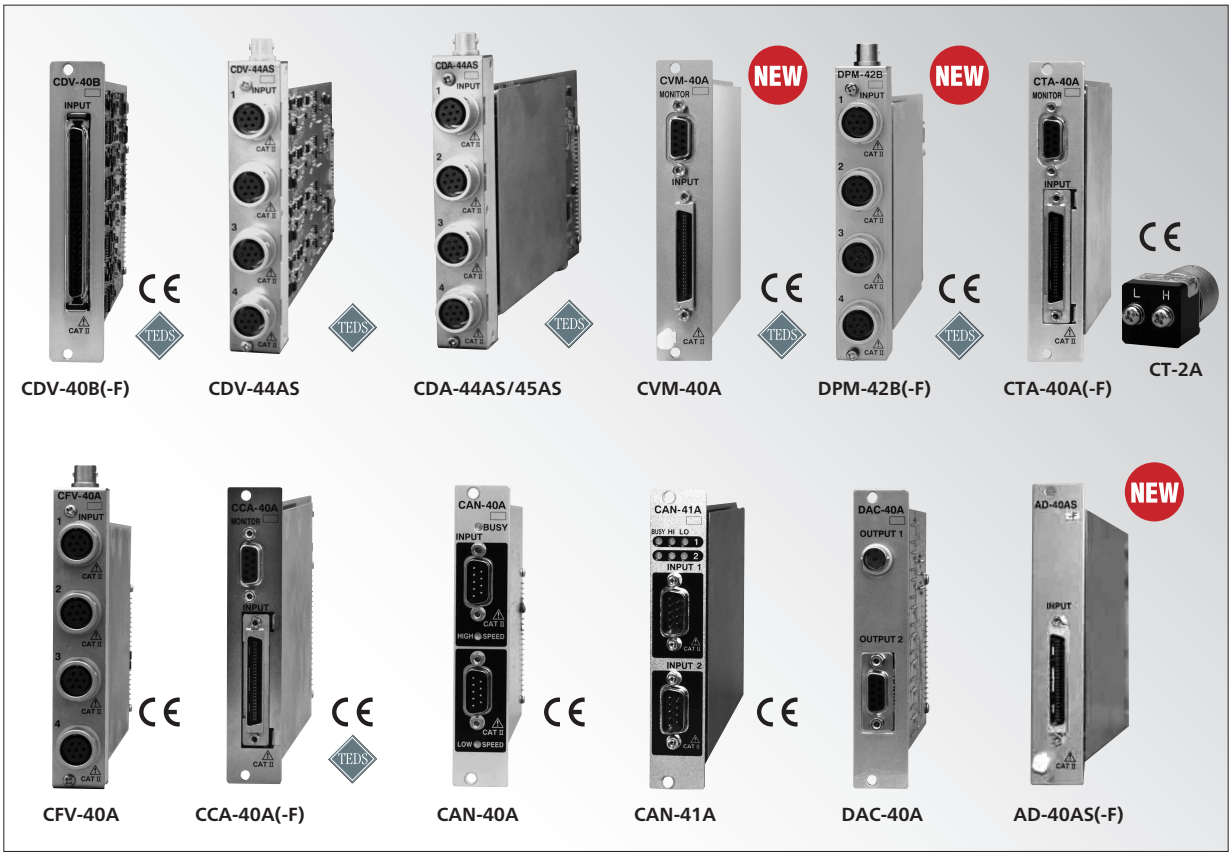
EDX series conditioner card



●EDX-100A, 200A, 2000, 3000A conditioner card specifications

■Strain/Voltage Measuring Card CDV-40B, CDV-40B-F

A card that is a strain gage, strain gage transducer, and that can measure voltage. (Type with antialiasing filter is the CDV-40B-F)

Item	Strain Meas.	Voltage meas
Number of Input Channels	8 (centralized connector)	
Input Mode	Balanced differential	Unbalanced
Input Resistance	Approx. (10 MΩ + 10 MΩ)	Approx.1MΩ
Coupling	DC/AC (DC cut)	
Applicable Gage Factor	2.00	——
Bridge Excitation	2.00 VDC ±2% (120 to 1kΩ)	——
Balance Adjustment Range	Resistance ±2.4% (±12000μm/m)	——
Measuring Range	500, 1k, 2k, 5k, 10k, 20k, 50k [μm/m], OFF	0.1, 0.2, 5, 1, 2, 5, 10V, OFF
Range Accuracy	±0.2% FS with each range	
Calibration	±100%, ±50% of each range	
Nonlinearity	±0.1% FS	
Frequency Response Range	DC coupling : DC to 50 kHz, dev. +1dB,-3dB AC coupling (DC cut) : 0.2, 1 Hz to 50 kHz (Refer to high-pass filter.)	
Low-pass Filter	Transfer characteristics: 2nd order Butterworth Cutoff frequency: 8 steps of 10, 30, 100, 300, 1k, 3k, 10k [Hz] and FLAT Amplitude ratio at cutoff point: -3±1dB Attenuation: -12±1dB/oct.	
Antialiasing Filter (CDV-40B-F only)	8th order Butterworth Cutoff frequency: Automatically set at sampling frequency x 0.25 Attenuation: -48 dB±5 dB (at sampling frequency x 0.5) Provided that low-pass filter is set to AUTO on EDX-2000A.	
High-pass Filter (DC cut)	Cutofff frequency: 0.2 Hz, 1 Hz Attenuation: -6 dB/oct.	
A-D Conversion	16 bits	
Additional Function	Reading information of TEDS-installed sensor	
EMC Directive	EN61326-1(Class A)	

The corresponding plan to EU' s RoHS Directive 2011/65/EU in fiscal 2015

Optionsal Accessories
- ●Voltage conversion adapter FV-1A
- ●8 channel input cable U-38 to 48

Note) If the transducer with a remote-sensing function, a 4-conductor extension cable (N81 to N85) enables measurement. But the remote-sensing function will be ineffective.

■Strain/voltage measurement insulation card CDV-44AS

Measurement card resistant to common node noise even in workplaces with power machinery.

Measuring Target : Strain gage (Full bridge system)
Strain gage type transducer, voltage
No. of Input Channels : 4
Input Resistance : Approx. 10MΩ+10MΩ (strain mode)
Approx. 1MΩ (voltage mode)
Input Format : Balanced differential input (strain mode)
Unbalanced input (Voltage mode)
IMRR : 120dB (when 500μm/m range)
Gage Factor : 2.00 fixed (strain mode)
Frequency Response Range : With DC connection DC to 5kHz, deviation within +1dB, -3dB
DC cut (with AC connection) 0.2Hz (refer to high pass filter)
Bridge Excitation : Within DC2V±2% (strain mode)
Range Accuracy : Within ±0.3%FS
Applicable Bridge Resistance : 120 to 1000Ω (strain mode)
Measurement Range : 500, 1k, 2k, 5k, 10k, 20kμm/m strain, OFF (strain mode)
1, 2, 5, 10V, 20V, 50V, OFF (voltage mode)
Balance Adjustment Range : Within ±2.4% (±12000μm/m) (at strain measurement)
Within ±5V (at voltage measurement)
ZERO Accuracy : Within ±0.3% FS (voltage OFF mode)
Nonlinearity : Within ±0.1%FS
Correction Value (CAL) : Output at ±100% and ±50% of each range
Accuracy: Within ±0.3%FS
Monitor Output : Accuracy: Within ±5V±0.5% (±5V of full scale of each range)
Low Pass Filte : Transmission characteristics: 2nd Butterworth type
cutoff frequency: 10, 30, 100, 300, 1k, F (flat)
Cutoff accuracy: Within -3±1dB
Attenuation characteristics: Within -12±1dB/oct.

High Pass Filte :	cutoff frequency: 0.2Hz
	Attenuation characteristics: Within -6±1dB/oct.
AD Transducer Resolution :	16 bit
Added Functions :	Reading of information using TEDS built-in sensor
Insulation :	Between input and case (output)
	Between channels: Withstand voltage DC500V, 1 min.

Standard Accessory

Insulation amplifier voltage conversion adapter (FV-2A ×4)

Optional Accessories

Monitor output cable (U-64)

Note) If the transducer with a remote-sensing function, a 4-conductor extension cable (N81 to N85) enables measurement. But the remote-sensing function will be ineffective.

■Direct rated current expansion card CDA-44AS,45AS

Measurement card capable of handling cable extension

Measuring Target :	Strain gage (Full bridge system)
	Strain gage type transducer, voltage
No. of Input Channels :	4
Input Resistance :	Approx. 10MΩ+10MΩ (strain mode)
	Approx. 1MΩ (voltage mode)
Input Format :	Balanced differential input (strain mode)
	Unbalanced input (Voltage mode)
IMRR :	120dB (when 500μm/m range)
Frequency Response Range :	With DC connection DC to 200Hz,
	deviation within +1dB, -3dB
	At DC cut (with AC connection)
	0.2Hz (refer to high pass filter)
Gage Factor :	2.00 fixed (strain mode)
Bridge Excitation :	
CDA-44AS :	Approx. DC16.7mA (rated current) When gage
	resistance 120Ω connected
	*If sensitivity or temperature resistance is in the
	transducer BV line, then sensitivity and temperature
	characteristics are not corrected.
CDA-45AS :	Approx. DC5.7mA (rated current) When gage
	resistance 350Ω connected
	*If sensitivity or temperature resistance is in the
	transducer BV line, then sensitivity and temperature
	characteristics are not corrected.
Cable Length Applicable bridge Resistance :	
CDA-44AS :	When applicable bridge resistance 120Ω,
	Cable length within 500m (when cross-section 0.5mm^2)
CDA-45AS :	When applicable bridge resistance 350Ω,
	Cable length within 1,000m (when cross-section 0.5mm^2)
Range Accuracy :	Within ±0.3%FS
Measurement Range :	500, 1k, 2k,5k,10k, 20kμm/m, OFF (strain mode)
	1, 2, 5, 10, 20, 50V, OFF (voltage mode)
Balance Adjustment Range :	Within ±2.4% (±12000μm/m)
	(at strain measurement)
	Within ±5V (at voltage measurement)
ZERO Accuracy :	Within ±0.3% FS (voltage OFF mode)
Nonlinearity :	Within ±0.1%FS
Calibration Value (CAL) :	Output at ±100% and ±50% of each range
	Accuracy: Within ±0.3%FS
Monitor Output :	Accuracy: Within ±5V±0.5%
Low Pass Filter :	Transmission characteristics: 2nd Butterworth type
	cutoff frequency: 1, 3, 10, 30, 100, F (flat)
	Cutoff accuracy: Within -3±1dB
	Attenuation characteristics: Within -12±1dB/oct.
High Pass Filter :	cutoff frequency: 0.2Hz
	Attenuation characteristics: Within -6±1dB/oct.
AD Transducer Resolution :	16 bit
Added Functions :	Reading of information using TEDS built-in sensor
Insulation :	Between input and case (output)
	Between channels: Withstand voltage DC500V,
	1 min.

Standard Accessory

Insulation amplifier voltage conversion adapter (FV-2A ×4)

Optional Accessories

Monitor output cable (U-64)

Note) If the transducer with a remote-sensing function, a 4-conductor extension cable (N81 to N85) enables measurement. But the remote-sensing function will be ineffective.

■Strain/voltage/acceleration measurement card CVM-40A

Item	Strain measurement	Voltage measurement	Acceleration measurement (piezoelectric)
Name	Strain/voltage/acceleration measurement card		
Type	CVM-40A		
No. of input channels	8		
Measuring Target	Strain gage Strain gage type transducer	Voltage	Piezoelectric accelerometer (built-in amplifier)
Input format	Balanced differential input	Balanced differential input (1) (2)	Unbalanced input (3)
Input impedance	——	(1MΩ+1MΩ) Within ±10% (4)	——
Bridge excitation (BV) sensor power supply	Rated voltage output BV2V: DC2V±0.5% BV5V: DC5V±0.5%	Rated voltage output DC2V, DC5V or OFF 100mW/CH or less	Rated current output: Approx. 4mA Excitation voltage : Approx. DC23V Load : 1kΩ or less
Applicable gage factor	2.00 fixed	——	——
Applicable bridge resistance	BV2V : 120 to 1,000Ω BV5V : 350 to 1,000Ω	——	——
Balance operation settings (zero suppression)	[Autobalance enabled] Cancel the unbalanced bridge portion in the analog circuit, and zero the measurement value. [Autobalance disabled] Do not cancel the unbalanced bridge portion (the initial unbalanced value in the bridge circuit can be confirmed)	[Zero suppression enabled] Cancel the input voltage in the analog circuit, and zero the measurement value [Zero suppression disabled] Do not cancel the input voltage in the analog circuit (display the input voltage as is)	——
Balance adjustment range	BV2V : Resistance ±10% (±50,000μm/m) BV5V : Resistance ±4% (±20,000μm/m)	±5V	——
Measurement range	BV2V : 5k, 10k, 50k, 100k, 500kμm/m BV5V : 5k, 10k, 50k, 100k, 200kμm/m	1, 5, 10, 50V	100, 500, 1000, 5000mV
Range accuracy	Within ±0.2%FS		Within ±1.0%FS
Correction value (CAL) SHUNT CAL	±100% and ±50% of each range and SHUNT (5)	±100% and ±50% of each range	
Nonlinearity	Within ±0.1%FS		Within ±0.2%FS
Response frequency	With DC connection: DC to 5kHz, deviation +1dB, -3dB With AC connection: 0.2, 1Hz to 5kHz (refer to the page on high pass filters)		0.5Hz to 5kHz Deviation +1dB, -3dB
Low pass filter	Transmission characteristics : 5 Butterworth type Cutoff frequency: 30, 100, 300, 1k, 3kHz, FLAT, and AUTO (6) Cutoff accuracy: within -3±1dB, attenuation characteristics: -30±3dB /oct.		
High pass filter	Cutoff frequency: 0.2Hz, 1Hz Attenuation characteristics: -6dB / oct.		——
Resolution	24 bit (7)		
Distortion factor	——		1% or less
Monitor output	Accuracy: Within ±5V±0.5% (with ±FS), Nonlinearity: Within ±0.5%FS		
Dimensions	22mm (W) x 119mm (H)x 213mm (D)(not including protrusions)		
Weight	Approx. 400g		
Added functions	Reading of information using TEDS built-in sensor		
EMC Directive	EN61326-1(Class A)		

The corresponding plan to EU' s RoHS Directive 2011/65/EU in fiscal 2015

(1) When using the input adapter FV-1A, this becomes unbalanced input
(2) In-phase input voltage range ±20VDC, absolute input voltage range ±50V
(3) Input adapter FV-1A usage possible
(4) When using input adapter FV-1A (at unbalanced input), within 1MΩ±10%
(5) When SHUNT CAL has 350Ω load connected, Approx. 257μm/m output
(6) With AUTO settings, the cutoff frequency is set to 1/4 of the sampling frequency
(7) When EDX-200A, EDX-3000A installed (when EDX-100A installed, 16 bit resolution)

Note) Transducer with remote sensing use N81 to N85
Note) EDX-2000A/B series not supported

Optional Accessories

CVM input cable U-121(0.5m), U-122(1.0m), U-123(1.5m)
Voltage conversation adapter FV-1A
Integrated output cable U-62
Input cable U-111
CVM input integrated cable N-118

■Dynamic strain measurement card DPM-42B, DPM-42B-F(*1) DPM-42B-I(*2), DPM-42B-I-F(*1,*2)

A strain gage and strain gage transducer card, that uses the bridge power source carrier wave, suited to low level strain measurements. This card is insulated between input and output, and between channels.

*1: With antialiasing filter *2: Low inverter noise type

Measuring Target : Strain gage, strain gage transducer
No. of Input Channels : 4
Frequency Response Range : DC to 5kHz (deviation: ±10%)
Carrier Wave Frequency : 12kHz
Applicable Bridge Resistance : 120 to 1000Ω
Gage Factor : 2.00 fixed
Bridge Excitation : 2Vrms, 0.5Vrms switching, 12kHz sine wave
Balance Adjustment Range :
Resistance: ±2.4% (±12000μm/m)
Capacity: 2000pF
Balance Adjustment Method :
Resistance: pure electronic auto balance (saved in nonvolatile memory)
Capacity: CST method (automatic tracking)
Measurement Range : With bridge power source 2Vrms: 200, 500, 1000, 2000, 5000, 10000, 20000μm/m and OFF - 8 steps
With bridge power source 0.5V rms: 1000, 2000, 5000, 10000, 20000, 50000μm/m and OFF – 7 steps
Correction Value (CAL) : Output at ±100% and ±50% of each range
Nonlinearity : Within ±0.2%FS
Low Pass Filter : Transmission characteristics: 2 Butterworth type
Cutoff frequency 10, 30, 100, 300, 1kHz and FLAT — 6 steps
Cutoff accuracy: -3±1dB
Attenuation characteristics: -12±1dB/oct.
Antialiasing Filter (DPM-42B-F,DPM-42B-I-F)
8th Butterworth type
Cutoff frequency: Automatic setting at ×0.25 sampling frequency
Breaking characteristics: -48±5dB (when ×0.5 sampling frequency)
Note) Enabled when "AUTO" set in DCS-100A low pass filter settings
Resolution : 16 bit
Added Functions : Input check functions: Input resistance into one side of the bridge, and check input
Reading of information using TEDS built-in sensor
Monitor Output : Accuracy: Within ±5V±0.5% (at ±FS), nonlinearity: Within 0.5% FS
Withstand Voltage : Between input and output: AC250V, 1 min.
EMC Directive : EN61326-1(Class A)

The corresponding plan to EU's RoHS Directive 2011/65/EU in fiscal 2015

Optional Accessory Monitor output cable (U-64)

Note) If the transducer with a remote-sensing function, a 4-conductor extension cable (N81 to N85) enables measurement. But the remote-sensing function will be ineffective.

■Thermocouple card CTA-40A

Card using 2 types of thermocouple K (CA) and (CC) that can measure temperature
This card is insulated between input and output, and between channels.

Applicable Sensors : Thermocouple
No. of Input Channels : 8
Applicable Thermocouple : K (CA), T (CC)
Thermocouple Resistance : 200Ω or less (with burnout ON)
1000Ω or less (with burnout OFF)
Measurement Range : K1230, K480, K240, T400, T210 and OFF – 6 steps

Measurement range	Measurement range
K1230	-200 to 1230 °C
K480	-200 to 480 °C
K240	-200 to 240 °C
T400	-200 to 400 °C
T210	-200 to 210 °C

General Accuracy : mbient temperature 20±3°C, within ±(0.5% rdg+1)°C
At ambient temperature 0 to 40°C , within ±(0.5% rdg+2)°C
Calibration Value (CAL) : Output at 100% and 50% and 0°C as absolute value of each range
Frequency Response Range : DC to 10Hz
Resolution : 16 bit
Burnout : Built-i: At burnout [Burnout display], with ON/OFF
(Note) If high thermocouple resistance, turn the burnout function OFF to improve accuracy
Monitor Output : Accuracy: Within 5V±0.5% (at +FS)
Nonlinearity: Within ±0.5%FS
Insulation : Between input and output, and between channels: DC500V 50MΩ or more
EMC Directive : EN61326-1(Class A)

The corresponding plan to EU's RoHS Directive 2011/65/EU in fiscal 2015

Standard Accessories 8 channel input cable U-104 1 ×1, temperature measuring adapter CT-2A ×8

Optional Accessory Integrated output cable U-62

■F/V converter card CFV-40A

Card that measures the frequency of an input pulse, and that includes a power source to provide power to the sensor. This card is insulated between input and output.

Measuring Target : Alternating signal output sensor
No. of Input Channels : 4
Input Signal : Alternating (zero cross), TTL level (including open collector signal)
Input Voltage Range : ±(0.5V to 50V): High hysteresis
±(0.1V to 50V): Low hysteresis
Measurement Range : 50, 100, 500, 1k, 2k, 5k, 10k, 20kHz and OFF — 9 steps
Accuracy : Within ±0.1%FS
Calibration Value (CAL) : Output at 100%, 50%(added), and 0% (absolute value) of each range
Response Time : Is below 10μsec (when the input pulse is repeated) two cycles of input frequency +below 50μsec (when the input pulse is broken)
Resolution : 16 bit
Sensor Power supply : DC12V : Within 10% (Each channel 50mA or less)
Monitor Output : Accuracy : Within 5V±0.5% (at +FS)
Nonlinearity : Within ±0.1%FS
Insulation : Between input and output, and between channels: DC500V 50MΩ or more
Others : his card can be mounted up to two cards on the EDX-2000A/B-32 mainframe.
When two cards are mounted on the EDX-2000A/B-64, up to four other cards can be mounted, and when one card is mounted, up to six other cards can be mounted.
EMC Directive : EN61326-1(Class A)

The corresponding plan to EU's RoHS Directive 2011/65/EU in fiscal 2015

Standard Accessory Voltage conversion adapter FV-1A: 4

Optional Accessories Input cable U-12, Monitor output cable U-64

■Charge amplifier card CCA-40A, CCA-40A-F

This is a conditioner for the piezoelectric accelerometer. (Type with antialiasing filter is CCA-40A-F).

Measuring Target : piezoelectric accelerometer
Applied Accelerometer : built-in amplifier (voltage output)
Measuring Channel Amount : 8
Sensor Power : rated current power (rated current: 4mA, excitation voltage: approx. DC24V, load 1kΩ or less)
Frequency Response Range : 1 to 20kHz (deviation: +1dB, -3dB)
Measuring Range : 20, 50, 100, 200, 500, 1000, 2000, 5000mV and OFF—9 steps
Accuracy: Within ±1%FS
Calibration Value : DC CAL
±100% and ±50% of each range
Accuracy: Within ±0.2%FS
AC CAL
100% and 50% of each range
Accuracy: Within ±1%FS
Frequency accuracy: Within 100Hz±5%
Low Pass Filter : 2nd Order Butterworth
Cutoff frequency : 300, 1k, 3k, 10k, and FLAT — 5 steps
Cutoff accuracy : -3±1dB
Attenuation characteristics : -12±1dB/oct.
Antialiasing Filter (Only applicable to CCA-40A-F)
8 Butterworth type
Cutoff frequency : Automatic setting at ×0.25 sampling frequency
Breaking characteristics : -48±5dB (when ×0.5 sampling frequency)
Note) Enabled when "AUTO" set in EDX-2000A/B low pass filter settings
Distortion Factor : 1% or less
Resolution : 16 bit
Monitor Output : Accuracy: Within 5V±1% (at +FS)
Added Functions : Reading of information using TEDS built-in sensor
EMC Directive : EN61326-1(Class A)

The corresponding plan to EU's RoHS Directive 2011/65/EU in fiscal 2015

Standard Accessory Input cable U-111

Optional Accessories Integrated output cable U-62, conversion adapter (BNC-miniature) BNCP-C25J-A

■**CAN card CAN-40A, CAN-41A (EDX-2000A/B can only use CAN-40A)**

Card for measuring data frames on the Controller Area Network. The CAN-40A can collect a maximum of 16 types of data frame, and the dual input CAN-41A can collect data frames for 2 systems of differing communications systems as analog data at the same time.

CAN Board Numbers : CAN-40A: 1 CAN-41A: 2 (2 nodes)
Connector Configuration : Dsub 9 pin (male)
Supported CAN Version : Bosch2.0B active support
(ISO-11898 specifications-compliant)
High-speed CAN/low-speed CAN switching
Measurement ID Numbers : CAN-40A: Max. 16 ID
CAN-41A: Max. 32
CAN Controller Operation Clock : 40MHz, 32MHz
Communications Speed : With high-speed CAN
1000, 800, 500, 250, 125, 100, 83.3, 62.5, 50, 33.3, 25, 20, 10kbps
With low-speed CAN
125, 100, 83.3, 62.5, 50, 33.3, 25, 20, 10kbps
Communications Conditions : Sample points, sample rotations, resynchronization jump width selection.
Measurement channel conditions :
Start bit, bit length, data type, correction coefficient
(conditions for converting CAN data to clipping physical quantity)
Graph display : Simultaneous graph display of numerical value display, frame display, and analog data
Other : Only one can be mounted in the unit, in the last slot
When measuring CAN data, the sampling frequency is restricted to
EDX-2000B/3000A: 10kHz
EDX-200A: 2048Hz
EDX-100A: 1kHz
EMC Directive : EN61326-1(Class A)
The corresponding plan to EU's RoHS Directive 2011/65/EU in fiscal 2015

■**DA card DAC-40A (only EDX-2000A/B supported)**

A card for analog playback of data collected with the EDX-2000A/B
No. of Output Channels : 8
Resolution : 14 bit
Connector Configuration :
OUTPUT1 (Select an arbitrary channel for output from the BNC connector)
OUTPUT2 (Dsub 9 pin fixed, 8 channel output)
Output Voltage : Voltage : ±5VFS (load resistance 5kΩ or more)
Accuracy : Within ±0.15%FS
Nonlinearity : Within ±0.05%FS
DA Conditions Configuration :
Playback rate: 1 to 10kHz (selected from internal sampling clock)
Audio data synchronous playback: Y/N
Number of playbacks: finite (1 to 1000), infinite
Collection channel specified, output FS specified, output shift quantity specified
Playback Execution : All measurement data, display range data playback
Correction Value (CAL) : Output at ±50% and ±100% of FS as absolute value

Standard Accessory Integrated output cable U-62

■**AD Converter Cards AD-40AS, AD-40AS-F**

AD-40AS is an 8-channel voltage input card. (AD-40AS-F equipped with antialiasing filters is also available.)
No. of Input Channel : 8
Input Range : ±5V, ±10V and OFF
Input Method : Unbalanced (not balanced differential)
Input Resistance : Approx. 1MΩ
Sampling Method : All channels in sync
AD Converter : Method: Successive approximation
Resolution: 16 bits (± 32000 counts/FS)
Accuracy: Within ±0.2%FS
Nonlinearity : Within ±0.1%FS
Input Frequency : Range: DC to 50kHz
Deviation: 1dB to -3dB
Low Pass Filter (LPF) : Transfer Characteristic: 2nd order Butterworth
Cutoff frequency: 10, 30, 100, 300, 1k, 3k, 10kHz and F (8 steps)
Attenuation: Within (-12±1dB)/oct.
Antialiasing Filter (AD-40AS-F only) :
Transfer Characteristic: 8th order Butterworth
Cutoff frequency: A quarter of sampling frequency (auto setting)
Attenuation: Within (-48±5dB)/oct.
*(Set LPF to [AUTO])
Power Supply to Sensors : Voltage: ±2.5V each channel
Accuracy: Within ±1%
TEDS : TEDS compatible (Load TEDS information)

Optional Accessories Voltage input box: VI-8A with a cable N-121 (1.5m)
8-channel input cable: U-127 (1.5m)