

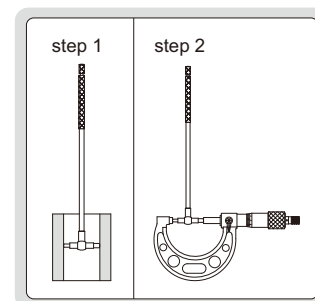
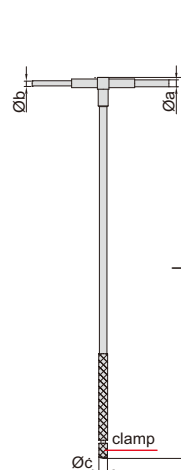
## LONG HANDLE TELESCOPING GAGES

- For quick measurement of inside diameter of deep holes and width of slots
- Satin chrome finish

| Code   | Range     | L   | Øa  | Øb  | Øc  |
|--------|-----------|-----|-----|-----|-----|
| 4209-1 | 8-12.7mm  | 300 | 3.9 | 2.9 | 6.2 |
| 4209-2 | 12.7-19mm | 300 | 5.3 | 3.8 | 6.2 |
| 4209-3 | 19-32mm   | 300 | 5.3 | 3.8 | 6.2 |
| 4209-4 | 32-54mm   | 300 | 7.6 | 6.1 | 7.2 |
| 4209-5 | 54-90mm   | 300 | 7.6 | 6.1 | 7.2 |
| 4209-6 | 90-150mm  | 300 | 7.6 | 6.1 | 7.2 |

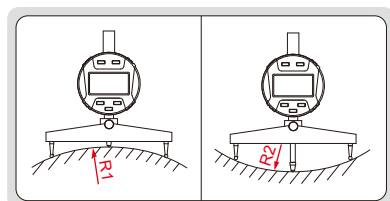
(mm)

4209-6



6

## DIGITAL RADIUS GAGE (LOW ACCURACY)



- Resolution: 0.005mm/0.0002"
- Buttons: on/off, hold, mm/inch, s (select jaws), zero
- Measure radius of internal or external arcs
- Display can be rotated by 320°
- Supplied with 5 jaws for different sizes of arc
- Battery CR2032, automatic power off

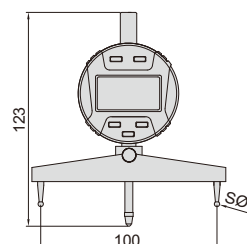
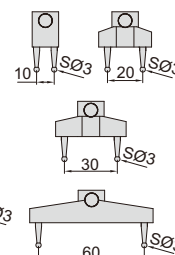


2183



ATTENTION: NO DATA OUTPUT

Unit: mm



| Code | Range of external radius (R1) | Range of internal radius (R2) | Accuracy (mm) |
|------|-------------------------------|-------------------------------|---------------|
| 2183 | 5-910mm/0.2-35.83"            | 7-910mm/0.3-35.83"            | ±0.01R *      |

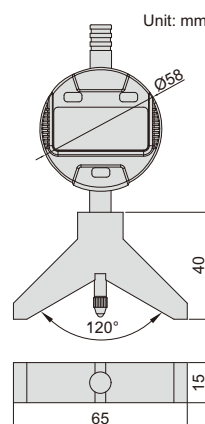
\* R is the radius to be measured. For example, radius is 100mm, the accuracy is ±0.01x100=±1mm

## DIGITAL RADIUS GAGE

- Measure radius of external arc, arc angle of measured surface should be larger than 60°
- Display radius value, no need to calculate
- Button function: on/off, zero, data preset, inch/mm
- Keep preset data in memory after restart
- CR2032 battery, automatic power off
- Data output
- Stainless steel base
- Supplied with pin gage for zero setting
- Optional accessory: data output cable (code 7315-50M, 7302-40M)



2188-55

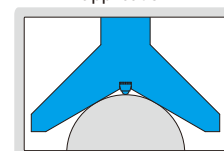


Unit: mm

pin gage (included)



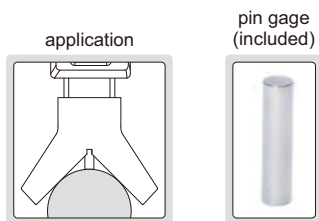
application



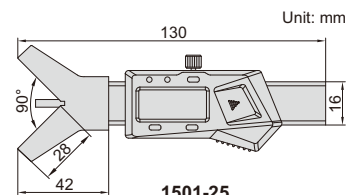
| Code    | Range (radius)    | Resolution     | Accuracy |
|---------|-------------------|----------------|----------|
| 2188-55 | 4-53mm/0.16-2.09" | 0.01mm/0.0005" | ±0.02mm  |

## DIGITAL RADIUS CALIPERS

ATTENTION: THE ACTUAL RADIUS IS 2.414 TIMES OF THE READING



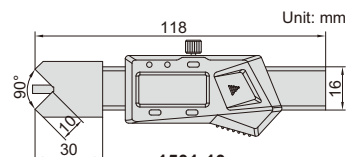
1501-25



1501-25



1501-10

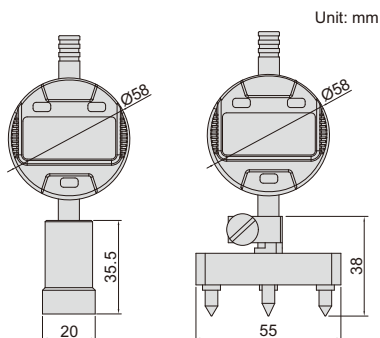


1501-10

- Measure radius of external arc, arc angle of measured surface should be larger than 90°
- Resolution: 0.01mm/0.0005"
- Buttons: on/off, set, mm/inch, preset (+, -)
- Automatic power off, move the digital unit to turn on power
- Battery CR2032
- Date output
- Made of stainless steel
- Supplied with pin gage for zero setting

| Code    | Range (radius)      | Accuracy |
|---------|---------------------|----------|
| 1501-25 | 2-25mm/0.079-1"     | ±0.05mm  |
| 1501-10 | 2-10mm/0.079-0.394" | ±0.05mm  |

## DIGITAL SPHERE RADIUS GAGES



2190-100

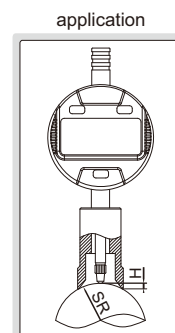


2190-1250

- Measure radius of sphere
- Button function: on/off, zero, data preset, inch/mm, change measuring direction, absolute/incremental measurement
- Keep preset data in memory after restart
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable (code 7315-50M, 7302-40M, 7306-40M)

| Code      | Range (radius) | Resolution       | Accuracy | Radius calculation formula |
|-----------|----------------|------------------|----------|----------------------------|
| 2190-100  | SR15-100mm     | 0.001mm/0.00005" | 0.01SR * | $SR = 50/H + H/2$          |
| 2190-1250 | SR325-1250mm   | 0.001mm/0.00005" | 0.01SR * | $SR = 312.5/H + H/2$       |

\*SR is the radius to be measured. For example, radius is 100mm, the accuracy is 0.01x100=1mm

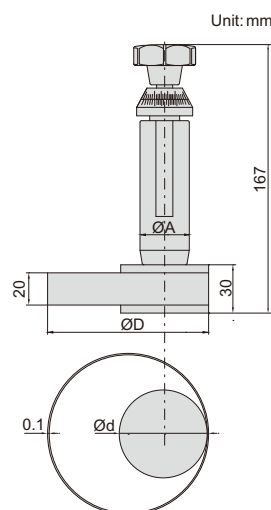




## TAPE BORE GAGES

**INSIZE PLUS**  
MADE IN EUROPE

- Measure internal diameter and circumference of soft materials like tubes, belts, etc.
- Graduation: 0.1mm
- Accuracy: 0.2mm



2430-100

| Code     | Range ØD  | Ød    | ØA   | Measuring depth |
|----------|-----------|-------|------|-----------------|
| 2430-24  | 14-24mm   | 13.5  | 13   | 15-60           |
| 2430-40  | 22-40mm   | 21.5  | 21   | 15-60           |
| 2430-60  | 35-60mm   | 34.5  | 30.5 | 15-96           |
| 2430-100 | 55-100mm  | 54.5  | 30.5 | 15-106          |
| 2430-180 | 95-180mm  | 94.5  | 30.5 | 15-106          |
| 2430-255 | 170-255mm | 169.5 | 30.5 | 15-106          |
| 2430-330 | 245-330mm | 244.5 | 30.5 | 15-106          |

6

CAN SUPPLY TAPE WIDTH  
6MM, 35MM, 60MM

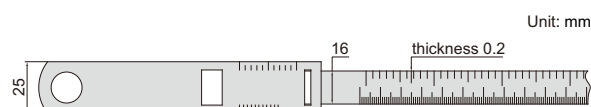
## CIRCUMFERENCE TAPES

**INSIZE PLUS**  
MADE IN EUROPE

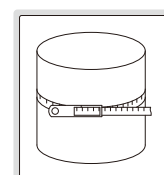


7115-3460

- Measure diameter and circumference of pipes, trees, tires, etc.
- Graduation: 0.1mm
- Laser engraved scale
- Made of stainless steel



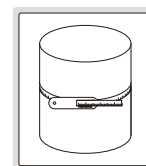
| Code       | Circumference range | Diameter range | Accuracy      |          |
|------------|---------------------|----------------|---------------|----------|
|            |                     |                | Circumference | Diameter |
| 7115-950 * | 150-950mm           | Ø50-300mm      | ±0.60mm       | ±0.20mm  |
| 7115-2200  | 940-2200mm          | Ø300-700mm     | ±0.60mm       | ±0.20mm  |
| 7115-3460  | 2190-3460mm         | Ø700-1100mm    | ±0.60mm       | ±0.20mm  |
| 7115-4720  | 3450-4720mm         | Ø1100-1500mm   | ±0.90mm       | ±0.30mm  |
| 7115-5980  | 4710-5980mm         | Ø1500-1900mm   | ±0.90mm       | ±0.30mm  |
| 7115-7230  | 5970-7230mm         | Ø1900-2300mm   | ±1.05mm       | ±0.35mm  |
| 7115-8500  | 7220-8500mm         | Ø2300-2700mm   | ±1.20mm       | ±0.40mm  |
| 7115-9760  | 8490-9760mm         | Ø2700-3100mm   | ±1.35mm       | ±0.45mm  |
| 7115-11010 | 9730-11010mm        | Ø3100-3500mm   | ±1.50mm       | ±0.50mm  |



\* When diameter range is Ø50-100mm, the accuracy of circumference is ±0.90mm, diameter is ±0.30mm

## CIRCUMFERENCE TAPES

**INSIZE PLUS**  
MADE IN EUROPE



- Measure diameter of cables, thin plastic pipes, etc., which may deform
- Laser engraved scale
- Made of stainless steel

7116-115

| Code     | Diameter range | Graduation | Accuracy |
|----------|----------------|------------|----------|
| 7116-115 | Ø20-115mm      | 0.05mm     | ±0.10mm  |
| 7116-230 | Ø100-230mm     | 0.05mm     | ±0.10mm  |
| 7116-330 | Ø200-330mm     | 0.05mm     | ±0.15mm  |
| 7116-620 | Ø300-620mm     | 0.05mm     | ±0.20mm  |



## HIGH PRECISION DIGITAL INDICATORS

ABSOLUTE ENCODER, THE ORIGINAL  
DATA REMAINS AFTER POWER OFF

Ø28MM STEM SUITABLE FOR  
REINFORCED CLAMPING

DATA  
OUTPUT

LINEAR BALL BEARINGS  
FOR TEN MILLION TIMES USE

ATTENTION: RECHARGEABLE BATTERY,  
FOR 24 HOURS CONTINUOUS WORKING

- Linear ball bearings for ten million times use
- Ø28mm stem suitable for reinforced clamping
- Absolute encoder, the original data remains after power off
- Adjustable resolution: 0.0002mm/0.00001"  
0.001mm/0.00005"  
0.01mm/0.0005"
- Reading in digital and analog
- Button function: data output, tolerance, data preset, data hold, measuring direction change, max./min./TIR, power off time, on/off, mm/inch, adjust resolution
- Power: rechargeable battery, for 24 hours continuous working
- Ruby probe

### With data interface

Optional accessory:  
wireless transmitter, code 7315-60, wireless receiver, code 7315-2, 7315-3  
data output cable (keyboard format), code 7302-60  
data output cable (serial port format), code 7305-G60  
(cable length 3m, optional cable length maximum 15m; RS232 protocol, optional RS485 protocol)

| Code   | Range         | Accuracy | Hysteresis | Remark    |
|--------|---------------|----------|------------|-----------|
| 2140-6 | 0-6mm/0-0.24" | 1.6µm    | 0.8µm      | flat back |

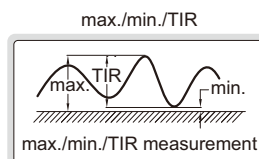
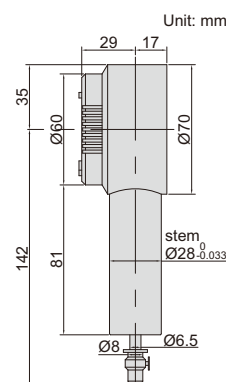
### Built-in wireless

Optional accessory:  
wireless receiver (keyboard format), code 2134-R1  
wireless receiver (serial port format), code 2134-R2

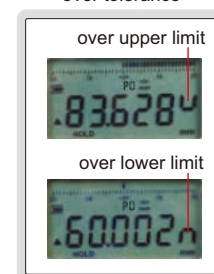
| Code     | Range         | Accuracy | Hysteresis | Remark    |
|----------|---------------|----------|------------|-----------|
| 2140-6WL | 0-6mm/0-0.24" | 1.6µm    | 0.8µm      | flat back |



2140-6



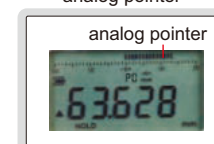
warning when  
over tolerance



wireless receiver  
2134-R1, 2134-R2 (optional)



analog pointer



LINEAR BALL BEARINGS  
FOR TEN MILLION TIMES USE

ABSOLUTE ENCODER, THE ORIGINAL  
DATA REMAINS AFTER POWER OFF

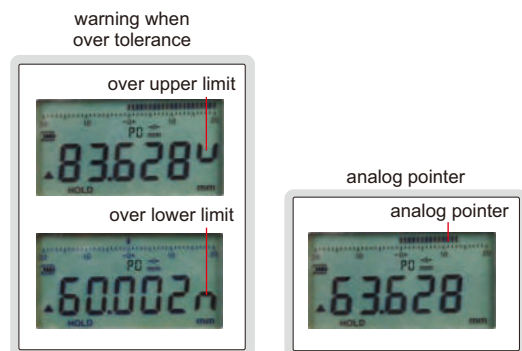
DATA  
OUTPUT

ATTENTION: RECHARGEABLE BATTERY,  
FOR 24 HOURS CONTINUOUS WORKING

**INSPECTION  
CERTIFICATE**  
TRACEABLE TO NIST

## HIGH PRECISION DIGITAL INDICATORS

7



- Linear ball bearings for ten million times use
- Absolute encoder, the original data remains after power off
- Reading in digital and analog
- Data output
- Button function: data output, tolerance, data preset, data hold, measuring direction change, max./min./TIR, power off time, on/off, mm/inch, adjust resolution
- Power: rechargeable battery, for 24 hours continuous working
- Optional accessory: contact points (page 173~175) wireless transmitter, code **7315-60** data output cable (keyboard format), code **7302-60** data output cable (serial port format), code **7305-G60** (cable length 3m, optional cable length maximum 15m; RS232 protocol, optional RS485 protocol)

### Low precision

Carbide probe

Adjustable resolution: 0.0005mm/0.00002"  
0.001mm/0.00005"  
0.01mm/0.0005"

| Code     | Range       | Accuracy | Hysteresis | A       | B      | C      | ØD    | Remark    |
|----------|-------------|----------|------------|---------|--------|--------|-------|-----------|
| 2133-10* | 12.7mm/0.5" | 3µm      | 1.5µm      | 75.4mm  | 20.6mm | 24.8mm | 5mm   | flat back |
| 2133-25* | 25.4mm/1"   | 3µm      | 1.5µm      | 109.5mm | 38.5mm | 41mm   | 5mm   | flat back |
| 2133-50* | 50.8mm/2"   | 3µm      | 1.5µm      | 201mm   | 32mm   | 72mm   | 4.5mm | flat back |

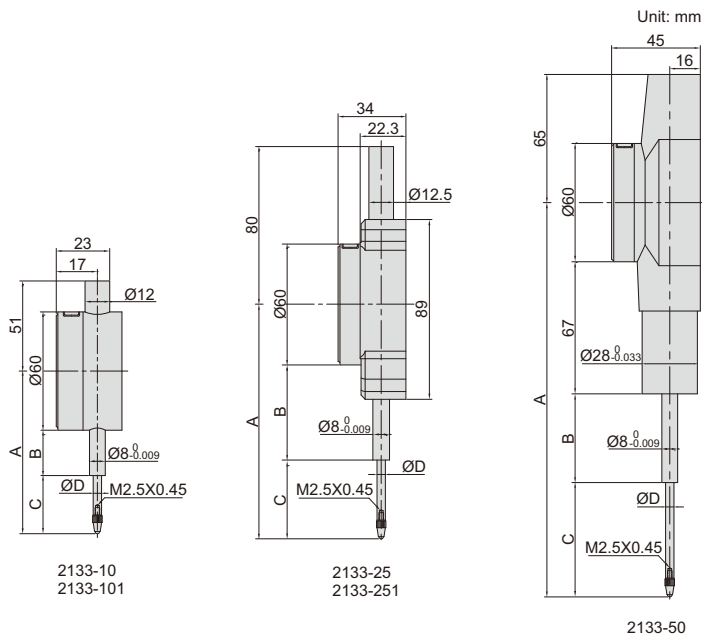
### High precision

Ruby probe

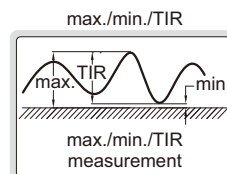
Adjustable resolution: 0.0002mm/0.00001"  
0.001mm/0.00005"  
0.01mm/0.0005"

| Code      | Range       | Accuracy | Hysteresis | A       | B      | C      | ØD  | Remark    |
|-----------|-------------|----------|------------|---------|--------|--------|-----|-----------|
| 2133-101* | 12.7mm/0.5" | 1.5µm    | 1µm        | 77.4mm  | 26mm   | 21.4mm | 4mm | flat back |
| 2133-251* | 25.4mm/1"   | 1.8µm    | 1µm        | 116.1mm | 42.5mm | 44mm   | 4mm | flat back |

\* Supplied with manufacturer inspection certificate traceable to NIST USA



spindle lift knob is included



## WIRELESS HIGH PRECISION DIGITAL INDICATORS

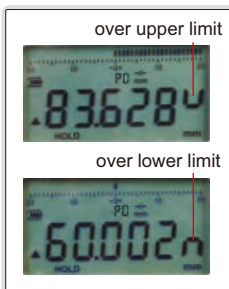
ATTENTION: RECHARGEABLE BATTERY, FOR 24 HOURS CONTINUOUS WORKING

LINEAR BALL BEARINGS FOR TEN MILLION TIMES USE

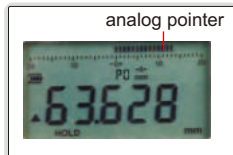
ABSOLUTE ENCODER, THE ORIGINAL DATA REMAINS AFTER POWER OFF

**INSPECTION CERTIFICATE**  
TRACEABLE TO NIST

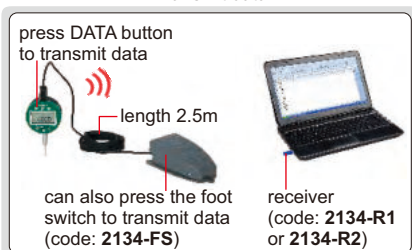
warning when over tolerance



analog pointer



Transmit data



- Built-in wireless transmission, ZigBee singal
- Linear ball bearings for ten million times use
- Absolute encoder, the original data remains after power off
- Reading in digital and analog
- Button function: data output, tolerance, data preset, data hold, measuring direction change, max./min./TIR, power off time, on/off, mm/inch, adjust resolution
- Power: rechargeable battery, for 24 hours continuous working
- Optional accessory: contact points (page 173~175) foot switch, code: **2134-FS**  
wireless receiver, code: **2134-R1** (keyboard format)  
**2134-R2** (serial port format)

### Low precision

Carbide probe

Adjustable resolution: 0.0005mm/0.00002"  
0.001mm/0.00005"  
0.01mm/0.0005"

| Code            | Range       | Accuracy | Hysteresis | A       | B      | C      | ØD    | Remark    |
|-----------------|-------------|----------|------------|---------|--------|--------|-------|-----------|
| <b>2134-10*</b> | 12.7mm/0.5" | 3µm      | 1.5µm      | 75.4mm  | 20.6mm | 24.8mm | 5mm   | flat back |
| <b>2134-25*</b> | 25.4mm/1"   | 3µm      | 1.5µm      | 109.5mm | 38.5mm | 41mm   | 5mm   | flat back |
| <b>2134-50*</b> | 50.8mm/2"   | 3µm      | 1.5µm      | 201mm   | 32mm   | 72mm   | 4.5mm | flat back |

### High precision

Ruby probe

Adjustable resolution: 0.0002mm/0.00001"  
0.001mm/0.00005"  
0.01mm/0.0005"

| Code             | Range       | Accuracy | Hysteresis | A     | B    | C    | ØD | Remark    |
|------------------|-------------|----------|------------|-------|------|------|----|-----------|
| <b>2134-101*</b> | 12.7mm/0.5" | 1.5µm    | 1µm        | 77.4  | 26   | 21.4 | 4  | flat back |
| <b>2134-251*</b> | 25.4mm/1"   | 1.8µm    | 1µm        | 116.1 | 42.5 | 44   | 4  | flat back |

\* Supplied with manufacturer inspection certificate traceable to NIST USA



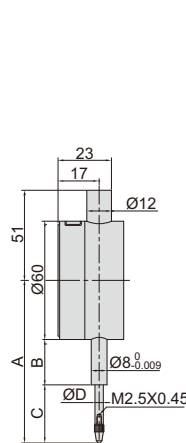
2134-10



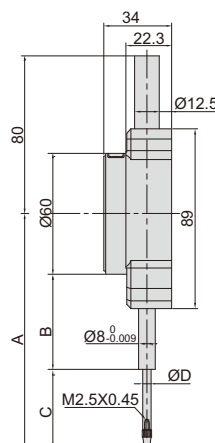
2134-25



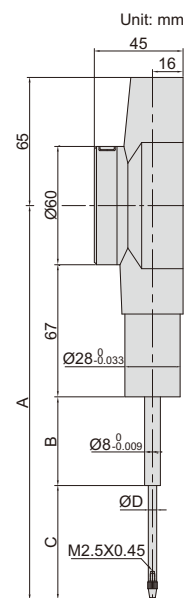
2134-50



2134-10  
2134-101



2134-25  
2134-251

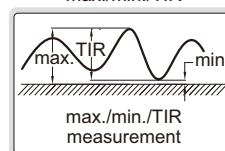


2133-50

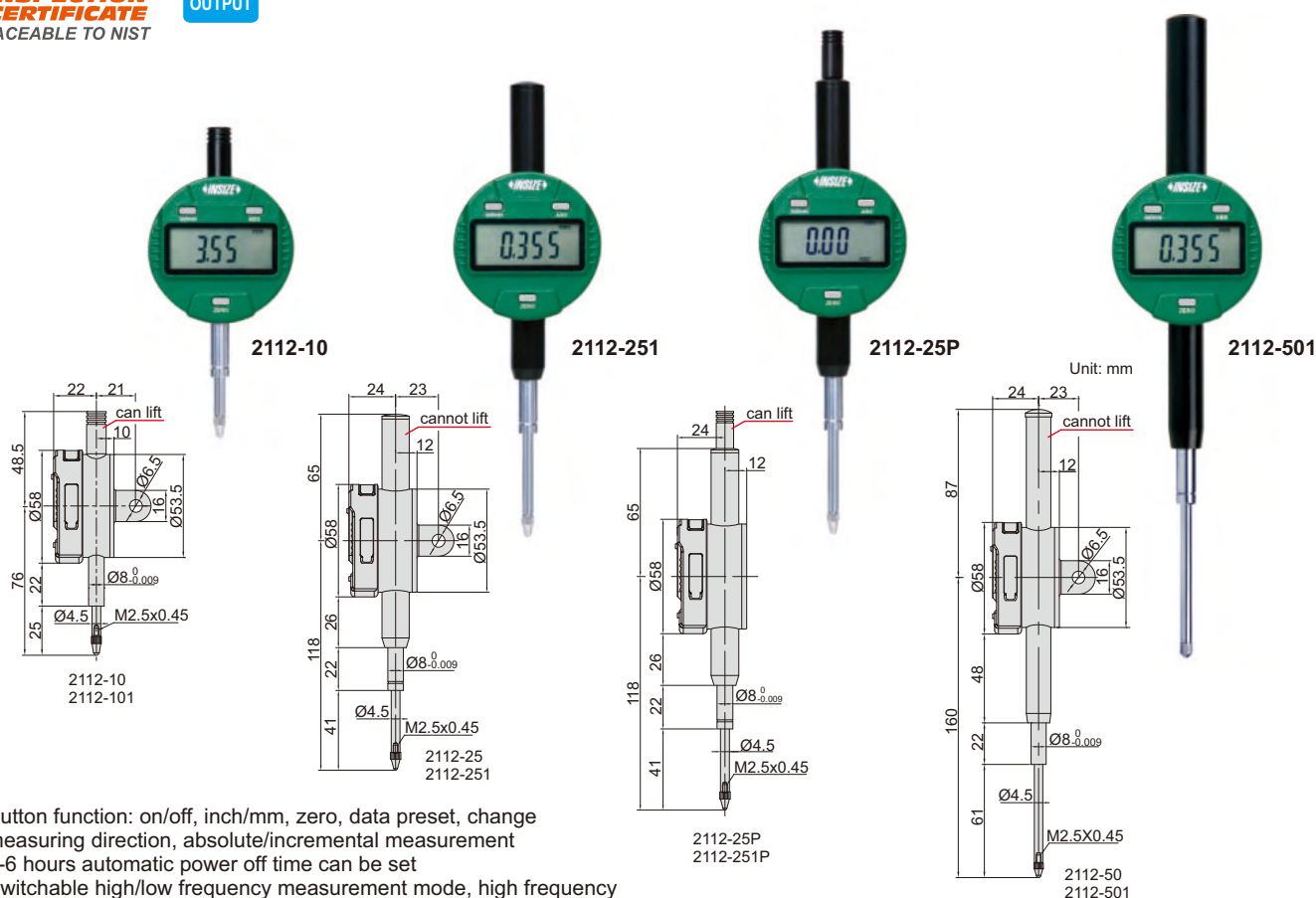
spindle lift knob is included



max./min./TIR



## DIGITAL INDICATORS (STANDARD TYPE)



- Button function: on/off, inch/mm, zero, data preset, change measuring direction, absolute/incremental measurement
- 0-6 hours automatic power off time can be set
- Switchable high/low frequency measurement mode, high frequency mode is suitable for high speed moving of spindle and has large power consumption, low power consumption in low frequency mode
- Keep preset data in memory after restart
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable (code 7315-50M, 7302-40M, 7305-40M), backs (page 176~177), contact points (page 173~175)

### Resolution 0.001mm/0.0005"

| Code       | Range       | Accuracy | Hysteresis | Maximum measuring force | Remark                   |
|------------|-------------|----------|------------|-------------------------|--------------------------|
| 2112-101F* | 12.7mm/0.5" | 5μm      | 2μm        | 1.5N                    | flat back                |
| 2112-251F* | 25.4mm/1"   | 5μm      | 3μm        | 2.2N                    | flat back                |
| 2112-501F* | 50.8mm/2"   | 6μm      | 3μm        | 2.5N                    | flat back                |
| 2112-101*  | 12.7mm/0.5" | 5μm      | 2μm        | 1.5N                    | lug back                 |
| 2112-251*  | 25.4mm/1"   | 5μm      | 3μm        | 2.2N                    | lug back                 |
| 2112-501*  | 50.8mm/2"   | 6μm      | 3μm        | 2.5N                    | lug back                 |
| 2112-251P* | 25.4mm/1"   | 5μm      | 3μm        | 2.2N                    | flat back, with lift cap |
| 2112-501P* | 50.8mm/2"   | 6μm      | 3μm        | 2.5N                    | flat back, with lift cap |

### Resolution 0.01mm/0.0005"

| Code      | Range       | Accuracy | Hysteresis | Maximum measuring force | Remark                   |
|-----------|-------------|----------|------------|-------------------------|--------------------------|
| 2112-10F* | 12.7mm/0.5" | 20μm     | 10μm       | 1.5N                    | flat back                |
| 2112-25F* | 25.4mm/1"   | 20μm     | 10μm       | 2.2N                    | flat back                |
| 2112-50F* | 50.8mm/2"   | 30μm     | 10μm       | 2.5N                    | flat back                |
| 2112-10*  | 12.7mm/0.5" | 20μm     | 10μm       | 1.5N                    | lug back                 |
| 2112-25*  | 25.4mm/1"   | 20μm     | 10μm       | 2.2N                    | lug back                 |
| 2112-50*  | 50.8mm/2"   | 30μm     | 10μm       | 2.5N                    | lug back                 |
| 2112-25P* | 25.4mm/1"   | 20μm     | 10μm       | 2.2N                    | flat back, with lift cap |
| 2112-50P* | 50.8mm/2"   | 30μm     | 10μm       | 2.5N                    | flat back, with lift cap |

\* Supplied with manufacturer inspection certificate traceable to NIST USA

### 2112-251P/501P/25P/50P



spindle lift knob is included



## METRIC DIGITAL INDICATORS



DATA  
OUTPUT



**2116-10**



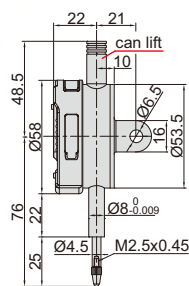
2116-251



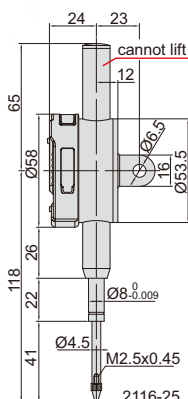
**2116-25P**



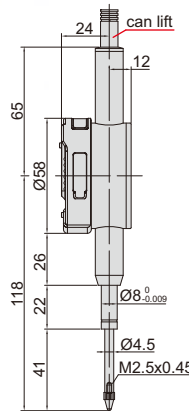
**2116-501**



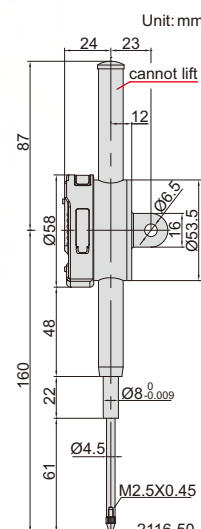
2116-10  
2116-101



2116-25  
2116-251



2116-25P  
2116-251P



2116-50  
2116-501

- Button function: on/off, zero, data preset, change measuring direction, absolute/incremental measurement
- 0-6 hours automatic power off time can be set
- Switchable high/low frequency measurement mode, high frequency mode is suitable for high speed moving of spindle and has large power consumption, low power consumption in low frequency mode
- Keep preset data in memory after restart
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable (code **7315-50M**, **7302-40M**, **7305-40M**), backs (page 176~177), contact points (page 173~175)

## Resolution 0.001mm

| Code              | Range  | Accuracy | Hysteresis | Maximum measuring force | Remark                   |
|-------------------|--------|----------|------------|-------------------------|--------------------------|
| <b>2116-101F*</b> | 12.7mm | 5µm      | 2µm        | 1.5N                    | flat back                |
| <b>2116-251F*</b> | 25.4mm | 5µm      | 3µm        | 2.2N                    | flat back                |
| <b>2116-501F*</b> | 50.8mm | 6µm      | 3µm        | 2.5N                    | flat back                |
| <b>2116-101*</b>  | 12.7mm | 5µm      | 2µm        | 1.5N                    | lug back                 |
| <b>2116-251*</b>  | 25.4mm | 5µm      | 3µm        | 2.2N                    | lug back                 |
| <b>2116-501*</b>  | 50.8mm | 6µm      | 3µm        | 2.5N                    | lug back                 |
| <b>2116-251P*</b> | 25.4mm | 5µm      | 3µm        | 2.2N                    | flat back, with lift cap |
| <b>2116-501P*</b> | 50.8mm | 6µm      | 3µm        | 2.5N                    | flat back, with lift cap |

## Resolution 0.01mm

| Code              | Range  | Accuracy | Hysteresis | Maximum measuring force | Remark                   |
|-------------------|--------|----------|------------|-------------------------|--------------------------|
| <b>2116-10F *</b> | 12.7mm | 20μm     | 10μm       | 1.5N                    | flat back                |
| <b>2116-25F *</b> | 25.4mm | 20μm     | 10μm       | 2.2N                    | flat back                |
| <b>2116-50F *</b> | 50.8mm | 30μm     | 10μm       | 2.5N                    | flat back                |
| <b>2116-10 *</b>  | 12.7mm | 20μm     | 10μm       | 1.5N                    | lug back                 |
| <b>2116-25 *</b>  | 25.4mm | 20μm     | 10μm       | 2.2N                    | lug back                 |
| <b>2116-50 *</b>  | 50.8mm | 30μm     | 10μm       | 2.5N                    | lug back                 |
| <b>2116-25P *</b> | 25.4mm | 20μm     | 10μm       | 2.2N                    | flat back, with lift cap |
| <b>2116-50P *</b> | 50.8mm | 30μm     | 10μm       | 2.5N                    | flat back, with lift cap |

\* Supplied with manufacturer inspection certificate traceable to NIST USA.

2116-251P/501P/25P/50P



spindle lift knob is included

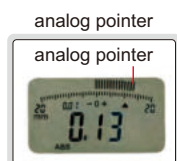


DATA  
OUTPUT

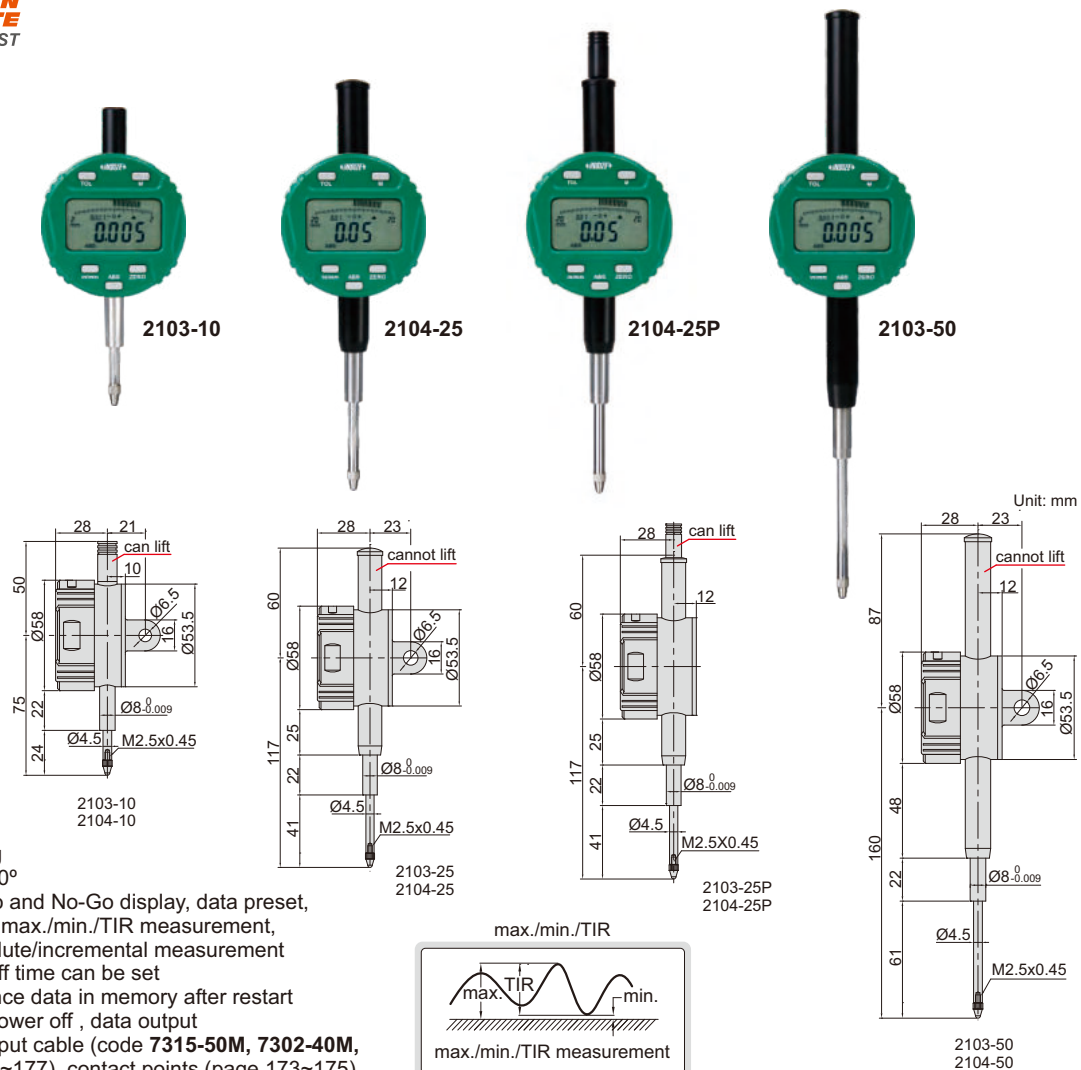
**INSPECTION  
CERTIFICATE**  
TRACEABLE TO NIST

## DIGITAL INDICATORS (ADVANCED TYPE)

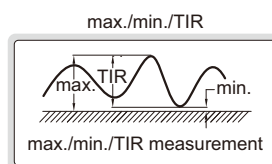
7



spindle lift knob is included



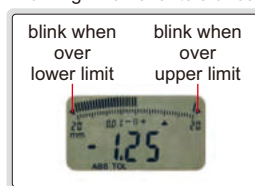
- Reading in digital and analog
- Display can be rotated by 320°
- Button function: tolerance Go and No-Go display, data preset, measuring direction change, max./min./TIR measurement, inch/metric conversion, absolute/incremental measurement
- 0-6 hours automatic power off time can be set
- Keep preset data and tolerance data in memory after restart
- CR2032 battery, automatic power off, data output
- Optional accessory: data output cable (code **7315-50M**, **7302-40M**, **7305-40M**), backs (page 176~177), contact points (page 173~175)



### Resolution 0.001mm/0.00005"

| Code              | Range       | Accuracy | Hysteresis | Maximum measuring force | Remark                   |
|-------------------|-------------|----------|------------|-------------------------|--------------------------|
| <b>2103-10F *</b> | 12.7mm/0.5" | 5µm      | 2µm        | 1.5N                    | flat back                |
| <b>2103-25F *</b> | 25.4mm/1"   | 5µm      | 3µm        | 2.2N                    | flat back                |
| <b>2103-50F *</b> | 50.8mm/2"   | 6µm      | 3µm        | 2.5N                    | flat back                |
| <b>2103-10 *</b>  | 12.7mm/0.5" | 5µm      | 2µm        | 1.5N                    | lug back                 |
| <b>2103-25 *</b>  | 25.4mm/1"   | 5µm      | 3µm        | 2.2N                    | lug back                 |
| <b>2103-50 *</b>  | 50.8mm/2"   | 6µm      | 3µm        | 2.5N                    | lug back                 |
| <b>2103-25P *</b> | 25.4mm/1"   | 5µm      | 3µm        | 2.2N                    | flat back, with lift cap |
| <b>2103-50P *</b> | 50.8mm/2"   | 6µm      | 3µm        | 2.5N                    | flat back, with lift cap |

warning when over tolerance



### Resolution 0.01mm/0.0005"

| Code              | Range       | Accuracy | Hysteresis | Maximum measuring force | Remark                   |
|-------------------|-------------|----------|------------|-------------------------|--------------------------|
| <b>2104-10F *</b> | 12.7mm/0.5" | 20µm     | 10µm       | 1.5N                    | flat back                |
| <b>2104-25F *</b> | 25.4mm/1"   | 20µm     | 10µm       | 2.2N                    | flat back                |
| <b>2104-50F *</b> | 50.8mm/2"   | 30µm     | 10µm       | 2.5N                    | flat back                |
| <b>2104-10 *</b>  | 12.7mm/0.5" | 20µm     | 10µm       | 1.5N                    | lug back                 |
| <b>2104-25 *</b>  | 25.4mm/1"   | 20µm     | 10µm       | 2.2N                    | lug back                 |
| <b>2104-50 *</b>  | 50.8mm/2"   | 30µm     | 10µm       | 2.5N                    | lug back                 |
| <b>2104-25P *</b> | 25.4mm/1"   | 20µm     | 10µm       | 2.2N                    | flat back, with lift cap |
| <b>2104-50P *</b> | 50.8mm/2"   | 30µm     | 10µm       | 2.5N                    | flat back, with lift cap |

\* Supplied with manufacturer inspection certificate traceable to NIST USA



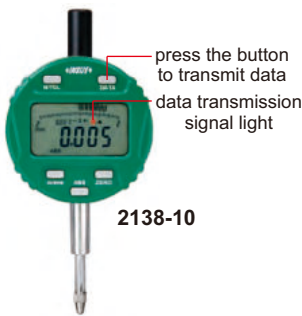
**2103-25P/50P**  
**2104-25P/50P**



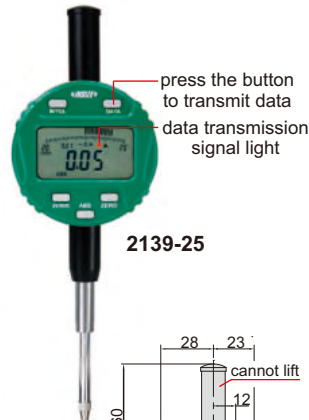
## DIGITAL INDICATORS (WITH TRANSMISSION BUTTON AND SIGNAL LIGHT)

DATA  
OUTPUT

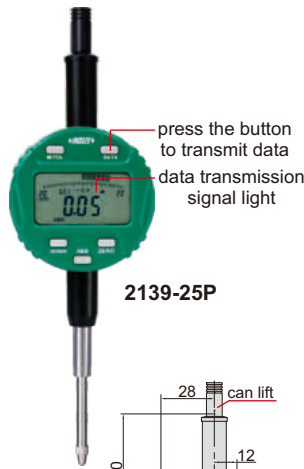
**INSPECTION  
CERTIFICATE**  
TRACEABLE TO NIST



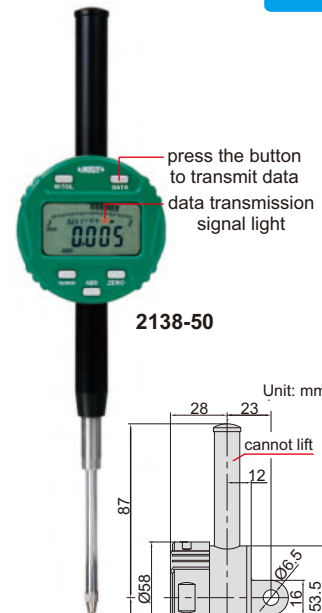
2138-10



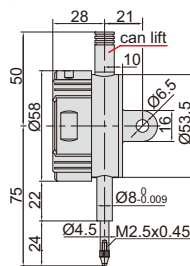
2139-25



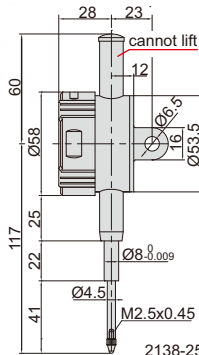
2139-25P



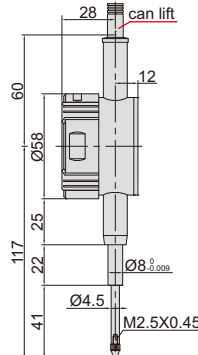
2138-50



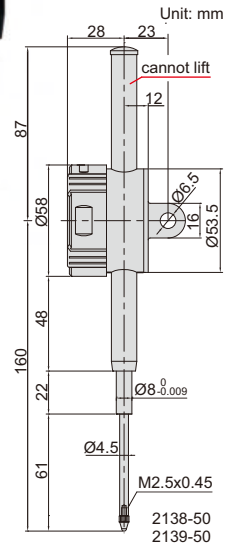
2138-10  
2139-10



2138-25  
2139-25



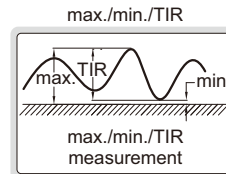
2138-25P  
2139-25P



Unit: mm

2138-50  
2139-50

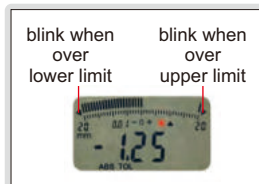
- Reading in digital and analog
- Display can be rotated by 320°
- Button function: on/off, zero, tolerance Go and No-Go display, data preset, measuring direction change, max./min./TIR measurement, inch/metric conversion, absolute/incremental measurement, data output
- 0-6 hours automatic power off time can be set
- Keep preset data and tolerance data in memory after restart
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable (code **7315-50M**, **7302-40M**, **7305-40M**), backs (page 176~177), contact points (page 173~175)



### Resolution 0.001mm/0.0005"

| Code      | Range       | Accuracy | Hysteresis | Maximum measuring force | Remark                   |
|-----------|-------------|----------|------------|-------------------------|--------------------------|
| 2138-10F* | 12.7mm/0.5" | 5µm      | 2µm        | 1.5N                    | flat back                |
| 2138-25F* | 25.4mm/1"   | 5µm      | 3µm        | 2.2N                    | flat back                |
| 2138-50F* | 50.8mm/2"   | 6µm      | 3µm        | 2.5N                    | flat back                |
| 2138-10*  | 12.7mm/0.5" | 5µm      | 2µm        | 1.5N                    | lug back                 |
| 2138-25*  | 25.4mm/1"   | 5µm      | 3µm        | 2.2N                    | lug back                 |
| 2138-50*  | 50.8mm/2"   | 6µm      | 3µm        | 2.5N                    | lug back                 |
| 2138-25P* | 25.4mm/1"   | 5µm      | 3µm        | 2.2N                    | flat back, with lift cap |
| 2138-50P* | 50.8mm/2"   | 6µm      | 3µm        | 2.5N                    | flat back, with lift cap |

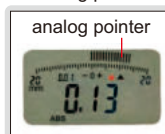
warning when over tolerance



### Resolution 0.01mm/0.0005"

| Code      | Range       | Accuracy | Hysteresis | Maximum measuring force | Remark                   |
|-----------|-------------|----------|------------|-------------------------|--------------------------|
| 2139-10F* | 12.7mm/0.5" | 20µm     | 10µm       | 1.5N                    | flat back                |
| 2139-25F* | 25.4mm/1"   | 20µm     | 10µm       | 2.2N                    | flat back                |
| 2139-50F* | 50.8mm/2"   | 30µm     | 10µm       | 2.5N                    | flat back                |
| 2139-10*  | 12.7mm/0.5" | 20µm     | 10µm       | 1.5N                    | lug back                 |
| 2139-25*  | 25.4mm/1"   | 20µm     | 10µm       | 2.2N                    | lug back                 |
| 2139-50*  | 50.8mm/2"   | 30µm     | 10µm       | 2.5N                    | lug back                 |
| 2139-25P* | 25.4mm/1"   | 20µm     | 10µm       | 2.2N                    | flat back, with lift cap |
| 2139-50P* | 50.8mm/2"   | 30µm     | 10µm       | 2.5N                    | flat back, with lift cap |

analog pointer



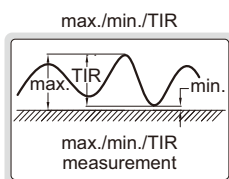
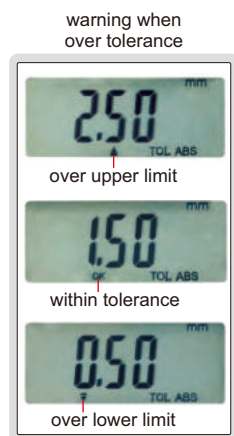
spindle lift knob is included



2138-25P/50P  
2129-25P/50P



\*Supplied with manufacturer inspection certificate traceable to NIST USA



2115-10

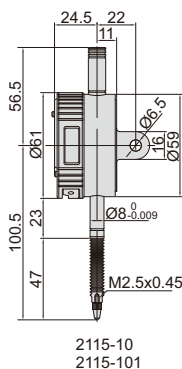


2115-25

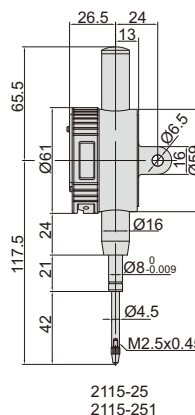


2115-50

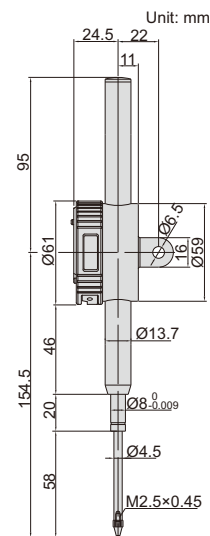
- Dust/waterproof
- Button function: on/off, zero, mm/inch, data preset, tolerance, change measuring direction, max./min./TIR measurement, absolute/incremental measurement
- Keep preset data and tolerance data in memory after restart
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable (code **7315-50M**, **7302-40M**, **7305-40M**), backs (page 176~177), contact points (page 173~175)



2115-10  
2115-101



2115-25  
2115-251



2115-50  
2115-501

### Resolution 0.001mm/0.00005"

| Code        | Range       | Dust/waterproof | Accuracy | Hysteresis | Remark    |
|-------------|-------------|-----------------|----------|------------|-----------|
| 2115-101 *  | 12.7mm/0.5" | IP65            | 5µm      | 2µm        | lug back  |
| 2115-251 *  | 25.4mm/1"   | IP54            | 5µm      | 3µm        | lug back  |
| 2115-501 *  | 50.8mm/2"   | IP54            | 6µm      | 3µm        | lug back  |
| 2115-101F * | 12.7mm/0.5" | IP65            | 5µm      | 2µm        | flat back |
| 2115-251F * | 25.4mm/1"   | IP54            | 5µm      | 3µm        | flat back |
| 2115-501F * | 50.8mm/2"   | IP54            | 6µm      | 3µm        | flat back |

### Resolution 0.01mm/0.0005"

| Code       | Range       | Dust/waterproof | Accuracy | Hysteresis | Remark    |
|------------|-------------|-----------------|----------|------------|-----------|
| 2115-10 *  | 12.7mm/0.5" | IP65            | 20µm     | 10µm       | lug back  |
| 2115-25 *  | 25.4mm/1"   | IP54            | 20µm     | 10µm       | lug back  |
| 2115-50 *  | 50.8mm/2"   | IP54            | 30µm     | 10µm       | lug back  |
| 2115-10F * | 12.7mm/0.5" | IP65            | 20µm     | 10µm       | flat back |
| 2115-25F * | 25.4mm/1"   | IP54            | 20µm     | 10µm       | flat back |
| 2115-50F * | 50.8mm/2"   | IP54            | 30µm     | 10µm       | flat back |

\* Supplied with manufacturer inspection certificate traceable to NIST USA

## ADJUSTABLE COEFFICIENT DIGITAL INDICATORS

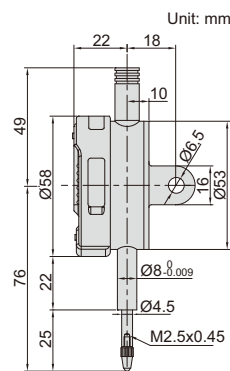
**INSPECTION  
CERTIFICATE**  
TRACEABLE TO NIST

DATA  
OUTPUT

- DISPLAY READING = COEFFICIENT X SPINDLE MOVEMENT.  
The coefficient can be adjusted from 0 to 9.9999.  
For example, coefficient is 4.5562, spindle moves 3.60mm,  
display reading is  $4.5562 \times 3.60 = 16.40\text{mm}$
- Button function: on/off, zero, data preset, inch/mm,  
coefficient set, measuring direction change
- Keep preset data in memory after restart
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable  
(code **7315-50M**, **7302-40M**, **7305-40M**),  
backs (page 176~177), contact points (page 173~175)



2501-10



spindle lift knob is included



| Code       | Range       | Resolution     | Accuracy | Hysteresis | Remark    |
|------------|-------------|----------------|----------|------------|-----------|
| 2501-10 *  | 12.7mm/0.5" | 0.01mm/0.0005" | 20µm     | 10µm       | lug back  |
| 2501-10F * | 12.7mm/0.5" | 0.01mm/0.0005" | 20µm     | 10µm       | flat back |

\* Supplied with manufacturer inspection certificate traceable to NIST USA

## DIGITAL INDICATORS FOR BORE GAGES (WITH TRANSMISSION BUTTON AND SIGNAL LIGHT)

DATA  
OUTPUT

THE ORIGINAL DATA  
REMAINS AFTER POWER OFF

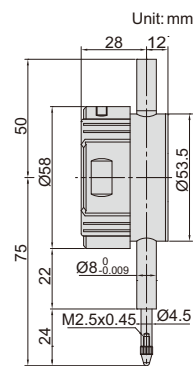
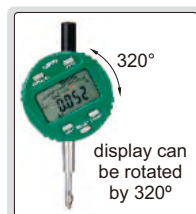
**INSPECTION  
CERTIFICATE**  
TRACEABLE TO NIST



2108-10F

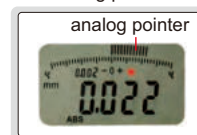
press the button  
to transmit data  
data transmission  
signal light

- Specially designed for bore gages
- The minimum value tracking function can find the diameter automatically
- Read the diameter directly, after inputting the size of setting ring
- Reading in digital and analog
- Display can be rotated by 320°
- Button function: on/off, minimum value tracking, calibration, data preset, inch/metric conversion
- Data remains after power off, no need to recalibrate after power on
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable  
(code **7315-50M**, **7302-40M**, **7305-40M**),  
backs (page 176~177), contact points (page 173~175),  
spindle lift knob (code **7332**)



analog pointer

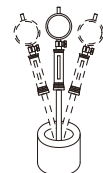
analog pointer



Read the diameter directly,  
after inputting the  
size of setting ring.



The minimum value  
tracking function can find  
the diameter automatically.



| Code        | Range       | Resolution                                         | Accuracy | Hysteresis | Remark    |
|-------------|-------------|----------------------------------------------------|----------|------------|-----------|
| 2108-10F *  | 12.7mm/0.5" | 0.002mm/0.0001"<br>(can switch to: 0.01mm/0.0005") | 20µm     | 10µm       | flat back |
| 2108-101F * | 12.7mm/0.5" | 0.001mm/0.00005"                                   | 5µm      | 2µm        | flat back |

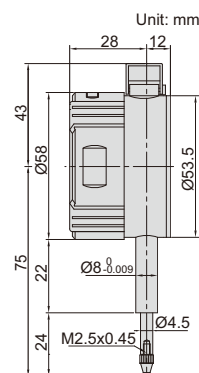
\* Supplied with manufacturer inspection certificate traceable to NIST USA

## DIGITAL INDICATORS WITH LIFTING LEVER

- Reading in digital and analog
- Display can be rotated by 320°
- Button function: tolerance Go and No-Go display, data preset, measuring direction change, max./min./TIR measurement, inch/metric conversion, absolute/incremental measurement
- Keep preset data and tolerance data in memory after restart
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable (code **7315-50M**, **7302-40M**, **7305-40M**), backs (page 176~177), contact points (page 173~175)



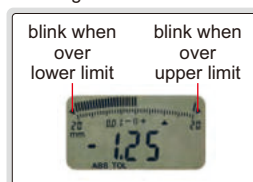
2109-10



analog pointer



warning when over tolerance



| Code       | Range     | Resolution       | Accuracy | Hysteresis | Remark    |
|------------|-----------|------------------|----------|------------|-----------|
| 2109-10 *  | 10mm/0.4" | 0.01mm/0.0005"   | 20µm     | 10µm       | flat back |
| 2109-101 * | 10mm/0.4" | 0.001mm/0.00005" | 5µm      | 2µm        | flat back |

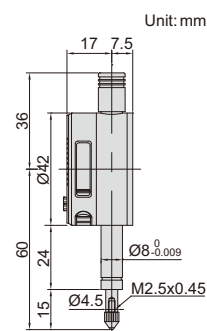
\* Supplied with manufacturer inspection certificate traceable to NIST USA

## COMPACT DIGITAL INDICATORS

- Button function:
  - in/mm: short press for inch/metric conversion
  - long press to change measuring direction
  - ABS: short press for absolute/incremental measurement
  - long press to preset data
  - 0/ON: short press to turn on when power is off
  - short press to set zero when power is on
  - long press to turn off
- Keep preset data in memory after restart
- CR1632 battery, automatic power off
- Data output
- Optional accessory: data output cable (code **7315-50M**, **7302-40M**, **7305-40M**), contact points (page 173~175)



2114-51F



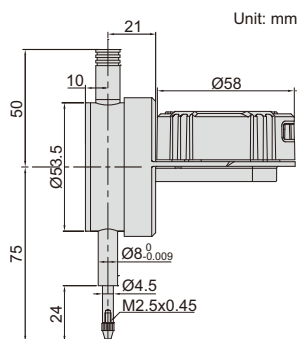
| Code       | Range    | Resolution       | Accuracy | Hysteresis | Remark    |
|------------|----------|------------------|----------|------------|-----------|
| 2114-5F *  | 5mm/0.2" | 0.01mm/0.0005"   | 20µm     | 10µm       | flat back |
| 2114-51F * | 5mm/0.2" | 0.001mm/0.00005" | 5µm      | 2µm        | flat back |

\* Supplied with manufacturer inspection certificate traceable to NIST USA

## BACK PLUNGER TYPE DIGITAL INDICATORS

DATA  
OUTPUT

INSPECTION  
CERTIFICATE  
TRACEABLE TO NIST

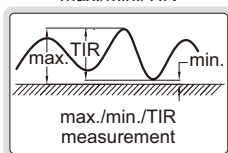


2118-10

spindle lift knob  
is included



max./min./TIR



warning when over tolerance

blink when  
over  
lower limit

blink when  
over  
upper limit

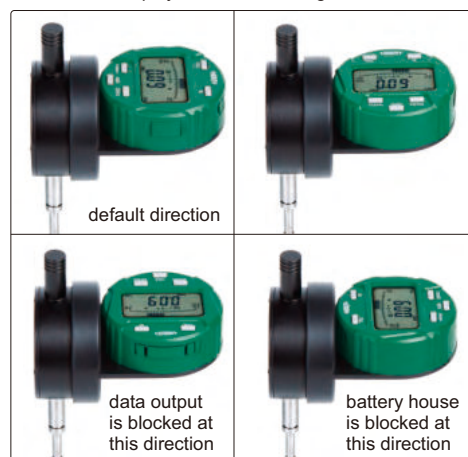


analog pointer

analog pointer



display direction is changeable



Remark: To change above direction, 4 fixing screws on the back of display need to be removed first.

display can rotate 320°



- Display can rotate 320°, and display direction is changeable
- Reading in digital and analog
- Button function: tolerance Go and No-Go display, data preset, measuring direction change, max./min./TIR measurement, inch/metric conversion, absolute/incremental measurement
- Keep preset data and tolerance data in memory after restart
- CR2032 battery, automatic power off
- Data output
- Optional accessory: data output cable (code **7315-50M**, **7302-40M**, **7305-40M**), backs (page 176~177), contact points (page 173~175)

| Code       | Range       | Resolution       | Accuracy | Hysteresis | Remark    |
|------------|-------------|------------------|----------|------------|-----------|
| 2118-10 *  | 12.7mm/0.5" | 0.01mm/0.0005"   | 20µm     | 10µm       | flat back |
| 2118-101 * | 12.7mm/0.5" | 0.001mm/0.00005" | 5µm      | 2µm        | flat back |

\* Supplied with manufacturer inspection certificate traceable to NIST USA

