Dynamic Strain Measuring Instruments

Strain Amplifier

AS1603/AS1703/AS1803R

AS2503/AS2603

A&D Company, Ltd.

Discover Precision

http://www.aandd.jp

Equipped with new functions in excellent basic performance !
Achieve more accurate and reliable measurement !

While inheriting the excellent performance of the conventional instrument, the new AS series are strain amplifiers that enables high accuracy and high quality strain measurement and shortened the measurement preparation time by the instrument's uniique new functions (cable length correction function, breaking cable check function) and noise resistance measures.

■ AC Bridge Method General Type AS1603/AS1703

Reliable accuracy and quality ! Standard of Strain Measurement !

AS1603 / AS1703 is a strain amplifier suitable for measurement using strain gauges because of its high sensitivity, high stability, and excellent noise resistance.
AS1603 uses 5kHz for the bridge power supply and secures the frequency response of DC to 2kHz. (AS1703 has a bridge power supply: 25kHz, responsiveness: DC to 10kHz). In addition, the balance circuit is equipped with an automatic removal function for the capacitance, making it possible to perform dynamic balance adjustment instantly and accurately.

■ Features

●High Sensitivity ・High Response
Sensitivity: 10V at ±200x10^{-6} strain input (BV=2V)
Max. gain : 50,000 times

●Simple Operation
It is possible to check the entire input system (cable length correction, breaking cable check) and adjusting the initial balance (auto balance function) with a single button touch.

●Preventing wrong operation
Enable to lock each setup key (except CAL excitation)

●Operate even in harsh temperature conditions
Power supply 100 to 240V AC, 10 to 30V DC
Operation temperature : -10℃ to 50℃
Temperature stability (zero point) : ±0.1 x 10^{-6} strain/ ℃ or less

●Excellent vibration resistance
Anti-vibration design considering in-vehicle test

■ AC Bridge Method Noise Resistance Type AS1803R

Isolated between input and output, and the power supply system ! For sites with harsh noise environments !

AS1803R uses our isolation amplifier circuit technology to isolate the input / output and power supply systems. As a result, the influence of in-phase voltage (potential difference between input/output and ground) due to power lines, strong magnetic equipment, etc. and various control noises generated when opening and closing thyristors and power transformers are reduced, and it is possible to get excellent output with extremely high SN ratio. It is suitable for heavy electrical equipment, steel, heavy industry, plants, railway vehicles, and other sites where the ground potential difference is severe.

■ Features

●High Precision Measurement
Adopted our original insulation circuit and various noise reduction designs

●Excellent Safety
A surge-resistant element is built into the AC power input system to ensure the safety of the measurement system from the surge voltage (several kV).

●Simple Indicator
17-dot LED follows up to 100Hz, 4-digit 1/2 digital LED

●Equipped with various functions with excellent operability
Cable length correction function, breaking cable check function, auto-balance function, etc.

DC Bridge Method Wide Band Type AS2503R / Isolation Type AS2603

Excellent Non-linearity and high speed frequency response !
High precision DC Strain Amplifier !

The AS2000 series is suitable for high-precision measurement using strain gauge transducers (load, pressure, torque, acceleration, etc.). A constant voltage power supply of 2V to 10V DCis used for the bridge power supply of this unit, and a high frequency response of DC to 500kHz (AS2503) is realized, so high-speed strain measurement such as impact can be performed. In addition, the balance circuit is equipped with an auto-balance device, and the initial balance adjustment can be performed instantly and accurately.

Features

●2.5 times wider bandwidth than before
Frequency Response DC to 500kHz (AS2503)

●High input impedance
Ensure non-linearity with input impedance of 10 MΩ, ± 0.01% / FS (AS2503), enabling highly accurate measurement even with high resistance gauges.

●I / O isolation optimal for system applications (AS2603)
Use an isolation circuit between input and output

●Equipped with various filters (high-pass / low-pass filter)

●High input impedance
Can be used as a high-precision DC amplifier with a maximum gain of 10,000 times (AS2503)

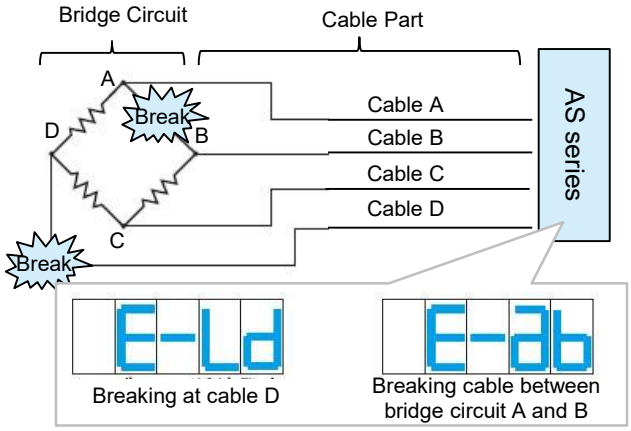
Functions

Breaking cable check function

Detects breaking cable part quickly

Patent No. 4405242

The breaking cable check function of the new AS series can automatically detect breaking of bridges and cables. Since the breaking point can be easily detected, it is useful for shortening the measurement preparation time and countermeasures for breaking cable troubles.

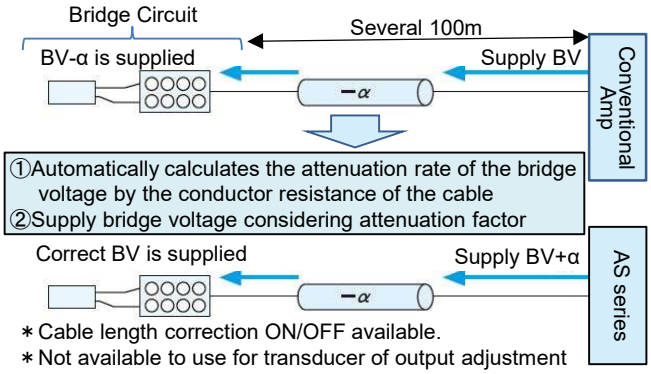


Cable length correction function

Correction enables with 4-core cable

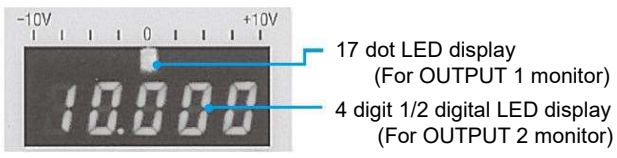
Patent No. 2992599

If the distance between the bridge circuit and the amplifier is long, the conductor resistance of the cable reduces the bridge voltage. Correction is performed by remote sensing and numerical settings (cable length, wire diameter, etc.) with 6-core cables conventionally. The new AS series uses a unique automatic correction circuit to replace these, supplying a bridge voltage that takes conductor resistance into consideration, enabling highly accurate strain measurement.



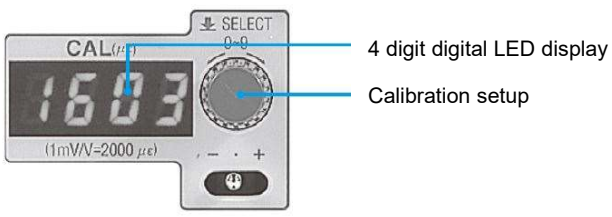
∗ Cable length correction ON/OFF available.
∗ Not available to use for transducer of output adjustment resistor built-in.

Simple indicator



●17 dot LED display (for OUTPUT 1 monitor)
Monitoring high speed response (100 Hz)
Pursuing driving accuracy (green LED lighting range ±100mV)
Blinking alarm when over scale (Both side LED blinking at over approx.±10.5V)
●4 digit 1/2 digital LED display (for OUTPUT 2 monitor)
Useful as simple indicator (OUTPUT 2: Scaling display with ADJ)
Accuracy : ±0.05% of reading±1 count

Accurate calibration value setting



●Calibration Setup
Adjustable up to ±1 to ±9,999 x 10^{-6} strain arbitrarily
Directly set the rating of transducer
●4 digit digital LED display

Specifications

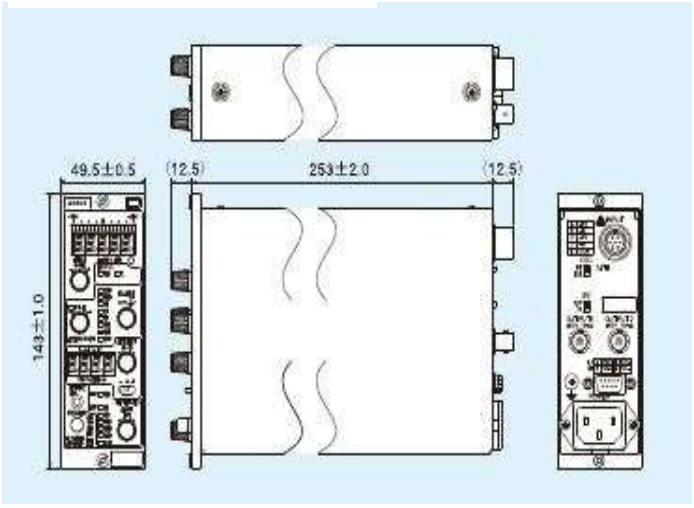
AC Bridge Type

Model	AS1603 (General Use)	AS1803R (Noise Resistance)	AS1703 (High Freq. Response)
Number of Channel	1ch/unit		
Bridge Resistance	60 to 1,000Ω		
Gauge Factor	2.00		
Bridge Excitation Voltage	0.5V, 2V AC 5kHz sine wave Synchronous IN/OUT signal 2.5V AC		0.5V, 2V AC 25kHz sine wave Synchronous IN/OUT signal 2.5V AC
Bridge Check Function	Detecting breaking cable/short circuit of input bridge circuit (≧120Ω) and beaking cable to input bridge circuit (≧120Ω), and displays the result in LED display. Enables ON/OFF with bottom swtich.		
Cable Length Correction Function	Auto-correction for voltage drop of bridge voltage by cable length upto bridge circuit. Switchable ON/OFF wth bottom switch. ※Don't use for tansducer with built-in output adjustment resistor.		
Balancing Adjustable Range (Auto-balance)	Resistance : ±2%(±10,000x10^{-6} strain) Capacitance : approx. 2,000pF		
Balancing Adjustable Accuracy	±0.4x10^{-6} strain (RANGE=200, FINE=No, BV=2V)		±1.0x10^{-6} strain (RANGE=500, FINE=No, BV=2V)
Max. Input Range	±200,000x10^{-6} strain (RANGE=20k, FINE=x2.5, BV=0.5V)		±500,000x10^{-6} strain (RANGE=50k, FINE=x2.5, BV=0.5V)
Voltage Sensitivity	±10V at ±200x10^{-6} strain (RANGE=200, FINE=No, BV=2V)		±10V at ±500x10^{-6} strain, (RANGE=500, FINE=No, BV=2V)
Measurering Range Selection	200, 500, 1k, 2k, 5k, 10k, 20k (x10^{-6} strain x 2/BV value), OFF		500, 1k, 2k, 5k, 10k, 20k, 50k (x10^{-6} strain x2 /BV value), OFF
Fine Adjustment	FINE : Cntinuoustly adjustable in RANGE, Amount of change adjustable with 2 steps		
Internal Calibrator	Setup value : ±1 to 9,999x10^{-6} strain, Accuracy : ±(0.5%rdg+0.5x10^{-6} srain)		
Non-linearity	±0.1%/FS		±0.2%/FS
Frequency Response	DC to 2kHz±10% or less		DC to 10kHz±10% or less
Highpass Filter	2 pole butterworth (Filer cutoff characteristics -12dB/oct) : 0.5Hz		
Lowpass Filter	4 pole butterwrth 10,30,100,300,500Hz (Filter cutoff characteristics -24dB/oct)		4 pole butterwrth 10,30,100,300, 500Hz, 3kHz (Filter cutoff characteristics -24dB/oct)
Stability	Zero point ±0.1x10^{-6} strain/℃ or less, ±0.5x10^{-6} strain/24h or less Sensitivity ±0.05%/℃ or less, ±0.2%/24h or lesss		
Noise	2.0x10^{-6} strain p-p input conversion (at W/B, RANGE=200, FINE=No, BV=2V, 120Ωbridge) 0.6x10^{-6} strain p-p input conversion (at DC to 100Hz, RANGE=200, FINE=No, BV=2V, 120Ω bridge)		6.0x10^{-6} strain p-p input conversion (at W/B, RANGE=500, FINE=No, BV= 2V, 120Ωbridge) 2.0x10^{-6} strain p-p input conversion (at DC to 100Hz, RANGE=500, FINE=No, BV=2V, 120Ω bridge)
Noise Resistance	Standard design	Input noise reduction circuit emploied	Standard design
Output Voltage	OUTPUT 1 ±10V ±5mA, OUTPUT 2 ±10V ±10mA		
Output Adjustment	OUTPUT 2 ADJ (1 to 1/10 continuous adjustable individually)		
Output Monitor Display	17 dot LED display (OUTPUT 1 monitor), Both side LEDs are blinking at ±10.5V and over		
Digital Display	4 digit 1/2 digital display (OUTPUT 2 monitor) OUTPUT 2 Scaling available with ADJ Decimal point display position adjustable with bottom switch		
Key Lock Function	Key lock ON/OFF by pressing Key lock button for 1 second		
Setup Value Saving	Saving to flash memory (enable to keep saving without backup battery)		
Vibration Resistance	29.4m/s^2(3G) (10 minutes each for X,Y,Z with 50Hz)		
Voltage Resistance	Between each input terminal and output or case:1kV AC for 1min. Between AC power input and signal input, output or case : 1.5kV AC for 1 min. (surge resistant element built-in) Between DC power inut and signal input : 1kV AC for 1 min. Between DC power input and signal output or case:500V AC for 1min.		
AC Power Supply	85 to 132V AC/180 to 264V AC (selectable with internal switch), 9VA or less		
DC Power Supply	10V to 30V DC, 6VA or less		
Operating Temperature	-10℃ to +50℃, 20 to 85%RH (not condenced)		
Dimensions	143±1.0(H) x 49.5±0.5(W), 253±2.0(D) mm (except projection)		
Weight	1.35±0.1 kgs		

DC Bridge Type

Model	AS2503 (Wide band)	AS2603 (Isolaiton)
Number of Channel	1ch/unit	
Bridge Resistance	60 to 1,000Ω	
Gauge Factor	2.00	
Bridge Excitation Voltage	2V, 3V, 5V, 9V, 10V DC	
Bridge Check Function	Detecting breaking cable/short circuit of input bridge circuit (≧120Ω) and beaking cable to input bridge circuit (≧120Ω), and displays the result in LED display. Enables ON/OFF with bottom swtich.	
Cable Length Correction Function	Auto-correction for voltage drop of bridge voltage by cable length upto bridge circuit. Switchable ON/OFF wth bottom switch. ※Don't use for tansducer with built-in output adjustment resistor.	
Balancing Adjustable Range (Auto-balance)	Resistance : ±2%(±10,000x10^{-6} strain)	
Balancing Adjustable Accuracy	±1.0x10^{-6} strain (RANGE=1k, FINE=No, BV=2V)	±2.0x10^{-6} strain (RANGE=2k, FINE=No, BV=2V)
Max. Input Range	±125,000x10^{-6} strain (RANGE=50k, FINE=x2.5, BV=2V)	±250,000x10^{-6} strain (RANGE=100k, FINE=x2.5, BV=2V)
Voltage Sensitivity	±10V at ±1,000x10^{-6} strain (RANGE=1k, FINE=No, BV=2V)	±10V at ±2,000x10^{-6} strain (RANGE=2k, FINE=No, BV=2V)
Measurering Range Selection	1k, 2k, 5k, 10k, 20k, 50k (x10^{-6} strain x 2/BV value), OFF	2k, 5k, 10k, 20k, 50k 100k (x10^{-6} strain x2 /BV value), OFF
Fine Adjustment	FINE : Cntinuoustly adjustable in RANGE, Amount of change adjustable with 2 steps	
Internal Calibrator	Setup value : ±1 to 9,999x10^{-6} strain, Accuracy : ±(0.2%rdg+0.5x10^{-6} srain)	
Non-linearity	±0.01%/FS or less	±0.05%/FS or less
Frequency Response	DC to 500kHz +1, -3dB	DC to 100kHz +1, -3bD
Highpass Filter	2 pole vessel : 0.5Hz (Filer cutoff characteristics -12dB/oct)	
Lowpass Filter	4 pole vessel : 10, 30,100,1k, 30kHz (Filter cutoff characteristics -24dB/oct)	
Stability	Zero point ±0.1x10^{-6} strain/℃ or less, ±0.5x10^{-6} strain/24h or less Sensitivity ±0.05%/℃ or less, ±0.2%/24h or less	
Noise	80x10^{-6} strain p-p input conversion (at W/B, RANGE=1k, FINE=No, BV=2V, 120Ωbridge) 20x10^{-6} strain p-p input conversion (at DC to 30kHz, RANGE=1k, FINE=No, BV=2V, 120Ω bridge)	50x10^{-6} strain p-p input conversion (at W/B, RANGE=2k, FINE=No, BV=2V, 120Ω bridge) 20x10^{-6} strain p-p input conversion (at DC to 30kHz, RANGE=2k, FINE=No, BV=2V, 120Ω bridge)
Output Voltage	OUTPUT 1 ±10V ±5mA, OUTPUT 2 ±10V ±10mA	
Output Adjustment	OUTPUT 2 ADJ (1 to 1/10 continuous adjustable individually)	
Output Monitor Display	17 dot LED display (OUTPUT 1 monitor), Both side LEDs are blinking at ±10.5V and over	
Digital Display	4 digit 1/2 digital display (OUTPUT 2 monitor) OUTPUT 2 Scaling available with ADJ Decimal point display position adjustable with bottom switch	
Key Lock Function	Key lock ON/OFF by pressing Key lock button for 1 second	
Setup Value Saving	Saving to flash memory (enable to keep saving without back up battery)	
Vibration Resistance	29.4m/s^2(3G) (10 minutes each for X,Y,Z with 50Hz)	
Voltage Resistance	Between each input and output terminals or case:1kV AC for 1min. Between AC power input and signal input, output or case : 1.5kV AC for 1 min. (surge resistant element built-in) Between DC power inut and signal input : 1kV AC for 1 min. Between DC power input and signal output or case:500V AC for 1min.	
AC Power Supply	85 to 132V AC/180 to 264V AC (selectable with internal switch),	
DC Power Supply	10V to 30V DC, 7VA or less	
Operating Temperature	-10℃ to +50℃, 20 to 85%RH (not condenced)	
Dimensions	143±1.0(H) x 49.5±0.5(W), 253±2.0(D) mm (except projection)	
Weight	1.40±0.1 kgs	

Dimensions (AS Series)



Specifications as DC amplifier (only different item from strain)

Model	AS2503	AS2603
Input Impedance	aprox. 10MΩ + approx. 10MΩ (at DC)	
Zero Adjusting Range	±10mV (input conversin value) (BV=2V) (Auto-balance, fine adjustment included)	
Balancing Adjustable Accuracy	within ±1μV (input conversion value) (RANGE=1k, FINE=No, BV=2V)	within ±2μV (input conversion value) (RANGE=2k, FINE=No, BV=2V)
Measurering Range	±125mV (RANGE=50k, FINE=X2.5, BV=2V)	±250mV (RANGE=100k, FINE=X2.5, BV=2V)
Gain	x10,000 (RANGE=1k), x5 (2k), x2,000(5k), x1,000(10k), x500(20k), x200(50k), (FINE=No)	x5,000 (RANGE=2k), x2,000(5k), x1,000(10k), x500(20k), x200(50k), x100(100k), (FINE=No)
Gain Accuracy	±0.1%	
CMMR	70dB or more at 1kΩ banalced input (50, 60Hz)	100dB or more at 1kΩ banalced input (50, 60Hz)
Max. Allowable Input Voltate	±8V DC or AC peak	
Allowable Common-mode Input Voltage	±5V DC or AC peak	±300V DC or AC peak
Internal Calibrator	Setup value : ±0.01 to 99.99mV (±0.01 to 59.99mV when BV=2V) Accuracy : ±(0.2%rdg+5μV)	
Linearity	±0.01%/FS or less	±0.05%/FS or less
Stability	Zero point ±1μV or less, ±5μV/24h or less Sensitivity ±0.01%/℃ or less, ±0.05%/24h or less	
Noise	80μV p-p input conversion (at W/B, RANGE=1k(x10,000), FINE=No, BV=2V) 20μV p-p input conversion (at DC to 30kHz, RANGE=1k, FINE=No, BV=2V)	50μV p-p input conversion (at W/B, RANGE=2k(x5,000), FINE=No, BV=2V) 20μV p-p input conversion (at DC to 30kHz, RANGE=2k, FINE=No, BV=2V)

●Key Lock

●Bridge Voltage Display

■The entire input system can be diagnosed and set with a single touch.

Check the bridge balance of the input system, automatic setting of cable length correction and the diagnosis result of the connection status on the monitor. It greatly promote labor saving in measurement, such as shortening the measurement preparation time and taking measures against disconnection troubles.

●Auto-balance

●Breaking cable check function, Cable length correction function

●OUTPUT VOLTAGE ADJUSTMENT (FOR OUTPUT 2)

Output voltage adjustment (for OUTPUT 2) can be set 1 to 1/10 continuously individually.

■Low-pass/High-pass filters are employed newly to remove the specific noise component.

●Low-pass/High-pass Filter Setting

AS1603 Front

AS1603 Rear

●Synchronous Changeover Switch

●Bridge Voltage Changeover Switch (2V, 0.5V)

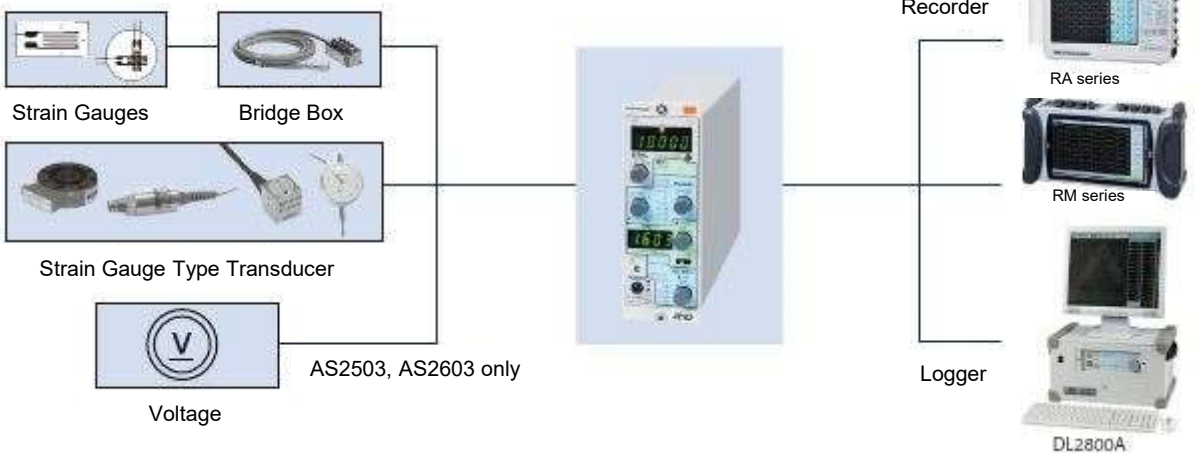
●Dual Output (AC/DC)

・OUTPUT 1 ±10v ±5mA

・OUTPUT 2 ±10v ±10mA (Output adjustable)

●Interface Connector

■Measuring Block Diagram



■Selection Guide for Strain Amplifier

Bridge Excitation Type	AC Bridge Type (AC Strain Amplifier)	DC Bridge Type (DC Straib Amplifier)
Recommended Sensor	1. Strain gauges 2. Pressure, Displacement, Acceleration, Torque (Strain gauge type transducers)	1. Strain gauge type transducers 2. Inpact strain (strain gauges)
Features	Compared to DC strain amplifier, S / N is good and high sensitivity can be obtained. Since it is an AC amplifier, it is extremely resistant to external noise because it does not include the commercial power frequency, which causes a large amount of noise, in the amplification band. In particular, it is an effective amplifier for sensors that draw out with a parallel cables such as strain gauges.	It provides excellent non-linearity and high frequency response compared to AC strain amplifiers. Mainly used in combination with strain gauge transducers. It can also be used as a DC amplifier.

Type		AC Strain Amplifier (Isolation)			DC Strain Amplifier	
Model		AS1603	AS1703	AS1803	AS2503	AS2603
Main Specifications	Noise	$2.0x10^{-6}$ strain p-p input conversin (W/B, RAGE=200, FINE=No, BV=2V)	$6.0x10^{-6}$ strain p-p input conversin (W/B, RAGE=500, FINE=No, BV=2V)	$2.0x10^{-6}$ strain p-p input conversin (W/B, RAGE=200, FINE=No, BV=2V)	$80x10^{-6}$ strain p-p input conversin (W/B, RAGE=1k, FINE=No, BV=2V)	$50x10^{-6}$ strain p-p input conversin (W/B, RAGE=2k, FINE=No, BV=2V)
	Max. Gain	approx. 50,000 times	approx. 20,000 times	approx. 50,000 times	approx. 10,000 times (BV=2)	approx. 5,000 times (BV=2)
	Voltage Sensitivity	Output ±10V at ±$200x10^{-6}$ strain (RANGE=200, FINE=No, BV=2V)	Output ±10V at ±$500x10^{-6}$ strain (RANGE=500, FINE=No, BV=2V)	Output ±10V at ±$200x10^{-6}$ strain (RANGE=2k, FINE=No, BV=2V)	Output ±10V at ±$1,000x10^{-6}$ strain (RANGE=2k, FINE=No, BV=2V)	Output ±10V at ±$2,000x10^{-6}$ strain (RANGE=2k, FINE=No, BV=2V)
	Non-linearity	±0.1%/FS or less	±0.2%/FS or less	±0.1%/FS or less	±0.01%/FS or less	±0.05%/FS or less
	Freq. Response	DC to 2kHz ±10%	DC to 10kHz ±10%	DC to 2kHz ±10%	DC to 500kHz +1,-3dB	DC to 100kHz +1,-3dB
	Bridge Voltage	0.5, 2V AC			2, 3, 5, 9, 10V DC	
Features		Since the gain and voltage sensitivity of the amplifier are high, it is effective for minute stress measurement using a strain gauge (small output). Especially suitable for low-speed and high-precision stress measurement.	Since the gain and voltage sensitivity of the amplifier are high, it is effective for minute stress measurement using a strain gauge (small output). Since the frequency response is as high as 10kHz, it is suitable for relatively high-speed stress measurement.	Among the highly accurate measurements using strain gauges, it is effective for strain measurement in places where the potential difference between grounds is high. The unique noise design reduces noise and is suitable for high-precision measurement.	・Suitable for impact strain measurement due to its high frequency response. ・It has a high gain specification as a DC strain amplifier. (transducer composed of 4 gauges enables highly accurate measurement.) ・Since the small transducer has a high frequency response, DC strain amplifier is effective. ・Since there are many types of bridge voltage, it is possible to measure 350Ω transducer with good S / N.	・Since it is input /output isolation, it is suitable for multipoint measurement (system measurement). ・It is suitable for impact strain measurement due to its high frequency response. ・Since the small transducer has a high frequency response, DC strain amplifier is effective. ・Since there are many types of bridge voltage, it is possible to measure 350Ω transducer with good S / N.
Breaking cable judgement		Possible to judge a part of breaking cale or gauge with the brealing check function				
In case of long cable length		High-precision measurement is possible with the new cable length correction function.				
Use as DC amplifier		N/A			Available	

●Main Unit

Name of product	Model	Feature	Specifications	Note
AC Strain Amplifier	AS1603	General Isolation	DC to 2kHz Carrier Wave 5kHz	Bridge Box is optional.
	AS1703	High Frequency Response Isolation	DC to 10kHz Carrier Wave 25kHz	
	AS1803R	Noise-resistant Isolation	DC to 2kHz Carrier Wave 5kHz	
DC Strain Amplifier	AS2503	Wideband Isolation	DC to 500kHz Constant Voltage	
	AS2603	Isolation	DC to 100kHz Constand Voltage	

Standard accessories : Output cable (0311-2057)(1 pc), Time-lag fuse (2 pcs), Driver for adjustment (1 pc), AC power cable (1), Operation manual (1 pc)

●Options

Name of product	Model	Description	Note
4 to 20mA output	AS16-201	OUTPUT 2 Conert output from voltage to current, built in main unit	
Briudge Box	5370	120Ω, cable length 3m	
	5373	350Ω, cablelength 3m	
Bench top case	AS16-104	4ch, with power cable (0311-5044)	
	AS16-105	6ch, with power cable (0311-5044)	
	AS16-106	8ch, with power cable (0311-5044)	
Rack mount case	AS16-107	8ch, with power cable (0311-5044)	
Blank panel	AS13-318	1ch	

●Cables

Name of product	Model	Description	Note
AC power cable	0311-5044	Length 2.5m, for single unit or case	
	0311-5112	Length 3.5m, for signel unit, 200V, no power plug	
DC power cable	AS16-401	Length 2.0m, for single unit, D-sub 9pin - no power plug	
	47229	Length 2.5m, for case	
Output cable	0311-5175	Length 2m, isolated BNC - electrical clips (+ red, - black)	
	0311-3175-3M	Length 3m, isolated BNC - electrical clips (+ red, - black)	
	0311-5175-5M	Length 5m, isolated BNC - electrical clips (+ red, - black)	
	0311-5175-10M	Length 10m, isolated BNC - electrical clips (+ red, - black)	
	47226	Length 2m, metal BNC - metal BNC *1	
	0311-2057	Length 2m, metal BNC - electrrical clips (+ red, - black)	
	0311-5200	Length 2m, isolated BNC - metal BNC *1	
Synchronouse cable	AS16-402	Length 1.8m, D-Sbu 9pin Male - D-Sub 9pin Male	for synchronizaiton between cases
Junction cable	47230-5M	Length 5m, 4 cores, φ9.6mm	Low conductor resistance
Entension cable	47231-5M	Length 5m, 4 cores, φ9.6mm	
Junction cable	L-A-5	Length 5m, 4 cores, φ8mm	
Extension cable	L-B-5	Length 5m, 4 cores, φ8mm	

Note *1 : Common mode input voltage Metal BNC : ±42V (DC or AC peak value)

Bench Top Case (AS16-105)

Rack Mount Case (AS16-107)

Bridge Box (5370)

A&D ...Clearly a Better Value

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