DIGIMATIC MINI-PROCESSOR DP-1VA LOGGER

MINI-PRINTERS EQUIPPED WITH DATA LOGGING FUNCTION
Using real-time measurement data directly from a Digimatic-output measuring tool, the high performance DP-1VA LOGGER performs complex statistical calculations such as those needed for Xbar-R control charts, histograms and D-charts. The data logger function also allows storage of up to 1,000 pieces of data in memory, and batch transfer of stored data to an Excel-format inspection certificate, etc., by connecting to a PC with a USB cable. The DP-1VA LOGGER is the result of the pursuit of excellent portability and flexibility in the 2-way power supply system, and provides significant potential for efficiency improvements in the quality control function.

“d2” is the generic name for Mitutoyo Digimatic output compatible with up to 8 digits of I/O data.
Data input to a custom inspection sheet created by Mitutoyo-specific application software or Excel

- **Analysis by PC**
  - The combination of USB-ITPAK V2.1 and MeasurLink allows the processor to register/automate the Excel input procedure and display statistical processing results such as a control chart in real time.

- **Measurement and storage at site**
  - Equipped with the data logger function able to store up to 1000 pieces of measurement data.

- **Transfer**
  - Batch output of logging data by connecting the processor to a PC.
Clock function
Allows printing of CE year, month, day, hour and minute.

GO/±NG judgment lamps
- NG: Indicates measurement result is smaller than the lower limit
- GO: Indicates measurement result is within the tolerance limits
- +NG: Indicates measurement result is larger than the upper limit
Five sets of GO/±NG judgments can be set.

USB micro-connector
Allows transmission of measurement data to Excel, etc., by connecting the processor to a PC with a USB cable (option). (Both real-time data transmission upon measurement and batch transmission of logging data are possible.)

Large and easy-to-operate keys

- **[POWER] key**: Press to turn power on/off.
- **[PRINTER] key**: Press to turn on/off the print function for measurement and data logging.
- **[TOL.|REC/STOP] key**: Press briefly to enter/exit the setting mode for limit data (upper/lower tolerance). Press longer to start/stop data logging.
- **[CLEAR] key**: Press to clear all measurement data.
- **[CANCEL] key**: Press to cancel the most recently input measurement data. Press longer than 10 seconds to reset hardware, clear measurement data/log data, and initialize the current date and time.
- **[DATA] key**: Executes data output.
- **[FEED] key**: Press and hold to feed printer paper.
- **[STAT.|OUT LOG] key**: Press to perform statistical calculation based on all input measurement data and create a histogram by printing calculation results. Press longer than usual to print and USB-output log data.
48m printer paper
(highly-durable thermosensitive paper)
Excellent environmental resistance allows prolonged storage.
• Standard characters: About 10,000 lines per roll
• Enlarged characters: About 7,000 lines per roll

One-touch paper loading
Thermosensitive paper: Standard accessory (1 roll)

2-way power system
Allows the AC adapter (standard accessory) and AA alkaline batteries (LR6) or nickel-metal-hydride batteries to be used. The battery compartment is located at the rear of the main unit.

Data output connector
Outputs measurement data and GO/NG judgment results in RS-232C format at TTL voltage levels.

Timer input
Data from a measuring tool can be automatically input at a certain interval (0.25 sec, 1 sec, 5 sec, 30 sec, 1 min, 30 min, 60 min), allowing automatic recording and logging of measurement data.

Data input connector
Connects a cable from a Digimatic measuring tool.

Foot switch connector
Connects the foot switch (option) for executing data output in place of the DATA switch.

Strap attachment
Connects a cable from a Digimatic measuring tool.
Example of printout

MODE1
Various statistical calculations are executed using all input data. If the tolerance limits have been set, GO/NG judgment and histogram creation are also enabled.

MODE2
In addition to the MODE1 function, measurements within the tolerance limits are printed out as a D chart*. This chart allows you to identify the trend of variations in measurement data.

**D chart stands for Displacement chart.**

MODE3
Only input of data automatically enables calculation processing of complex control limit values as well as calculation for creating an Xbar-R control chart.

In OUT LOG Setting 1

Example of batch printing log data

In OUT LOG Setting 2

In OUT LOG Setting 3

Statistical calculation data

<table>
<thead>
<tr>
<th>MODE0</th>
<th>MODE1, 2</th>
<th>MODE3</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO/NG judgment</td>
<td>N: Number of pieces of data</td>
<td>N: Number of pieces of data</td>
</tr>
<tr>
<td>MAX: Maximum value</td>
<td>MAX: Maximum value</td>
<td>MIN: Minimum value</td>
</tr>
<tr>
<td>MIN: Minimum value</td>
<td>MIN: Minimum value</td>
<td>R: Range</td>
</tr>
<tr>
<td>X: Mean value</td>
<td>X: Mean value</td>
<td>X: Mean value</td>
</tr>
<tr>
<td>n: Number of subgroups (up to 10)</td>
<td>n: Number of subgroups (up to 10)</td>
<td>n: Number of subgroups (up to 10)</td>
</tr>
<tr>
<td>N: Standard deviation of a population (N)</td>
<td>n-1: Sample standard deviation (N-1)</td>
<td>R: Range of a subgroup</td>
</tr>
<tr>
<td>NG: For the number of pieces of data smaller than the lower limit</td>
<td>NG: For the number of pieces of data larger than the upper limit</td>
<td>R: Mean value</td>
</tr>
<tr>
<td>P: Percentage of rejects</td>
<td>P: Percentage of rejects</td>
<td>X: UCL: Upper control limit</td>
</tr>
<tr>
<td>N: Maximum process capability potential</td>
<td>N: Actual process capability achieved</td>
<td>X: LCL: Lower control limit</td>
</tr>
<tr>
<td>Cp: Process capability potential</td>
<td>Cpk: Actual process capability achieved</td>
<td>R: Center (R control)</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>R-UCL: Upper control limit (R control)</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>R-LCL: Lower control limit (R control)</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>21.05 mm</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10.00 mm</td>
</tr>
</tbody>
</table>

Example of printout

DP-1VA LOGGER
* MODE 1 *
DATE 2018/2/15
TIME 12:2
* LOG = 0
* LOG STOP

LIMIT DATA 1
LSL 19.11 mm
UCL 19.89 mm
TOL 0.78 mm

LIMIT DATA 2
LSL 19.11 mm
UCL 19.89 mm
TOL 0.78 mm

LIMIT DATA 3
LSL 19.11 mm
UCL 19.89 mm
TOL 0.78 mm

PART NO.: 1
DATE 2018/2/15
TIME 12:2
NAME: 1
RESULT: 2
MAX: 19.11 mm
MIN: 19.00 mm
X: 19.05 mm
R: 0.11 mm
n: 1

HISTOGRAM
| LSL 19.11 mm |
| UCL 19.89 mm |
| TOL 0.78 mm |

PART NO.: 2
DATE 2018/2/15
TIME 12:2
NAME: 1
RESULT: 2
MAX: 19.11 mm
MIN: 19.00 mm
X: 19.05 mm
R: 0.11 mm
n: 1

HISTOGRAM
| LSL 19.11 mm |
| UCL 19.89 mm |
| TOL 0.78 mm |

PART NO.: 3
DATE 2018/2/15
TIME 12:2
NAME: 1
RESULT: 2
MAX: 19.11 mm
MIN: 19.00 mm
X: 19.05 mm
R: 0.11 mm
n: 1

HISTOGRAM
| LSL 19.11 mm |
| UCL 19.89 mm |
| TOL 0.78 mm |

Example of batch printing log data

Example of OUT LOG Setting 1

Example of OUT LOG Setting 2

Example of OUT LOG Setting 3

This setting allows printout of measurement time, measurement value, and GO/NG judgment result.

This setting allows printout of data number, measurement value, and GO/NG judgment result.

This setting allows printout of data number, measurement date and time, and GO/NG judgment result.
SPECIFICATIONS

Order No. 264-505D CEE Type (Europe), 264-505E BS Type (UK)

- **Data input**: Digimatic input, Digimatic 2 input, RS-232C input (specific to Mitutoyo KA counter)
- **Printing method**: Thermal line printer
- **Character specification**
  - Total number of dots: 384 dots/line
  - Dot size: 8 dots/mm
- **Printing speed**: 0.8s per line (6.5mm/s)
- **Printing paper**
  - High durability thermo-sensitive paper
  - Width: 58mm x length: 48m
- **Power supply**: 2-way power supply system
  - 1. 100-240V 50/60Hz AC adapter (6V, 2A)
  - 2. AA alkaline battery (LR6) or nickel-metal-hydride battery (NiMH Size AA) 4 pieces
  - (Manganese dioxide batteries are not usable.)
- **Battery life**
  - About 10,000 lines (if data is printed once every 5 seconds using 1,600mA NiMH batteries at 20ºC)
- **Data processing capacity**
  - MODE0: 100,000 pieces of data
  - MODE1, MODE2: 9,999 pieces of data
  - MODE3: Sample size 10 x 9999 subgroups = 99,990 pieces of data
  - GO/NG judgment (five sets can be defined)
- **Measurement data logging (storage)**
  - Up to 1,000 pieces
- **Input timer**
  - 0.25s, 1s, 5s, 30s, 1 min, 30min, 60min
- **Output**
  - USB output
  - RS-232C data output at TTL levels
  - GO/NG judgment result output (-NG, GO, +NG)
- **Clock accuracy**
  - Maximum time difference per month: ±2 minutes
- **Operating temperature**
  - 0 to 45ºC (using AC adapter)
  - 10 to 45ºC (using battery)
- **Storage temperature**
  - -10 to 50ºC
- **Mass**
  - 390g (main unit)
- **External dimensions**
  - 94 (W) x 201 (D) x 75.2 (H) mm

**Standard accessories**
- AC adapter : 06AEG180D (Europe) or 06AEG180E (UK), printing paper (one roll), strap, user’s manual

**Optional accessories**
1. USB cable (A-microB) : 06AFZ050 (1m)
2. RS-232C output cable: 09EAA084 (1m, D-SUB 9 pin)
3. GO ±NG judgment cable: 965516 (2m, 10 pin terminal/separate )
4. Foot switch: 937179T (2m)

**Consumable items**
- Printing paper (10 rolls)

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**Measurement Data Collection Software (optional)**

**Excel-specific Measurement Data Collection Software**
USB-ITPAK V2.1 (06AFM386)

This software allows efficiency improvements in inspection tasks that include repetitive work by automating input operations to Excel.

**Measurement Data Collection/Statistical Analysis Software**
MeasurLink Real-Time Standard (02NDB100D)

This software visualizes statistical processing such as a control chart and process capability index in real time, thus achieving “Quality Visualization”.

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**DIMENSIONS**

![DIMENSIONS Image]
Whatever your challenges are, Mitutoyo supports you from start to finish.

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver bespoke measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

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