-094-2



542-094-2

No.	Resolution [μm]	Input signal type	Gage inputs	Price [€]
542-073D	0,0001/0,0005/0,001/0,005/0,01 mm	Differential square-wave	2 (double display)	1112,00
542-067	0,0001/0,0005/0,001/0,005/0,01 mm	Differential square-wave	6 (without display)	1535,00
02ADD400.				
542-094-2	0,0001/0,0005/0,001/0,005/0,01 mm	Differential square-wave with origin point mark	1 (single display)	577,00
542-017	0,0001/0,0005/0,001/0,005/0,01 mm	Differential square-wave with origin point mark	1 (single display)	520,00

Series 542				
	542-017	542-094-2	542-067	542-073D
Functions				
ZERO/ABS			●	●
Digimatic data output		●	●	●
Digimatic data input		●		●
ON/OFF				●
PRESET	●	●	●	●
Sum/difference of two probes			●	●
Calculation of sum	●		●	●
Diameter display				●
ABS/INC			●	
Counting direction switchable	●	●	●	●
Error display	●	●	●	●
GO/NG Display	●	●		●
MAX / MIN / Difference measurement	●	●	●	●
Key lock				●
mm / inch switching	●	●	●	●
RS link			●	●
External control	●	●	●	●
RS-232C Output			●	●
I/O Output	●	●	●	●
+NG/-NG/GO Output on open collector	●	●	●	●
USB MITUTOYO SENSORPAK Output				●
Analogue output		●		
Error output	●	●	●	●
Tolerance judgement (3 or 5 step)	●	●	●	●
Tolerance limit input	●	●	●	●

Specifications

542-073D (EH-Z)	Same specifications as counters 542-075 and 542-071 Delivered with AC adapter
542-017 (EG-Z)	Same specifications as counter 542-015
542-094-2 (EB-Z)	Same specifications as counter 542-092-2
542-067 (EV-Z)	Same specifications as counter 542-063 Delivered with sector RS Link adapter Series Z counters may only be connected together
EH-Z	Up to six EH-Z counters may be connected together
EV-Z	Up to ten EV-Z counters may be connected together

Optional accessories

No.	Description	Price €
02ADB440	BCD-I/O-Data connector	43,00
936937	Digimatic cable (1 m)	44,00
965014	Digimatic cable (2 m)	58,00
02ADF180	10-key unit	244,00
For 542-067, 542-094-2 and 02ADD400		
02ADD930	Three-wire cable for power supply via AC adapter	33,00
02ZAA020	AC cable	12,00
02ADN460	AC adapter	65,00



Refer to the Linear Gauge documentation for more details

Laser Hologage LGH/LGB-S



542-401
542-421

Series 542

This is a highly precise dial gauge that uses optical interference so you can measure with unparalleled accuracy.

The Mitutoyo Laser Hologage offers you the following benefits:

- Through optical interference of laser light through a diffraction grating it gives you an extremely precise holographic scale with 0,0001mm resolution
- You can use the Laser Hologage for extremely precise measurements, as well as a transducer in ultra-precise positioning and control systems.

Series 542	
542-074D	
Functions	
ZERO/ABS	●
Digimatic data output	●
ON/OFF	●
PRESET	●
Sum/difference of two probes	●
Calculation of sum	●
Diameter display	●
ABS/INC	●
Counting direction switchable	●
Error display	●
MAX/MIN difference measurement	●
mm / inch switching	●
Key lock	●
RS link	●
External control	●
RS-232C Output	●
I/O Output	●
USB MITUTOYO SENSORPAK Output	●
Tolerance judgement (3 or 5 step)	●
Tolerance limit input	●

Specifications

Scale	Laser-hologram measurement sensor
Max. response speed	250 mm/s
Contact point	R 1,5 mm carbide
Signal pitch	0,25 µm
Output signal	90° phase difference, differential square wave (RS-422A equivalent)
Bearing type	High precision linear ball bearing

Standard accessories

No.	Description
538610	Wrench for contact point (for 10 range models)

Optional accessories

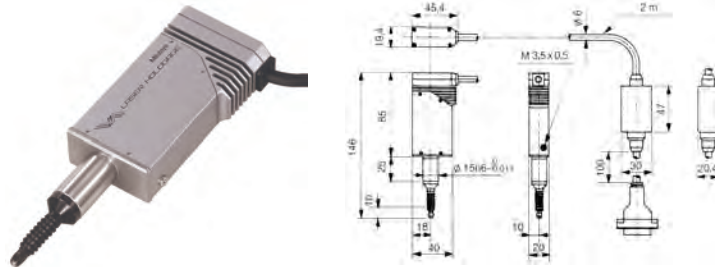
No.	Description	Price €
971750	Comparator for Laser Hologage LGH	3151,00
971753	Cable release	202,00
542-075D	EF-Counter with single display	822,00
542-071D	EH-Counter with double display	999,00
971751	Stem fixture for fixing to top surface	340,00
971752	Stem fixture for fixing to bottom surface	330,00

Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00



Refer to the Linear Gauge documentation for more details



542-711-1

No.	Range	Measuring force *1	Resolution [µm]	Stem Ø	Accuracy	Mass [g]	Price [€]
542-711-1	0-10 mm	0,55 N/0,45 N/0,35 N	0,1	15 mm	0,2 µm	410	3270,00
542-712-1	0-10 mm	0,1 N/-	0,1	15 mm	0,2 µm	410	3270,00
542-074D						900	1463,00

*1 Spindle DOWN/Horizontal/Spindle UP



542-074



542-074

Laser Hologage LGH

Series 542

This is a highly precise dial gauge that uses optical interference so you can measure with unparalleled accuracy.

The Mitutoyo Laser Hologage offers you the following benefits:

- Through optical interference of laser light through a diffraction grating it gives you an extremely precise holographic scale with 0,0001mm resolution.
- The measuring head is very compact, enabling you to build it into various systems far less expensively than conventional laser technology.
- You can use the Laser Hologage for measuring extremely precise parts, as well as a transducer in ultra-precise positioning and control systems.



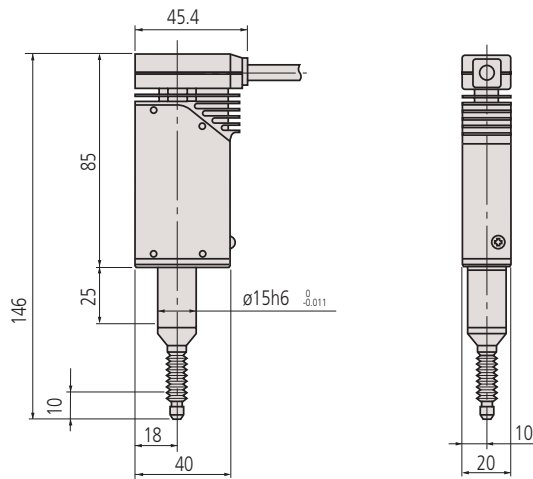
542-925



Laser Hologage supplied with Display Unit

No.	Range	Measuring force *1	Resolution [μm]	Stem Ø	Accuracy	Remarks	Mass [g]	Price [€]
542-925D	0-10 mm	0,55 N/0,45 N/0,35 N	0,01	15 mm	0,1 μm	Supplied with Display Unit 542-074D	900	7210,00
542-926D	0-10 mm	0,1 N/-	0,01	15 mm	0,1 μm	Supplied with Display Unit 542-074D	900	7210,00

*1 Spindle DOWN/Horizontal/Spindle UP



Functions	Series 542
ZERO/ABS	●
Digimatic data output	●
ON/OFF	●
Functions for Display unit	
Calculation of sum	●
Zero set	●
PRESET	●
Diameter display	●
ABS/INC	●
Counting direction switchable	●
Error display	●
MAX/MIN difference measurement	●
Key lock	●
mm / inch switching	●
RS link	●
RS-232C Output	●
I/O Output	●
USB MITUTOYO SENSORPAK Output	●
Error output	●
Analogue output	●
Tolerance judgement (3 or 5 step)	●
Tolerance limit input	●

Specifications

Specifications	Hologage
Scale	Laser-hologram measurement sensor
Max. response speed	250 mm/s
Contact point	R 5 mm carbide
Output signal	90° phase difference, two-phase sine wave
Signal pitch	0,25 μm
Bearing type	High precision linear ball bearing
Environmental conditions	10-30°
Specifications	Display unit
Model	EH
Display range	± 999,99999 mm
Dimensions (WxHxD)	144 x 68 x 158 mm

Standard accessories

No.	Description
538610	Wrench for contact point (for 10 range models)

Optional accessories

No.	Description	Price €
971750	Comparator for Laser Hologage LGH	3151,00
971753	Cable release	202,00
971751	Stem fixture for fixing to top surface	340,00
971752	Stem fixture for fixing to bottom surface	330,00
02ADN460	AC adapter	65,00
02ZAA020	AC cable	12,00

Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00



Refer to the Linear Gauge documentation for more details

Motorized low force, high precision gages LITEMATIC VL-50

Series 318

This is a high-accuracy motorised measuring machine with safe and easy operation. The LITEMATIC VL-50 offers you the following benefits:

- It has a measuring force of **0,01 N** (1 gf) and a resolution of 0,01 μm .
- Its constant and low measuring force makes it especially suitable for measuring soft materials such as rubber, plastic, film thicknesses or sensitive form parts.
- The motor driven plunger gives you a range of approach and retraction speeds for safe and easy operation.

Functions	Series 318
ZERO/ABS	●
Data output	●
PRESET	●
Counting direction switchable mm / inch switching	●
Key lock	●
Tolerance input (3 or 5 levels)	●
Motorised plunger movement	●
Mode : max-min (TIR) reading	●
Max. value/Hold	●

Specifications

Measuring range (inside)	0-50 mm
Data output	Digimatic RS-232C INTERFACE I/O

Optional accessories

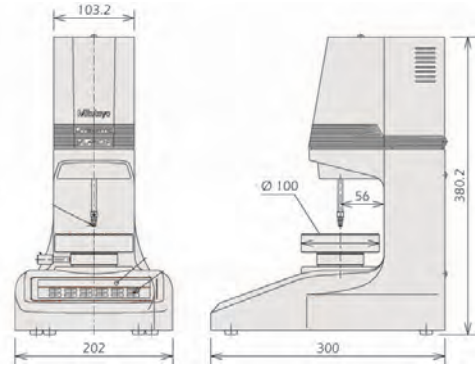
No.	Description	Price €
937179T	Footswitch	42,00
02ADB440	BCD-I/O-Data connector	43,00
936937	Digimatic cable (1 m)	44,00
965014	Digimatic cable (2 m)	58,00
12AAA807D	RS-232C cable (2m)	56,00
06ADV380D	USB Input Tool Direct cable (2 m)	100,00
02AZD790D	Connecting cable U-Wave	85,00

Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00
357651	AC Adapter 12V	78,00
02ZAA020	AC cable	12,00



318-22xD



318-22xD



318-217D



Refer to the LITEMATIC documentation for more details

No.	Measuring force [N]	Accuracy	Type	Price [€]
318-217D	0,01 N (1 gf)	$(0,1 + 0,5L/100) \mu\text{m}$ L = Measurement height	VL-50 AH	17996,00
318-221D	0,01 N (1 gf)	$(0,5 + L/100) \mu\text{m}$ L = Measurement height	VL-50 B	6335,00
318-222D	0,15 N (15 gf)	$(0,5 + L/100) \mu\text{m}$ L = Measurement height	VL-50-15-B	6541,00
318-223D	1 N (102 gf)	$(0,5 + L/100) \mu\text{m}$ L = Measurement height	VL-50-100-B	6747,00

Motorized low force, high precision gages

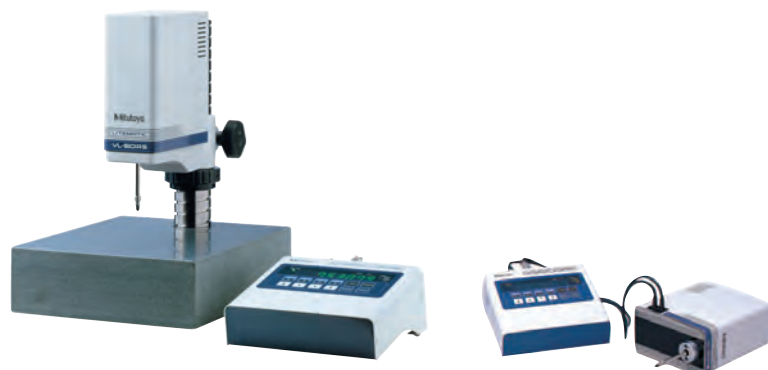
LITEMATIC VL-50

Series 318

This is a high-accuracy gauge head with a separate controller.

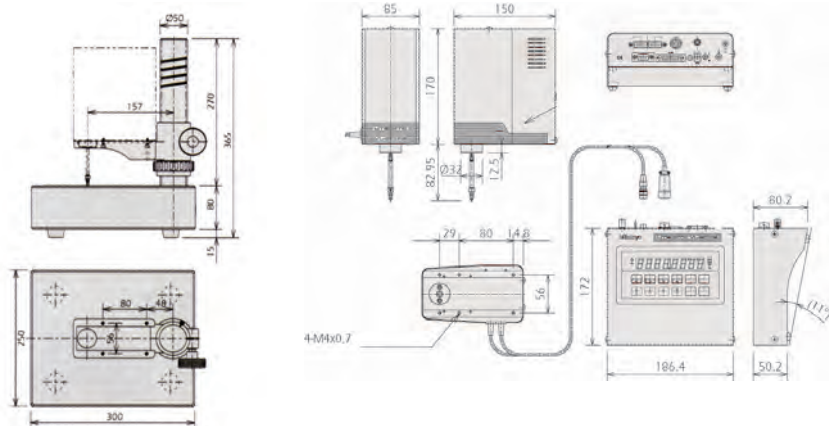
The LITEMATIC VL-50 offers you the following benefits:

- It has a measuring force of **0,01 N** (1 gf) and a resolution of 0,01 μm .
- Its constant and low measuring force makes it especially suitable for measuring soft materials such as rubber, plastic, film thicknesses or sensitive form parts.
- The motor driven plunger gives you a range of approach and retraction speeds for safe and easy operation.
- The head is supplied with a separate controller so you can mount it in a measurement fixture, or on the optional comparator stand.



318-22xD (957460 is optional)

318-22xD



957460 Comparator stand

No.	Measuring force [N]	Accuracy	Type	Price [€]
318-226D	0,01 N (1 gf)	(0,5 + L/100 μm) L = Measurement height	VL-50S-B	6026,00
318-227D	0,15 N (15 gf)	(0,5 + L/100 μm) L = Measurement height	VL-50S-15-B	6232,00
318-228D	1 N (102 gf)	(0,5 + L/100 μm) L = Measurement height	VL-50S-100-B	6438,00

Functions	Series 318
ZERO/ABS	●
Data output	●
PRESET	●
Counting direction switchable	●
mm / inch switching	●
Key lock	●
Tolerance input (3 or 5 levels)	●
Motorised plunger movement	●
Mode : max-min (TIR) reading	●
Max. value/Hold	●

Specifications

Measuring range (inside)	0-50 mm
Data output	DIGIMATIC RS 232C INTERFACE I/O

Optional accessories

No.	Description	Price €
957460	Comparator stand for LITEMATIC VL-50S	3565,00
937179T	Footswitch	42,00
02ADB440	BCD-I/O-Data connector	43,00
936937	Digimatic cable (1 m)	44,00
965014	Digimatic cable (2 m)	58,00
12AAA807D	RS-232C cable (2m)	56,00
06ADV380D	USB Input Tool Direct cable (2 m)	100,00
02AZD790D	Connecting cable U-Wave	85,00

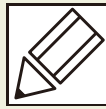
Consumable spares

No.	Description	Price €
901312	Standard contact point	11,00
357651	AC Adapter 12V	78,00
022AA020	AC cable	12,00



Refer to the LITEMATIC documentation for more details

Quick Guide to Precision Measuring Instruments

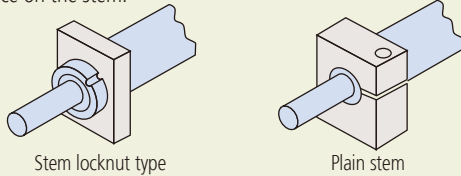


Linear Gages

Head

Plain Stem and Stem with Clamp Nut

The stem used to mount a linear gage head is classified as a "plain type" or "clamp nut type" as illustrated below. The clamp nut stem allows fast and secure clamping of the linear gage head. The plain stem has the advantage of wider application and slight positional adjustment in the axial direction on final installation, although it does require a split-fixture clamping arrangement or adhesive fixing. However, take care so as not to exert excessive force on the stem.



Measuring Force

This is the force exerted on a workpiece during measurement by the contact point of a linear gage head, at its stroke end, expressed in newtons.

Comparative Measurement

A measurement method where a workpiece dimension is found by measuring the difference in size between the workpiece and a master gage representing the nominal workpiece dimension.

Ingress Protection Code

IP54 protection code

Type	Level	Description
Protects the human body and protects against foreign objects	5: Dust protected	Protection against harmful dust
Protects against exposure to water	4: Splash-proof type	Water splashing against the enclosure from any direction shall have no harmful effect.

IP66 protection code

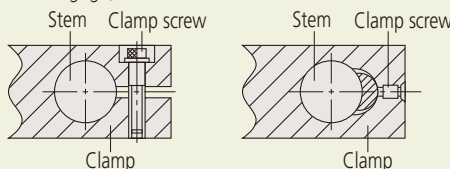
Type	Level	Description
Protection against contact with the human body and foreign objects	6: Dust tight	Protection from dust ingress Complete protection against contact
Protects against exposure to water	6: Water-resistant type	Water jets directed against the enclosure from any direction shall have no harmful effects.

Precautions in Mounting a Gage Head

- Insert the stem of the gage into the mounting clamp of a measuring unit or a stand and tighten the clamp screw.
- Notice that excessively tightening the stem can cause problems with spindle operation.
- Never use a mounting method in which the stem is clamped by direct contact with a screw.
- Never mount a linear gage by any part other than the stem.
- Mount the gage head so that it is in line with the intended direction of measurement. Mounting the head at an angle to this direction will cause an error in measurement.
- Exercise care so as not to exert a force on the gage through the cable.

Precautions in Mounting a Laser Hologage

To fix the Laser Hologage, insert the stem into the dedicated stand or fixture.



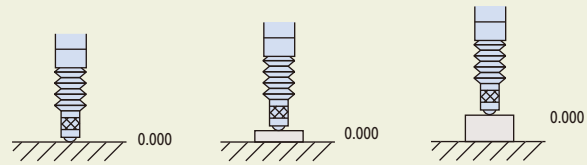
Recommended hole diameter on the fixing side: 15mm +0.034/-0.014

- Machine the clamping hole so that its axis is parallel with the measuring direction. Mounting the gage at an angle will cause a measuring error.
- When fixing the Laser Hologage, do not clamp the stem too tightly. Over-tightening the stem may impair the sliding ability of the spindle.
- If measurement is performed while moving the Laser Hologage, mount it so that the cable will not be strained and no undue force will be exerted on the gage head.

Display Unit

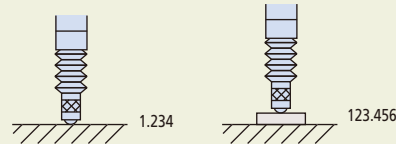
Zero-setting

A display value can be set to 0 (zero) at any position of the spindle.



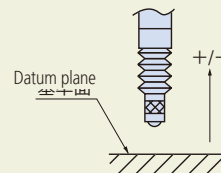
Presetting

Any numeric value can be set on the display unit for starting the count from this value.



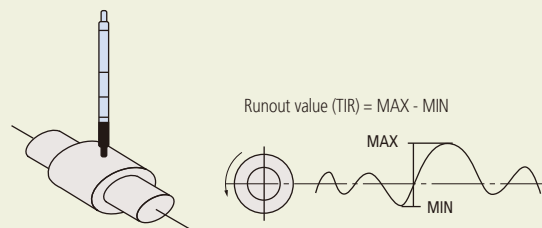
Direction changeover

The measuring direction of the gage spindle can be set to either plus (+) or minus (-) of count.



MAX, MIN, TIR Settings

The display unit can hold the maximum (MAX) and minimum (MIN) values, and MAX - MIN value during measurement.



Tolerance Setting

Tolerance limits can be set in various display units for automatically indicating if a measurement falls within those limits.

Open Collector Output

An external load, such as a relay or a logic circuit, can be driven from the collector output of an internal transistor which is itself controlled by a Tolerance Judgement result, etc.

Relay output

Contact signal that outputs the open/closed status.

Digimatic Code

A communication protocol for connecting the output of measuring tools with various Mitutoyo data processing units. This allows output connection to a Digimatic Mini Processor DP-1VR for performing various statistical calculations and creating histograms, etc.

BCD Output

A system for outputting data in binary-coded decimal notation.

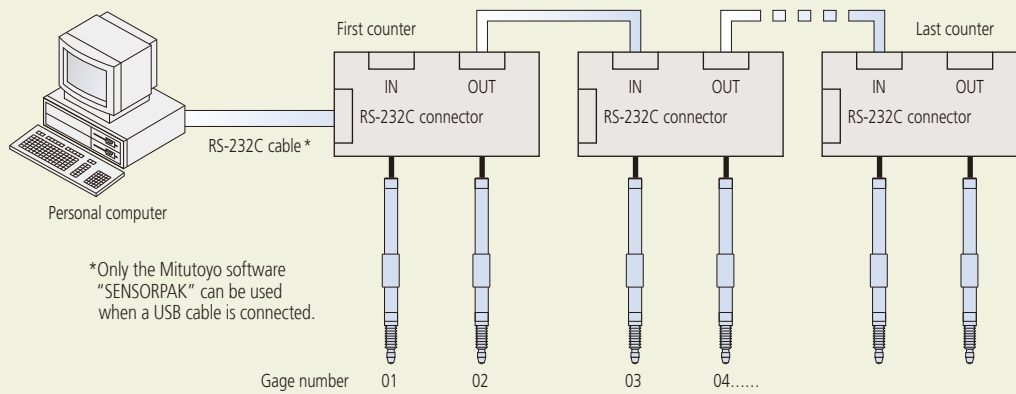
RS-232C Output

A serial communication interface in which data can be transmitted bi-directionally under the EIA Standards. For the transmission procedure, refer to the specifications of each measuring instrument.

RS Link Function Multi-point measurement can be performed by connecting multiple EH or EV counters with RS Link cables.

■ RS Link for EH Counter

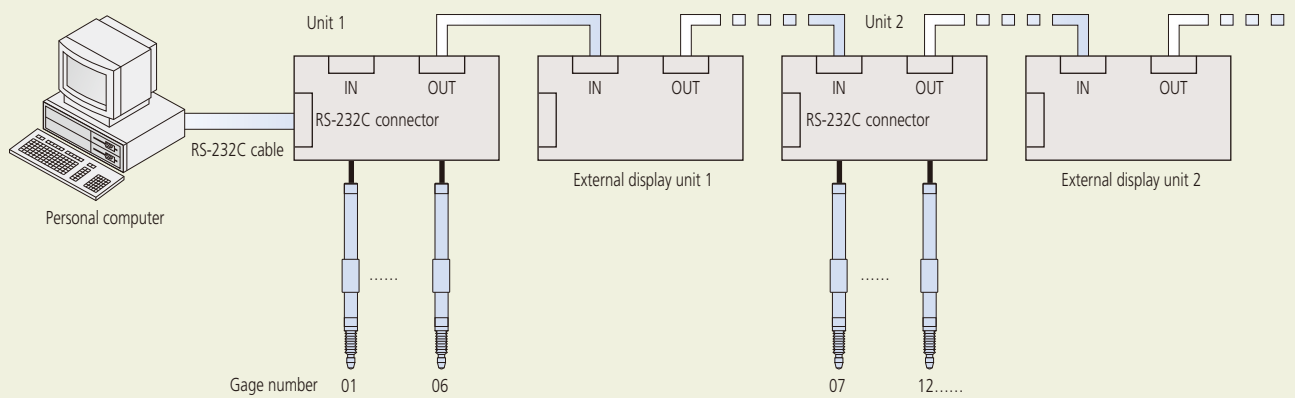
It is possible to connect a maximum of 10 counter units and handle up to 20 channels of multi-point measurement at a time. For this connection use a dedicated RS Link cable **No.02ADD950** (0.5m), **No.936937** (1m) or **No.965014** (2m). (The total length of RS Link cables permitted for the entire system is up to 10m.)



■ RS Link for EV Counter

It is possible to connect a maximum of 10* counter units and handle up to 60 channels of multi-point measurement at a time. For this connection use a dedicated RS Link cable **No.02ADD950** (0.5m), **No.936937** (1m) or **No.965014** (2m). (The total length of RS Link cables permitted for the entire system is up to 10m.)

* The maximum number of counter units that can be connected is limited to 6 (six) if an EH counter is included in the chain.





Laser Scan Micrometer Measuring Unit and Display Unit Package
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Laser Scan Micrometer Measuring Unit
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Laser Scan Micrometer
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Laser Scan Micrometer Display Unit
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Laser Scan Micrometer Optional Accessories
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Laser Scan Micrometer Measuring Unit and Display Unit Package

Series 544

The LSM-902/6900 is a high accuracy, non-contact measuring system that uses a high speed scanning laser beam to accurately measure workpieces. It is ideal for measuring items that are difficult or impossible to measure with conventional instruments, such as elastic parts or soft parts that might deform under pressure.

The LSM-902/6900 offers you the following benefits:

- Suitable for pin and plug gauge measurements.
- It has a wide measuring range of 0,1 mm to 25 mm.
- Provides ultra-high accuracy with a linearity of $\pm 0,5 \mu\text{m}$ over the entire measuring range and $\pm(0,3+0,1\Delta D) \mu\text{m}$ in the narrow range.
- Ultra-high repeatability of $\pm 0,05 \mu\text{m}$.



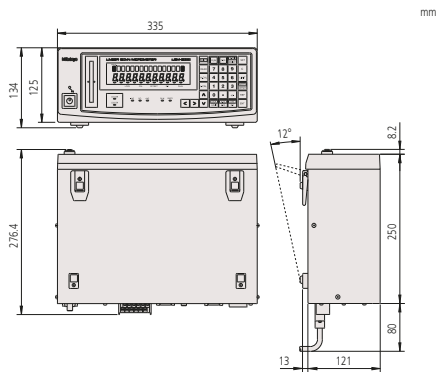
LSM-6900 display unit



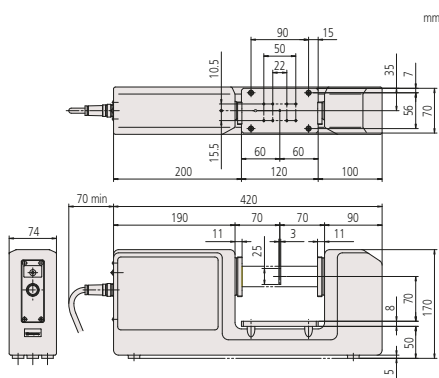
LSM-902 measuring unit

Metric

No.	Range [mm]	Resolution (selectable)	Price [€]
544-495D	0,1-25	0,01-10 μm	10800,00



LSM-6900 display unit



LSM-902 measuring unit

Functions	Series 544
GO/ \pm NG judgement	●
OFFSET	●
Multi-limit judgement	●
Sample Measurement	●
Statistical calculation	●
Data output	●
Zero set	●
PRESET	●
Group judgement	●
Workpiece position display	●
Dual-gauge calibration	●
Transparent object measurement	●
Automatic measurement	●
Dual-unit measurement (optional)	●
Abnormal data elimination	●

Specifications

Linearity at 20°C *1	Entire range : $\pm 0,5 \mu\text{m}$ Narrow range : $\pm(0,3+0,1\Delta D) \mu\text{m}$
Positional error *2	$\pm 0,5 \mu\text{m}$
Repeatability ($\pm 2\sigma$)	$\pm 0,05 \mu\text{m}$
Measuring region	3 x 25 mm
Laser wavelength	650 nm, Visible
Scanning rate	800 scans/s
Scanning speed	56m/s
Applicable laser standards	IEC
Main display	16-digit fluorescent tube
Interface units equipped	RS-232C, Analog I/O, Footswitch
Power supply	100 - 240VAC, 40 VA, 50/60Hz

Optional accessories

No.	Description	Price €
02AGD180	Calibration gauge set ($\phi 1-25$)	567,00
02AGD270	Workstage	801,00
02AGD280	Adjustable workstage	1716,00

*1 At the centre of the measuring region

*2 Potential measurement error due to variation in workpiece position within the measuring region

ΔD = Difference in diameter between the mastergauge and workpiece



Laser Scan Micrometer Measuring Unit



Specifications

Linearity at 20°C *1	±0,3 µm
Positional error *2	±0,4 µm
Repeatability (±2σ)	±0,03 µm
Measuring region	1 x 2 mm
Laser wavelength	650 nm, Visible
Scanning rate	3200 scans/s
Scanning speed	76m/s
Applicable laser standards	IEC, FDA

Optional accessories

No.	Description	Price €
02AGD110	Calibration gauge set (ø0,1-2)	413,00
02AGD200	Wire guiding pulley	376,00
02AGD220	Air shield	729,00
957608	Air cleaner for air shield	946,00
02AGN780A	Extension signal cable 5 m	173,00
02AGN780B	Extension signal cable 10 m	233,00
02AGN780C	Extension signal cable 15 m	294,00

Series 544

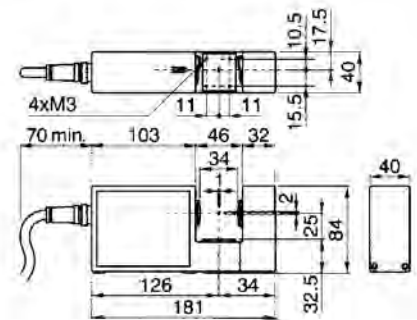
LSM-500S

High Accuracy Non-contact Measuring System

- Measuring range starting from ø5 µm.
- Provides ultra-high accuracy with a linearity of ±0,3 µm over the entire measuring range (5 µm up to 2 mm).
- Ultra-high repeatability of ±0,03 µm.
- High scanning rate of 3200 scans/s



LSM-500S



Metric

No.	Range	Resolution (selectable)	Price [€]
544-532	0,005-2 mm	0,00001-0,01 mm	5243,00

Specifications

Linearity at 20°C *1	Entire range : ± 0,5 µm Narrow range : ±(0,3+0,1ΔD) µm
Positional error *2	±0,5 µm
Repeatability (±2σ)	±0,04 µm
Measuring region	2 x 10 mm (ø0,05-0,1 mm) 4 x 10 mm (ø0,1-10 mm)
Laser wavelength	650 nm, Visible
Scanning rate	3200 scans/s
Scanning speed	113 m/s
Applicable laser standards	IEC, FDA

Optional accessories

No.	Description	Price €
02AGD120	Calibration gauge set (ø0,1-10)	413,00
02AGD210	Wire guiding pulley	376,00
02AGD400	Adjustable workstage	1790,00
02AGD440	Centre support	607,00
02AGD450	Adjustable V-block	703,00
02AGD230	Air shield	439,00
957608	Air cleaner for air shield	946,00
02AGC150A	Extension relay cable 1 m	85,00
02AGN780A	Extension signal cable 5 m	173,00
02AGN780B	Extension signal cable 10 m	233,00
02AGN780C	Extension signal cable 15 m	294,00

02AGD440 and 02AGD450 : use with an adjustable workstage

*1 At the centre of the measuring region

*2 Potential measurement error due to variation in workpiece position within the measuring region

ΔD = Difference in diameter between the mastergauge and workpiece



Refer to the LSM brochure

Series 544

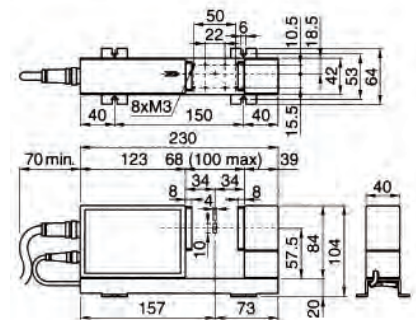
LSM-501S

High Accuracy Non-contact measuring system

- Provides ultra-high accuracy with a linearity of ±0,5 µm over the entire measuring range (0,05 mm to 10 mm) and ±(0,3+0,1ΔD) µm in the narrow range.
- Ultra-High repeatability of ±0,04 µm.
- High scanning rate of 3200 scans/s



LSM-501S



Metric

No.	Range [mm]	Resolution (selectable)	Price [€]
544-534	0,05-10	0,00001-0,01 mm	4635,00

Laser Scan Micrometer Measuring Unit

Series 544

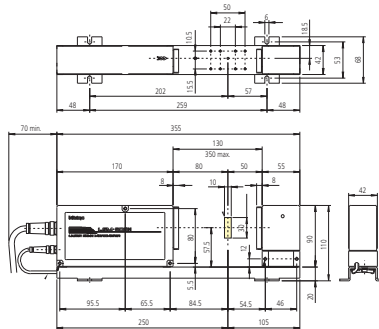
LSM-503S

High Accuracy Non-contact measuring system

- General-purpose type with a measuring range of 0,3 mm to 30 mm.
- Provides high accuracy with a linearity of $\pm 1 \mu\text{m}$ over the entire measuring range and $\pm(0,6+0,1\Delta D) \mu\text{m}$ in the narrow range.
- Excellent repeatability of $\pm 0,1 \mu\text{m}$.
- High scanning rate of 3200 scans/s.



LSM-503S



Metric

No.	Range	Resolution (selectable)	Price [€]
544-536	0,3-30 mm	0,00002-0,1 mm	4823,00

Series 544

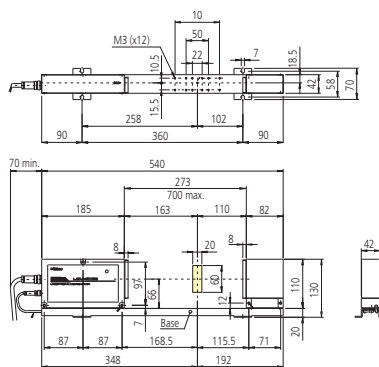
LSM-506S

High Accuracy Non-contact Measuring System

- General-purpose type with a measuring range of 1 mm to 60 mm.
- Provides high accuracy with a linearity of $\pm 3 \mu\text{m}$ over the entire measuring range and $\pm(1,5+0,5\Delta D) \mu\text{m}$ in the narrow range.
- Excellent repeatability of $\pm 0,36 \mu\text{m}$.
- High scanning rate of 3200 scans/s.



LSM-506S



Metric

No.	Range	Resolution (selectable)	Price [€]
544-538	1-60 mm	0,00005-0,1 mm	6050,00



Specifications

Linearity at 20°C *1	Entire range : $\pm 1 \mu\text{m}$ Narrow range : $\pm(0,6+0,1\Delta D) \mu\text{m}$
Positional error *2	$\pm 1,5 \mu\text{m}$
Repeatability ($\pm 2\sigma$)	$\pm 0,11 \mu\text{m}$
Measuring region	10 x 30 mm
Laser wavelength	650 nm, Visible
Scanning rate	3200 scans/s
Scanning speed	226 m/s
Applicable laser standards	IEC, FDA

Optional accessories

No.	Description	Price €
02AGD130	Calibration gauge set ($\phi 1-30$)	484,00
02AGD490	Adjustable workstage	2410,00
02AGD440	Centre support	607,00
02AGD450	Adjustable V-block	703,00
02AGD240	Air shield	729,00
957608	Air cleaner for air shield	946,00
02AGC150A	Extension relay cable 1 m	85,00
02AGC150B	Extension relay cable 3 m	98,00
02AGC150C	Extension relay cable 5 m	111,00
02AGN780A	Extension signal cable 5 m	173,00
02AGN780B	Extension signal cable 10 m	233,00
02AGN780C	Extension signal cable 15 m	294,00
02AGN780D	Extension signal cable 20 m	353,00

02AGD440 and 02AGD450 : use with an adjustable workstage



Specifications

Linearity at 20°C *1	Entire Range : $\pm 3 \mu\text{m}$ Narrow range : $\pm(1,5+0,5\Delta D) \mu\text{m}$
Positional error *2	$\pm 4 \mu\text{m}$
Repeatability ($\pm 2\sigma$)	$\pm 0,36 \mu\text{m}$
Measuring region	20 x 60 mm
Laser wavelength	650 nm, Visible
Scanning rate	3200 scans/s
Scanning speed	452 m/s
Applicable laser standards	IEC, FDA

Optional accessories

No.	Description	Price €
02AGD140	Calibration gauge set ($\phi 1-60$)	546,00
02AGD520	Adjustable workstage	3025,00
02AGD580	Centre support	703,00
02AGD590	Adjustable V-block	729,00
02AGD250	Air shield	1017,00
957608	Air cleaner for air shield	946,00
02AGC150A	Extension relay cable 1 m	85,00
02AGC150B	Extension relay cable 3 m	98,00
02AGC150C	Extension relay cable 5 m	111,00
02AGN780A	Extension signal cable 5 m	173,00
02AGN780B	Extension signal cable 10 m	233,00
02AGN780C	Extension signal cable 15 m	294,00
02AGN780D	Extension signal cable 20 m	353,00

02AGD580 and 02AGD590 : use with an adjustable workstage

*1 At the centre of the measuring region *2 Potential measurement error due to variation in workpiece position within the measuring region
 ΔD = Difference in diameter between the master gauge and workpiece



Refer to the LSM brochure

Laser Scan Micrometer Measuring Unit



Specifications

Linearity at 20°C *1	Entire range : ±6 µm Narrow range : ±(4+0,5ΔD) µm
Positional error *2	±8 µm
Repeatability (±2σ)	±0,8 µm
Measuring region	30 x 120 mm
Laser wavelength	650 nm, Visible
Scanning rate	3200 scans/s
Scanning speed	904 m/s
Applicable laser standards	IEC, FDA

Optional accessories

No.	Description	Price €
02AGD150	Calibration gauge set (ø20-120)	1206,00
02AGD260	Air shield	1166,00
957608	Air cleaner for air shield	946,00
02AGC150A	Extension relay cable 1 m	85,00
02AGC150B	Extension relay cable 3 m	98,00
02AGC150C	Extension relay cable 5 m	111,00
02AGN780A	Extension signal cable 5 m	173,00
02AGN780B	Extension signal cable 10 m	233,00
02AGN780C	Extension signal cable 15 m	294,00
02AGN780D	Extension signal cable 20 m	353,00

Series 544

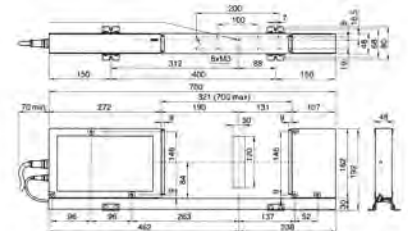
LSM-512S

High Accuracy Non-contact measuring system

- General-purpose type with a wide measuring range of 1 mm to 120 mm.
- Provides high accuracy with a linearity of ±6 µm over the entire measuring range and ±(4+0,5ΔD) µm in the narrow range.
- Excellent repeatability of ±0,8 µm.
- High scanning rate of 3200 scans/s



LSM-512S



Metric

No.	Range	Resolution (selectable)	Price [€]
544-540	1-120 mm	0,0001-0,1 mm	9349,00

Specifications

Linearity at 20°C *1	Entire range : ±7 µm Narrow range : ±(4+2ΔD) µm
Positional error *2	±8 µm
Repeatability (±2σ)	±1,4 µm
Measuring region	40 x 160 mm
Laser wavelength	650 nm, Visible
Scanning rate	3200 scans/s
Scanning speed	1206 m/s
Applicable laser standards	IEC, FDA

Optional accessories

No.	Description	Price €
02AGM300	Calibration gauge set (ø 20-160)	1637,00
02AGC150A	Extension relay cable 1 m	85,00
02AGC150B	Extension relay cable 3 m	98,00
02AGC150C	Extension relay cable 5 m	111,00
02AGN780A	Extension signal cable 5 m	173,00
02AGN780B	Extension signal cable 10 m	233,00
02AGN780C	Extension signal cable 15 m	294,00
02AGN780D	Extension signal cable 20 m	353,00

*1 At the centre of the measuring region

*2 Potential measurement error due to variation in workpiece position within the measuring region

ΔD = Difference in diameter between the mastergauge and workpiece

Series 544

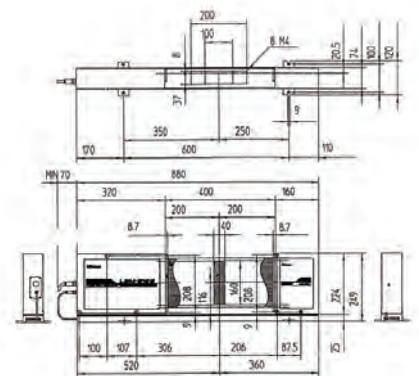
LSM-516S

High Accuracy Non-contact measuring system

- General-purpose type with a wide measuring range of 1 mm to 160 mm.
- Provides high accuracy with a linearity of ±7 µm over the entire measuring range and ±(4+2ΔD) µm in the narrow range.
- Excellent repeatability of ±1,4 µm.
- High scanning rate of 3200 scans/s



LSM-516S



Metric

No.	Range	Resolution (selectable)	Price [€]
544-542	1-160 mm	0,0001-0,1 mm	17542,00



Refer to the LSM brochure

Laser Scan Micrometer

Series 544

The LSM-9506 is a bench-top, non-contact measuring system that uses a high speed scanning laser beam to accurately measure workpieces. It is ideal for measuring items that are difficult or impossible to measure with conventional instruments, such as elastic parts or soft parts that might deform under pressure.

The LSM-9506 offers you the following benefits:

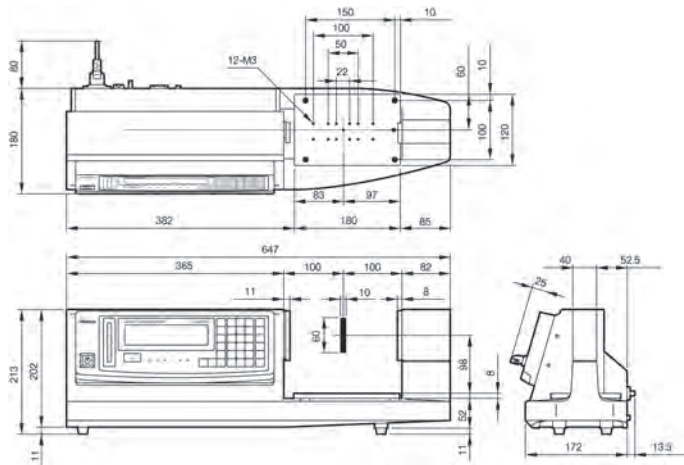
- Its measurement system has an integrated display, allowing easy bench-top inspection.
- A statistical calculation function is also provided.
- Includes standard RS-232C serial port and data output interface.



LSM-9506

Metric

No.	Range [mm]	Resolution (selectable)	Price [€]
544-115D	0,5-60	0,00005-0,1 mm	8042,00



Functions	Series 544
GO/±NG judgement	●
OFFSET	●
Multi-limit judgement	●
Sample Measurement	●
Statistical calculation	●
Data output	●
Zero set	●
PRESET	●
Group judgement	●
Workpiece position display	●
Dual-gauge calibration	●
Transparent object measurement	●
Automatic measurement	●
Abnormal data elimination	●

Specifications

Linearity at 20°C *1	±2,5 µm
Positional error *2	±2,5 µm
Repeatability (±2σ)	±0,6 µm
Measuring region	10 x 60 mm
Laser wavelength	650 nm, Visible
Scanning rate	1600 scans/s
Scanning speed	226 m/s
Applicable laser standards	IEC
Main display	16-digit fluorescent tube
Interface units equipped	RS-232C, Digimatic, Foot Switch
Power supply	100-240VAC, 40VA, 50/60Hz



Refer to the LSM brochure

*1 At the centre of the measuring region

*2 Potential measurement error due to variation in workpiece position within the measuring region

Laser Scan Micrometer Display Unit

Series 544

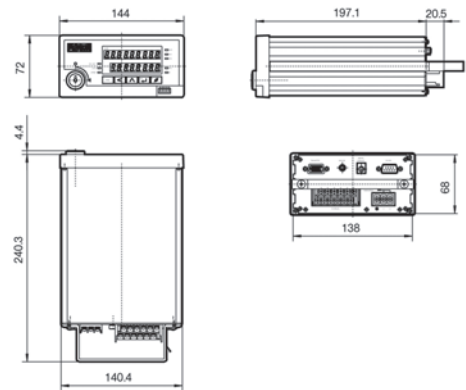
The LSM-5200 Display Unit is a versatile display unit dedicated to Laser Scan Micrometers. This dual-display design allows setup values to be continuously monitored with. You can also get simultaneous readout of two measurement values, and segment measurement and edge measurement are both supported. Statistical calculation and abnormal-data elimination functions are provided as well.

The LSM-5200 Display Unit offers you the following benefits:

- Panel-mount type (with dimensions conforming to DIN 43700) making system integration easy.
- Capable of calculating mean, maximum, and range (maximum to minimum).
- You can select either segment measurement (7 segments max) or edge measurement (1 to 255 edges).
- USB, RS-232C, I/O and analogue interfaces are provided as standard.
- The arithmetical average or moving average can also be selected.
- GO/±NG judgement function.



LSM-5200 display unit



Functions	Series 544
ZERO/ABS	●
GO/±NG judgement	●
OFFSET	●
Sample Measurement	●
Statistical calculation	●
Data output	●
PRESET	●
Workpiece position display	●
Dual-gauge calibration	●
Transparent object measurement	●
Automatic measurement	●
Abnormal data elimination	●

Specifications

Main display	9-digit LED
Interface units equipped	USB2, RS-232C, Analog I/O, Foot Switch
Power supply	+24VDC ±10%, 1A

No.	Price [€]
544-047	2067,00

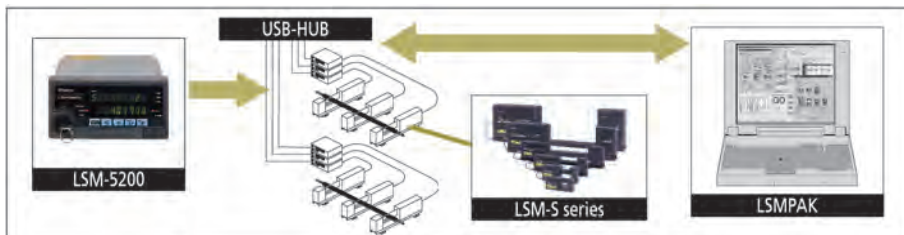
Laser Scan Micrometer Display Unit

Series 544

LSMPAK is Laser Scan Micrometer data software that enables and administers multi-point measurements.

LSMPAK offers you the following benefits:

- You can use it to import measurement data from multiple LSM-5200 Display Units to a personal computer, allowing a variety of measuring systems to be constructed.
- Capable of processing measurement-point data of max 10 channels (USB-HUB connection).
- Capable of composite calculation between measuring units (multiple channels), and it outputs statistical calculation and calculation results as a file.



System Diagram (Example of concurrent multi-point measurement of printer rollers)

No.

02AGP690A

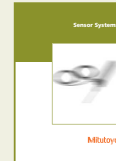
Specifications

Operating Environment

- Connection interface: USB2
- PC : MS-DOS@/V(IBM@) compatible machine
- CPU : 2GHz or more (recommended)
- OS/software : Windows@ XP, Microsoft@ Excel@ 2000 or higher
- Memory : 256MB or more (recommended)
- Applicable display unit : LSM-5200

Other Functions

Rich choice of functions (e.g. counter, graphs, calculation results)



Refer to the LSM brochure

Laser Scan Micrometer Display Unit

Series 544

The LSM-6200 Display Unit is a versatile display unit dedicated to Laser Scan Micrometers. This dual-display design allows setup values to be continuously monitored with. You can also get simultaneous readout of two measurement values, and segment measurement and edge measurement are both supported. Statistical calculation and abnormal-data elimination functions are provided as well.

The LSM-5200 Display Unit offers you the following benefits:

- With this dual-display design, you can continuously monitor setup values, and also simultaneously display two measurement values.
- You can select either the segment measurement (7 segments max) or edge measurement (1 to 255 edges).
- Includes RS-232C and I/O and analogue interface capabilities.
- Includes statistical calculation and abnormal data eliminating functions.

Functions	Series 544
GO/±NG judgement	●
OFFSET	●
Multi-limit judgement	●
Sample Measurement	●
Statistical calculation	●
Data output	●
Zero set	●
PRESET	●
Group judgement	●
Workpiece position display	●
Dual-gauge calibration	●
Transparent object measurement	●
Automatic measurement	●
Dual-unit measurement (optional)	●
Abnormal data elimination	●

Specifications

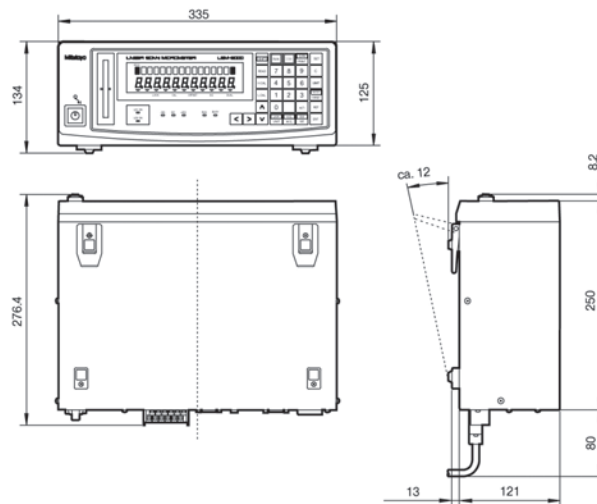
Applicable laser standards	IEC, FDA (544-534), JIS (544-533)
Main display	16-digit fluorescent tube
Interface units equipped	RS-232C, Analog I/O, Foot Switch
Power supply	100-240V AC, 40 VA, 50/60Hz



LSM-6200 display unit

Metric

No.	Price [€]
544-071D	2442,00



02agp150 - Dual-type add-on unit



Refer to the LSM brochure

Laser Scan Micrometer Optional Accessories

Series 544 - Accessories

	No.	Application	L	Description	Price €
	02AGD110	LSM-500S		Calibration gauge set (ø0,1-2 mm)	413,00
	02AGD120	LSM-501S		Calibration gauge set (ø0,1-10 mm)	413,00
	02AGD130	LSM-503S	175	Calibration gauge set (ø1-30 mm)	484,00
	02AGD140	LSM-506S	175	Calibration gauge set (ø1-60 mm)	546,00
	02AGD150	LSM-512S	175	Calibration gauge set (ø20-120 mm)	1206,00
	02AGD170	LSM-9506		Calibration gauge set (ø1-60 mm)	564,00
	02AGD180	LSM-902	175	Calibration gauge set (ø1-25 mm)	567,00
	02AGM300	LSM-516S	175	Calibration gage set (ø 20-160 mm)	1637,00
		02AGD200	LSM-500S	175	Wire guiding pulley
02AGD210		LSM-501S	175	Wire guiding pulley	376,00
	02AGD220	LSM-500S	175	Air shield	729,00
	02AGD230	LSM-501S	175	Air shield	439,00
	02AGD240	LSM-503S	175	Air shield	729,00
	02AGD250	LSM-506S	175	Air shield	1017,00
	02AGD260	LSM-512S	175	Air shield	1166,00
	957608	All LSM models	175	Air cleaner for air shield	946,00
	02AGD270	LSM-501S/503S/902	175	Workstage	801,00
	02AGD280	LSM-902	175	Adjustable workstage	1716,00
	02AGD370	LSM-9506	175	Adjustable workstage	2058,00
	02AGD400	LSM-501S	175	Adjustable workstage	1790,00
	02AGD490	LSM-503S	175	Adjustable workstage	2410,00
	02AGD520	LSM-506S	175	Adjustable workstage	3025,00
	02AGD680	LSM-9506	175	Adjustable workstage	2631,00
	02AGD440	LSM-501S/503S/902	175	Centre support	607,00
	02AGD580	LSM-506S/9506	175	Centre support	703,00
	02AGD450	LSM-501S/503S/902	175	Adjustable V-block	703,00
02AGD590	LSM-506S/9506	175	Adjustable V-block	729,00	
	937179T.			Footswitch	






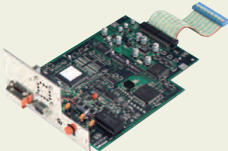
Refer to the LSM brochure

Laser Scan Micrometer Optional Accessories

Series 544 - Accessories



Refer to the LSM brochure

	No.	Application	Description	Price €
 Digimatic (SPC) code-out unit	02AGC840	LSM-6200/6900	Digimatic (SPC) code-out unit	80,00
	02AGC880	LSM-6200/6900	2nd I/O & analog interface	682,00
	02AGC910	LSM-6200/6900	BCD interface unit	480,00
 Extension relay cable	02AGC150A	All LSM models ⁽¹⁾	Extension relay cable 1 m	85,00
	02AGC150B	All LSM models ⁽¹⁾	Extension relay cable 3 m	98,00
	02AGC150C	All LSM models ⁽¹⁾	Extension relay cable 5 m	111,00
	02AGC330A	All LSM models ⁽¹⁾	Output signal cable 5 m	217,00
	02AGC330B	All LSM models ⁽¹⁾	Output signal cable 10 m	286,00
 Extension signal cable	02AGN780A	All LSM models ⁽²⁾	Extension signal cable 5 m	173,00
	02AGN780B	All LSM models ⁽²⁾	Extension signal cable 10 m	233,00
	02AGN780C	All LSM models ⁽²⁾	Extension signal cable 15 m	294,00
	02AGN780D	All LSM models ⁽²⁾	Extension signal cable 20 m	353,00
	02AGN780E	All LSM models ⁽²⁾	Extension signal cable 30 m	471,00
 Dual-type add-on unit	02AGP150	LSM-6200	Dual-type add-on unit	1330,00

⁽¹⁾ Except for LSM-500S/902

⁽²⁾ Except for LSM-902

Quick Guide to Precision Measuring Instruments



Laser Scan Micrometers

Compatibility

Your Laser Scan Micrometer has been adjusted together with the ID Unit, which is supplied with the measuring unit. The ID Unit, which has the same code number and the same serial number as the measuring unit, must be installed in the display unit. This means that if the ID Unit is replaced the measuring unit can be connected to another corresponding display unit.

The workpiece and measuring conditions

Depending on whether the laser is visible or invisible, the workpiece shape, and the surface roughness, measurement errors may result. If this is the case, perform calibration with a master workpiece which has dimensions, shape, and surface roughness similar to the actual workpiece to be measured. If measurement values show a large degree of dispersion due to the measuring conditions, increase the number of scans for averaging to improve the measurement accuracy.

Electrical interference

To avoid operational errors, do not route the signal cable and relay cable of the Laser Scan Micrometer alongside a high-voltage line or other cable capable of inducing noise current in nearby conductors. Ground all appropriate units and cable shields.

Connection to a computer

If the Laser Scan Micrometer is to be connected to an external personal computer via the RS-232C interface, ensure that the cable connections conform to the specification.

Laser safety

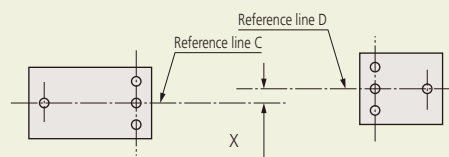
Mitutoyo Laser Scan Micrometers use a low-power visible laser for measurement. The laser is a CLASS 2 EN/IEC60825-1 (2007) device. Warning and explanation labels, are attached to the Laser Scan Micrometers as is appropriate.

Re-assembly after removal from the base

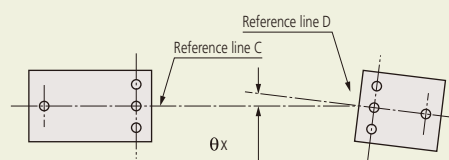
Observe the following limits when re-assembling the emission unit and reception unit to minimize measurement errors due to misalignment of the laser's optical axis with the reception unit.

Alignment within the horizontal plane

- a. Parallel deviation between reference lines C and D: X (in the transverse direction)

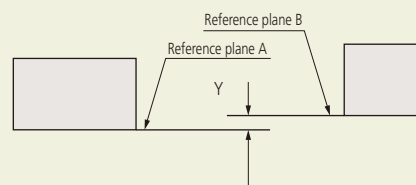


- b. Angle between reference lines C and D: θ_x (angle)

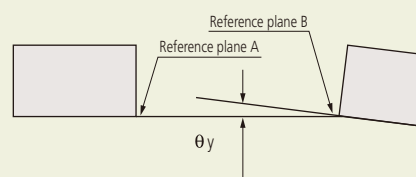


Alignment within the vertical plane

- c. Parallel deviation between reference planes A and B: Y (in height)



- d. Angle between reference planes A and B: θ_y (angle)

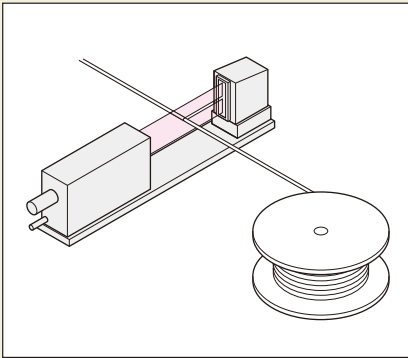


Allowable limits of optical axis misalignment

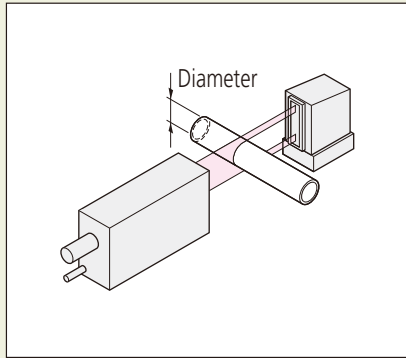
Model	Distance between Emission Unit and Reception Unit	X and Y	θ_x and θ_y
LSM-501S	68mm (2.68") or less	within 0.5mm (.02")	within 0.4° (7mrad)
	100mm (3.94") or less	within 0.5mm (.02")	within 0.3° (5.2mrad)
LSM-503S	130mm (5.12") or less	within 1mm (.04")	within 0.4° (7mrad)
	350mm (13.78") or less	within 1mm (.04")	within 0.16° (2.8mrad)
LSM-506S	273mm (10.75") or less	within 1mm (.04")	within 0.2° (3.5mrad)
	700mm (27.56") or less	within 1mm (.04")	within 0.08° (1.4mrad)
LSM-512S	321mm (12.64") or less	within 1mm (.04")	within 0.18° (3.6mrad)
	700mm (27.56") or less	within 1mm (.04")	within 0.08° (1.4mrad)
LSM-516S	800mm (31.50") or less	within 1mm (.04")	within 0.09° (1.6mrad)

Measurement Examples

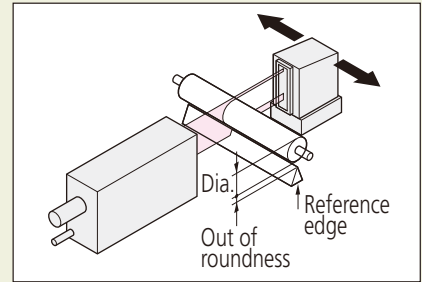
On-line measurement of glass fiber or fine wire diameter



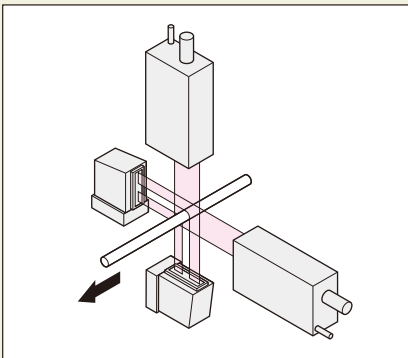
Measurement of outer diameter of cylinder



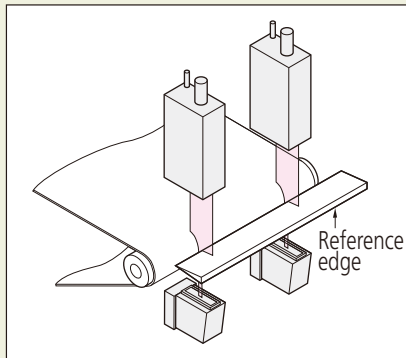
Measurement of outer diameter and roundness of cylinder



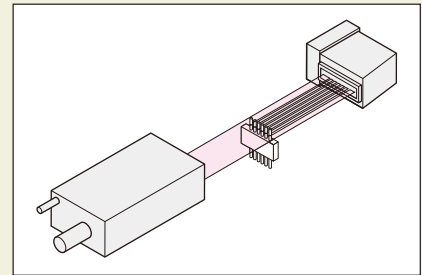
X- and Y-axis measurement of electric cables and fibers



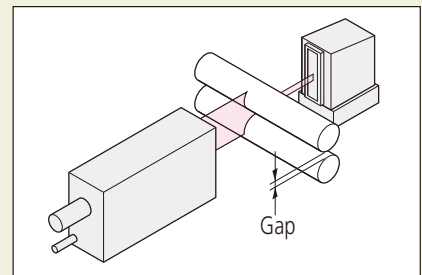
Measurement of thickness of film and sheet



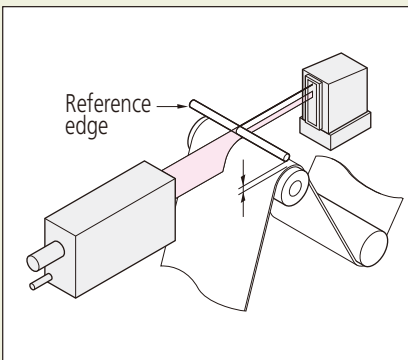
Measurement of spacing of IC chip leads



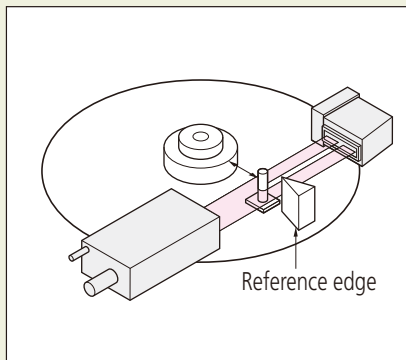
Measurement of gap between rollers



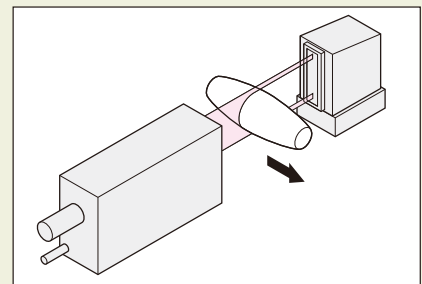
Measurement of film sheet thickness



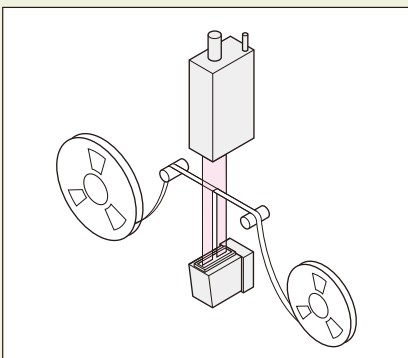
Measurement of laser disk and magnetic disk head movement



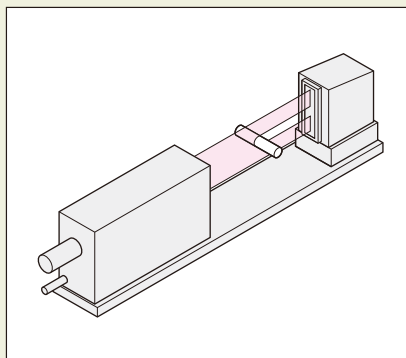
Measurement of form



Measurement of tape width



Measurement of outer diameter of optical connector and ferrule



Dual system for measuring a large outside diameter

