

Dynamic Strain
Measuring Instruments

Outline

1-channel

2-channel

Telemeter

Multi-channel

Other

CDV-900A, CDA-900A

Signal Conditioner



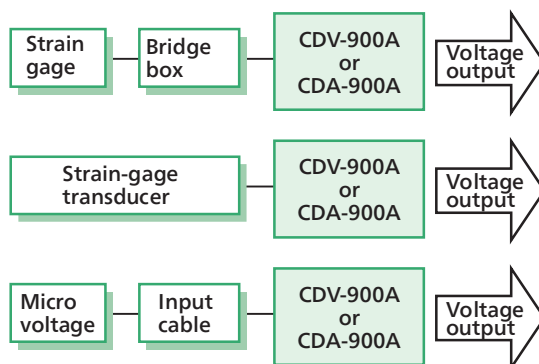
CDV-900A

CDA-900A

High S/N is ensured by the strain DC amplifiers

- Easy operation greatly reduces the working hours.
- High sensitivity (Up to 10000 times)
- Fast response (DC to 500 kHz)
- Long-distance testing (Up to 2 km)
- Excellent nonlinearity (Within $\pm 0.01\%$ FS)
- Universal power supply (CDV/CDA-900A) (100 to 240 VAC or 10.5 to 15 VDC)
- TEDS compatible
- Distinguishes TEDS and remote sensing automatically.
- Low noise (30% reduction when compared to conventional models)

Block diagram



*Output noise will increase in case of combining with a torque transducer.

Models

Models	CDV-900A	CDV-900A-DC	CDA-900A	CDA-900A-DC
Excitation Modes	Constant voltage		Constant current	
Bridge Excitation *1	1, 2, 5, 10 V		120 Ω : 8.3, 16.7 mA 350 Ω : 5.7, 14.3, 28.6 mA	
Compatible Bridge Resistance	60 to 1000 Ω		120, 350 Ω	
User's Function	Cable-resistance compensation		Bridge-resistance compensation	
Remote Sensing	Auto (On/off automatically) Manual (On constantly)			
Extension Cable Length	Up to 2 km *2 (Using a sensing cable)		Up to 2 km *3	
CE Directive			Yes	Yes
Power Supply	100 to 240 VAC 10.5 to 15 VDC	10.5 to 15 VDC	100 to 240 VAC 10.5 to 15 VDC	10.5 to 15 VDC

*1: Setting by DIP switch 1 to 4 on rear panel

*2: By a 6-conductor (0.5 mm²) shielded cable

*3: By a 4-conductor (0.5 mm²) shielded cable

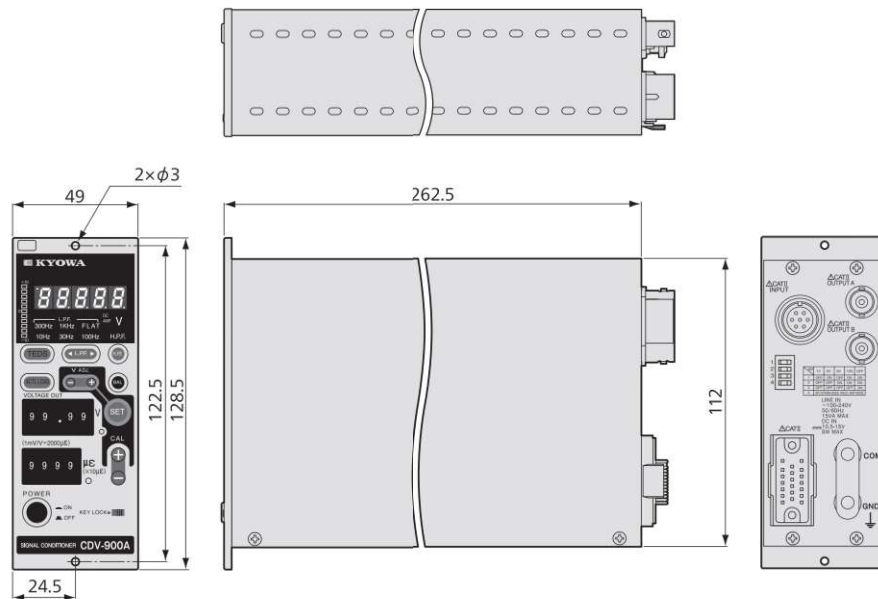
Specifications

Measuring Targets	Strain gages, strain-gage transducers and voltage	
Channels	1	
Compatible Bridge Resistance	See table.	
Gage Factor	2.00 fixed	
Bridge Excitation	See table.	
Balance Adjustment (Auto BAL)		
	Within $\pm 2\%$ ($\pm 10000 \times 10^{-6}$ strain)	
	Balance adjustment method: Auto balance	
	Accuracy: $\pm 1 \times 10^{-6}$ strain	
	(At sensitivity of 10 V per 1000 $\times 10^{-6}$ strain)	
	Storage: Saved in nonvolatile memory	
Nonlinearity	Within $\pm 0.01\%$ FS	
Input Impedance	10 M Ω + 10 M Ω or more	
Output Impedance	Approx. 2 Ω	
Calibration (CAL)	Equivalent strain: $\pm (1$ to 9999×10^{-6} strain)	
	DC voltage: $\pm (10$ to $99990 \mu\text{V})$	
	Setting: CAL switch (4-digit switch)	
	Accuracy: Within $\pm (0.2\% + 0.5 \times 10^{-6}$ strain)	
	Within $\pm (0.1\% + 5.0 \mu\text{V}_{\text{RIN}})$	
Sensitivity Adjustment	Sensitivity is set in combination with CAL and	
	VOLTAGE OUT switches (4-digit digital switches)	
	CAL switch range: 100 to 9999 $\times 10^{-6}$ strain by	
	1 $\times 10^{-6}$ strain step	
	VOLTAGE OUT switch range: 1.00 to 10.00 by 0.01 V step	
	Accuracy: Within $\pm (0.5\% + 5 \text{ mV})$	
	Range: $\times 200$ to $\times 10000$	
Fine Sensitivity Adjustment	Range: 1 to 1/2.5	
Frequency Response	DC to 500 kHz	
	(Amplitude deviation: 1, -3 dB)	
LPF	Transfer characteristic: 4th order Butterworth	
	Cutoff frequencies: 10, 100, 1 k, 10 k, 100 k Hz and FLAT - 6 steps	
	Amplitude ratio at cutoff point: -3 ± 1 dB	
	Attenuation: (-24 ± 1) dB/oct.	
HPF	Cutoff frequencies: 0.2 Hz, OFF - 2 steps	
Output	OUTPUT A: ± 10 V (Load resistance: 5 k Ω or more)	
	OUTPUT B: ± 10 V (Load resistance: 5 k Ω or more)	
Noise		
	LPF	Noise
	FLAT	40 $\mu\text{V}_{\text{p-p}}$ or less
	100 kHz	16 $\mu\text{V}_{\text{p-p}}$ or less
	10 kHz	6 $\mu\text{V}_{\text{p-p}}$ or less
	1 kHz	4 $\mu\text{V}_{\text{p-p}}$ or less
	100 Hz	3 $\mu\text{V}_{\text{p-p}}$ or less
	10 Hz	2 $\mu\text{V}_{\text{p-p}}$ or less

(CDV-900A: At Bridge excitation: 2 V, bridge resistance: 120 Ω , 1000 $\times 10^{-6}$ strain input, 10.00 V output set)

Allowable Max. Input Voltage		± 15 V
Allowable Common Mode Voltage		± 10 V
CMRR		100 dB or more
Stability	Temperature	Zero point: $\pm 1 \times 10^{-6}$ strain per °C Sensitivity: $\pm 0.01\%/^{\circ}\text{C}$
	Time	Zero point: $\pm 5 \times 10^{-6}$ strain/24 h Sensitivity: $\pm 0.05\%/24 \text{ h}$
	Power supply	Zero point: $\pm 0.05\%\text{FS}/\text{power fluctuation} \pm 10\%$ Sensitivity: $\pm 0.05\%\text{power fluctuation} \pm 10\%$ (CDV-900A: At sensitivity of 10 V per 1000×10^{-6} strain)
Withstand Voltage		1 kVAC for 1 min between AC power supply and case (CDV/CDA-900A only)
Output Voltage Indication		4½ digit digital display (7-segment LED) 11-segment LED bar meter
Over Input Indication		Output voltage display flashing (4½ digit digital display only)
Check Functions		Bridge resistance check
Key Lock Function		Locks all keys other than POWER switch. (Allows settings on digital CAL and VOLTAGE OUT switches to be changed)
Remote Functions		Balance adjustment execute (BAL), calibration strain output execute (CAL), key lock
TEDS		Reads the sensor TEDS information, and sets the rated output to the VOLTAGE OUT output voltage.
Actual Load Calibration		Sets actual load input to the VOLTAGE OUT output voltage.
User's Function		See table.
Extension Cable Length		See table.
Vibration Resistant		5 to 200 Hz, with 29.4 m/s^2 (3 G) in X, Y and Z directions for 12 cycles, 10 min/cycle
Impact Resistant		15 G, 11 ms or less, in X, Y and Z directions, every 3 cycles
Operating Temperature		-10 to 50 °C
Operating Humidity		20 to 85% (Non-condensing)
Storage Temperature		-30 to 70 °C
Power Supply		100 to 240 VAC, approx. 8 VA (At 100 VAC) 10.5 to 15 VDC, approx. 4 W (At 12 VDC) (CDA/CDV-900A-DC: DC power supply only)
Dimensions		49 W x 128.5 H x 262.5 D mm (Excluding protrusions)
Weight		Approx. 1.0 kg
Compliance		Directive 2014/30/EU (EMC) (CDV/CDA-900A-DC only)
Standard Accessories		Output cable U-08, U-59 AC power cable P-25 (With 2-pin conversion plug CM-52, CDV/CDA-900A only) DC power cable P-69 (CDV/CDA-900A-DC only) Ferrite core x 5 (CDV/CDA-900A-DC only) Instruction manual
Optional Accessories		Input cable U-37 Extension cables N-81 to N-85 Housing case YC-A Amplifier stand FA-1B AC adapter SA-10A-AMP (CDV/CDA-900A-DC only)

Dimensions



CDV-900A, CDA-900A (Figure is CDV-900A.)

CDV/CDA-900A
Recommended
products for
combination

