



CDV-400B Series

Compact Signal Conditioner

- Compact & lightweight
- Multiple channels



CDV-458B

Compact and lightweight Suitable for an on-vehicle and mobile application.

- Different kinds of conditioner units are available for configuration of an optimum system for the measurement purpose.
- Signals of multiple units are output from a single integrated connector.
- Simultaneous calibration of all channels is possible on the unit base.

CDV-400B series is a multi-channel signal conditioner for measuring physical quantity such as strain, acceleration, load, voltage and frequency. Several conditioner cards are mounted to the unit base to configure an optimum measurement system for any application. The system operates on DC power, also an AC adapter SA-6A is available as an option. The compact and lightweight design makes the system suitable for measurement on motorcycles, tractors, boats and wheelchairs.

System content

● Unit Bases CDV-456B/458B/464B

These unit bases are for slotting various conditioner cards, which have a monitor meter, a channel select switch for a monitor meter and an integrated output connector.

● Signal Conditioner Units CV-10B/11B

CV-10B/11B is a signal conditioner with DC excitation voltage, which is connected to strain gage or strain-gage transducers to measure load, pressure, acceleration etc. The CV-11B is based on the auto balance method and the CV-10B is based on the manual balance method.

● LPF Module LFU-10B

This unit is used for removing unnecessary high frequency signals.

● Potentiometer Unit CPT-11B

This unit is a unit to measure a rotation angle and speed together with a potentiometer. A power supply to measure a potentiometer resistance is built-in. Just connecting a potentiometer will start measurement.

● F/V Converter Module CFV-11B

This unit is used for frequency-to-voltage conversion.

Specifications

■ Unit Bases CDV-456B/458B/464B

Channels	CDV-456B: 6
	CDV-458B: 8
	CDV-464B: 14
Power Supply	11 to 30 VDC
	AC line with optional AC adapter SA-6A
	(Except for CDV-464B)
	For current consumption, see table below.

Vibration Resistance 98.07 m/s² (10 G), 10 to 500 Hz (Amplitude 10 nm)

Dimensions & Weight See table below.

Models	Current Consumption*	Dimensions (Excluding protrusions)	Weight (Approx.)	
			Unit Base Only	With full units of CV-11B
CDV-456B	0.5 A or less	115×59×130 mm	490 g	880 g
CDV-458B	0.6 A or less	147×59×130 mm	530 g	1 kg
CDV-464B	1.1 A or less	259×62×135 mm	880 g	1.8 kg

* At 12 VDC, with full units of CV-11B

Standard Accessories

Output cable U-59 (1 per channel), DC power cable P-65, integrated output connector HDEB-9P (HDAB-15P for CDV-464B), miniature screwdriver, fuse, instruction manual

Optional Accessories

AC adapter SA-6A, dummy panel DUMMY-400B-N

■ Signal Conditioner Units CV-10B/11B

Channels	1
Compatible Bridge Resistance	120 to 1000 Ω, full bridge system
Balance Adjustment Range	
CV-11B	±1% (±5000 × 10 ⁻⁶ strain) or more
	Fine zero trimmer provided
CV-10B	±0.7% (±3500 × 10 ⁻⁶ strain) or more if bridge resistance 120 Ω
	±1% (±5000 × 10 ⁻⁶ strain) or more if bridge resistance 350 Ω
Balance Adjustment Methods	
CV-11B	Auto balance
	Accuracy: Within ±2 × 10 ⁻⁶ strain (At range 200 × 10 ⁻⁶ strain)
CV-10B	Manual balance
Bridge Excitation	2 VDC
Sensitivity	±0.1 V per 10 × 10 ⁻⁶ strain input
Output	±2 V or more (Load 5 kΩ or more)
Nonlinearity	Within ±0.1% FS
Range	5 steps of 200, 500, 1 k, 2 k, and 5 k × 10 ⁻⁶ strain
	Accuracy: Within ±1% FS
Fine Sensitivity Adjustment	
	Continuously variable between ×1 to ×1/2.5
Calibration (CAL)	
	Linked with selected range
	10 steps of ±200, ±500, ±1 k, ±2 k, and ±5 k × 10 ⁻⁶ strain
	Accuracy: Within ±0.5%
Frequency Response	
	DC to 2.5 kHz (Deviation ±1 dB)
Noise	8 × 10 ⁻⁶ strain p-p (See input, band noise value)
Power Supply	From the unit base (Within ±30 mA)
Weight	Approx. 65 g (CV-11B), approx. 55 g (CV-10B)

Standard Accessories Input cable U-09 (1 piece/unit)

■ LPF Module LFU-10B

Channels	1
DC Gain	1:1 (Accuracy: Within ±0.1% FS)
Nonlinearity	Within ±0.1% FS
Cutoff Frequencies	
	5 steps of 10, 30, 100, 300 [Hz] and FLAT
	Amplitude ratio at cutoff point: -3 ±1 dB
Attenuation	(-12±1) dB/oct.
Output	
	Voltage: ±2 V or more (Load 5 kΩ or more)
	Current: ±10 mA or more (Load 30 Ω)
SN Ratio	52 dB or more to output of ±2 V
Power Supply	From the unit base (Within ±20 mA with no load)
Weight	Approx. 45 g

Standard Accessories

Input cable (10 cm) with BNC connectors at both ends

■ Potentiometer Unit CPT-11B

Channels	1
Compatible Resistance	1 to 10 kΩ
Power Supply to Potentiometer	Constant voltage of 1 V (Built-in)
Balance Adjustment	90% or more of potentiometer resistance
Balance Adjustment Methods	
Output	Auto balance
	Voltage: ±2 V or more
	(Load 5 kΩ or more)
Nonlinearity	Within ±0.1% FS
Range	4 steps of 10, 20, 50 [%] and OFF
	Accuracy: Within ±0.5%
Fine Sensitivity Adjustment	
	Continuously variable between ×1 and ×1/2.5
Calibration	
	Linked with selected range
	7 steps of ±10, ±20, ±50 and OFF
	Accuracy: Within ±0.05%
Frequency Response	
	DC to 100 Hz, ±0.5 dB
SN Ratio	46 dB or more to maximum output
Power Supply	From the unit base (Within ±30 mA)
Weight	Approx. 65 g

Standard Accessories Input cable U-10 (1 piece/unit)

■ F/V Converter Module CFV-11B

Channels	1
Input Signal	DC to 5 kHz (Square wave)
Output	Voltage: ±2 V or more
	(Load 5 kΩ or more)
Nonlinearity	Within ±0.1% FS
Range	5 steps of 0.5, 1, 2.5, 5 [kHz] and OFF
	Accuracy: Within ±0.5%
Calibration	
	Linked with selected range
	4 steps of 0.5, 1, 2.5 and 5 kHz
	Accuracy: Within ±0.5%
Fine Sensitivity Adjustment	
	Continuously variable between ×1 and ×1/2.5
	Accuracy: Within ±0.5%
Response Time	
	30 ms or less
Withstand Voltage between Input and Output	
	250 V _{rms} or 700 V _{p-p} for one minute
Allowable Power Supply to Input Connector	
	±6 V, ±30 mA (12 V power supply)
Power Supply	From the unit base (80 mA or less)
Weight	Approx. 73 g

Standard Accessories Input cable U-10 (1 piece/unit)

When mounting the modules, take care of the following limitations.

Mounted Models	Power Supply to Sensors	Mountable Units			
		CDV-456B	CDV-458B	CDV-464B	
				CH 1 to 7	CH 8 to 14
CFV-11B	Yes	2	2	2	2
	No	4	3	3	3
Remaining channels accept units other than CZA-10B/11B.					
LFU-10B and other units mounted in combination		LFU-10B is mounted to even channels only.			
CFV-11B mustn't be mounted to the last channel.					



Dynamic Strain
Measuring Instruments

Outline

1-channel

2-channel

Telemeter

Multi-channel

Other

CDV-400B Series
Recommended
products for
combination

