

DEVA

The Optimal solutions in the field of
Precision length measurement

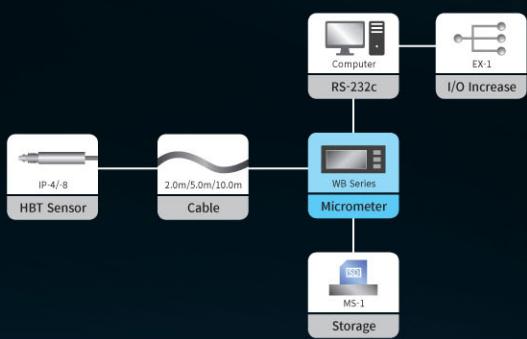


WB-10N / 10R

Optimal solution for the high precision measurement area!!
DEVA is always with you.



Micrometer dedicated to 1 channel



Characteristics and Advantages of WB-10N/10R

1. Compact size

- 96 x 48 size
- Installation in panel / dedicated stand (bracket included in the package)

2. High precision measurement

- 0.1µm of whole sensor measuring section realized
- Support of high precision resolution (0.1µm / 0.5µm / 1µm / 10µm)

3. Support of various measuring modes

- WB-10N :
 - Real time measurement (Scan/ Hold)
 - Measurement by external signals (ONCE/ Hold)
- WB-10R :
 - Peak-Hold (Max)
 - Run-Out (M-n)

Leader of Micrometer



Definite visibility of measurements with rich presentation in 3 colors



Displayed in **Green** in case of OK



Displayed in **Red** in case of NG

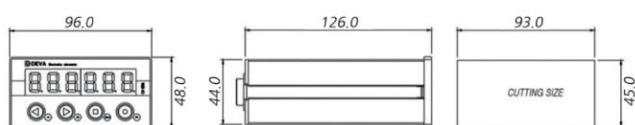


Displayed in **Orange** in case of menu settings

Rated Performances

Model	WB-10N	WB-10R
Display	6-Digit 3-COLOR FND	
Operating method	SCAN/HOLD, ONCE/ HOLD	Peak-Hold, Run-out operation function added
Power voltage	DC 24V ($\pm 5\%$) (ripple P-P 5% or less) / 50mA (when output is dead-load)	
Sampling speed	30sps	
Resolution	0.1 μ m / 0.5 μ m / 1 μ m / 10 μ m	
Sensor	IP-4 / IP-8	
Communication sensor	RS232C (9600bps, N, 8, 1, No flow control)	
Input method	No-voltage input (Function / Zero)	
Output method	NPN Open collector (High-NG / OK / Low-NG)	
External selection switch	4 DIP Switch	
Terminal block spec.	Plug type terminal block / 3.81 mm pitch	
Accessory	Bracket	
Weight	About 410g	
Option	Stand for product mounting, 24V/0.5A adaptor, telecommunication cable	

Length Information



Order Code

WB - 10 Δ - \square P	
Type	Sensor in use
-N Basic type	-4 IP-4
-R Run-out type	-8 IP-8

Application Cases

WB-10N	WB-10R
	
Step difference	Thickness
	
Measurement of inner diameter	Measurement of outer diameter
	
Wheel RO	Shaft RO
	
Other applications	Other applications

Additional Configuration



Stand for mounting dedicated for WB-10

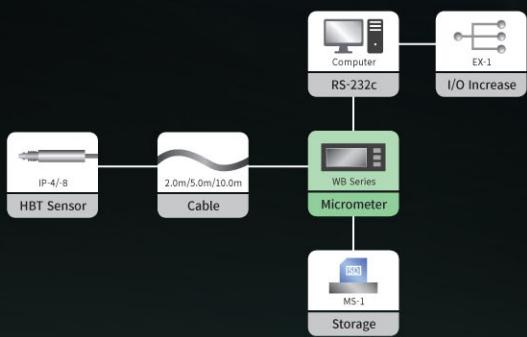
- Available to use by mounting WB-10N alone
- Strong durability with steel 3T bending structure
- Stable structure without deviation with the side bracket welding structure
- Rust-proof and clean finishing with full coating
- Most ideal visibility at 15° of stand tilt angle

WB-20N

Optimal solution for the high precision measurement area!!
DEVA is always with you.



Micrometer dedicated for 2 channels



Characteristics and Advantages of WB-20N

1. Simple setting and operations

- Application of resolution 128x64 LCD
- Easy to check the measurements and set the menu

2. High precision measurement

- 0.1µm of full sensor measuring section realized
- Excellent accuracy and repeatability precision
- Support of various resolutions (0.1µm / 0.5µm / 1µm / 10µm)

3. Various functions

- Calculation of measurements through 2-channel support available (A+B, A-B, AVG)
- Correction function: External auto zero function
- Model function" Cross-measurement of up to 2 models available
- Panel mounting or dedicated stand mounting available

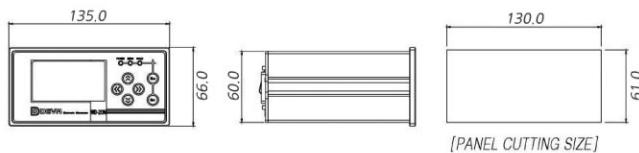
Leader of Micrometer



Rated Performances

Model	WB-20N
Applied sensors	IP-4 / IP-8
Display	2.4" GLCD (resolution 128 x 64)
Input channel	2 channels
Operation method	SCAN / HOLD, ONCE / HOLD, Peak-Hold, Run-out
Power voltage	DC 24V ($\pm 5\%$) (ripple P-P 5% or less) / 50mA (when output is dead-load)
Sampling rate	30sps
Resolution	0.1 μ m / 0.5 μ m / 1 μ m / 10 μ m
Input method	5EA, NPN
Output method	8EA, NPN Open collector
Communication output	RS232C (9600 bps, N, 8, 1, No flow control) / baud rate changeable
Terminal block spec.	D-sub 15-pin female, 24V/ 0.5A adapter
Accessories	D-sub 15pin male connector, 24V / 0.5A adapter and mounting bracket
Weight	540g
Option	Stand for product mounting and communication cable
Product length information	W135mm x D126mm x H66mm (Panel Cutting Size: 130mmx 61mm)

Length Information



Order Code

WB - 20N - <input type="checkbox"/> P	
Basic model	
	Sensor in use
	-4 IP-4
	-8 IP-8

Application Cases



WB-10N



Step difference



Thickness



Measurement of inner diameter



Measurement of outer diameter



Perpendicularity



Wheel RO



Plane RO



Shaft RO



Other applications

Additional Configuration



Stand for mounting dedicated for WB-20N

- Available to use by mounting WB-20N alone
- Strong durability with steel 3T bending structure
- Stable structure without deviation with the side bracket welding structure
- Most ideal visibility at 15° of stand tilt angle
- Rust-proof and clean finishing with full coating

Innovation of Multi-Channel Electronic Micrometer

High precision length meter for lot inspection / process inspection and sampling inspection

>> WB-120N Series



WB-120P Series <<



Support of max 12 channels

7' color touch display

Saving and back-up of measured data

Multi-language support
Korean / English
Chinese / Japanese

Leader of Micrometer





WB-120N

- Base type
- Easy installation and management owing to all-in-one structure
- Support of 2 USB ports in the front



WB-120P

- Panel mounting type
- Water-proof front face (equivalent to IP65)
- Superior in location selection of PBOX depending on the equipment
- Connection of up to 2 PBOX available (6-point/ 1 PBOX)



PBOX

"Support of up to 12 channels / expansion of channels by module / support of same functions with N & P Series available"



Step difference



Thickness



Plane



Measurement of inner diameter



Measurement of outer diameter



Perpendicularity



Shaft RO



Plane RO



Wheel RO



Other applications

1 Presentation of Measurements



Text mode

Most basic presentation only in text



Image mode setting

- Simple change in measuring point locations
- Insert of images from the measuring device without a separate program



Image mode

- Identification of "Pass" or "Fail" of products at each point by showing the shapes of products
- Good for visual inspection and investigation of failures



Full Screen Mode

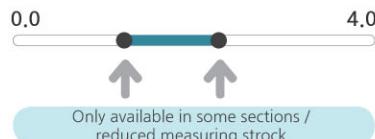
- Use when determining "Pass/ Fail" without text/ image
- Excellent in visual inspection
- Only supported at ONCE mode

2 Precision

Support of various resolutions: 0.1/ 0.5/ 1.0/ 5/ 10 (Unit: μm)

Support of full stroke when selecting 0.1 μm resolution

ex) In case of selecting 0.1 μm resolution with 4.0mm sensor



3 Saving and Back-Up of Measured Data

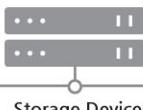
Direct saving of measured data without a separate device

Convenience

Self-storage without complicated connections

Economics

Free support of saving function / saving the cost of additional devices



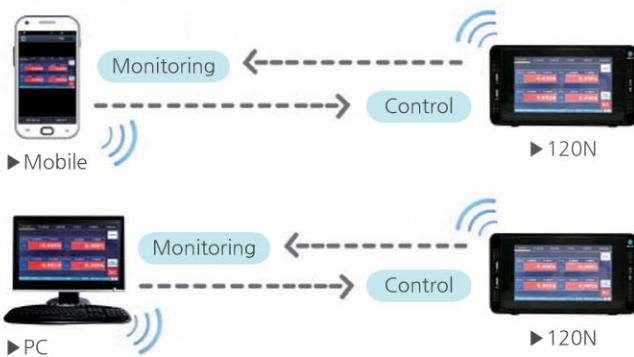
Storage Device



Storage Device

"Back-Up with USB memory stick"

4 Remote Control and Monitoring



- Prerequisite: Internet environment
- Support of meter setting control and continuous monitoring function
- Updating of meter program available
- Simplified flow line/ time saving/ cost saving effects

[Example]

- Monitoring of site meter with a smartphone during outside works
- Change of tolerance in a meter installed in overseas facility

6 High-Speed Measurement



Minimized cycle time by high-speed measurement
The moment when the displacement sensor is touched!!
"Measurement Complete"

- No sampling rate drop due to channel expansion

8 Point And Group Calculation

Model	120N(P)	120N(P)-R	120N(P)-G
No. of groups	7 EA	7 EA	19 EA

- Confirmation of various measurements by point / inter-group calculations
- Group name edit function

10 Other Various Functions

- **Sensor avg. value mode** : Display of the average value from the several measurements derived from measurement start approval
- **Saving and back-up of measuring device settings** : Saving the settings including tolerance and, if necessary, back-up
- **Password setting** : Setting password on the setting menu of the measuring device and improvement of management security
- **Communication setting** : Basic support of RS-232C / data transmission to UDP / IP in forming the internal network
- **Use resolution settings** : Free setting of resolutions suitable for product tolerance
- **Support of multi inputs / outputs** : 5 inputs / 22 outputs
- **I/O test** : Input/ output test of measuring device available
- **Unit of measurement** : Support of µm and mm
- **Setting of multi-channel tolerances** : Batch setting and change of points with the same tolerances
- **Point display setting** : Setting of displaying only the desired points
- **Built-in manual** : Easy to check the built-in manual within the measuring device

5 Channel Expansion and Mixed Use of Sensors



- Expansion of channels up to 12 channels by 1 channel
- Easy expansion with the modular structure (1 channel board expansion)
- Support of mixed use of HBT sensors and linear sensors

[Example]

P1 ~ 3	IP-4 (HBT 4mm sensor)
P4	DL-13 (Linear 13mm sensor)
P5 ~ 10	IP-8 (HBT 8mm sensor)
P11 ~ 12	DL-26 (Linear 26mm sensor)

7 Model (BANK) Function and Setting Saving

- Information on tolerances of up to 16 products and settings
- Call through I/O wiring available (Support of up to 4 units)
- Model name edit function

9 Master Setting Alarm

- Popping up of master setting alarm window at the selected time
- Visualization of the alarm window but no effect on measurement

[Example]

0	1	2	3	4	5
6	7	8	9	10	11
12	13	14	15	16	17
18	19	20	21	22	23

*The master alarm window pops up at 9, 13, 17 and 21 o'clock.

Optional Functions

1. Run-out functions : WB-120N(P)-R

RUN-OUT	Max	Calculation of max value during the measuring period
	Min	Calculation of min value during the measuring period
	Max-Min	Calculation of max-min value during the measuring period

[Calculation function]

- Measuring the run-out with the calculation formula between points (ex) Ro (P1+P2), Ro (P1-P2)
- Constant number calculation function of run-out measurements

2. Group exclusive-use function : WB-120N(P)-G

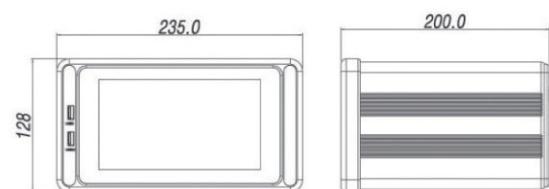
- Including the run-out function
- No. of groups ⇒ Rapid increase to 19EA
- Calculation of various measuring points with a measuring instrument available

Rated Performances

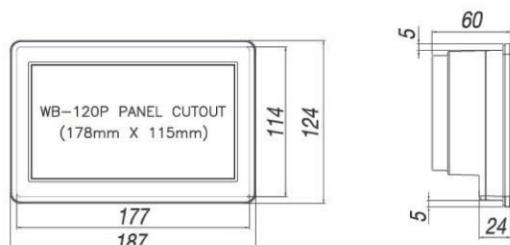
Model	WB-120N	WB-120P
Applied sensors	IP-4 / IP-8 / DL-13(L) / DL-26(L)	
Display	7" TFT LCD (Resolution 800 x 480)	
Display input	Capacitive touch input	Resistive touch input
Input channel		1~12 channels
Operation method	SCAN, SCAN / HOLD, ONCE, ONCE / HOLD	
Power voltage	DC 24V / 2A	
Sampling rate	1,000sps per channel	
Resolution	0.1µm / 0.5µm / 1µm / 5µm / 10µm	
Input method	5EA, NPN Input	
Output method	22EA SSR (Solid state relay) N.O. output	
Communication output	RS-232C and UDP/IP	
Terminal block spec.	D-sub 37-pin female	
Data storage	Measuring device self-storage, back-up by USB memory stick	
Weight	About 3,980g	About 500g
Product length information	120N - W235mm x D200mm x H128mm 120P - W187mm x D60mm x H124mm 120P PBOX - W225mm x D138mm x H52mm	

Information on Length

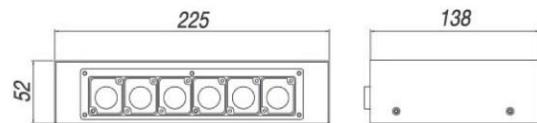
WB-120N



WB-120P



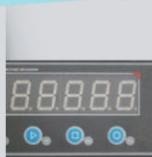
PBOX



Other measuring instruments



WB-10N
1-channel panel type electronic micrometer



WB-10R
1-channel run-out electronic micrometer



WB-20N
2-channel panel type electronic micrometer



EA-10N
1-channel panel type air micrometer



EA-20N
1-channel panel type air micrometer



EA 100N
1-channel column type air micrometer



EA 200N
2-channel column type air micrometer



IP-4/-8
2-channel displacement analogue type



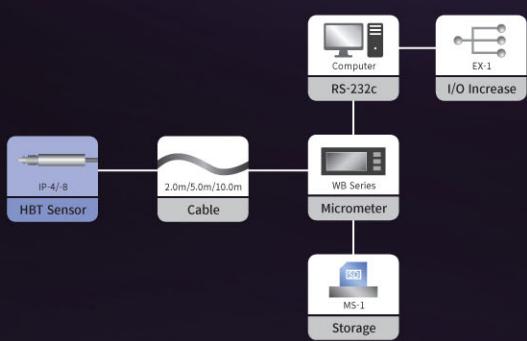
DL-13/-13L
DL-26/-26L
Digital types of length displacement sensors

IP-4 / IP-8

Optimal solution for high precision measurement!!
DEVA is always with you.



Length Measuring Displacement Sensor



Characteristics and Advantages of IP-4 / IP-8

1. Length displacement sensor

- High precision contact length displacement sensor
- Superior to product inspection line and lot inspection owing to good precision and specialization in repeated measurements

2. Ultra high precision measurement

- Precision within 2µm (IP-4)
- Tolerance: 0.1% ($\pm 1.5\text{mm}$)
- Repeat accuracy within 1µm

3. Various applications

- Measurement by applying to measuring jig, single acting equipment and automated equipment
- Various measurement solutions applicable depending on the instrument designs

Leader of Micrometer



Various Tips



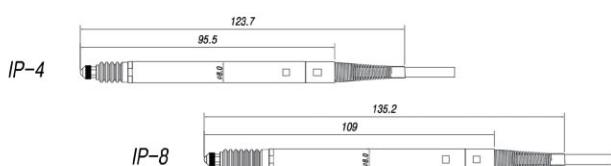
Sensor tips changeable depending on the product characteristics

1. Ball tips: Bearing balls, hard metal balls and ceramic balls
2. Flat-tips: Ø3.0, Ø5.0 and Ø7.0
3. Others: Blade tip, needle tip, etc.

Rated Performances

Model	IP-4	IP-8
Sensor type	HBT Type	
Operating method	Spring	
Measuring length	4mm	8mm
Precision	2µm (±1.0 mm)	6µm (±3.0mm)
Repeatability	Within 1.0 µm	
Error rate	0.1% (±1.5 mm)	
Measuring load	About 50g	
Outer diameter dimension	Ø8.0	
Ball tip material	Ø3.0 Bearing Ball (SUJ2 Ball)	
Bellows material	High NBR	
Output signal	Amplitude Difference Sinusoidal Wave-form	
Frequency range	13Khz	
Cable length	2.5m (basic) / 5.0m / 10.0m	
Product weight	About100g	

Length Information



Order Code

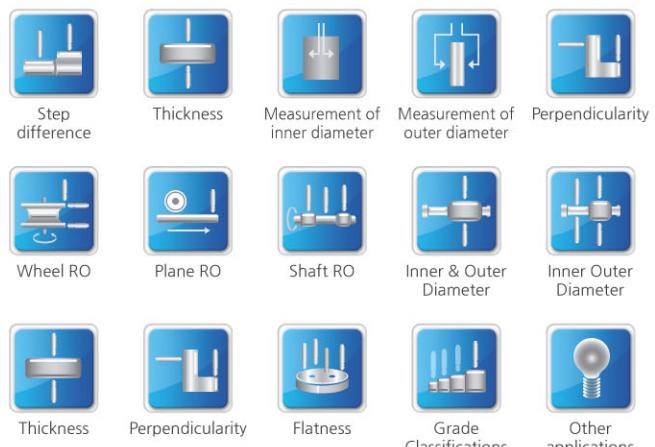
IP - △ - □ CL

Measuring range		Cable length	
-4	4mm	-S	2.5m
-8	8mm	-5	5.0m
		-10	10.0m

Application Cases



IP-4 / IP-8



Additional Configuration



Sensor bushing

Accessory to be used when fixing the displacement sensor (included in the package when buying a sensor)



Sensor collette

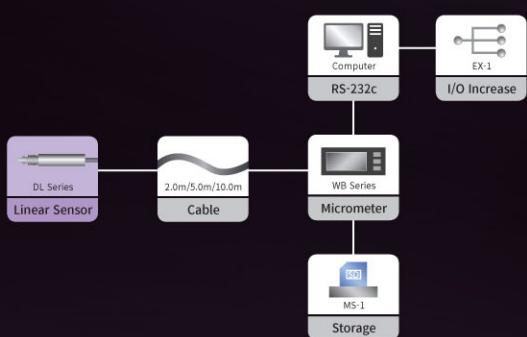
- Accessory to be used when fixing the displacement sensor by connecting to tap hole (M12.0X1.0P)
- Holding a displacement sensor with 3 spots, preventing the deviation and increasing safety

DL Series

Optimal solution for high precision measurement!!
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Length Measuring Displacement Sensor



Characteristics and Advantages of DL Series Sensors

1. Length displacement sensor

- High precision contact length displacement sensor
- High precision realized by using the small optical scale system

2. Durability

- IP67 waterproof class (except USB)
- String durability proved by 200 million times of strokes

3. USB type

- Good expandability owing to USB connection structure
- Direct connection to PC (Window type)

Leader of Micrometer

DEVA

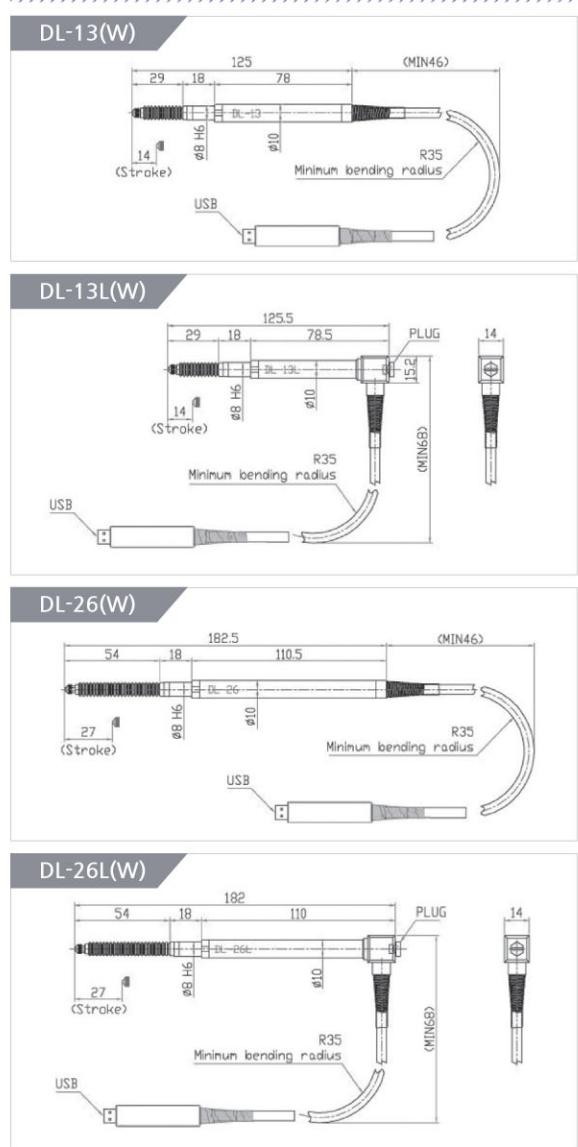
Differences by OS

Item	Window type	DEVA type
Model	DL-13W/ -3W/ -26W/ 26LW	DL-13/ -13L/ -26/ 26L
How to use	Directly connected to PC via USB	Directly connected to DEVA measuring instrument WB-120N/120P
Software	Separate measurement software required (In-house production/ request)	Build-in measuring software in the measuring device
Additional devices	Separate additional devices such as PC and monitor required.	Separate additional devices such as PC and monitor not required.
Channel support	Expandable channels with USB HUB up to 127 channels	Up to 12 available per measuring instrument
Common	Wide range of measuring length: 0~13mm/ 0~26mm High durability - 200 million times of stroke inspection/ IP67 waterproof class	

Rated performances of DL series sensors

Item	Standard Type		Long Type	
OS	DEVA	DL-13	DL-13 L	DL-26
	Window	DL-13W	DL-13LW	DL-26W
Measurement	13 mm		26 mm	
Resolution	0.1µm			
Repeatability	0.3µm			
Measuring temperature	0 ~ 40°C			
Measuring load	About 50g			
OS	Downward	0.2 to 1.5N	0.2 to 1.7N	
	Horizontal	0.2 to 1.5N	0.2 to 1.5N	
	Upward	0.2 to 1.5N	0.2 to 1.3N	
Waterproof class	IP 67 (excluding USB connector)			
USB Type	USB Type A Connector			
Connection method	USB 2.0 (Full Speed)			
Power supply	USB bus power supply			
Consumption power	0.5W			
Operating humidity	10-90% RH (No condensation)			
Cable length	3m			
Weight (excluding cable)	50g	60g	80g	90g

DL series length information



Minimum system requirements of window type

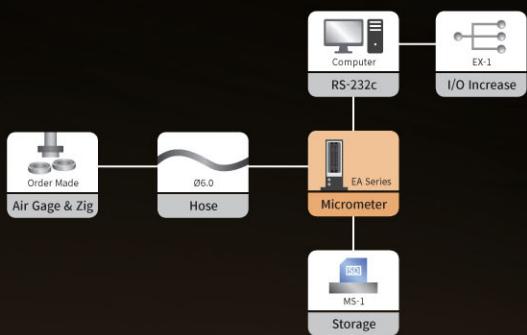
Operating System	Windows7, 8x, 10, Embedded Standard 7
CPU	Pentium 3 or higher (32/64bit)
Memory	512MB or more
Disk capacity	More than 100MB free space
Interface	USB2.0/ USB3.0

EA-10N / 20N

Optimal solution for high precision measurement!!
DEVA is always with you.



Panel type of micrometer



Characteristics and Advantages of EA-10N/20N

1. Easy Setting and operation

- Application of LCD of resolution 128x64
- Easy confirmation of measured values and menu setting
- Simplified master information management menu
- One-touch master setting function

2. Specialized in measuring the internal/ external diameter

- Excellent accuracy and repeating precision
- Production of customized air gauge
- Optimal measuring function with dedicated product design

3. Other functions

- Correction function and external collaboration function available
- Model function : Cross-measurement up to 2 models available
- Panel mounting and dedicated stand mounting available

Leader of Micrometer



One-Touch master setting



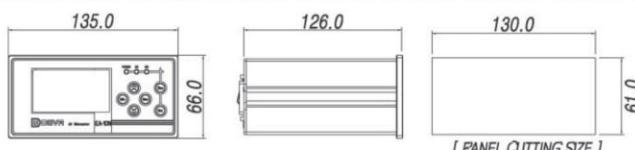
- Master setting with simple button operation available
- Air gauge master setting method

1. Advance into the calibration menu
2. Input Max (Min) master into an air master, press the direction key max. (min)
(After Max Master Setting, set the Min Master using the Min Button at the same method.)
3. Master setting completed

Rated Performances

Model	EA-10N	EA-20N
Device	Air gauge, master ring gauge, etc.	
Display	2.4" GLCD (Resolution 128x64)	
Input	1 channel	2 channels
Operation method	SCAN/HOLD, ONCE/HOLD, Max-min	
Computing function	Not supported	Supported (A1+A2)/2, (A1-A2)/2
Voltage	DC 24V(±5%)(Ripple: less than P-P 5%) / 50mA (Output under no load)	
Resolution	0.1µm / 0.5µm / 1µm / 5µm / 10µm	
Measuring range	100µm	
Input method	5EA, NPN	
Output method	8EA, NPN Open Collector	
Comm. output	RS232C (9600 bps, N,8,1, No flow control)/ baud rate change available	
Input air pressure	1~1.5BAR(14.5~21.7psi)	
Terminal block spec	D-sub 15pin Female	
Components	D-sub 15pin male connector, 24V/0.5A adaptor and bracket for support	
Weight	About 640g	About 710g
Option	Stand for product support and communication cable	
Product length info.	W135mm x D126mm x H66mm (Panel cutting size: 130mm x 61mm)	

Length Information



Order Code

EA	-	□	N
10			1 channel
20			2 channels

Application Cases



EA-10N
EA-20N



Measurement of air internal diameter



Measurement of air external diameter



Other applications

Additional Configuration

Constant pressure valve set

It is the most important air quality device in the air micrometer



Required Checklist

- 1 Structure : Oil filter + constant pressure valve (precision grade)
- 2 The oil drain filter should be used as an auto drain type.
- 3 Air pressure of constant pressure valve should not exceed 2 Bar.
- 4 The pressure of the oil filter should be larger than the pressure of the constant pressure valve.
- 5 In case of purchasing air micro, please contact DEVA sales office (recommended).
- 6 In case of direct purchase, please contact DEVA sales office for specifications of the constant pressure valve set.
- 7 Example product specifications :
 - 1) Oil filter: SMC AWM30-03BDG
 - 2) Constant pressure valve: SMC IR1000-01G-A

Air Gauge and Master

Customized processing through optimized at the measuring point of products



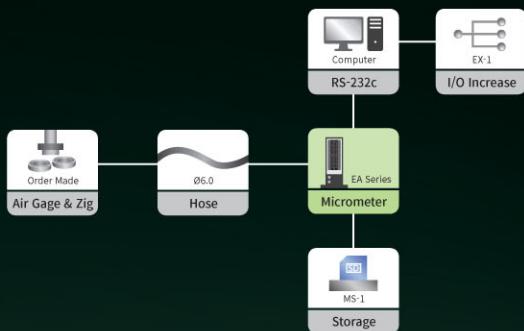
(Sample and drawings attached to the product in case of air gauge production)

EA-100N / 200N

Optimal solution for high precision measurement!!
DEVA is always with you.



Column type of micrometer



Characteristics and Advantages of EA-100N/200N

1. Excellent visual identification

- LCD & LED multi display
- Easy setting with intuitive menu set-up
- One-touch master setting function

2. Specialized in measuring the internal/ external diameter

- Excellent accuracy and repeating precision
- Production of customized air gauge
- Optimal measuring function with dedicated product design

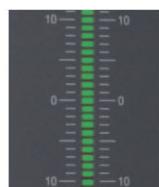
3. Other functions

- Correction function and external collaboration function available
- Model function : Cross-measurement up to 2 models available
- RS-232C communication output

Leader of Micrometer



Excellent visual identification of OK/ NG decision by adoption of 3-color LED



In case of OK decision, it turns on in **Green** when the measured length value is within the tolerance.



In case of NG decision, it turns on in **Red** when the measured length value is beyond the tolerance.

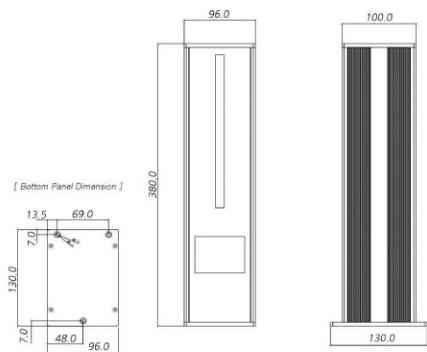


Display of zero point, tolerance
When the tolerance is set, 3 LEDs turn on in **Orange** (upper tolerance, zero and lower tolerance).

Rated Performances

Model	EA-100N	EA-200N
Device	Air gauge, master ring gauge, etc.	
Display	2.4" GLCD (Resolution 128x64)	
Input	1 channel	2 channels
Bar LED	3-Color Bar 1 Column (80 Grade)	3-Color Bar 2 Column (80 Grade)
Operation method	SCAN/HOLD, ONCE/HOLD, Max-min	
Computing function	Not supported	Not Supported
Voltage	DC 24V(±5%)(Ripple: less than P-P 5%) / 50mA (Output under no load)	
Resolution	0.1µm / 0.5µm / 1µm / 5µm / 10µm	
Measuring range	100µm	
Input method	5EA, NPN	
Output method	5EA, NPN Open Collector	
Comm. output	RS232C(9600 bps, N,8,1, No flow control) / baud rate change available	
Input air pressure	1~1.5BAR(14.5~21.7psi)	
Terminal block spec	D-sub 15pin Female	
Accessories	D-sub 15pin male connector, 24V/0.5A adaptor	
Weight	About 2,110g	About 2,500g
Option	Communication cable	
Product length info.	W96mm x D100mm x 2806mm	

Length Information



Order Code

EA - □ N

100	1 channel
200	2 channels

Application Cases



EA-100N



EA-200N



Measurement of air internal diameter



Measurement of air external diameter



Other applications

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- ④ The pressure of the oil filter should be larger than the pressure of the constant pressure valve.
- ⑤ In case of purchasing air micro, please contact DEVA sales office (recommended).
- ⑥ In case of direct purchase, please contact DEVA sales office for specifications of the constant pressure valve set.
- ⑦ Example product specifications
 - 1) Oil filter: SMC AWM30-03BDG
 - 2) Constant pressure valve: SMC IR1000-01G-A



Air Gauge and Master

Customized processing through optimized at the measuring point of products

(Sample and drawings attached to the product in case of air gauge production)

