watanabe

Load Cell Graphic Multimeter

G1000

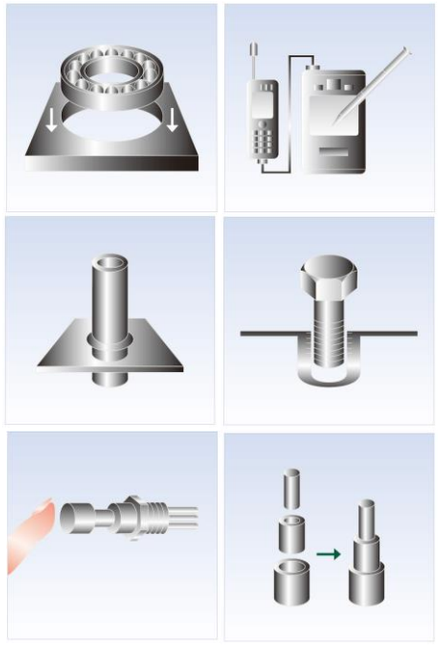
Dimensions : 100mm(W) × 96mm(H) × 153mm(D)

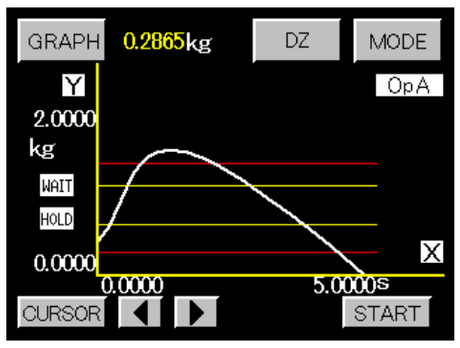
Crystalizing measurement technology cultivated at every development stage of digital panel meters!

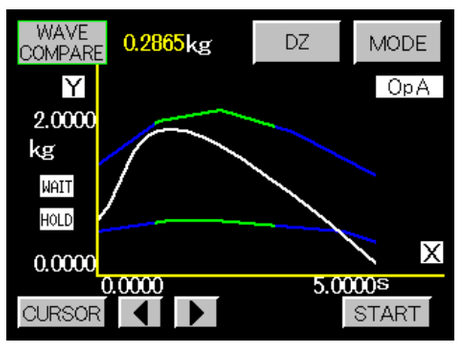
Meeting all needs of load measurement by the use of a newly developed built-in microcomputer!

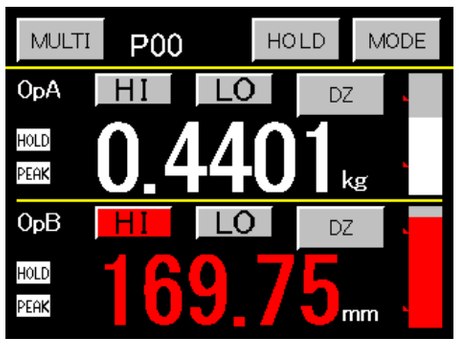
Improving operability and also heightening expression by the use of color liquid crystal graphic touch panels!

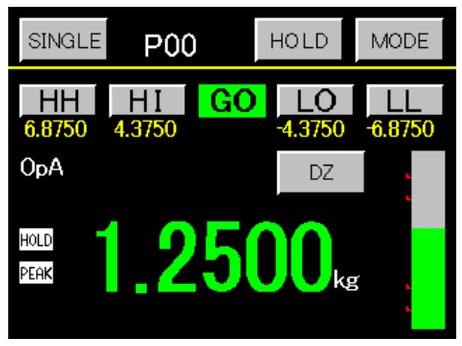
Displaying power when connected with load cells or various sensors.











High-speed processing of 4,000 times/sec (When one ch is used) Possible to connect in parallel up to four load cells with a resistance of 350Ω each.

Provided with waveform comparison function by graphics.

Possible to issue visual alarms and also to obtain highly accurate digital evaluation results between trends by setting a tolerance range to each waveform measured on LCD.

2-channel input, and numeric value and bar-graph displays

Always possible to easily confirm measured values, tolerance ranges and also comparison results on color displays.
Also possible to display, in an analog sense, tank water level, etc. as a level gauge.

Diagnosis of connected-sensor functions

Possible to speedily diagnose connected-sensor functions before starting load measurement and also during measurement with two or more strain gauge sensors connected.

G1000 specifications

- Input block (Ach)

Sensor power supply : 10/5/2.5 VDC Output-Less than 120 mA

Applicable sensors : Various strain gauge type sensors (4-wire system)

(Possible to connect in parallel up to four stain gauge type sensors with a resistance of 350Ω each.)

Input signal range : -4.0 mV/V to +4.0 mV/V

(The zero adjustment of ±1.0mV/V is contained)

Display : By digital scaling

Input calibration range : 0.1 to 3.0 mV/V

Display (load) range : 100 to 30,000 (At minimum input sensitivity)

Minimum input sensitivity: 0.25 μV/digit (At sensor power of 2.5 V)

0.5 μV/digit (At sensor power of 5.0 V)

1.0 μV/digit (At sensor power of 10.0 V)

Non-Linearity : Within ±0.02% FS + 1 digit (At input of 3 mV/V)

Equivalent Proofreading Accuracy : Within ±0.2% FS

Temperature coefficient : ±0.05% of rdg. + 0.5 digits/°C

Analog filter : Selected from among 10, 30, 300 and 600 (Hz)

- Input block (Bch)

■ Instrumentation signal input

Range	Measuring range	Display	Input impedance	Max. allowable input	Accuracy
0～10	±0～10V	By digital scaling Offset:0～10000 Fullscale: 0～10000	1MΩ	±30V	±0.1% FS +1digit
4～20	4～20mA		50Ω	±70mA	±0.2% FS +1digit
0～20	±0～20mA				

Non-Linearity : Within ±0.02% FS + 1 digit (At input of 3 mV/V)

Temperature coefficient : ±0.005% of rdg. +0.5 digits/°C

Analog filter : Selected from among 10, 30, 300 and 600 (Hz).

Measurement function : Range can be specified on front touch panel screen.

- Measurement/functions (Common to Ach/Bch)

Operation method : ΣΔ conversion

No. of inputs : 2 (Ach and Bch)

Sampling speed : (4000/2000/1000/500/200/100/50/20/10) times/sec

Max. sampling speed - 4000 times/sec (When one channel is used)

Max. sampling speed - 2000 times/sec (When two channels are used)

Display updating cycle : (12.5/6.25/2.5/1.0/0.5) times/sec

Moving average : OFF/2/4/8/16/32/64/128/256/512/1024

Maximum display : ±99999 (5 digits)

Display : STN color LCD (320 × 240 dots)

Display range (Approx. 75 mm × 56 mm)

- Analog voltage output for monitor

Ach - Strain gauge input ± 3.0 mV/V → Approx. ±6 V

Bch - Instrumentation signal input ± 0 to 5 V → Approx. ±5 V

Instrumentation signal input ± 0 to 20 mA → Approx. ±5 V

- Linearize function : Possible to set 132 points for each channel.

- Hold function : Selected from among 17 types.

Normal

Sample

Peak/valley/peak valley × (entire area, range designation, time designation and level + time designation)

Maximum value/minimum value/inflection point × (level + range designation)

- Comparison function

Setting range : ±99999

Hysteresis : 0 to 9999

Comparison output type : Selected from among normal, area and run.

Comparison output : 5 types (HH, HI, GO, LO and LL)

Photo-coupler output : NPN open-collector output (including waveform comparison, and waveform and displacement comparison)

Output capacity - Voltage 30 V max. Current 20 mA max.

- Waveform comparison function

  First, 2048 high/low limit setpoints per pattern (up to 8 patterns can be set) are set to start measurement and then real-time comparison of whether or not the displayed value is within the high/low limit setpoints is made to output the result.

  · Waveform comparison (X-axis = Time)　Comparison output = Y-axis HI/GO/LO

  · Waveform and displacement comparison (X-axis = Displacement)

  Comparison output = Y-axis　GO/LO　　X-axis　HI/LO (Displacement output)

- Input/output function

  · RS-232C output :　Possible to set various settings from host computer.　Also possible to read operating conditions.

  · RS-485 output　:　Possible to connect up to 31 meters to host computer.

  · BCD output　　:　Open-collector output (NPN type)
  Output capacity - Voltage 30 V max.

  Current 15 mA max.　(Depending on output cycle sampling speed.)
  Possible to select output channel.

  · Analog output　　:　D/A converter is used. (Possible to select output channel.)
  Resolution-Corresponding to about 16 bits

Output	Load resistance	Accuracy	Ripple
±0～10V	More than 10kΩ	±(0.5%　of FS)	50mVpp
4～20mA	Less than 550Ω	±(0.5%　of FS)	25mVpp

- Common specifications

Backup　　:　Each set data is written to flash RAM (to be written when the setting is finished) and the digital zero value is stored into SRAM.

Each data setting　　:　On each setting menu and through touch panel operation.

Power supply　　:　100 to 240 VAC (50/60 Hz)

Power consumption　　:　Approx. 32 VA (MAX.)

Dimensions　　:　100 mm (W) × 96 mm (H) × 153 mm (D)

Operating temperature/humidity :　0 to 40°C　　35 to 85% RH (No dew-condensing)

Weight　　:　Approx. 1.0 kg

Ordering code

G1 □ □ □ - □ 2

Code	Power supply
1	100 to 240Vac ±10%
2	12 to 48Vdc ±15%

Code	Output
3	BCD output + RS-232C output
4	Analog output + RS-232C output
5	RS-232C output
6	RS-485 output

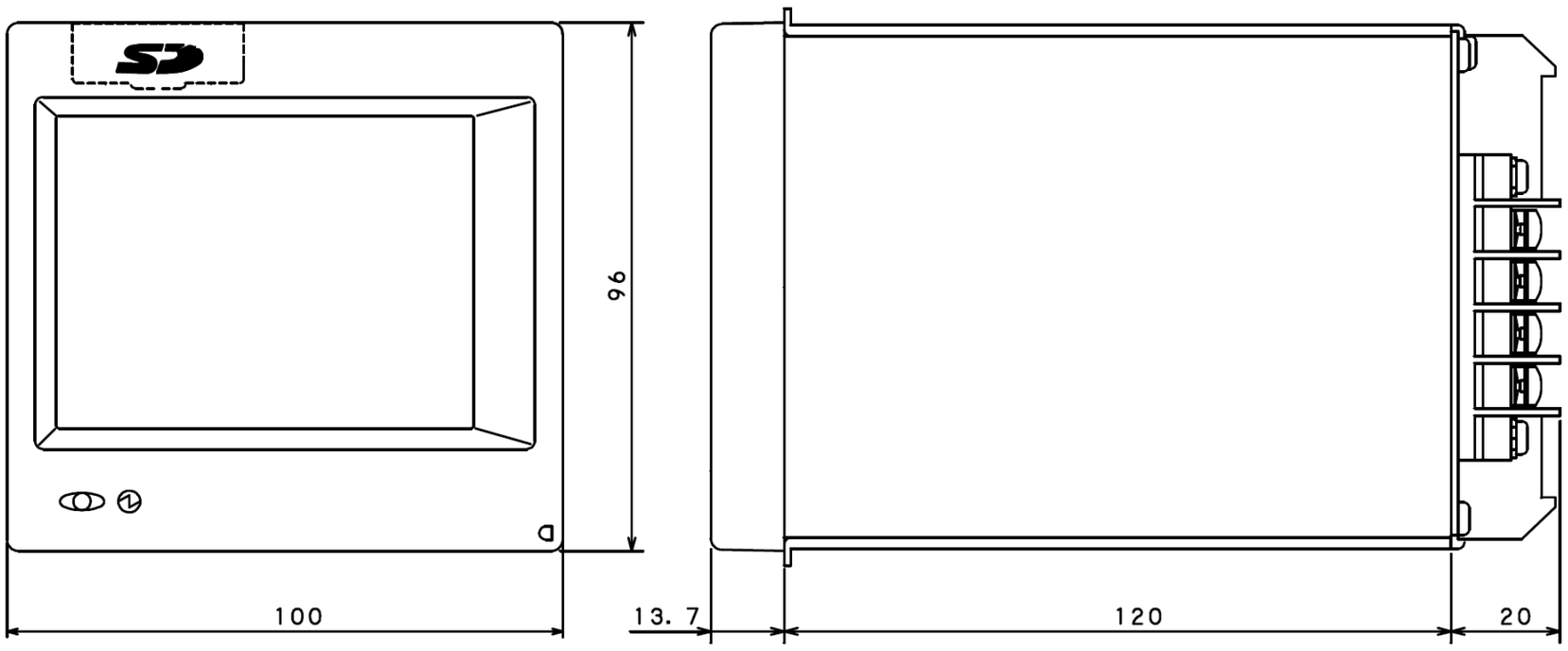
Code	Input
0	Ach : Strain gauge, Bch : Process signal
1	Ach : Strain gauge, Bch : Pulse signal

Code	SD memory card function
0	No function
1	Function available (SD card not included)

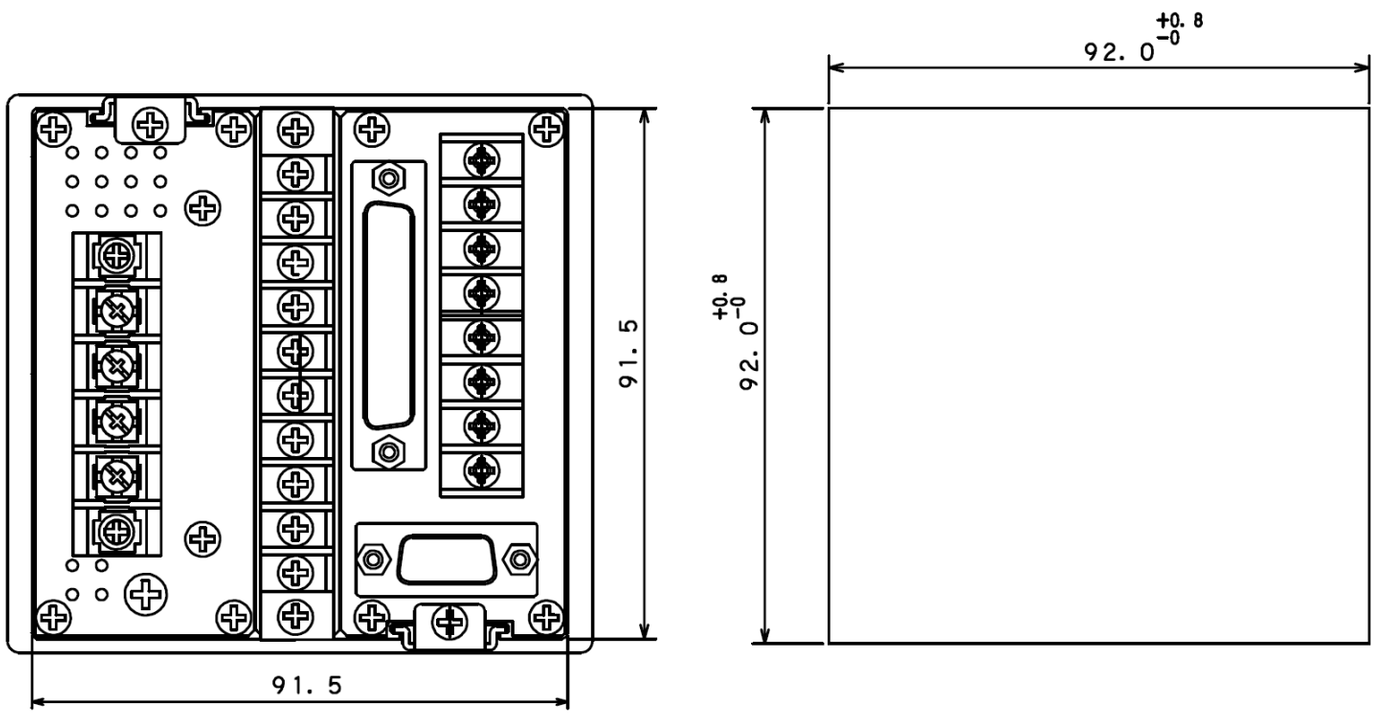
Code	Display
2	Japanese / English

※ Comparison output (photo-coupler) is provided as standard.

Dimensions



[Front] [Side]



[Rear] [Panel cutting hole]

*When you have no memory card function, there is no SD cover of the front upper part.