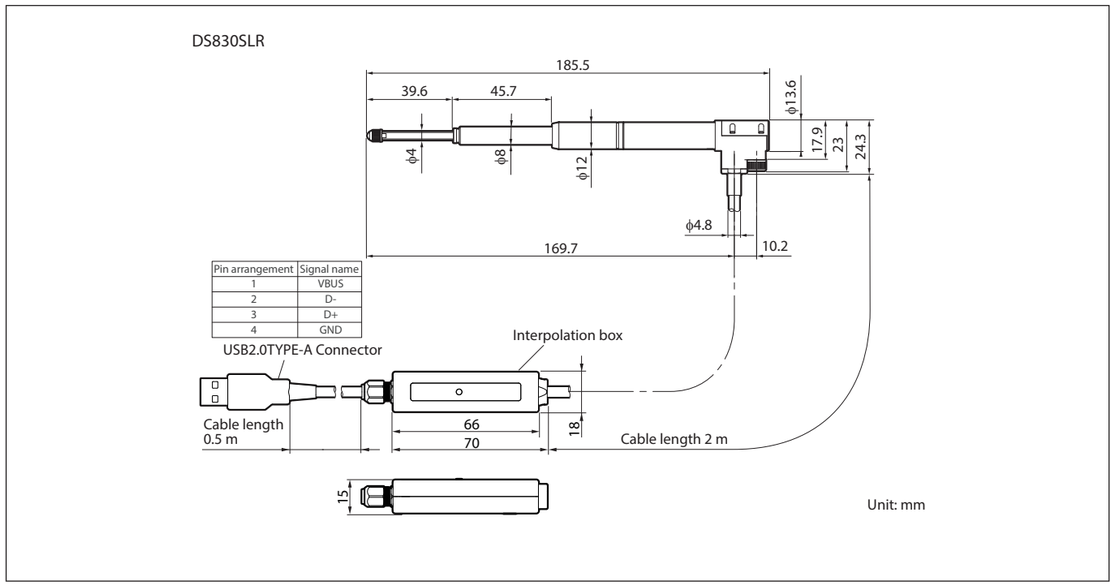
■ Specifications

Model name	DS830SLR
Measuring range	30 mm
Resolution	0.1 µm
Accuracy (at 20°C)	1.5 µm
Measuring force (at 20°C)	Downward : 0.7±0.35 N Horizontal : 0.6±0.35 N Upward : 0.5±0.35 N
Maximum response speed	80 m/min
Reference point	Position at spindle movement of 1±0.5 mm
Reference point response speed	40 m/min
Communication interface	USB2.0FS
Protection grade (Not including interpolation box and connector)	IP53 When using the DZ830BL: IP67
Vibration resistance	100 m/s² (20 to 2000 Hz)
Impact resistance	1000 m/s² (11 ms)
Operating temperature	0 to 50°C (no condensation)
Storage temperature	–20 to 60°C (90% RH or less)
Power supply	DC5 V±5%
Current consumption	120 mA Max.
Mass	Approx. 80 g (Not including cable and interpolation box)
Feeler	Carbide ball tip, Mounting screw M2.5
Accessories	Instruction Manual, Spanner

* Use the CE38 that is sold separately for the output cable. (Cable length Max.4 m)



Magnescale Co., Ltd.

45 Suzukawa, Isehara-shi, Kanagawa 259-1146, Japan

DS830SLR
2-A02-674-1D

2025.10
Printed in Japan

Magnescale

Digital Gauge

DS830SLR

Instruction Manual

Read all the instructions in the manual carefully before use and strictly follow them.
Keep the manual for future references.

Safety Precautions

Magnescale Co., Ltd. products are designed in full consideration of safety. However, improper handling during operation or installation is dangerous and may lead to fire, electric shock or other accidents resulting in serious injury or death. In addition, these actions may also worsen machine performance.
Therefore, be sure to observe the following safety precautions in order to prevent these types of accidents, and to read these “Safety Precautions” before operating, installing, maintaining, inspecting, repairing or otherwise working on this unit.

Warning Indication Meanings

The following indications are used throughout this manual, and their contents should be understood before reading the text.

Symbols requiring attention

Symbols prohibiting actions

⚠Warning **Failing to follow the precaution items given below may lead to severe injury or death.**

- Do not damage, modify, excessively bend, pull on, place heavy objects on or heat the cable, as this may damage the cable and result in fire or electric shock.
- Do not disassemble or modify this product, as this may result in injury or electric shock. These actions may also damage the internal circuitry.

⚠Caution **Failing to follow the precaution items given below may lead to injury or damage to surrounding objects.**

- This product does not have an explosion-proof structure. Therefore, do not use the product in an atmosphere charged with inflammable gases as this may result in fire.

■ General precautions

- Before and during operations, be sure to check that our products function properly.
- Provide adequate safety measures to prevent damages in case our products should develop malfunctions.
- Use outside indicated specifications or purposes and modification of our products will void any warranty of the functions and performance as specified of our products.
- When using our products in combination with other equipment, the functions and performances as noted in this manual may not be attained, depending on operating and environmental conditions.

[For U.S.A. and Canada]

THIS CLASS A DIGITAL DEVICE COMPLIES WITH PART15 OF THE FCC RULES AND THE CANADIAN ICES-003. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS.

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDERSIGNED OPERATION.

CET APPAREIL NUMÉRIQUE DE LA CLASSE A EST CONFORME À LA NORME NMB-003 DU CANADA.

■ Connecting the measuring unit

This measuring unit uses an interface that is compliant with the USB (Universal Serial Bus) 2.0 FS (Full speed) standard, and can be connected directly to a personal computer or hub.

■ Installing software

The software available on the Magnescale website can be used by installing in a personal computer. Refer to the software instruction manuals available on the Magnescale website for the software installation and operation methods.

■ Operating cautions

- Be sure to observe the following to prevent the product from being affected by noise from other devices.
  - Place the product 50 cm or more away from a high voltage source, large current source, large power relay, etc.
  - Provide power from a low-noise power supply.
  - When coupling relays, solenoids, motors or other devices to this product, be sure to keep the product main unit and signal output cable as far away from these devices as possible.
  - Do not arrange the signal output cable of the product alongside or parallel to device power lines. Be sure to keep the signal output cable 20 cm or more away from power lines.
  - If a strong noise source is present, take noise prevention measures such as installing a ferrite core or grounding.
- Vibration, impact, inertial force, or eccentric loads may cause the internal ball retainer to deviate from its normal position, resulting in a shorter measuring length. In such cases, perform a full stroke to correct the position of the retainer at regular operating time intervals or each certain number of reciprocations.

■ Mounting Instructions

Installation environment

- Do not use this product in places where it may receive excessive shocks. Otherwise the inside of the unit may be damaged or the unit may become unable to produce normal output signals.
- Locate the measuring unit at least 10 cm away from a strong magnetic source. (The measuring unit must not be used in magnetic fields exceeding 5 mT.)
- Do not place the measuring unit where it is exposed to splash of water or oil.

Mounting

- When attaching and removing the feeler, use the supplied spanner. Be careful not to apply torque exceeding 0.1 N·m to the spindle. This could lead to a breakdown.
  To prevent the feeler from becoming loose, it is recommended to either attach the supplied spring washer (nominal size: 2.5) or use a screw lock. (tightening torque reference value: 0.05–0.06 N·m)

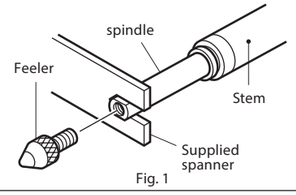
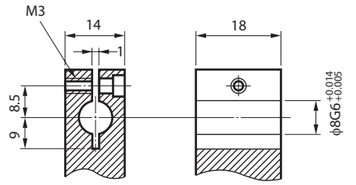


Fig. 1

- Fix the cable in a suitable position to prevent possible cable breakage. Never handle the cable by forcibly pulling or bending it. (Inside bend radius 50 mm or more)
- The measuring accuracy depends on the mounting parallelism. Adjust the squareness to the measuring surface or the parallelism to the movement to within 0.02 mm/14 mm.
- After the stem is secured, do not apply force in the rotational direction. This could cause a failure.
- The measuring unit comprises ball bearings. Therefore, chucking the stem of the measuring unit too tightly when mounting may damage the spindle and prevent its smooth motion.
- Attach the stem by tightening a screw into the slot as shown in Fig. 2. Never attach by screw threading in the ϕ8 mm hole vertical direction, pressing the stem, and then tightening with a screw. This could result in poor sliding and low precision.
- Be absolutely sure to chuck the stem part when mounting the measuring unit.
- Using Fig. 2 as a reference, select which holder to have ready at the mounting side.



Tightening torque: 0.6 N·m
Material: SUS303 Unit: mm
Fig. 2 Dimensions and Dimensional Tolerance for the Mounting Holder

- When mounting onto a machine, use of the Flange Adaptor DZ830F (optional accessory) is recommended for preventing damage to the measuring unit due to over-tightening.
- For the mounting procedure, please refer to the Instruction Manual supplied with the DZ830F.

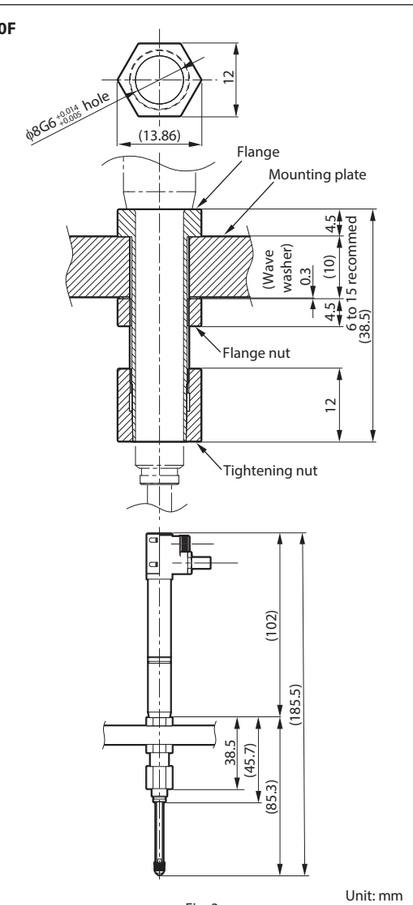


Fig. 3

■ Maintenance

- Calibration is recommended every year.
- An anti-dust bellows available as an optional accessory can be mounted to the spindle part of this unit. Organic solvents, ozone, ultraviolet rays, and other adverse conditions in the ambient atmosphere can cause rapid deterioration of the anti-dust bellows. When using in these environments, replace anti-dust bellows periodically (every six months to one year).

■ When providing an IP67 protection grade

- Please use the optional DZ830BL bellows set.

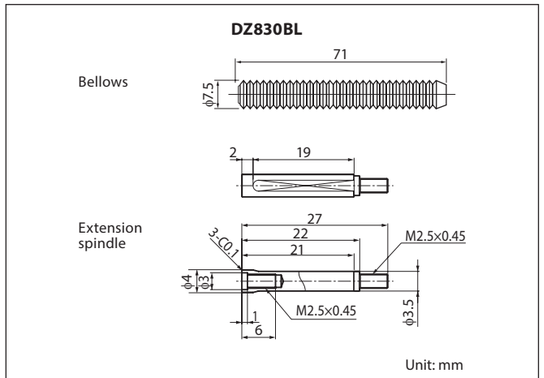
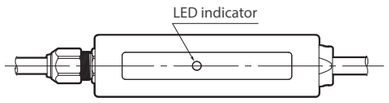


Fig. 4

■ Troubleshooting

The operating status of the measuring unit can be checked using the LED indicator.



LED lighting color	Details	Remedial action
Lights in blue.	The power is turned on. Normal operation is now performed. The reference point has been detected.	-
Blinks in blue.	The power is turned on. The reference point standby status is established or the reference point is being detected.	When the reference point is used, turn on the power with the spindle extended as far as possible (Note: in case of SV type, with the spindle contracted), and then move the spindle 1.5 mm or more. When the power is turned on with the spindle stopped near the reference point position, it may not be possible to detect the reference point or the reference point may shift.
Blinks in red.	The signal level of the measuring unit is abnormal.	After dealing with the factor suspected to be responsible for the alarm, reset the software or turn the power back on. If the same symptoms persist even when the power has been turned back on, the measuring unit might be malfunctioned.
Lights in red.	The maximum response speed has been exceeded. The signal level of the measuring unit is abnormal. Serial communication trouble has occurred. Normal operation cannot be performed due to the effects such as external noise etc.	
Off	Power OFF	If the same symptoms persist even when the power has been turned on, the measuring unit might be malfunctioned or the cable might be broken.