Mechanical Vibration Measurement

Charge Amplifier

AG3103

A&D Company, Ltd.

Discover Precision

http://www.aandd.jp

Integrator Built-in・Wide Band Type AG3013

Outstanding Noise Immunity !

Wide Band・High Performance Charge Amplifier !

The AG3103 is our original charge amplifier that allows wideband (0.2Hz to 100kHz) signal input by floating the input / output and power supply system. The sensor is capable of multi-input, and by expanding the measurement range (~ 100,000m / s2) (10 times compared to the conventional one), it is possible to measure a wide range of vibrations from noise to impact.

Features

●Voltage/Electric Charge Input (switchable)
Piezoelectric accelerometer (Electric charge output type) and Amplifier built-in type Piezoelectric accelerometer (Voltage output type) input are possible.

●Breaking Cable Check Function (Piezoelectric Accelerometer only)
Automatically determines broken cable and sensor. Measurement preparation time can be shortened.

●Floating Type
Ideal for system construction that considers the ground potential difference.

●Integrator built in
By connecting to a recorder, waveform recording and waveform analysis can be performed at the same time while monitoring the input waveform.

●Wide power supply compatible
Usable with 100V, 200V AC, 10V to 30V DC.

●It is possible to measure at a place where the sensor is installed and the measurement is far away
It can be extended with a charge converter.

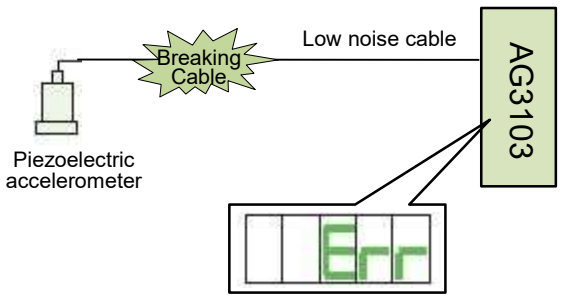
Functions

Detect a breaking cable instantly !

Breaking Cable Check Function

Patent Pending

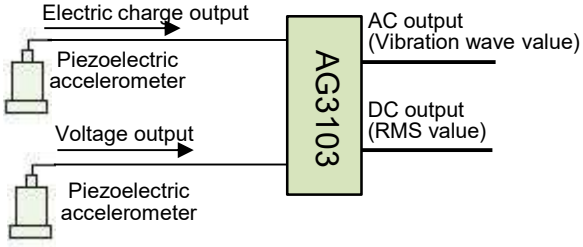
The breaking cable check function can instantly detect a disconnected cable, which greatly contributes to measurement preparation time and countermeasures against breaking cable problems.



Voltage/Electric Charge Input and AC/DC Output

※The input is switchable.

By switching the input, you can input the charge output type and voltage output type piezoelectric acceleration transducers. The output can output AC / DC at the same time. Since it is connected to a recorder and the vibration and RMS (Root Mean Squire) value can be observed, the vibration tendency of the rotating body (motor, etc.) can be easily grasped.



■Monitor/Meter

●17 dot LED Display

●4 digit ½ Digital LED Display

●Breaking Cable Check Switch

■Sensor Sensitivity Setup
Input sensor sensitivity value of 0.010 to 999pC/m/s^2, 0.1 to 99.9mV/m/s^2

●Sensor sensitivity display

●Sensor sensitivity setup switch

■Low-pass/High-pass Filter newly employed to remove specific noise content

●Low-pass/High-pass Filter Setup

AG3103
Front Panel

AG3103
Rear Panel

●Key Lock

●Piezoelectric Accelerometer (charge output) Input

●Input switchover switch

●Amplifier built-in type Piezoelectric Accelerometer (voltage output) Input

■AC/DC simultaneous output

●DC OUIT +7.07V, +5mA

●AC OUIT ±10V, ±5mA

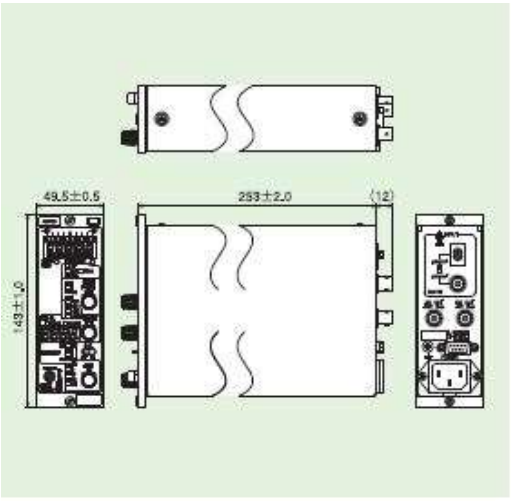
●Interface Connector (DC power, CAL signal, etc.)

■Specifications

Item	AG3013
Channel Number	1 channel/unit
Piezoelectric Accelerometer Input	Single input, Input impedance 110MΩ±5%
Sensor Check Function	Check and indication of breaking cable between cable to sensor. (Piezoelectric accelerometer only)
Amplifier built-in type PiezoelectricAccelerometer Input	Single input, Input impedance approx. 1MΩ±5%, Power supply for sensor +2mA (Max. 24V)
Measuring Range	Acceleration (m/s^2): 1/2/3.16/5, x1/x10/x100/x1,000/x10,000 Speed (cm/s) : 1/2/3.16/5, x1/x10/x100/x1,000/x10,000 Displacement (0.1mm) : 1/2/3.16/5, x1/x10/x100/x1,000 (*1)
Gain Accuracy	Acceleration (m/s^2): ±1% (80Hz) Speed (cm/s) : ±2% (80Hz) Displacement (0.1mm) : ±3% (80Hz)
Pickup Sensitivity	0.010 to 999pC/m/s^2 (0.10 to 99.9mV/m/s^2)
Calibration Voltage	80Hz Sine wave 10Vpk Accuracy ±1%
Frequency Response(W/B)	0.2Hz to 100kHz (+1dB, -3dB), 1Hz to 20kHz (±0.5dB)
Lowpass Filter	100Hz, 300Hz, 1kHz, 10kHz, 20kHz 4 pole bessel type (damping characteristics -24dB/oct)
Highpass Filter	1Hz, 5Hz : 2 pole bessel type (samping characteristics -12dB/oct)
Max. Input Electric Charge (Piezoelectric Accelerometer Input)	1.35 x 10^{5}pC (with input electric charge 10,000 to 100,000pC) 1.35 x 10^{4}pC (with input electric charge 1,000 to 10,000pC) 1.35 x 10^{3}pC (with input electric charge 1,000pC or less)
Max. Input Capacity (Piezoelectric Accelerometer Input)	1μF (with input electric charge 10,000 to 100,000pC) 0.1μF (with input electric charge 1,000 to 10,000pC) 0.01μF (with input electric charge 1,000 or less)
Noise (Piezoelectric Accelerometer Input)	0.055pCp-p (RTI) or less at Input termial with 1,000pF, measuring range 1.0m/s^2/FS, piup sensitivity 1.0pC/m/s^2
Output	AC OUT ±10V, ±5mA, DC OUT +7.07V, +5mA (Average value detection eqivalent RMS output)
Output Monitor	17 dot LED display (AC OUIT monitor), LED flashing at ±10.5V or more
Digital Display	4 digit 1/2 digital display (DC OUT monitor)
Key Lock Function	Key lock ON/OFF by pressing key lock button for 1 minute
Setup Value Saving	Keeps 20 years without backup battery
Withstand Voltage	Between AC power input and signal input, output or case : 1.5kV AC for 1 min.(Surge resistance element built in) Between DC power input and signal input : 1kV AC for 1 min. Between DC power input and signal output or case : 1kV AC for 1 min.
AC Power Supply	85 to 132V AC/180 to 264V 7VA or less (Switchable with internal connector, Fuse must be replaced.)
DC Power Supply	12V DC (10 to 30V DC) 0.35A or less
Operating Temp./Humidity	-10℃ to 50℃, 20 to 85% RH or less (not condensed)
Dimensions	143±1.0(H) x 49.5±0.5(W) x 253±2.0(D)mm (exclusing projection)
Weight	1.4 kgs or less

*1 Measuring range subjects to the sensitivity of sensor

■Dimensions



●Main Unit

Article	Model	Description	Note
Charge Amplifier	AG3103	With Integrator	
Standard Accessory	Fuse (2 pcs), AC power cable (47326), Operation Manual		

●Options

Article	Model	Description	Note
Charge Converter	AP11-901	1.0mV/pC, small size (connected to amplifier input), Connector (input: minutua connector, output: BNC male)	
	AP11-902	1.0mV/pC, connector (input: minutua connector, output: BNC female)	
	AP11-903	0.1mV/pC, for high sensitivity, (input: minutua connector, output: BNC female)	
Bench-top Case	AS16-104	for 4 channels	with AC power cable (47326)
	AS16-105	for 6 channels	
	AS16-106	for 8 channels	
Rack-mount Case	AS16-107	for 8 channels	
Blank Panel	AL13-318	for 1 channel	

●Cables

Article	Model	Description	Note
Power Cable	47326	2.5m, for single unit and case	
DC Power Cable	AS16-401	2.5m, for single unit	
	47229	2.5m, for case	
Output Cable	47226	2m, Metal BNC - Metal BNC *1	
	0311-2057	2m, Metal BNC - Electrical Clips *1	
	0311-5200	2m, Isolation BNC - Metal BNC *1	

*1 : Common mode inut voltage of Metal BNC 30Vrms, 60V DC or less

Omniace

●Easy Pen Recorder Mode employed
●Long term continuous recording in HD
●High speed paper feeding Max. 100mm/s (RA2300MKII)
●Dynamic waveform display on the screen
●Ethernet, USB port as standard
●Multi-channel measurement
●Voltage, Temperature, Vibration, Frequency(Pulse), etc. various signal can be input directly with 11 kind of amplifiers

RA2300MKII

RA2800A

Omnilight

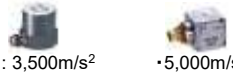
●Compact sight weight, 4 rolls per unit, memory recorder, data logger, recorder, XY recorder
●Robust design that can withstand harsh use in the field
●Temperature resistant environment -20 to 60℃
●Max. 8ch input(voltage, temperature)

RM1102

Piezoelectric Accelerometers

Max accele-ration	:100,000m/s²	・5,000m/s²	・5,000m/s²	・25,000m/s²
Freq. range	: up to 20kHz	・to 1.3kHz	・to 7kHz	・to 20kHz
Weight	: 0.2g	・1.32g	・13.5g	・1.3g

Amplifier built-in Accelerometers



Max acceleration	: 3,500m/s²	・5,000m/s²
Freq. range	: up to 15kHz	・up to 10kHz
Weight	: 18g	・4.4g

●Wide display and touch panel make dynamic waveform display and each setup

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