KYOWA

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TECHNO
TEST

Network Terminal Box
NTB-100A Series

NEW!

Bridge boxes could be data loggers
this is a new style of measurement.

www.kyowa-ei.com

JQA-0821
JQA-EM4824

Specifications are subject to change without notice for improvement.

Safety precautions Be sure to observe the safety precautions given in the instruction manual, in order to ensure correct and safe operation.

Manufacturer's Representative

Reliability through integration

KYOWA

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Network Terminal Box

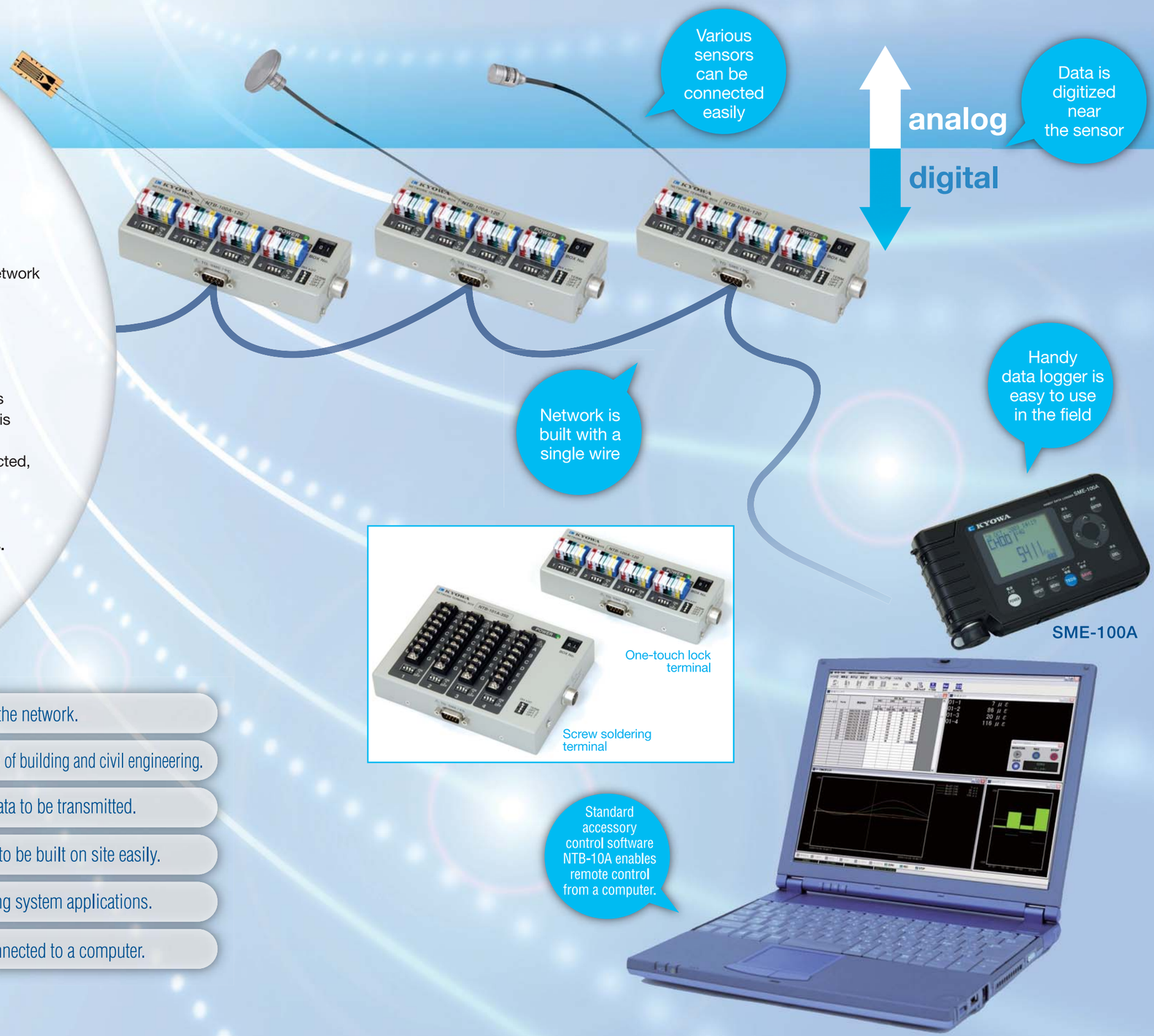
NTB-100A Series

Digitizing Field Measurement

NEW STYLE

A revolutionary concept of measurement has emerged

Signals from a sensor are usually digitized through an amplifier and A/D converter via a bridge box, and the digital data is processed on a computer or a dedicated system. NTB-100A Series network terminal boxes revolutionize this process – signals from a sensor are immediately digitized and fed to a computer for data processing.
These NTBs not only streamline signal processing, but also contributes to eliminating extra cable thereby reducing cost of labor and installation.
By placing an NTB near a sensor, only a single communication cable is required to build a wide area network (a total distance of 1 km), which is also useful in that digital transmission is hardly affected by noise.
A single unit can measure 4 channels, and up to 8 units can be connected, or measurement of a maximum of 32 channels is possible.
The NTB, which directly connects various sensors including strain gages, facilitates digital measurement in the field such as construction or building site, or for indoor experiments and researches.
Handy logger SME-100A allows a wider range of measurement with its portability.



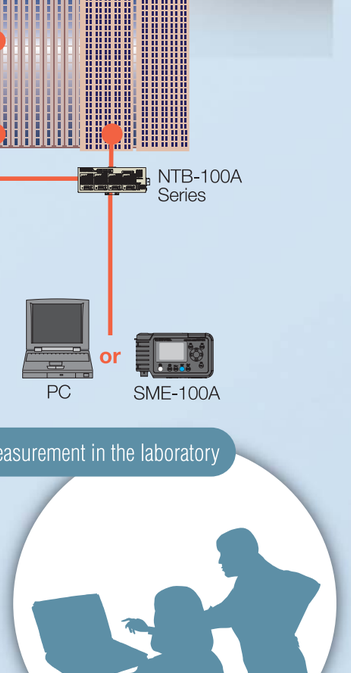
Features

- Network output is compliant to CAN, requiring a single wire to built the network.
- The wide area, decentralized arrangement will be useful for the infrastructure of building and civil engineering.
- Digitizing data adjacent to the sensor allows noise resistant digital data to be transmitted.
- Compact, lightweight and affordable, allowing a small-sized system to be built on site easily.
- Various ways of Interlocking and connection are provided, broadening system applications.
- Measurement can be started immediately when the instrument is connected to a computer.

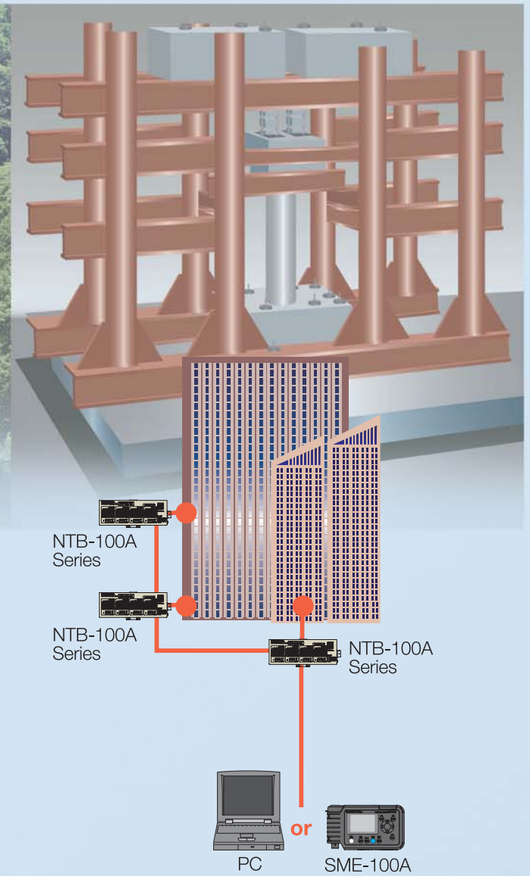
Measurement Will Change

In the Field

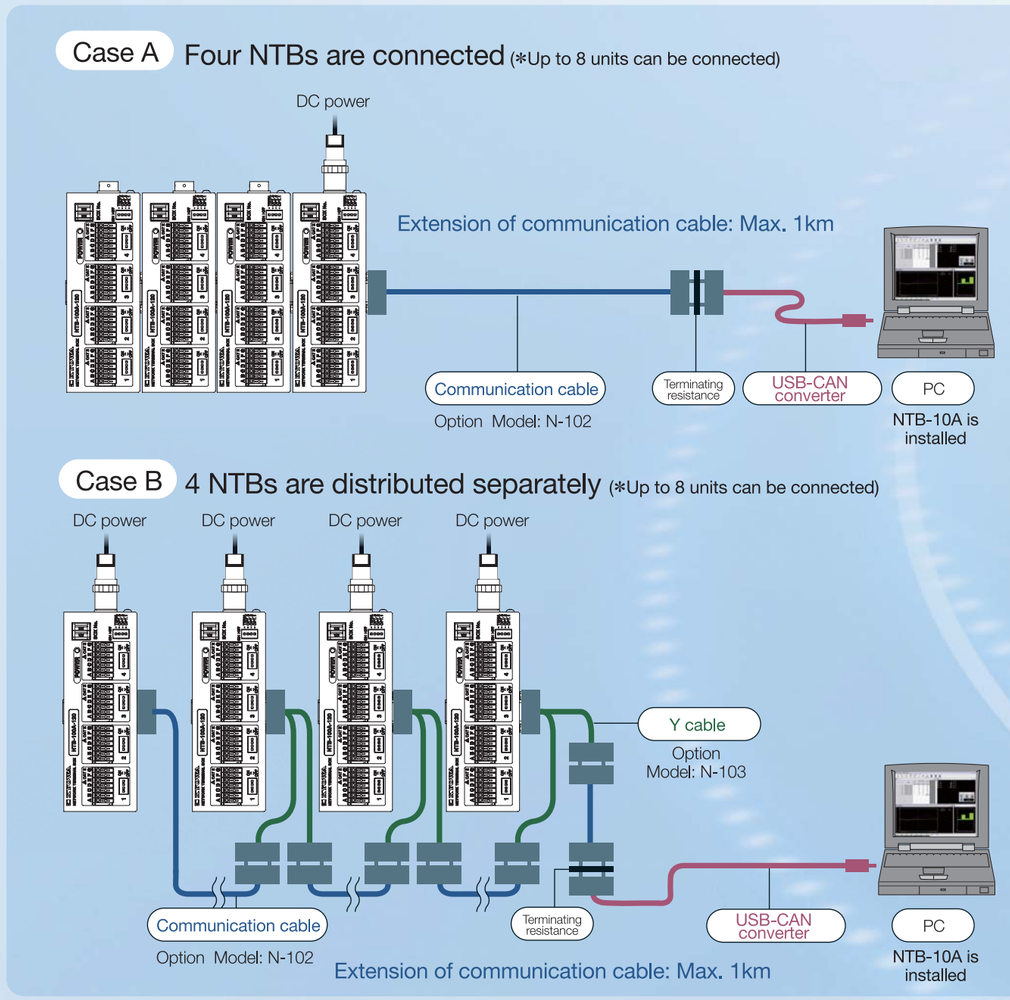
Measurement in the field



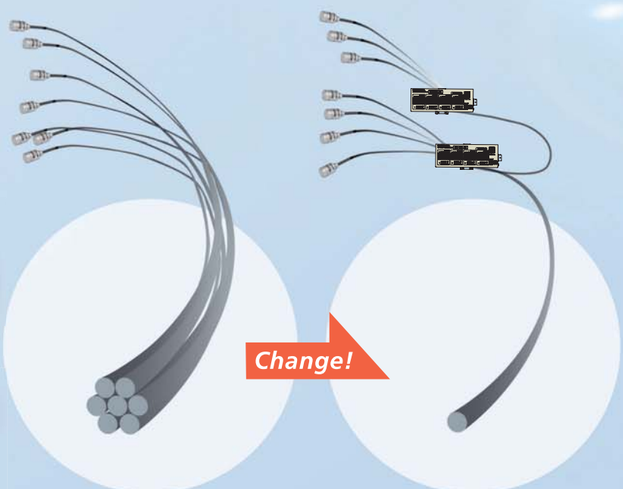
In the Laboratory



Measurement in the laboratory



Single-wire network saves the amount of cable used and makes the system lighter.



What is more

- Digital measurement is easy
- Compact, lightweight and easy to install
- The PC simplifies measurement
- Various connections are provided

Network Terminal Boxes (NTB-100A Series)

NTB-100A series network terminal boxes are bridge boxes connected to a handy data logger or a PC to perform multi-channel measurement.

Specifications

Model	Bridge excitation	Sensor input terminal	1-gage resistance
NTB-100A-120	Constant-voltage bridge excitation	One-touch lock terminal	120Ω
NTB-101A-120		Screw soldering terminal	120Ω
NTB-100A-350		One-touch lock terminal	350Ω
NTB-101A-350		Screw soldering terminal	350Ω
NTB-110A-350	Constant-current bridge excitation	One-touch lock terminal	For 4-gage only
NTB-111A-350		Screw soldering terminal	

*Control software NTB-10A is installed.

NTB models and applicable sensors

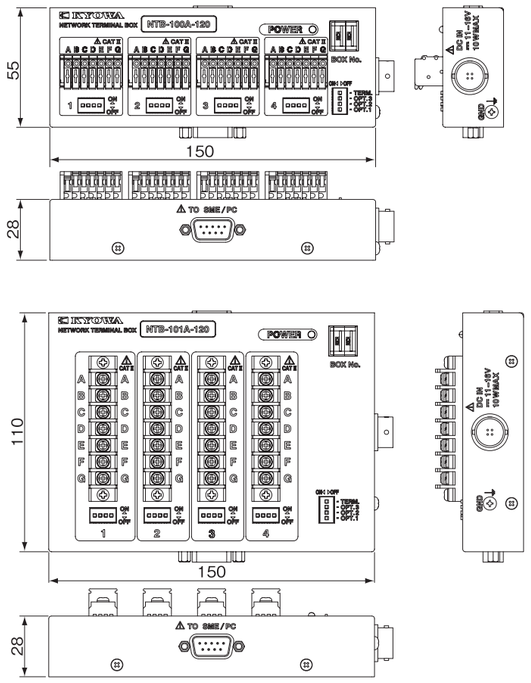
Bridge excitation	Applicable sensor			NTB model		
				General-purpose strain measurement		Civil engineering measurement
				NTB-100A-120 NTB-101A-120	NTB-100A-350 NTB-101A-350	NTB-110A-350 NTB-111A-350
Constant-voltage	Strain gage	Quarter gage method	120Ω	○	×	×
			350Ω	×	○	×
		Half bridge method 120 to 1000Ω	Active-active method	○	○	×
	Strain gage transducer	Full bridge method 120 to 1000Ω	Full-bridge method	○	○	×
Constant-current	Civil engineering transducer	4-gage method 350Ω	Full-bridge method	×	×	○
			Civil engineering transducer with temperature measuring function	×	×	○

No. of measuring channels:	4
Scanning speed:	Approx. 0.5 sec/channel for 0 to ± 30000 μm/m Approx. 1 sec/channel for ± 30000 μm/m or more With civil engineering transducer with temperature measuring function
Bridge excitation:	Approx. 2VDC for constant-voltage bridge excitation Approx. 5.6mA for constant-current bridge excitation (at bridge resistance 350Ω)
Measuring range:	Strain measurement 0 to ± 300000 μm/m (constant-voltage bridge excitation) 0 to ± 30000 μm/m (constant-current bridge excitation) Temperature measurement with civil engineering transducer with temperature measuring function -30.0 to 70.0°C
Resolution:	Strain measurement 0 to ± 30000 μm/m : 1 μm/m ± 30000 to ± 300000 μm/m : 10 μm/m Temperature measurement with civil engineering transducer with temperature measuring function 0.1°C
Accuracy:	Strain measurement 0 to ± 30000 μm/m : ± (0.05% rdg. + 2) μm/m ± 30000 to ± 300000 μm/m : ± (0.1% rdg. + 20) μm/m Temperature measurement with civil engineering transducer with temperature measuring function ± 0.5°C
TEDS:	Read from TEDS sensors Operator input of channel names (Kyowa ID only)
Power save mode:	Provided ON/OFF using "OPT.3" DIP switch.
Interface:	Dedicated interface conforming to CAN, cable extension up to 1km
Operating temperature range:	-10 to 50°C
Operating humidity range:	20 to 85%RH (no condensation)
Power supply:	11 to 16VDC
Current consumption: (during operation at 12VDC)	Constant-voltage bridge excitation Operation: 100mA or less Standby: 60mA or less Standby (in power save mode): 40mA or less Constant-current bridge excitation Operation: 70mA or less Standby: 60mA or less Standby (in power save mode): 40mA or less
Dimensions:	One-touch lock type: 150 (W) × 28 (H) × 55 (D) mm (excluding protrusions) Screw soldering type: 150 (W) × 28 (H) × 110 (D) mm (excluding protrusions)
Weight:	One-touch lock type: Approx. 310g Screw soldering type: Approx. 650g

Supplied items

Operation Manual (CD-R), P-57(DC power cable), P-72(ground wire), wire connection seals, Bumpon (rubber feet), screwdriver (for one-touch lock type only), terminal block (for screw soldering type only)

Dimensions



Optional accessories

DIN rail mounting plate

Communication cable 1m N-102

Item name	Model	Item name	Model
USB-CAN converter	LEAFLIGHT HS	Y cable	N-103
Terminating resistance	CANTERM120	Communication cable 1m	N-102
AC adaptor	SA-10A-EDS	Communication cable 3m	H-11681
Connection board//clip	CN-1A	Communication cable 5m	H-11682
DIN rail mounting plate	DIN rail mounting plate	Communication cable 10m	H-11683

*Please contact our sales department for communication cables other than those listed above.

Network Terminal Box Control Software (NTB-10A)

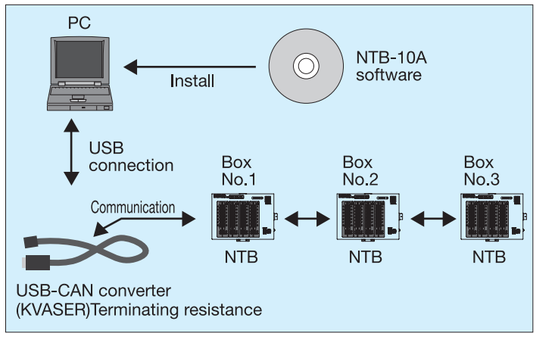
For remote control of network terminal boxes from a PC, and displaying measurement data in graphs or a numeric format on the PC screen.

System Requirements

CPU:	Pentium4 2GHz or higher
OS:	Microsoft Windows XP (32-bit) Microsoft Windows Vista (32-bit)
Memory:	1 GB or more 2 GB or more for Windows Vista
Hard disk:	At least 10 MB free disk space (Not including the size of data file to be created)
Display resolution:	1024 × 768 minimum
Colors:	Full color or higher
USB-CAN converter:	Model LEAFLIGHT HS

System Configuration

The schematic illustration below shows a connection diagram of the PC and network terminal boxes. Note that only a single USB-CAN converter is connected in this system.



Specifications

Number of measuring units:	NTB-100A series:1 to 8 (The number of MAX CHs is 32.)
Measuring function:	Relative (relative value) measure data with an initial unbalance value deducted. ZERO measurement: Measure initial unbalance value.
CH conditions:	Meas channel ON/OFF, CAL coeffcient calculation ON/OFF, Relative measurement ON/OFF, CAL coeffcient, Offset, Unit, Dec, digits, Ref resist (Ref), CH Name (28 characters)
Meas condition file:	Load and save
Meas operation:	MONITOR Meas:Measure ZERO value during MONITOR measurement INTERVAL Meas, File dividing function of the measured data: Not divide, every hour, every day.
Interval meas:	Interval Start Time, Interval Time, Repeat 0 to 9999 (0 it infinite) The number of interval measuring steps: 5
Numeric display function of measured data:	The number of available Numeric Display: 1 Display switching function: List only Numeric display: Arbitrary 1 CH to MAX 5 CHs. Font size (Large, Middle, Small)
Graph display function of measured data:	Graph type:Y-YIME, BAR graph(with perk hold function) With the auto scale function during the measurement.
Measured data saving function:	The measured data is saved with the CSV format.
TEDS compatible:	Load the information of the TEDS sensor and automatically set it to the CH condition, CH Name writable to the TEDS information (KYOWA sensor only, within 28 characters)
Dimension setting of the recorded data:	Saved in the hard disk of the PC.
File split:	No split Split every hour Split every day

Handy Data Logger SME-100A/101A

Number of measuring channels:	1 (in independent use of the logger) Max. 33 channels with NTBs connected to the logger *33 channels = 1 + 32 from 8 NTBs
Sampling frequency:	(In independent use, or NTB-dependent when connected to NTBs) Approx. 0.5 sec: 0 to ± 30000 μm/m Approx 1 sec: ± 30000 μm/m or more : Temperature measurement with civil engineering transducer with temperature measuring function
Measurement mode:	RELATIVE mode (the zero value is subtracted from measurements) *"Zero" denotes the initial unbalance during strain measurement, and can be acquired at any time.
Arithmetic operation:	Calculation using a coefficient
Applicable sensor:	Strain gages, strain gage transducers, civil engineering transducers with temperature measuring function

Gage method	Applicable gage resistance
Quarter gage	120, 240, 350Ω
Half, Full bridge	120 to 1000Ω

Bridge excitation:	Constant-voltage bridge excitation: Approx. 2VDC Constant-current bridge excitation: Approx. 5.6mA (bridge resistance 350Ω)
Measuring range:	Strain measurement 0 to ± 300000 μm/m (constant-voltage bridge excitation) 0 to ± 20000 μm/m (constant-current bridge excitation) Temperature measurement with civil engineering transducer with temperature measuring function -30.0°C to 70.0°C
Resolution:	Strain measurement 0 to ± 30000 μm/m : 1 μm/m ± 30000 to ± 300000 μm/m : 10 μm/m Temperature measurement with civil engineering transducer with temperature measuring function 0.1°C
Accuracy: (NDIS one-touch connector, 4-gage connection)	Strain measurement 0 to ± 30000 μm/m : ± (0.05% rdg. + 2) μm/m ± 30000 to ± 300000 μm/m : ± (0.1% rdg. + 20) μm/m Temperature measurement with civil engineering transducer with temperature measuring function ± 0.5°C
Check function:	Insulation resistance measurement: 2 to 100MΩ Resistance measurement: 0 to 20kΩ
Interval measurement:	1 minute to 99 hours 59 minutes in 1-minute steps Starting date/time: year/month/day, hour : minute
Storage:	SD card (optional)
Applicable SD card:	256MB, 512MB, 1GB, 2GB (FAT16) (SDHC is not applicable)
Display:	Monochrome LCD, 128 × 64 dots
TEDS:	Read from TEDS sensors Operator input of channel names (Kyowa ID only in up to 10 characters)
Operating temperature & humidity range:	-10 to 50°C, 20 to 85%RH (no condensation)
Power supply:	AA battery × 2 Consecutive operation time: Approx. 10 hours (with alkaline batteries, NTB not connected) *Nickel hydride batteries can also be used. *An AC adapter (optional, DR-523E) is provided for SME-101A.
Auto Power Off:	Power is automatically turned off if no key operation is detected for 5 minutes. In interval measurement mode with an interval of 3 minutes or longer, power is automatically turned off during standby period and turned on again 1 minute before the next measurement is started (ON/OFF of Auto Power Off can be specified).
Dimensions:	108.4 × 188 × 41mm (excluding protrusions)
Weight	Approx. 450g (excluding batteries)

Supplied items: Operation Manual (CD-R), input cable, communication cable, AA alkali battery × 2, shoulder belt, hand strap

Dimensions