DPM-950 Series

Strain Amplifier



DPM-951A DPM-952A

Strain amplifiers resistant to inverter noise

- Easy setup to significantly reduce work time
- High output (±10 V) and high SN ratio
- Insulation between I/O
- Actual load calibration function for auto sensitivity setting
- Bridge check function

These strain amplifiers ensure highly stable and accurate measurements.
Sensitivity can be easily set by simply configuring the input strain and output voltage through digital switches, thereby significantly improving work efficiency.
They deliver high performance and usability while effectively reducing inverter noise.

Model

Models	Bridge Power Frequency	Frequency Response	SN Ratio
DPM-951A	5 kHz sine wave	DC to 2 kHz	53 dB_{p-p} or more*1 58 dB_{p-p} or more*2
DPM-952A	12 kHz sine wave	DC to 5 kHz	47 dB_{p-p} or more*1 53 dB_{p-p} or more*2

*1 RTI: Within 2.3 $\times 10^{-6}$ $strain_{p-p}$, when 500 $\times 10^{-6}$ strain is input, outputs 10.00 V.
*2 when 1000 $\times 10^{-6}$ strain is input, outputs 10.00 V.

[Common Condition]
Excitation Voltage: 2 V_{rms}, Bridge Resistance: 120 Ω , LPF = FLAT

Specifications

Measuring Target	Strain gage, strain gage transducer
Channels	1 (Synchronized operation of multiple units possible)
Conformity Bridge Resistance	
	60 to 1000 Ω
Gage Factor	2.00 fixed
Bridge Power	
Voltage	2 V_{rms}, 0.5 V_{rms} selectable
Frequency	See table on the left.
Balancing Range	
Resistance	Within ±2% (±10000 $\times 10^{-6}$ strain)
Capacitance	Within 2000 pF
Balancing Method	Resistance: True electron auto-balance method
	Accuracy: Within ±0.5 $\times 10^{-6}$ strain
	(When 500 $\times 10^{-6}$ strain is input, outputs 10 V,
	excitation voltage: 2 V_{rms})
	Storage: Written into nonvolatile memory
	Capacitance: CST method (Auto-tracking)
Nonlinearity	Within ±0.1% FS
Output Impedance	Approx. 2 Ω
Calibration Signal (CAL)	1 $\times 10^{-6}$ strain steps within ±(1 to 9999) $\times 10^{-6}$ strain
	[Setting: CAL switch (4-digit digital switch)]
	Accuracy: Within ±(0.5% + 0.5 $\times 10^{-6}$ strain)
Sensitivity Adjuster	The amplifier sensitivity is set in combined with
	the CAL and VOLTAGE OUT switches (4-digit digital switch)
	CAL Switch Range 1 $\times 10^{-6}$ strain steps up to 100 to 9999 $\times 10^{-6}$ strain
	VOLTAGE OUT switch range 0.01 V steps up to 1.00 to 10.00 V
	[Condition: When 500 $\times 10^{-6}$ strain is input, outputs 10.00 V
	(× 20000) to 5000 $\times 10^{-6}$ strain is input, outputs 1.00 V (× 200)]
	[Setting Example: When 500 is set to CAL, VOLTAGE
	OUT is 10.00 (× 20000) to 5000 is set to CAL, VOLTAGE
	OUT is 1.00 (× 200)]
	Accuracy: Within ±0.5% [When bridge power supply is 2V_{rms}]
Sensitivity Fine Adjustment	Range: 1 to 1/2.5
Frequency Response	See table on the left.
	Deviation: ±10%
Low-Pass Filter (LPF)	Transfer characteristic:
	Secondary Butterworth Type
	Cutoff frequency:
	6 steps: 10, 30, 100, 300 Hz, 1 kHz, and FLAT
	Amplitude ratio at the cutoff point: -3 ±1 dB
	Attenuation: -12 ±1 dB/oct.
	(951A: Excluding when setting 1 kHz)
High-Pass Filter (HPF)	Cutoff frequency: 0.2 Hz or OFF
SN Ratio	See the table on the left.
OUTPUT	OUTPUT A: ±10 V (Load resistance 5 kΩ or more)
	OUTOUT B: ±10 V (Load resistance 5 kΩ or more)
Stability	Temperature Zero: ±0.1 $\times 10^{-6}$ strain/°C
	Sensitivity: ±0.05%/°C
	Time Zero: ±0.5 $\times 10^{-6}$ strain/24h
	Sensitivity: ±0.3%/24 h
	Power Fluctuation Zero: ±0.05% FS/±10% fluctuation
	Sensitivity: ±0.05%/±10% fluctuation
Withstand Voltage	Between measuring bridge - case: 1000 VAC for 1 minutes
	Between AC power - case: 1000 VAC for 1 minutes
Output Voltage Display	4½-digit digital display (7-segment LED)
	11-segment LED bar graph meter
Excessive Input Display	Output voltage display flickers. (4½-digit digital display only)
Check Function	Bridge check
Keylock Function	Setting methods other than POWER switch become invalid.
	(However, the setting values of the CAL and VOLTAGE OUT
	switches can be changed.)

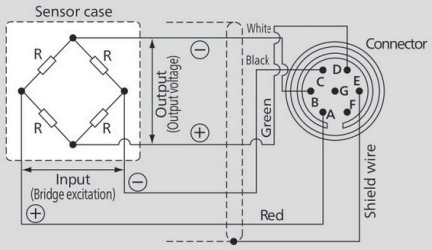
Remote Function	Capable of controlling the following functions
	Balance adjustment (BAL)
	Addition of the calibration signal (CAL)
	Keylock
Synchronization Method	Automatically determines internal (INT) or external (EXT)
	and manual setting
TEDS	Read the TEDS information of the TEDS-compatible sensor and set
	the rated output to the output voltage of the VOLTAGE OUT
	switch
	(Condition: Within the setting range of the sensitivity adjuster)
Actual Load Calibration	Set the actual load to the output voltage of the VOLTAGE OUT
	switch
	(Condition: Within the setting range of the sensitivity adjuster)
Vibration Resistance	5 to 200 Hz, 29.4 m/s^2 (3 G)
	X, Y, and Z directions: 12 cycles with 10 minutes/cycle
Impact Resistance	15 G, 11 msec or less
	X, Y, and Z directions: each 3 times
Operating Temperature	10 to 50°C
Operating Humidity	20 to 85 % (noncondensing)
Storage Temperature	−30 to 70°C
Power Supply	90 to 110 VAC (Approx. 10 VA: 100 VAC)
	10.5 to 15 VDC (Approx. 0.6 A: 12 VDC)
	The following products are also available upon request.
	DPM-XXXX A115: 108 to 132 VAC
	DPM-XXXX A200: 180 to 220 VAC
	DPM-XXXX A230: 207 to 253 VAC
	XXXX: Part of model, example: 951A
Dimension	49 W × 128.5 H × 262.5 D mm (Protruded portion not included)
Weight	Approx. 1.2 kg

Standard Accessories Output cable U-08, U-59, 1 each
AC power cable P-25 (With 2-pin conversion plug CM-52)
Fuse (Midget type 0.5 A, 1 A)
Instruction manual
Simple manual sticker

Optional Accessories Extension cables N-81 to N-85
Bridge boxes DB, DBB, and DBS
Housing case YC-A
Noise filter F-7B, F-BNC
Amplifier stand FA-1B
Shielded conversion cable N-117

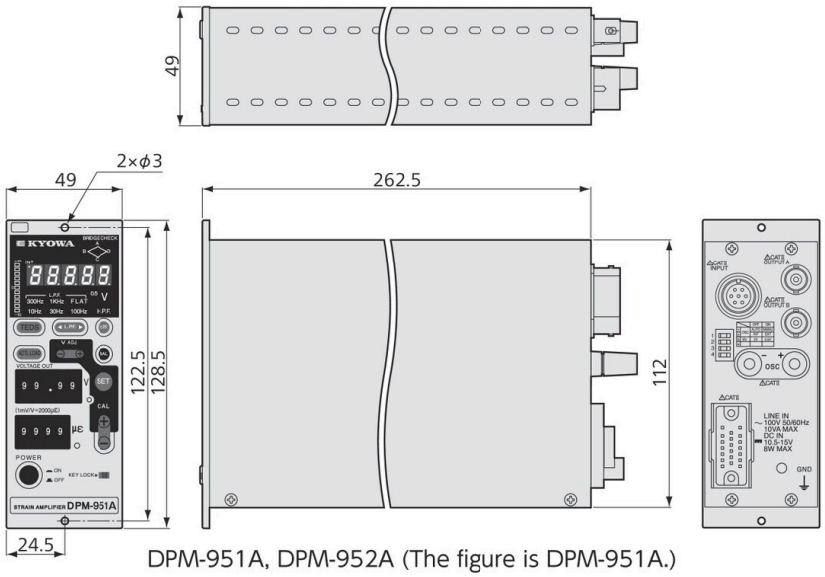
To Ensure Proper Usage

The bridge check function displays disconnection information on the monitor. If there are two or more errors, only one will be displayed at a time.



Wire-breaking locations	Error
A (Red)	Er-a
B (White)	Er-b
C (Black)	Er-c
D (Green)	Er-d
3 wires or more	Er-b

Dimensions



DPM-951A, DPM-952A (The figure is DPM-951A.)