1D/2D Measuring Gage
LINEAR HEIGHT

World-class accuracy, cost effective, ergonomic design and optional large-capacity battery pack plus many probe combinations for measurement flexibility.
The Linear Height multifunctional height gage makes 2D measurement straightforward and accurate.

Pursuing accuracy and ease of use.
> World-class accuracy of $(1.1+0.6L/600)\mu$m
> Repeatability of $0.4\mu$m (2σ)
> Longer battery operation with large-capacity battery pack
> Ergonomic machine design and power grip operation

The Linear Height offers advanced performance for reliable and simple 2D measurement.
Accuracy in measurement

> Excellent accuracy of $(1.1+0.6L/600)\mu m$ with $0.1\mu m/0.4\mu m$ resolution/repeatability.

> Perpendicularity (frontal) of 5µm and straightness of 4µm are guaranteed.

> Pneumatic full/semi-floating system allows adjustment of air-cushion height according to the operation (movement/measurement) to achieve rapid inspection speed while maintaining accuracy.

> Independent drive/measurement speed setting for quick positioning (max. 40mm/s) and careful measuring.

Ease-of-use in measurement

> One-key operation for running a semi-automatic measurement.

> Automatic stand-by in repeat measurement mode. The probe automatically moves to the next measurement start position.

> Data entry from a Digimatic tool. SPC cable: 936937 (1m/40°), 965014 (2m/80°)

> Back up data of the part program or measurement data can be restored by USB-Memory stick or USB-FDD.

> Basic statistical functions are provided and, additionally, the RS-232C data output provides the option of evaluating measurement data externally with SPC software on a PC.

> Immediate GO/NG judgment at each measurement.

> Large memory capacity for 50 measuring programs and 60,000 measurements.

> Off-line part programming for increased measurement efficiency.

> 24kg smart body for high mobility.

Flexibility in measurement

> Optional large-capacity battery pack for longer battery-powered operation.

> Extensive probe/stylus selection to suit practically any workpiece.


*Optional **S18-331K and 518-342K only
Greater convenience and ease of use through the integration of sequential key operations for

The touch of a single key automatically runs the instrument until the last result is displayed. This eliminates the need to execute key operations at each step in the measurement process, allowing you to concentrate 100% on workpiece inspection.

Single-touch Basic functions

- Measures the height of an upward-facing surface.
- Measures the height of a downward-facing surface.
- Measures the diameter and center of a hole.
- Measures the diameter and center of a shaft.
- Measures the width and center of an inner diameter.
- Measures the width and center of an outer diameter.
- Measures the maximum height of a downward or upward-facing surface.
- Measures the minimum height of an upward or downward-facing surface.
- Performs calculation, including angle.
- Sets the ABS origin (absolute reference origin) or INC origin (incremental origin defined by the user), switches between ABS/INC origins and sets the offset ABS origin.
- Displays a comment when operations are paused, measures the position of a hole with a tapered probe, inputs measurement from a Digimatic measuring instrument and measures perpendicularity.
- Suspends or resumes system operation.

Other functions

- 2D measurement
  - 2D origin setting
  - X/Y axis setting
  - Coordinate system rotation
  - 2D origin translation
  - Coordinate save
  - Coordinate recall
  - Element recall
  - Polar coordinate recall
  - Coordinate distance calculation
  - 2D distance calculation
  - 2 elements intersection-angle calculation
  - 3 elements intersection-angle calculation
  - Pitch-circle calculation
  - Tolerance judgment function
  - Tolerance/nominal value setting
  - Tolerance judgment result output
  - Warning functions

User-support functions

- Switching resolution
- Power saving function
- Switchable measurement speed
- Semi-floating measurement
- Part-program functions
- Creating/editing/executing a part program

Statistical processing functions

- Basic statistical processing
- Histogram

Accuracy-compensation functions

- Temperature compensation
- Scale factor
- Setting of workpiece thermal-expansion coefficient
frequently used measurements.

Optional accessories

**Receipt printer**

> Used to print out measurement results.

An example of a printout

A thermal printer, which can be attached to the main unit of the Linear Height, is available as an optional accessory. Printouts can also be obtained from a commercially available A4 page printer.

- **12AAA795** Thermal printer (100V)
- **12AAA796** Thermal printer (230V)
- **12AAA797** Thermal printer (120V)
- **12AA802** Thermal printing paper (10pcs.)
- **12AA804** Cable for A4 printer* (2m)
- **12AA807** RS-232C cable (2m/80")
- **12AG920** RS-232C cable (3m/118")
- **12AF712** Battery pack
- **12AG245** Large capacity battery pack
- **12A765** Large capacity battery set

*Page printer recommended: EPSON LQ-300 or LX-300

**USB-FDD Unit**

Order No. 12AHH035

**USB-Memory stick**

Order No. 12AHH034

> Convenient for saving measurement procedures and measurement result files.

<table>
<thead>
<tr>
<th>Optional Accessories</th>
<th>Order No. 12AA802 Recording paper for receipt printer (10 roll)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing method</td>
<td>Thermal serial dot</td>
</tr>
<tr>
<td>Printing digits</td>
<td>40 digits</td>
</tr>
<tr>
<td>Maximum print speed</td>
<td>52.5cps (normal characters)</td>
</tr>
<tr>
<td>Dimensions (WxDxH)</td>
<td>160mmx170mmx65.5mm (printer body)</td>
</tr>
<tr>
<td>Standard accessories</td>
<td>Printer cable, recording paper (1 roll), AC adapter (100V)</td>
</tr>
</tbody>
</table>

*Supports external printer (color or black & white) for ELPC

Printer control code system: ESC/P, MS-DOS 24 pins

Printer cable 2m (12AA804)…optional

**USB-Memory stick**

Order No. 12AHH034
### Technical data

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Order No.</strong></td>
<td><strong>Unit: mm (inch)</strong></td>
</tr>
<tr>
<td>120V/English manual</td>
<td>972 (38.27&quot;)</td>
</tr>
<tr>
<td>120V/Spanish manual</td>
<td>600 (23.62&quot;)</td>
</tr>
<tr>
<td>220V/English manual</td>
<td>ø5 (.20&quot;)</td>
</tr>
<tr>
<td>220V/Spanish manual</td>
<td>372 (14.65&quot;)</td>
</tr>
<tr>
<td>220V/German manual</td>
<td>262 (10.31&quot;)</td>
</tr>
<tr>
<td>220V/French manual</td>
<td>1013 (39.88&quot;)</td>
</tr>
<tr>
<td>220V/Italian manual</td>
<td>288 (11.34&quot;)</td>
</tr>
<tr>
<td>240V/English manual</td>
<td>82.5 (3.25&quot;)</td>
</tr>
<tr>
<td>220V/Chinese manual</td>
<td>237 (9.33&quot;)</td>
</tr>
<tr>
<td>220V/Korean manual</td>
<td>68 (2.68&quot;)</td>
</tr>
<tr>
<td><strong>Measuring range (stroke)</strong></td>
<td><strong>For longer battery operation</strong></td>
</tr>
<tr>
<td>0 - 972mm (600mm) / 0 - 38&quot; (24&quot;)</td>
<td>Optional large-capacity battery pack (12AAF675) for longer battery-powered operation (8 hours).</td>
</tr>
<tr>
<td><strong>Resolution (selectable)</strong></td>
<td><strong>Drive method</strong></td>
</tr>
<tr>
<td>0.0001 / 0.001 / 0.01 / 0.1mm</td>
<td>Manual / Motor (5 - 40mm/s, 7 steps)</td>
</tr>
<tr>
<td>.000001 / .00001 / .0001 / .001&quot;</td>
<td><strong>Measuring force</strong></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>1N</td>
</tr>
<tr>
<td>Measuring accuracy at 20°C</td>
<td><strong>Counterbalance type</strong></td>
</tr>
<tr>
<td>(1.1 + 0.6L/600) µm, L = Measuring length (mm)</td>
<td>Suspended weight</td>
</tr>
<tr>
<td><strong>Repeatability (2σ)</strong></td>
<td><strong>Main unit suspension method</strong></td>
</tr>
<tr>
<td>Plane: 0.4µm, Bore: 0.9µm</td>
<td>Full / semi-floating on air</td>
</tr>
<tr>
<td><strong>Perpendicularity</strong></td>
<td><strong>Air source</strong></td>
</tr>
<tr>
<td>≤ 5µm</td>
<td>Built-in air compressor</td>
</tr>
<tr>
<td><strong>Straightness</strong></td>
<td><strong>LCD</strong></td>
</tr>
<tr>
<td>≤ 4µm</td>
<td>Monochrome Graphic LCD (with LED backlight)</td>
</tr>
<tr>
<td><strong>Drive method</strong></td>
<td><strong>Language for display</strong></td>
</tr>
<tr>
<td>Manual / Motor (5 - 40mm/s, 7 steps)</td>
<td>English / German / French / Spanish / Italian / Dutch / Portuguese / Swedish / Czech / Hungarian / Slovenian / Polish / Mandarin Chinese / Traditional Chinese / Korean / Japanese</td>
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<tr>
<td><strong>Measuring force</strong></td>
<td><strong>Number of stored programs</strong></td>
</tr>
<tr>
<td>1N</td>
<td>50 (max.)</td>
</tr>
<tr>
<td><strong>Counterbalance type</strong></td>
<td><strong>Number of stored data items</strong></td>
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<tr>
<td>Suspended weight</td>
<td>60,000 (max.)</td>
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<tr>
<td><strong>Main unit suspension method</strong></td>
<td><strong>Power supply</strong></td>
</tr>
<tr>
<td>Full / semi-floating on air</td>
<td>AC adapter/Battery (Ni-MH)</td>
</tr>
<tr>
<td><strong>Air source</strong></td>
<td><strong>Power consumption</strong></td>
</tr>
<tr>
<td>Built-in air compressor</td>
<td>43VA</td>
</tr>
<tr>
<td><strong>LCD</strong></td>
<td><strong>Battery (12AAF712) operation time</strong></td>
</tr>
<tr>
<td>Monochrome Graphic LCD (with LED backlight)</td>
<td>Approx. 5 hours (Air floating &amp; slider elevation: 25%)</td>
</tr>
<tr>
<td><strong>Language for display</strong></td>
<td><strong>Mass</strong></td>
</tr>
<tr>
<td>English / German / French / Spanish / Italian / Dutch / Portuguese / Swedish / Czech / Hungarian / Slovenian / Polish / Mandarin Chinese / Traditional Chinese / Korean / Japanese</td>
<td>24kg / 52.8lb (24.5kg / 53.9lb)</td>
</tr>
<tr>
<td><strong>Number of stored programs</strong></td>
<td><strong>Standard accessories</strong></td>
</tr>
<tr>
<td>50 (max.)</td>
<td>ø5 stepped probe (12AAF634), block for calibrating probe diameter</td>
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<td><strong>Number of stored data items</strong></td>
<td><strong>Power supply</strong></td>
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<tr>
<td>60,000 (max.)</td>
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* With power grip model

*1 This accuracy is guaranteed when using the standard eccentric ø5 probe.

*2 This accuracy is guaranteed when using a lever head (MLH-421) or Mu-Checker (M-411)

*3 Traditional Chinese: Optional
Korean: 518-331K and 518-322K only
Optional probes and calibration block

- **12AA666**: Ø1 ball probe
- **12AA670**: Ø5 disk probe
- **12AAC072**: Depth probe
- **957261**: Ø2 ball probe
- **12AA671**: Ø10 disk probe
- **12AAC073**: Ø20 taper probe
- **12AA667**: Ø2 ruby ball probe
- **957264**: Ø14 disk probe
- **12AA792**: Dial indicator (Ø8 stem) holder
- **12AA683**: Dial indicator (Ø3/8" stem) holder
- **957262**: Ø3 ball probe
- **957265**: Ø20 disk probe
- **12AA837**: Dial indicator (Ø3/8" stem) holder
- **12AA668**: Ø10 ball probe, L=55
- **12AA788**: Ø1 ball offset probe
- **12AA079**: Probe extension holder (85mm/3.3"
- **12AA669**: Ø10 ball probe, L=82
- **12AA789**: Ø6 ball offset probe
- **12AA879**: Probe extension holder (85mm/3.3"
- **226116**: Test indicator (Ø6 stem) adapter
- **226117**: M2 CMM stylus adapter
- **932361**: Mu-checker lever head holder
- **226118**: M3 CMM stylus adapter
- **12AB136**: Ø10 cylindrical probe
- **12AA793**: Probe extension holder (85mm/3.3"
- **12AA793**: Probe extension holder (85mm/3.3"
- **12AA787**: Block for calibrating probe diameter (applicable to taper probe)
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