



CIVIL ENGINEERING MEASURING INSTRUMENTS

PART PDF ISSUE Kyowa Measuring Instruments for Stress Solutions KYOWA ELECTRONIC INSTRUMENTS CO., LTD.

BS-AT/BT Strain Transducers

Measure strain generated in concrete.

	BS-AT	BS-BT
Measuring range	$\pm 500 \times 10^{-6}$ strain	$\pm 1000 \times 10^{-6}$ strain
Temp. measuring range	-30 to +70°C	-30 to +70°C
Rated output	± 1 mV/V	± 0.5 mV/V
Non-linearity	$\pm 1.5\%$ RO	$\pm 2\%$ RO



BS-8FT Small-Sized Strain Transducer

Measures strain on struts, sheet piles and timberings installed for sheathing.

Measuring range: $\pm 1000 \times 10^{-6}$ strain
 Temperature measuring range: -30 to +70°C
 Rated output: ± 1 mV/V
 Non-linearity: $\pm 2\%$ RO



BF/BFD Reinforcing-Bar Stress Transducers

BF-CT: Measures stress applied to reinforcing bars D10 to D32

BFD-A: Measures stress applied to reinforcing bars D35 to D51

Rated capacity: 300MPa

Temperature measuring range: -30 to +70°C

Rated output: 1.85mV/V



BR-BT/US Stress Transducers

Measure stress generated in concrete.

BR-US for small scale model testing

BR-BT: 200kPa to 10MPa

BR-US: 1 to 3MPa

BR-BT with the temperature measuring function (-30 to +70°C)

Rated output: 1mV/V



BT-100B Temperature Transducer

For embedment application (water pressure resistance 196.1kPa)

Measuring range: -30 to +70°C

Resolution: 0.01°C

Measuring accuracy: ± 0.3 °C



BTS-100AT Small-Sized Temperature Transducer

Outer diameter is only 5mm.

Can be embedded for model testing or short-term measurement.

Measuring range: -30 to +70°C

Usable instruments for civil engineering transducers with temperature measuring function



BJ-AT Joint Transducer

Measures an opening between concrete blocks, etc.

Measuring range: 0 to (5-50) mm

Temperature measuring range: -30 to +70°C

Rated output: 1mV/V

Non-linearity: $\pm 1.5\%$ RO

Hysteresis: $\pm 1.5\%$ RO



BE/BEU Flat Type Soil Pressure Transducers

	Rated capacity	Sensing diaphragm
BE-C	200 to 1000kPa	$\phi 30$ mm
BE-E	200 to 2000kPa	$\phi 160$ mm
BE-M	50kPa to 1000kPa	$\phi 80$ mm, all stainless steel
BE-N	500kPa, 1MPa	$\phi 70$ mm, for piling
BEU-A-S	200, 500kPa	$\phi 50$ mm, all stainless steel



BE/BEB Elevated-Diaphragm Type Soil Pressure Transducers

	Rated capacity	Sensing diaphragm
BE-D	200 to 1000kPa	$\phi 27$ mm
BE-F	200 to 2000kPa	$\phi 160$ mm
BEB-H-S	50 to 1000kPa	$\phi 50$ mm



BER-A-S Wall Pressure Transducer

Measures soil pressures against wall, soil pressure against a shield machine as well as fluid pressure in a transit pipe.

Rated capacity: 100kPa to 5MPa

Rated output: 1mV/V

Non-linearity: $\pm 1\%$ RO

Sensing diaphragm: $\phi 24.5$ to 130mm



BP-B/BT/C/CT Pore Pressure Transducers

BP-B: 200 to 2000kPa

BP-C: 200 to 2000kPa, double structure

2 types of filters available—

flat (FB) type and cone (BPF) type

Suffix T indicates the temperature

measuring function (-30 to +70°C)



BPD-A-S Small-Sized Pore Pressure Transducer

Ultra-small size design with an outer diameter of 10mm makes it suitable for model testing.

Rated capacity: 200 and 500kPa

The shape of top end is available in 2 types—flat and cone.



BCD-E-70S Concrete Surface Displacement Transducer

Easy installation with bonding agent

Measuring range—Tension strain: 2.0% (0 to 1.40mm).

Compression strain: 0.5% (0 to 0.35mm)

Distance between marks: 70mm

Effective for short-term indoor testing

Removable and repeatedly usable



BWL-ET Water Level Transducer

Measures water level and water temperature in a bore.
Measuring range—
Water level: 0 to 10, 20 or 30 m
Water temperature: -20 to +60°C
Rated output: 2mV/V
Non-linearity: $\pm 0.15\%$ RO
Built-in arrester and correction against an atmospheric pressure
Stainless steel make, $\varnothing 32 \times 122\text{mm}$



BPT-A-80KPS Soil Moisture Transducer

For measurement of the moisture absorbing pressure of soil
Rated load: -80kPa
Rated output: -0.8mV/V
Non-linearity: $\pm 0.5\%$ RO



BLD-A-S Hollowed Load Cells

BL-B: 5 to 500kN
BL-DS: 50 to 500kN
BL-E: 1 and 2MN
Measure the load affected onto anchors and timberings.
Rated output: 1mV/V min.
Non-linearity: $\pm 1, \pm 2\%$ RO



BKK-A Surface-Mounting Type Inclination Transducer

Measures disturbance due to adjacent civil engineering.
Measuring range: $\pm 1^\circ$ to $\pm 5^\circ$
Rated output: 2 to 3mV/V min.
Non-linearity: $\pm 0.5\%$ RO



BKA Insertion Type Automatic Inclination Measuring System

Automatically measures inclination angles while inserting or winding up the transducer.
Direct reading of lateral displacement by every 50cm depth
Cumulative graph for review of total displacement
Automatic inversion by 180° and automatic revolution by 90°
Rated capacity: $\pm 10^\circ$
Non-linearity: Within $\pm 0.05\%$ RO (Transducer)
Hoist BKA-100A-50 can move the transducer down to 50m depth.
Control/Data Acquisition Unit BKA-150A—
Analog input channel:
Resolution: 16 bits, Display 10.4-inch
TFT color LCD, Recording media:
ATA card (IC memory card)



BK-G Insertion Type Inclination Transducer

Suitable for measurement of landslide of retaining wall
Measuring range: $\pm 5^\circ, \pm 10^\circ$
Rated output: $\pm 1\text{mV/V}$
Cable: 60m long, with reel



Digital Inclination Indicator SDB-350B

Rechargeable battery with less power consumption makes it suitable for measurement in the field.

BKJ-A Embedment Type Inclination Transducer

Can be embedded in up to 20 stages in a bore or pre-embedded aluminium guide pipe for quick measurement of inclination angles by depths.
Uniaxial and biaxial types are available.
Rated capacity: $\pm 5^\circ, \pm 10^\circ$
Safe overload rating: 120%
Rated output: 1.8mV/V



SMD-20A Handy Digital Static Strain Indicator

Bridge excitation with constant current
Applicable sensors: Strain gages, strain-gage transducers, civil engineering transducers with temperature measuring function, and thermocouples
Shoulder bag
RS-232-C interface
Operation on built-in NiCd battery
Dimensions and mass:
148 x 50.5 x 155mm, approx. 750g



UCAM-20PC Data Logger

Ultimate structure having no operation/display panel
In combination with the standard control software and an existing personal computer, it performs as a stand-alone data logger.
30 channels with the dedicated scanner incorporated into the mainframe and up to 230 channels with additional external scanners

Refer to page 12 for details.



ASQ/VAQ Servo Acceleration Transducer/ Dedicated Conditioner

ASQ: Measures minute vibrations.

CA type with connector and
CB type with integral cable.

Rated capacity:

$\pm 9.807\text{m/s}^2$, $\pm 19.61\text{m/s}^2$,
 49.03m/s^2

Rated output: $\pm 5\text{V}$ (10V)

Non-linearity: $\pm 0.03\%$ RO



VAQ-700A: Can simultaneously measure
acceleration, velocity and displacement.

Number of measuring channel: 1

(multi-channel configuration available)

Measuring ranges—

Acceleration: $\pm 1\text{G}$ (9.807m/s^2), $\pm 2\text{G}$ (19.61m/s^2),
 $\pm 5\text{G}$ (49.03m/s^2)

Velocity: ± 100 , ± 200 , ± 500 cm/sec

Displacement: ± 100 , ± 200 , ± 500 mm p-p

Output: $\pm 10\text{V}$

Dimensions and weight: 49 x 128.5 x 262.5mm,
approx. 1.4kg

JB-100C Cable Splicing Kit with Arrester

Protects the equipment against thunder.

Connection near transducers and indicators

Outer diameter of applicable cable sheath:

6 to 16mm

Maximum dimensions:

$\phi 32$ x 183mm long



JB-200A Cable Connection Kit

Outer diameter of sheath: 6 to 16mm

Curing time: Approx. 1 hour at 23°C ,

3 to 5 hours at 0°C

Dimensions:

Max. $32\text{mm}\phi$ x 183mm long

