ABSOLUTE DIGIMATIC SCALE UNITS

Catalog No. E316-572R

ABSOLUTE Digimatic Scale Units
Strengthened lineup includes new coolant-proof models and incorporates absolute scale technology throughout.

Absolute functions
- Absolute scale technology prevents overspeed errors.
- The coordinate origin (ABS point) can be set to desired position and stored. A previously set ABS point is retained even when the power is off, so the current true position is displayed immediately after power-on.

Note: The ABS point reverts to the default value when the battery is removed or replaced.

Long battery life
- Single function types feature very long battery life (about 20,000 hours), thus providing lower-cost operation and environmental benefit. (Coolant-proof type: about 15,000 hours)

Small and light
- Smaller display unit allows use as a positioning sensor for jigs and tools as well as on small machine tools.

ABSOLUTE Coolant-proof Digimatic Scale Units

- Featuring absolute scale technology with a new detection method (electromagnetic induction) that makes the unit usable in hostile environments where it is exposed to water or coolant spray.
- Position data can be output to external devices using the waterproof connecting cable dedicated to ABSOLUTE Coolant-proof Digimatic Scale Units.

*1: For details of the electromagnetic induction detection method, see page 5.
*2: Patents registered in Japan, the USA and Europe (Germany, the UK, France and Switzerland). Patents pending in India and China.
Typical applications

- Machine table positioning
- Drilling machine stroke position
- Tool presetting
- Focus setting on optical instruments
- Special applications

Non-standard units can be made to special order. Contact your local sales office for more information.
ABSOLUTE Coolant-proof Digimatic Scale Units

- Horizontal single function type
  - For details, see page 5.

ABSOLUTE Digimatic Scale Units

- Horizontal single function type
  - For details, see page 6.

- Vertical single function type
  - For details, see page 6.

- Horizontal multi-function type
  - For details, see page 7.

- Vertical multi-function type
  - For details, see page 7.

- Horizontal multi-function type with diameter display function
  - For details, see page 8.

- Vertical multi-function type with diameter display function
  - For details, see page 8.

EC counter

- For details, see page 10.

Display units and peripheral devices

- DP-1VR
  - No.264-504-5A
  
- MIG-4A
  - No.982-548-10A

- IT-012U
  - No.264-012-10

- Tolerance judgment output

- RS-232C output

- Data entry via USB

- Palmtop printer for providing a hardcopy of the results of a statistical analysis of scale unit output.

- Converter for scale output via RS-232C interface

- Converter for scale output via USB keyboard interface

- Waterproof connecting cables with output switch
  - 1m: 05CZA624
  - 2m: 05CZA625

- Connecting cables with output switch
  - 1m: 959149
  - 2m: 959150

- Connecting cables (See the following)
  - 1m: 905338
  - 2m: 905409
  - 1m: 905689
  - 2m: 905690
  - 1m: 905691
  - 2m: 905692
  - 1m: 905693
  - 2m: 905694
  - 1m: 936937
  - 2m: 965014

*1: Tolerance judgment or Digimatic is selected as an output when setting parameters.

*2: Waterproof connecting cable with output switch can be used only for ABSOLUTE Coolant Proof Digimatic Scale Units.

*3: All scale units can also be used by connecting them directly to the DP-1VR, MIG-4A or 264-012-10, not through the EC counter. In such cases, use a cable that connects the scale unit with the EC Counter. USB input direct cables are also available.

For details, see page 8.
Scale unit functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Type</th>
<th>ABSOLUTE Coolant-proof Digimatic Scale Units</th>
<th>ABSOLUTE Digimatic Scale Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Function Symbol</td>
<td>Hor. single function type</td>
<td>Hor. multi-function type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ver. single function type</td>
<td>Ver. multi-function type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hor. multi-function type with dia. function</td>
<td>Ver. multi-function type with dia. function</td>
</tr>
<tr>
<td>ABS point setting</td>
<td>ORIGIN</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Zero-setting</td>
<td>ZERO</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Direction changeover</td>
<td>DIR</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>Presetting</td>
<td>PRE</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>Display holding</td>
<td>HOLD</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>Data output</td>
<td>M-SPC</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Diameter display</td>
<td>Dia.</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Alarm for faulty counting</td>
<td>E</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Low battery-voltage alarm</td>
<td>B</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Standard feature ▶ A hold switch (option: No. 959143) must be used.
* In all scale units, switching between ABSOLUTE Mode and Incremental Mode is possible.
The ZERO/ABS key allows the display to be zero-set at any slider position along the beam for incremental comparison measurements.
This key also allows return to ABSOLUTE Mode with a display of the true position from the origin point.
Highly robust design. The Digimatic scale is safely embedded in a hardened, stainless steel bar.

The following is a brief description of each function.

**ORIGIN**
ABS point (0.00) can be set to the desired point and stored. Can be used only when the unit is in ABSOLUTE Mode.

**ZERO**
Displayed value can be cleared (zero-set) at the desired position. Can be used only when the unit is in Incremental Mode.

**DIR**
Reverses the direction of measurement.

**PRE**
Desired value can be preset as a displayed value. A ± sign can also be set.

**HOLD**
Holds the displayed value. When this function is released, the display reverts to displaying the current true position.

**Dia.**
The doubled scale displacement can be displayed. This convenient feature can be used to display the diameter of workpieces being machined on a lathe.

**M-SPC**
The main unit features an output connector, which allows connection with the DP-1VR digimatic mini processor or other devices. When the DP-1VR is connected, various statistical analysis processing, creation of histograms, and printing can be performed.

**E**
If a position reading cannot be displayed due to noise or other reasons, an error is displayed.

**B**
B is displayed when battery voltage becomes low, indicating that the battery needs to be replaced soon.
**FUNCTION**

<table>
<thead>
<tr>
<th>Inch</th>
<th>Order No.</th>
<th>572-610</th>
<th>572-611</th>
<th>572-612</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0-4&quot;</td>
<td>0-6&quot;</td>
<td>0-8&quot;</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.001&quot;</td>
<td>0.001&quot;</td>
<td>0.001&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Inch / Metric**

<table>
<thead>
<tr>
<th>Inch</th>
<th>Order No.</th>
<th>572-613</th>
<th>572-614</th>
<th>572-615</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0-4&quot;</td>
<td>0-6&quot;</td>
<td>0-8&quot;</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.03mm/0.001&quot;</td>
<td>0.03mm/0.001&quot;</td>
<td>0.03mm/0.001&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**Metric**

<table>
<thead>
<tr>
<th>Inch</th>
<th>Order No.</th>
<th>572-600</th>
<th>572-601</th>
<th>572-602</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0-100mm</td>
<td>0-150mm</td>
<td>0-200mm</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.03mm</td>
<td>0.03mm</td>
<td>0.03mm</td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions**

<table>
<thead>
<tr>
<th>L1/L2</th>
<th>209mm/185mm</th>
<th>259mm/235mm</th>
<th>311mm/287mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass</td>
<td>390g</td>
<td>410g</td>
<td>430g</td>
</tr>
</tbody>
</table>

**Protection**

<table>
<thead>
<tr>
<th>Protection against the ingress of foreign bodies</th>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection against the ingress of water</td>
<td>6</td>
<td>Water resistant</td>
</tr>
</tbody>
</table>

**What is electromagnetic induction?**

- Current I1, which changes with time, flows through coil L1, generating a magnetic field around coil L1 and adjacent coil L2.
- A voltage V2 is induced in L2 which causes a current I2 to flow in the direction that opposes change in the magnetic field.

**Common Specifications**

- Resolution: 0.01mm or 0.0005"/0.01mm
- Repeatability: 0.01mm
- Response speed*: Unlimited
- Length standard: ABSOLUTE electromagnetic induction encoder*4
- Dust/Water protection level*: IP66
- Battery: SR44 (1pc., 938882)
- Battery life: Approx. 1.5 years under normal use

**Dimensions Unit:mm**

<table>
<thead>
<tr>
<th>Protection against the ingress of foreign bodies</th>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection against the ingress of water</td>
<td>6</td>
<td>Water resistant</td>
</tr>
</tbody>
</table>

| Protection code: IP66. This product is not waterproof. (Anti-corrosion treatment is required after use.) | |
| Patents registered in Japan, the USA, and Europe (Germany, the UK, France, and Switzerland), patents pending in India and China. | |
| Tapped insert: No.5-40 UNC (Inch type), Inch/Metric switching type / 2-M3x0.5 (Metric type) | |
| Screwed depth on the rear side of display unit: under 2mm | |

**WHAT IS ELECTROMAGNETIC INDUCTION?**

*1 Only connecting cables with an output switch dedicated for ABSOLUTE Coolant-proof Digimatic Scale Units (No.05CZA624/1m, No.05CZA625/2m) can be used.

*2 Not including quantizing error ±1 count.

*3 High slider speed does not cause data errors. Position feedback and output data may not be used while the slider is moving.

*4 Patents registered in Japan, the USA, and Europe (Germany, the UK, France, and Switzerland), patents pending in India and China.

*5 Protection code: IP66. This product is not waterproof. (Anti-corrosion treatment is required after use.)

*6 Tapped insert: No.5-40 UNC (Inch type), Inch/Metric switching type / 2-M3x0.5 (Metric type). Screwed depth on the rear side of display unit: under 2mm

**Dimensions Unit:mm**

<table>
<thead>
<tr>
<th>Protection against the ingress of foreign bodies</th>
<th>Level</th>
<th>Description</th>
</tr>
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<tbody>
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</table>

**What is electromagnetic induction?**

- Current I1, which changes with time, flows through coil L1, generating a magnetic field around coil L1 and adjacent coil L2.
- A voltage V2 is induced in L2 which causes a current I2 to flow in the direction that opposes change in the magnetic field.

**This principle is applied to ABSOLUTE Coolant Proof Digimatic Scales. The induction between coils offers excellent water resistance and oil resistance. Absolute detection is achieved by synthesizing position data with arrangements of two-row graduations on the main scale.**
Either Inch/Metric switching type or Metric type can be selected.

FUNCTION

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>ORDER NO.</th>
<th>ORDER NO.</th>
<th>ORDER NO.</th>
<th>ORDER NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inch / Metric</td>
<td>572-210-20</td>
<td>572-211-20</td>
<td>572-212-20</td>
<td>572-213-10</td>
</tr>
<tr>
<td>Range</td>
<td>0-4&quot;</td>
<td>0-6&quot;</td>
<td>0-8&quot;</td>
<td>0-12&quot;</td>
</tr>
<tr>
<td>Accuracy ±3</td>
<td>0.03mm/0.001&quot;</td>
<td>0.03mm/0.001&quot;</td>
<td>0.03mm/0.001&quot;</td>
<td>0.04mm/0.002&quot;</td>
</tr>
<tr>
<td>Metric</td>
<td>572-200-20</td>
<td>572-201-20</td>
<td>572-202-20</td>
<td>572-203-10</td>
</tr>
<tr>
<td>Range</td>
<td>0-100mm</td>
<td>0-150mm</td>
<td>0-200mm</td>
<td>0-300mm</td>
</tr>
<tr>
<td>Accuracy ±3</td>
<td>0.03mm</td>
<td>0.03mm</td>
<td>0.03mm</td>
<td>0.04mm</td>
</tr>
<tr>
<td>Dimensions L1 / L2</td>
<td>209mm/185mm</td>
<td>259mm/235mm</td>
<td>311mm/287mm</td>
<td>446mm/420mm</td>
</tr>
<tr>
<td>Mass</td>
<td>235g</td>
<td>255g</td>
<td>275g</td>
<td>370g</td>
</tr>
</tbody>
</table>

COMMON SPECIFICATIONS

Resolution: 0.01mm or 0.0005"/0.01mm
Repeatability: 0.01mm or 0.0005"/0.01mm
Response speed: Unlimited
Length standard: ABSOLUTE electrostatic capacitance type linear encoder
Battery: SR44 (1pc. 938882)
Battery life: Approx. 3.5 years under normal use

*1 A hold switch (No. 999143), an optional accessory, is required. The output function cannot be used at the same time.
*2 Connecting cables on page 3 and connecting cables with output switch (No. 959149/1m and No. 959150/2m) can be used.
*3 Not including quantizing error ±1 count
*4 High slider speed does not cause data errors. Position feedback and output data may not be used while the slider is moving.
*5 Tapped insert: No.5-40 UNC (Inch/Metric switching type) / 4-M3x0.5 (Metric type) Screwed depth on the rear side of display unit: under 2mm

Absolute Digimatic Scale Units
### Either Inch/Metric switching type or Metric type can be selected.

#### FUNCTION

<table>
<thead>
<tr>
<th>ORIGIN</th>
<th>ZERO</th>
<th>PRE</th>
<th>DIR</th>
<th>HOLD</th>
<th>M-SPC</th>
<th>E</th>
<th>B</th>
</tr>
</thead>
</table>

#### SPECIFICATIONS

**Inch / Metric**
- **Order No.**
- **Range**
  - inch: 0-4", 0-6", 0-8", 0-12", 0-18", 0-24", 0-32", 0-40"
  - metric: 0-100mm, 0-150mm, 0-200mm, 0-300mm, 0-450mm, 0-600mm, 0-800mm, 0-1000mm
- **Accuracy**
  - inch: 0.03mm/.001", 0.03mm/.001", 0.03mm/.001", 0.04mm/.002", 0.04mm/.002", 0.05mm/.002", 0.07mm/.0025"
  - metric: 0.03mm, 0.03mm, 0.03mm, 0.04mm, 0.04mm, 0.05mm, 0.06mm, 0.07mm
- **Dimensions**
  - Inch: L1/L2 = 244mm/220mm, 294mm/270mm, 344mm/320mm, 444mm/420mm, 594mm/570mm, 774mm/750mm, 974mm/950mm, 1174mm/1150mm
  - Metric: L1/L2 = 6mm/23.2mm, 10mm/27.2mm, 14.6mm

**Common Specifications**
- Resolution: 0.01mm or 0.0005"/.01mm
- Accuracy: 0.01mm or 0.0005"/.01mm
- Response speed: Unlimited

**Dimensions Unit:mm**
- **Mass**
  - Inch: 250g, 280g, 310g, 370g, 760g, 900g, 1710g, 2040g
  - Metric: 600g, 770g, 900g, 1710g, 2040g

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### Either Inch/Metric switching type or Metric type can be selected.

#### FUNCTION

<table>
<thead>
<tr>
<th>ORIGIN</th>
<th>ZERO</th>
<th>PRE</th>
<th>DIR</th>
<th>HOLD</th>
<th>M-SPC</th>
<th>E</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>572-570</td>
<td>572-571</td>
<td>572-572</td>
<td>572-573</td>
<td>572-574</td>
<td>572-575</td>
<td>572-576</td>
<td>572-577</td>
</tr>
</tbody>
</table>

#### SPECIFICATIONS

**Inch / Metric**
- **Order No.**
- **Range**
  - inch: 0-4", 0-6", 0-8", 0-12", 0-18", 0-24", 0-32", 0-40"
  - metric: 0-100mm, 0-150mm, 0-200mm, 0-300mm, 0-450mm, 0-600mm, 0-800mm, 0-1000mm
- **Accuracy**
  - inch: 0.03mm/.001", 0.03mm/.001", 0.03mm/.001", 0.04mm/.002", 0.05mm/.002", 0.06mm/.0025", 0.07mm/.0025"
  - metric: 0.03mm, 0.03mm, 0.03mm, 0.04mm, 0.05mm, 0.06mm, 0.07mm
- **Dimensions**
  - Inch: L1/L2 = 244mm/220mm, 294mm/270mm, 344mm/320mm, 444mm/420mm, 594mm/570mm, 774mm/750mm, 974mm/950mm, 1174mm/1150mm
  - Metric: L1/L2 = 6mm/23.2mm, 10mm/27.2mm, 14.6mm

**Common Specifications**
- Resolution: 0.01mm or 0.0005"/.01mm
- Accuracy: 0.01mm or 0.0005"/.01mm
- Response speed: Unlimited

**Dimensions Unit:mm**
- **Mass**
  - Inch: 250g, 280g, 310g, 370g, 760g, 900g, 1710g, 2040g
  - Metric: 600g, 770g, 900g, 1710g, 2040g

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*1 Not including quantizing error ±1 count
*2 High slider speed does not cause data errors. Position feedback and output data may not be used while the slider is moving.
*3 Tapped insert: No.5-40 UNF (Inch/Metric switching type) / 4 M3x0.5 (Metric type) Screwed depth on the rear side of display unit: under 2mm
*4 Tapped insert: No.5-40 UNC (Inch/Metric switching type) / 4 M3x0.5 (Metric type) Screwed depth on the rear side of display unit: under 3mm
Either Inch/Metric switching type or Metric type can be selected.

**FUNCTION**

<table>
<thead>
<tr>
<th>ORIGIN</th>
<th>ZERO</th>
<th>PRE</th>
<th>HOLD</th>
<th>M-SPC</th>
<th>Dia.</th>
<th>E</th>
<th>B</th>
</tr>
</thead>
</table>

**SPECIFICATIONS**

**Inch / Metric**

- **Order No.**
  - 572-490-10
- **Range**
  - 0-4”
- **Accuracy**
  - 0.03mm/0.001”

**Metric**

- **Order No.**
  - 572-480-10
- **Range**
  - 0-100mm
- **Accuracy**
  - 0.03mm

**Dimensions**

- **L1 / L2**
  - 244mm/220mm
- **t / G / H**
  - 6mm/23.2mm/14.6mm

**Mass**

- 250g

**COMMON SPECIFICATIONS**

- Resolution: 0.01mm or 0.005”/0.01mm
- Repeatability: 0.01mm or 0.005”/0.01mm (Radius indication, not diameter)
- Response speed: Unlimited

**Length standard:** ABSOLUTE electrostatic capacitance type linear encoder

**Battery:** SR44 (1pc. 938882)

**Battery life:** Approx. 5000 hours in continuous use

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Either Inch/Metric switching type or Metric type can be selected.

**FUNCTION**

<table>
<thead>
<tr>
<th>ORIGIN</th>
<th>ZERO</th>
<th>PRE</th>
<th>HOLD</th>
<th>M-SPC</th>
<th>Dia.</th>
<th>E</th>
<th>B</th>
</tr>
</thead>
</table>

**SPECIFICATIONS**

**Inch / Metric**

- **Order No.**
  - 572-590-10
- **Range**
  - 0-4”
- **Accuracy**
  - 0.03mm/0.001”

**Metric**

- **Order No.**
  - 572-580-10
- **Range**
  - 0-100mm
- **Accuracy**
  - 0.03mm

**Dimensions**

- **L1 / L2**
  - 244mm/220mm
- **t / G / H**
  - 6mm/23.2mm/14.6mm

**Mass**

- 250g

**COMMON SPECIFICATIONS**

- Resolution: 0.01mm or 0.005”/0.01mm
- Repeatability: 0.01mm or 0.005”/0.01mm (Radius indication, not diameter)
- Response speed: Unlimited

**Length standard:** ABSOLUTE electrostatic capacitance type linear encoder

**Battery:** SR44 (1pc. 938882)

**Battery life:** Approx. 5000 hours in continuous use

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*1 Not including quantizing error ±1 count
*2 High slider speed does not cause data errors. Position feedback and output data may not be used while the slider is moving.
*3 Tapped insert: No.5-40 UNC / Inch/Metric switching type / 4-M3x0.5 (Metric type) Screwed depth on the rear side of display unit: under 2mm
*4 Tapped insert: No.5-40 UNC / Inch/Metric switching type / 4-M3x0.5 (Metric type) Screwed depth on the rear side of display unit: under 3mm
EC counter

FEATURES
This Digimatic Display Unit with GO/NG judgement function offers a large, easily read display for a Digimatic Scale Unit. The bright LED readout is ideal for low-light situations or when the scale unit must be located where its own display cannot be viewed directly.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Order No.</th>
<th>542-007A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>.01mm (±.9999mm) / .001&quot; (±.999&quot;)</td>
</tr>
<tr>
<td>Display</td>
<td>Display of + and - signs and 6-digit measurement data</td>
</tr>
<tr>
<td>Tolerance judgment result indicator</td>
<td>LED (Orange, Green, Red)</td>
</tr>
<tr>
<td>Output (switching control)</td>
<td>DO GO / +NG (open-collector output)</td>
</tr>
<tr>
<td>Input</td>
<td>Preset, HOLD</td>
</tr>
<tr>
<td>Power Supply</td>
<td>AC adapter*1</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0°C to 40°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-10°C to 50°C</td>
</tr>
<tr>
<td>Mass</td>
<td>220g</td>
</tr>
</tbody>
</table>

*1 Standard accessory

The dedicated AC adapter AD908 is supplied with one of the following, according to the order number.
542-007A:AD908AN(No.526688A)(for USA)

Optional accessories
Connecting cables: 936937(1m), 965014(2m)
DC plug P-2: 214838
Connecting cable: C162-155(2m)
Output connector specifications

The output can be switched to either the tolerance judgment I/O or Digimatic output. The following shows the detailed specifications when the tolerance judgment I/O is selected.

(1) Connecting cable: C162-155(2m)
(2) Output connector pin assignment

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>I/O</th>
<th>Signal name</th>
<th>Function</th>
<th>Color of the lead wire in the optional I/O cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>O</td>
<td>COM</td>
<td>Connection to internal GND</td>
<td>Brown, Black</td>
</tr>
<tr>
<td>2</td>
<td>O</td>
<td>+NG</td>
<td>Tolerance output: Relevant pin output is low level. When an error is displayed, +NG and -NG pins are low level.</td>
<td>Brown, Red</td>
</tr>
<tr>
<td>3</td>
<td>O</td>
<td>GO</td>
<td></td>
<td>Yellow, Black</td>
</tr>
<tr>
<td>4</td>
<td>O</td>
<td>-NG</td>
<td></td>
<td>Yellow, Red</td>
</tr>
<tr>
<td>5</td>
<td>I</td>
<td>HOLD</td>
<td>HOLD input</td>
<td>Green, Black</td>
</tr>
<tr>
<td>6</td>
<td>I</td>
<td>P.SET</td>
<td>Preset input</td>
<td>Green, Red</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>F.G.</td>
<td>Shield (internally connected to the case)</td>
<td>White, Red</td>
</tr>
</tbody>
</table>

Note that the output functions of the connector pins are different for the Digimatic output mode. The I/O cable should be connected after the output mode is set. The free end of the I/O cable terminates in seven wires which have to be connected according to purpose. Connect the F.G. line (with solderless terminals) to the ground terminal of the equipment to be connected.

Timing chart

Tolerance output

![Tolerance output chart]

Preset and HOLD inputs

![Preset and HOLD inputs chart]

*Preset and HOLD input signals are active low.

(3) I/O circuit

a. Output circuit (+NG / GO / +NG)
   The transistor is on during open-collector output at low level.
   - Maximum applied voltage = 24VDC
   - Maximum sink current = 10mA
   - Maximum saturation voltage = 0.7VDC
   - Surge absorber diode

b. Input circuit (Preset, HOLD)
   Input is valid at "low" level.
   - Maximum source current = 1mA
   - Input voltage: High level = 4-24VDC
   - Low level = 1VDC maximum

Reference circuit for external devices:
Use open-collector output, relay output, or the like.
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