

ID-S SERIES ABS DIGIMATIC INDICATOR

Simple-design Digital Indicators

SMALL TOOL INSTRUMENTS
AND DATA MANAGEMENT



Simple, Easy-to-use Solar and Battery-powered Digimatic



The Nakatsugawa Plant, situated in an industrial park amid the lush greenery of Nakatsugawa city in Gifu prefecture, is a dedicated site covering work from development to production of measuring instruments such as dial indicators, test indicators, digimatic indicators and linear gages. It was opened in 1997 as the twelfth Mitutoyo plant in Japan. Mitutoyo brand products, which are shipped with cutting-edge industrial technology and equipment, have been evaluated as first-class on a worldwide basis, and our customers know they can depend on their reliability.

The ID-S series of single-function ABS Digimatic indicators includes the ID-SS, the world's first solar-powered Digimatic indicator, and the ID-SX, powered by a button battery. These Digimatic indicators have a measuring range of 12.7 mm/.5". Indicators with display resolutions of 0.0005"/0.01mm, 0.0001"/0.001mm and 0.00005"/0.001mm are available.

For the ID-SX, some models provide IP53-rated* dust/water protection. All the Digimatic indicators in this series are compact—approximately the same size as a standard dial indicator. A Digimatic data output function makes it possible to use them in statistical process control, networked measurement and other similar systems.

*For more information about IP53 models, refer to page 6-7.

Indicators

Compact design

Compact Digimatic indicators are approximately the same size as a standard dial indicator. The solar-powered ID-SS eliminates the need for battery replacement, so there is no fear of losing power at an inconvenient time.



Standard dial indicator

ID-SS

LCD

Digimatic indicators have an LCD with large numbers (9 mm) for easy readability.



Actual size

Large push buttons

Digimatic indicators feature large, easy-to-use buttons that provide direct access to the functions.



ID-SS



ID-SX

ABS (absolute) sensor

Digimatic indicators employ Mitutoyo's proprietary ABS (absolute) sensor, which automatically restores the origin point even if the power is turned off. This eliminates the need to reset the origin each time the unit is turned on. Unlimited response speed eliminates overspeed errors.

ABSOLUTE™

Plunger lifting and accessories

To take account of the range of these indicators, three types of optional lifting accessories is available. Choose from contact points, stands, data processing-related parts and other accessories.

Optional accessories

Lifting lever



Lifting knob



Lifting cable



Inspection certificate included

- An inspection certificate is included.
- For an additional fee, Mitutoyo will calibrate measuring equipment and issue a calibration certificate providing proof of NIST/A2LA traceability. Contact Mitutoyo for details.

CERTIFICATE OF INSPECTION 検査成績書		Certificate No. 4112383337																
Product Name: Digimatic Indicator Code No.: 164-782B Model: ID-S120B Serial No.: 12044847																		
Graduation: 0.001mm Measuring span: 12.7mm Temperature: 20°C (Standard Temperature)																		
Inspection standard: Mitutoyo standard																		
<table border="1"> <thead> <tr> <th>項目</th> <th>検査結果</th> <th>規格</th> <th>判定</th> </tr> </thead> <tbody> <tr> <td>全体的検査精度 Overall</td> <td>2</td> <td>2</td> <td>合格</td> </tr> <tr> <td>直線性 Linearity</td> <td>2</td> <td>3</td> <td>合格</td> </tr> <tr> <td>繰り返し精度 Repeatability</td> <td>2</td> <td>2</td> <td>合格</td> </tr> </tbody> </table>		項目	検査結果	規格	判定	全体的検査精度 Overall	2	2	合格	直線性 Linearity	2	3	合格	繰り返し精度 Repeatability	2	2	合格	
項目	検査結果	規格	判定															
全体的検査精度 Overall	2	2	合格															
直線性 Linearity	2	3	合格															
繰り返し精度 Repeatability	2	2	合格															
<table border="1"> <thead> <tr> <th>項目</th> <th>検査結果</th> <th>規格</th> <th>判定</th> </tr> </thead> <tbody> <tr> <td>全体的検査精度 Overall</td> <td>2</td> <td>2</td> <td>合格</td> </tr> <tr> <td>直線性 Linearity</td> <td>2</td> <td>3</td> <td>合格</td> </tr> <tr> <td>繰り返し精度 Repeatability</td> <td>2</td> <td>2</td> <td>合格</td> </tr> </tbody> </table>		項目	検査結果	規格	判定	全体的検査精度 Overall	2	2	合格	直線性 Linearity	2	3	合格	繰り返し精度 Repeatability	2	2	合格	
項目	検査結果	規格	判定															
全体的検査精度 Overall	2	2	合格															
直線性 Linearity	2	3	合格															
繰り返し精度 Repeatability	2	2	合格															
Map of inspection (Mitutoyo logo) Based on JIS B 7503, 1.1 (2003) Traceable to NIST/A2LA by 2025 No. 0250 NIST via No. 0250/2025-0250/2025																		
The quantizing error (LS count) is included from the specification value. The quantizing error (LS count) is included from the specification value.																		
Mitutoyo Corporation																		

ABS Solar-Powered Digimatic Indicator ID-SS

SOLAR



- * Patent pending in Japan, the United States, the European Union and China.
- * Design registered in Japan, the United States, the European Union and China.

Power supply

Environmentally friendly solar model does not require batteries, eliminating the hassle and cost of battery replacement. Can operate approximately 3.5 hours on a full charge, even in minimal light conditions of 40 lux.

Origin recorded even if display disappears

The indicator includes an ABS (absolute) sensor that allows the previously set origin to be restored even if the display disappears due to insufficient light. This feature makes ID-SS ideal for extended measurement sessions.

ABSOLUTE™

Specifications

Inch/Metric

ASME/ANSI/AGD Type ISO/JIS/DIN Type

Order No.	Range	Resolution	Accuracy*1			Back type	Mass
			Overall*2	Hysteresis	Repeatability		
543-501	.5"/12.7 mm	.0005"/0.001mm	±.0001"/0.003mm	.0001"/0.002mm	.0001"/0.002mm	With lug	150g
543-501B						Flat	140g
543-502		.00005"/0.001mm	±.0001"/0.003mm	.0001"/0.002mm	.0001"/0.002mm	With lug	165g
543-502B						Flat	140g
543-506		.0005"/0.01mm	±.0010"/0.02mm	.0010"/0.02mm	.005"/0.01mm	With lug	150g
543-506B						Flat	140g
543-507		.0005"/0.01mm	±.0010"/0.02mm	.0010"/0.02mm	.005"/0.01mm	With lug	165g
543-507B						Flat	140g

Metric

Order No.	Range	Resolution	Accuracy*1			Back type	Mass
			Overall*2	Hysteresis	Repeatability		
543-500	12.7 mm	0.001 mm	0.003 mm	0.002 mm	0.002 mm	With lug	150g
543-500B						Flat	140g
543-505		0.01 mm	0.02 mm	0.02 mm	0.01 mm	With lug	150g
543-505B						Flat	140g

*1 These values apply at 20°C *2 Overall linearity

Common specifications

Display: 6-digit LCD, sign

Contact point: Spherical tip SR = 1.5 mm (carbide tipped)

Part No. **21BZB005** (for ASME/ANSI/AGD Type)

Part No. **901312** (for ISO/JIS/DIN Type)

Measuring force: 1.5 N or lower

Usable orientation: All

Power supply: Solar cell (for indoor use)

Minimum operating light: 40lux

Reserve capacity allows a fully charged ID-SS to be used for about 3.5 hours under light conditions below the minimum level.

Charging time required depends on the environment, but it usually takes about 1.5 hours for a fully discharged ID-SS to fully recharge under light conditions of 500lux.

Maximum response speed: No limit (scan-type measurement is not supported)

Operating temperature range: 0 to 40°C

Storage temperature range: -10 to 60°C

Features

Origin set (zero-set): The display can be zeroed at any chosen position.

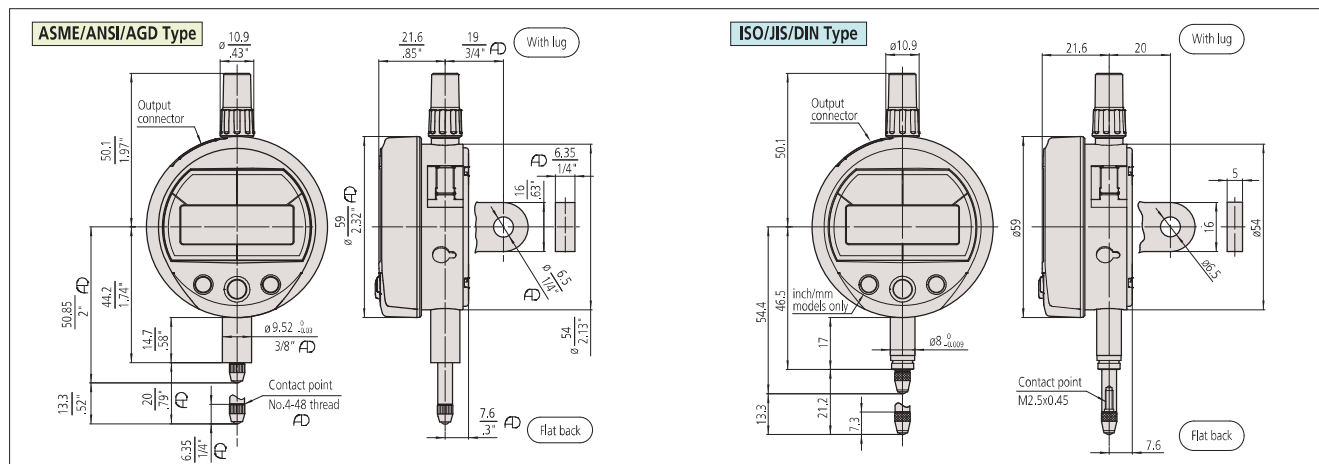
Direction switching: The measuring direction can be switched.

in/mm reading (inch/mm models only)

Measurement data output: These indicators have a measurement data output socket, which makes it possible to output Digimatic data to the DP-1VR mini processor or to a PC through an input tool. Furthermore, the U-WAVE measurement data wireless communication system can be used to wirelessly input measurement data to a PC.

Error warning

Dimensions



Optional accessories

• Lifting

Lifting lever

No.21EZA199 (ASME/ANSI/AGD Type)

No.21EZA198 (ISO/JIS/DIN Type)



Lifting cable (No. 540774)



Lifting knob

No.21EZA150 (ASME/ANSI/AGD Type)

No.21EZA105 (ISO/JIS/DIN Type)



- SPC connecting cables
1m (No. 905338)
2m (No. 905409)
- Data processing products
- Contact points for Mitutoyo dial indicators
- Backs for Mitutoyo standard (2 series) dial indicators
- Stands

- ID-SS can be used in standard work environments.

The following is excerpted from JIS Z9110:2010 General rules of recommended lighting levels; 5.4 Factories:

Luminance (lux)	Location (permissible work)
1500	Very detailed visual work
750	Detailed visual work; design and drawing work
500	Regular visual work such as work carried out in a factory; monitoring work such as using instrument panels and control panels
300	Administrative work carried out in a warehouse
200	Control rooms, bathrooms and places where light manual work is carried out
150	Work such as loading, unloading and shifting loads
100	Hallways, corridors, entrances and exits, and warehouses
50	Indoor emergency stairwells

ABS Digimatic Indicator ID-SX



Simplified functionality

This battery-operated indicator's simplified functionality makes it easy to use. Indicators with measurement resolutions of 0.01 mm and 0.001 mm are included in the lineup. One button battery (SR44) provides approximately 20,000 hours of continuous use for resolution .0005"/0.01mm models.

IP53 dust/water protection level

Models with IP53 dust/water protection:

543-794, 543-794B
543-795, 543-795B
543-796, 543-796B

ABS (absolute) sensor

Digimatic indicators employ Mitutoyo's proprietary ABS (absolute) sensor, which automatically restores the last origin position when the indicator is powered on. Sensor ensures that overspeed errors do not occur, thereby improving reliability.

ABSOLUTE™

Specifications

Inch/Metric		ASME/ANSI/AGD Type ISO/JIS/DIN Type								
Order No.	Range	Resolution	Accuracy*1			Back type	Measuring force	Battery life*3	Dust/Water protection level*4	Mass
			Overall*2	Hysteresis	Repeatability					
543-791	.5"/12.7 mm	.00005"/0.001mm	±.0001"/0.003mm	.0001"/0.002mm	.0001"/0.002mm	With lug	1.5N or less	18,000 hours under normal use	IP42	150g
543-791B						Flat				140g
543-792						With lug				165g
543-792B						Flat				140g
543-793		.0001"/0.001mm	±.0001"/0.003mm	.0001"/0.002mm	.0001"/0.002mm	With lug	1.5N or less	18,000 hours under normal use	IP42	165g
543-793B						Flat				140g
543-795		.00005"/0.001mm	±.0001"/0.003mm	.0001"/0.002mm	.0001"/0.002mm	With lug	2.5N or less	18,000 hours under normal use	IP53	155g
543-795B						Flat				155g
543-796		.00005"/0.001mm	±.0001"/0.003mm	.0001"/0.002mm	.0001"/0.002mm	With lug	2.5N or less	18,000 hours under normal use	IP53	155g
543-796B						Flat				155g
543-782		.0005"/0.01mm	±.0010"/0.02mm	.0010"/0.02mm	.0005"/0.01mm	With lug	1.5N or less	20,000 hours under normal use	IP42	150g
543-782B						Flat				140g
543-783		.0005"/0.01mm	±.0010"/0.02mm	.0010"/0.02mm	.0005"/0.01mm	With lug	1.5N or less	20,000 hours under normal use	IP42	165g
543-783B						Flat				140g

Metric										
Order No.	Range	Resolution	Accuracy* ¹			Back type	Measuring force	Battery life* ³	Dust/Water protection level* ⁴	Mass
			Overall* ²	Hysteresis	Repeatability					
543-790	12.7 mm	0.001 mm	0.003 mm	0.002 mm	0.002 mm	With lug	1.5N or less	18,000 hours under normal use	IP42	150g
543-790B						Flat				140g
543-794						With lug				155g
543-794B		Flat	155g							
543-781		0.01 mm	0.02 mm	0.02 mm	0.01 mm	With lug	1.5N or less	20,000 hours under normal use	IP42	150g
543-781B						Flat				140g

*1 These values apply at 20°C.

*2 Overall linearity

*3 Battery life varies, depending on use. The values listed are approximations.

*4 This is only valid when the data socket cover is in place. Does not apply if the cover is removed, a lifting accessory is attached or a connecting cable is attached.

Common specifications

Display: 6-digit LCD, sign

Contact point: Spherical tip SR = 1.5 mm (carbide tipped)

part No. **901312** (for ISO/JIS/DIN Type), part No. **21BZB005** (for ASME/ANSI/AGD Type)

Usable orientation: All

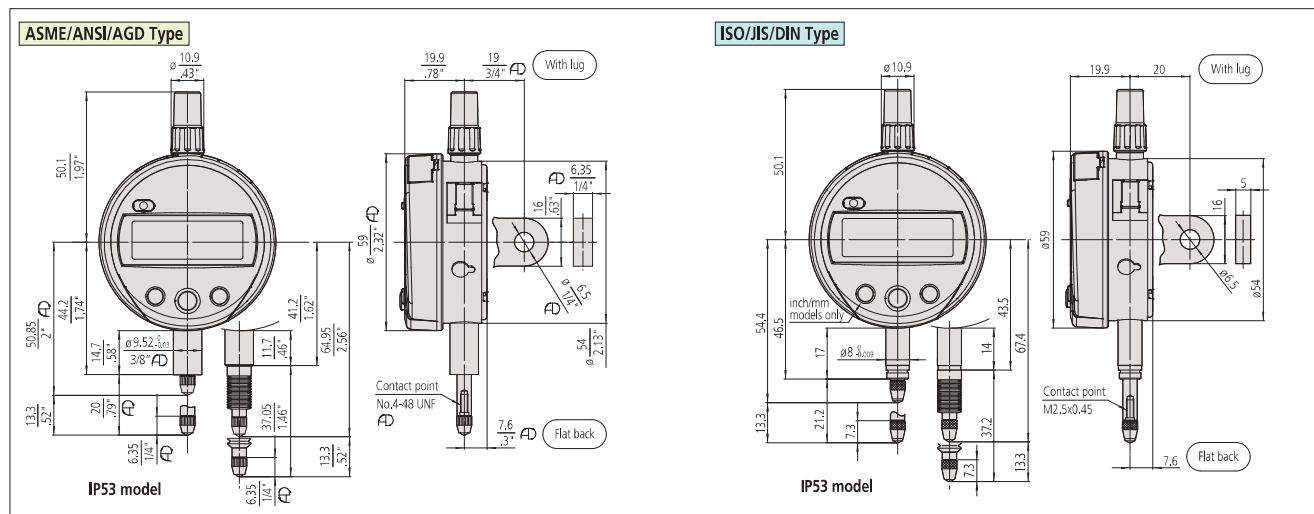
Power supply: SR44, part No. **938882**

Maximum response speed: No limit (scan-type measurement is not supported)

Operating temperature range: 0 to 40°C

Storage temperature range: -10 to 60°C

Dimensions



Optional accessories

Lifting

Lifting lever No.21EZA199 (ASME/ANSI/AGD Type), No.21EZA198 (ISO/JIS/DIN Type)

Lifting knob No.21EZA150 (ASME/ANSI/AGD Type), No.21EZA105 (ISO/JIS/DIN Type)

Lifting cable (No. 540774)

• SPC connecting cables 1m (No. 905338) 2m (No. 905409)

• Data processing products

• Contact points for Mitutoyo dial indicators

• Backs for Mitutoyo standard (2 series) dial indicators

• Stands

IP53 dust/water protection

Level 5: Dust protection

While complete protection against invasion of dust is not provided, protection is adequate to prevent dust amounts that would inhibit the prescribed operations and safety of the electronic equipment.

Level 3: Protection against spraying water

The product suffers no harmful effects when subjected to water sprayed at an angle of up to 60 degrees on both sides.

For details on the dust/water protection level test conditions, please refer to IEC 60529:2001 and JIS C 0920:2003.

IP code is the degree of protection against solid foreign objects and water.

Mitutoyo offers a lineup of coolant-proof indicators, ID-N/B series, which provides excellent resistance against oil, water and dust in the situations that include splashing cutting fluid.



Mitutoyo's full line of Digimatic indicators

- ① ID-S: ABS Digimatic indicator
- ② ID-CX: Standard digital indicator
- ③ ID-N/B: Coolant-proof proof, slim body design--35 mm wide--and equipped with a range of functions
- ④ ID-H: Remote controlled, high accuracy and equipped with a range of functions
- ⑤ ID-U: General purpose with measuring range of 25.4 mm
- ⑥ ID-CRB: Built-in calculation function
- ⑦ ID-CA: Peak hold function
- ⑧ ID-CGB: Dedicated design for bore gages
- ⑨ ID-F: Absolute Digimatic indicator with back-lit LCD

© 2017 Mitutoyo America Corporation



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

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

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



**Find additional product literature
and our product catalog**

www.mitutoyo.com

Note: All information regarding our products, and in particular the illustrations, drawings, dimensional and performance data contained in this printed matter as well as other technical data are to be regarded as approximate average values. We therefore reserve the right to make changes to the corresponding designs. The stated standards, similar technical regulations, descriptions and illustrations of the products were valid at the time of printing. In addition, the latest applicable version of our General Trading Conditions will apply. Only quotations submitted by ourselves may be regarded as definitive. Specifications are subject to change without notice.

Mitutoyo products are subject to US Export Administration Regulations (EAR). Re-export or relocation of our products may require prior approval by an appropriate governing authority.

Trademarks and Registrations

Designations used by companies to distinguish their products are often claimed as trademarks. In all instances where Mitutoyo America Corporation is aware of a claim, the product names appear in initial capital or all capital letters. The appropriate companies should be contacted for more complete trademark and registration information.

Mitutoyo

Mitutoyo America Corporation

www.mitutoyo.com

One Number to Serve You Better

1-888-MITUTOYO (1-888-648-8869)

M³ Solution Centers:

Aurora, Illinois (Headquarters)

Boston, Massachusetts

Huntersville, North Carolina

Mason, Ohio

Detroit, Michigan

City of Industry, California

Birmingham, Alabama

Renton, Washington

Houston, Texas