

# HEIDENHAIN-METRO Length Gauges

Accuracy  $\pm 0.2 \mu\text{m}$



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With their high system accuracy and small signal period, the HEIDENHAIN-METRO MT 1200 and MT 2500 length gauges are ideal for precision measuring stations and testing equipment. They feature ball-bush guided plungers and therefore permit high radial forces.

## Plunger actuation

The length gauges of the **MT 12x1** and **MT 25x1** series feature a spring-tensioned plunger that is extended at rest. In a special version without spring it exercises particularly low force on the measured object.

In the pneumatic length gauges **MT 1287** and **MT 2587**, the plunger is retracted to its rest position by the integral spring. It is extended to the measuring position by the application of compressed air.

## Mounting

The MT 1200 and MT 2500 length gauges are fastened by their 8h6 standard clamping shank. A mounting bracket is available as an accessory to mount the length gauges to plane surfaces or to the MS 200 from HEIDENHAIN.



	Incremental					
	MT 1281	MT 1271	MT 1287	MT 2581	MT 2571	MT 2587
<b>Measuring standard</b>	DIADUR phase grating on Zerodur glass ceramic Coefficient of linear expansion: $\alpha_{\text{therm}} \approx 0 \pm 0.1 \times 10^{-6} \text{ K}^{-1}$					
<b>Incremental signals</b>	$\sim 1 \text{ V}_{\text{PP}}$	$\square \text{ TTL}$	$\sim 1 \text{ V}_{\text{PP}}$	$\sim 1 \text{ V}_{\text{PP}}$	$\square \text{ TTL}$	$\sim 1 \text{ V}_{\text{PP}}$
Signal period	2 $\mu\text{m}$	0.4 $\mu\text{m}$ or 0.2 $\mu\text{m}$	2 $\mu\text{m}$		0.4 $\mu\text{m}$ or 0.2 $\mu\text{m}$	2 $\mu\text{m}$
<b>System accuracy</b>	$\pm 0.2 \mu\text{m}$					
<b>Recommended measuring step</b>	0.5 $\mu\text{m}$ to 0.05 $\mu\text{m}$					
<b>Measuring path</b>	12 mm			25 mm		
<b>Plunger actuation</b>	by cable-type lifter or freely movable		pneumatic	by cable-type lifter or freely movable		pneumatic
<b>Reference mark</b>	One					



# Gage-Chek®

The Gage-Chek is a multi-axis metrology display that accepts up to eight discrete inputs. It features intuitive visual displays, helpful audio cues and user-defined formulas. It also reports dynamic Min/Max measurements, provides SPC analyses from an integrated database and includes connectivity to PCs and other peripherals.



## Specifications

LCD	5.9" Color
Resolution down to	0.000004" or 0.0001 mm
Operating temperature	0°C to 45°C
Enclosure (W x H x D)	11.5" x 7.5" x 2.75"
Base (W x H x D)	10" x 2" x 7.5"
Enclosure weight	3.5 lbs
Base weight	7 lbs
Power Voltage range	85 Vac to 264 Vac
Power frequency range	43 Hz to 63 Hz

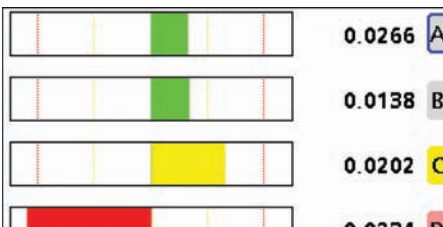
## Inputs

1, 4, 8 or 16 input measurement channels

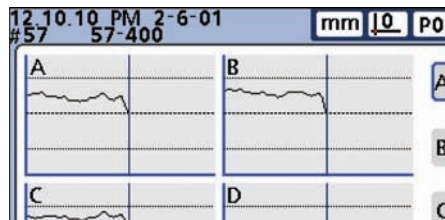
External connections:  
Footswitch  
Remote keypad  
Touch probe  
RS-232C serial port  
USB port  
Parallel data port

## Outputs

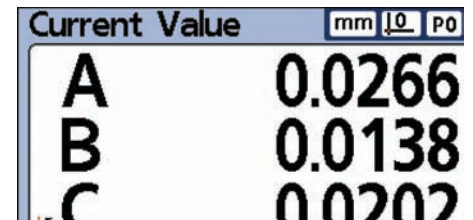
2 relay outputs  
Parallel data port  
RS-232C serial port  
USB port



**Visual feedback** A highly visible, intuitive and familiar interface with standard color cues. Instantly informs operators of pass/fail performance details for critical part dimensions.



**Integrated SPC database** Store, retrieve and manage enormous amounts of measurement data on the shop floor. Check quality control of each gage. Share information locally and globally.



**Formulas** Up to 16 output channels apply mathematical formulas to measurement data for on-the-spot part analysis.

## Powerful formulas

Create Gage-Chek formulas that transform simple measurements into the specific data you need for your unique applications; as shown in this example of a pin gage application.

The diagram shows a pin gage measuring a hole. The hole diameter is labeled 'D' and the gage height is 'h'. The encoder measurement is 'C1'. The software interface shows a menu with 'Formulas' selected, displaying the formula:  $D = \frac{2 * C1}{(\sqrt{2} + 1)}$ . The 'Current Value' window shows 'D' with a value of 14.745 mm.

Encoder measurement (C1) → transformed by the formula → displays pin diameter (D)

$$Pin\ Diameter\ D = \frac{2(h)}{(\sqrt{2} + 1)}$$

## Flexible data views

Change Gage-Chek data presentations at the touch of a button. Display simple numeric digital readouts, dial gages, bar graphs, database tables or statistical analyses.

The first view shows digital readouts for dimensions A (1.8627), B (2.3480), C (-1.2127), and D (-1.3721). The second view shows a dial gauge for dimension B with a nominal value of 2.3400, a low limit of 2.3300, and a high limit of 2.3500. The third view shows a bar graph for dimensions A, B, C, and D with corresponding values.

Digital readouts, dials and bar graphs Display numeric and graphical current value, nominal, limit and warning information.

The first view is a database table showing raw measurement data for dimensions A, B, C, and D. The second view shows statistical analysis results for dimension B, including Mean (2.3422), Max (2.3480), Min (2.3396), r (0.0084), sigma(p) (0.0026), sigma (0.0156), Pp (1.2792), and Ppk (1.0123). The third view shows a data trend graph for dimension B with upper control limit (Ucl) at 0.0010 and lower control limit (Lcl) at 0.0000.

Database tables and graphs Display raw measurement data, results of statistical analyses and data trends.

