TML

NEW

Compact Size

KM-M Strain Transducer

Smaller diameter enables strain measurement during the curing process of concrete, mortar, asphalt, synthetic resin, etc. with thin cover thicknesses!

Protection ratings : **IP 68 equivalent**

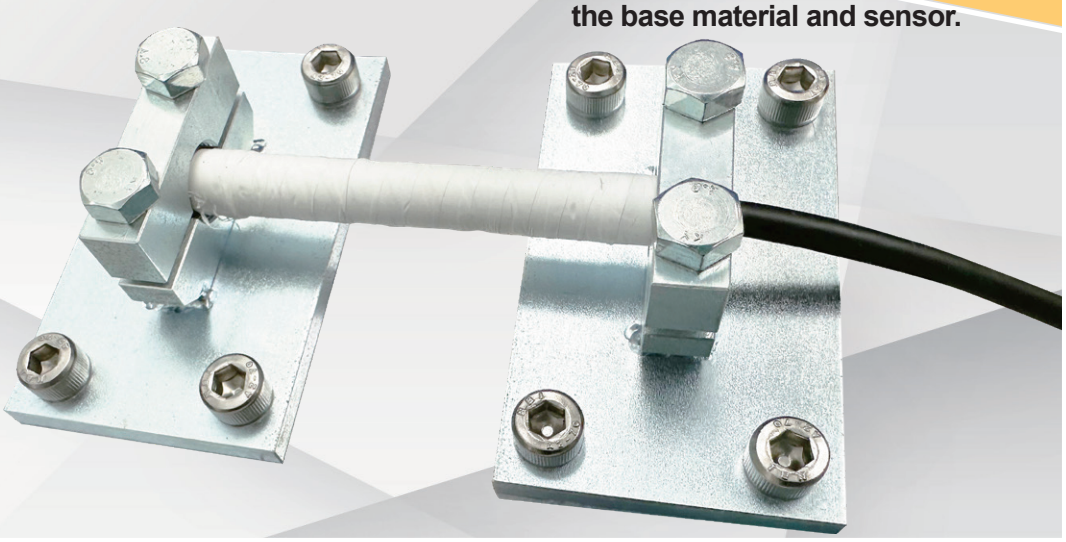
1. Compact Size
(50% by volume)

2. Applicable to concrete, mortar, asphalt, and synthetic resin with thin cover thickness

Point

3. Low apparent modulus of elasticity, so it can be measured from the concrete hardening process
Conventional product 40N/mm² → KM-M approx. 25N/mm²

4. The height at which surface strain is measured is lower than that of conventional products, reducing the effects of bending and temperature differences between the base material and sensor.



Tokyo Measuring Instruments Laboratory Co., Ltd.

The KM-M type Compact Size Strain Transducer has a smaller diameter than the conventional product, allowing it to be used in a wider range of applications.

Point 1. Small diameter! Φ17 → KM-M Φ12

30% smaller diameter and 50% volume ratio

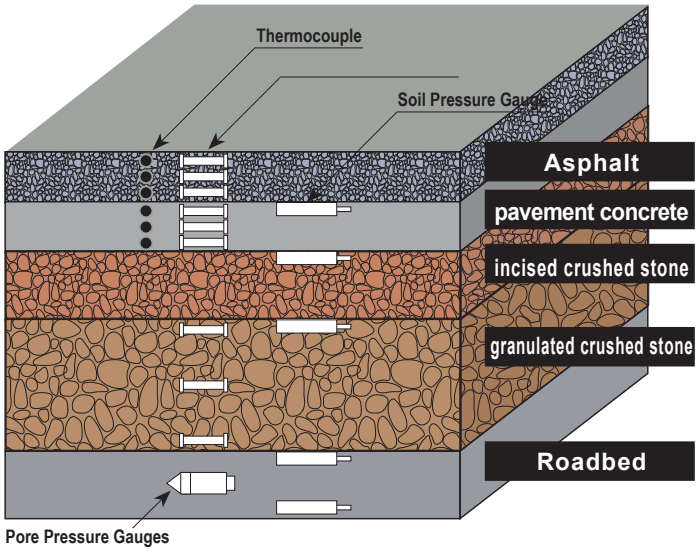
*Comparison with KM-100B

Point 2. Applicable to concrete, mortar, asphalt, and synthetic resin with thin cover thickness

【Example of installation on pavement】

Various sensors are installed to determine the bearing capacity of various types of pavements during construction, etc., and are used for driving tests, loading tests, and long-term aging measurements. Strain Transducers are used to measure the stress in each pavement bed.

The cables are routed in advance, and the sensor body is temporarily placed at the installation position with a protective cover to avoid destruction, and is installed at the same time as each layer is poured into place.



Point3. Low apparent modulus of elasticity, so it can be measured from the concrete hardening process

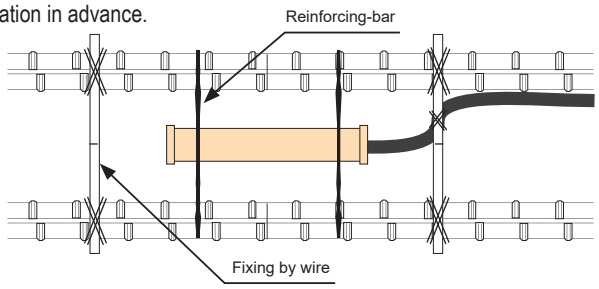
Conventional product 40N/mm² → KM-M approx. 25N/mm²

◆For use of internal strain measurement

For strain measurement inside concrete structures, it is possible to measure not only the behavior after hardening, but also the strain during the hardening process after casting. Structures are subject to external force-induced strain, temperature-induced strain, shrinkage strain, creep strain, and other types of strain. KM-M Strain Transducers is designed to sense all strains generated. The standard for selecting strain transducer size is at least three times the maximum aggregate dimension.
For measuring from young lumber age, please use strain transducer KM-100M/KM-100MT/KM-100HM.

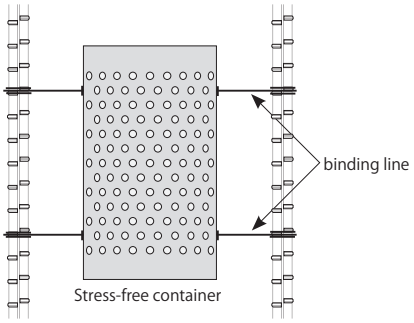
【Example of installation on reinforced concrete structur】

To install the Strain Transducer, bind wires are tied to two locations on the body of the main unit as shown in the figure, and the strain transducer is installed in accordance with the markings on the rebar near the installation location in advance.



【Example of installation on stress-free container】

A strain transducer (KM-M) is attached to the stress-free container (KMF-51) and installed in the concrete structure. The linear expansion coefficient and shrinkage strain of the concrete are obtained from the strain value and the temperature measured by the built-in temperature measuring function. The stress-free container (KMF-51) to which the strain transducer (KM-M) is attached should be secured to a reinforcing bar or the like in the vicinity of the installation location with a binding wire or the like to prevent it from being washed away during concrete placement.
(If there is no reinforcing bar in the vicinity of the mass concrete, etc., please reinforce and fix the reinforcing bar for installation so that there are no structural problems.)



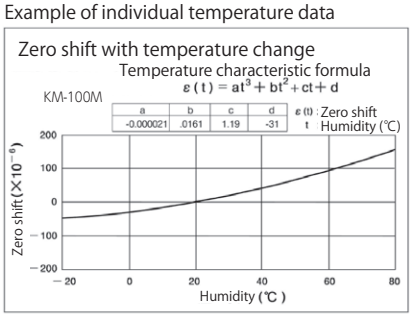
If a stress-free container cannot be installed, a specimen is prepared under the same conditions as the frame, and this strain transducer is installed under the same conditions of moisture movement without external force to determine the linear expansion coefficient and drying shrinkage strain of the concrete.vidu

【Strain transducer temperature measuring function】

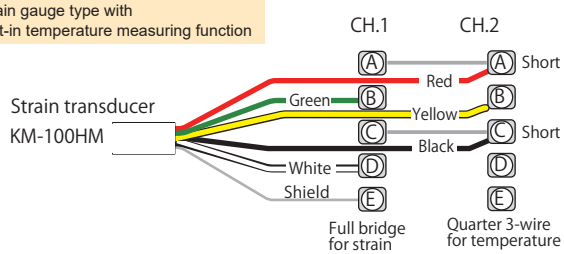
Strain transducer with built-in temperature measuring function are available in two types: strain gauge type and thermocouple type. The former is the Quarter bridge with 3-wire method (350Ω) and measures relative temperature, while the latter is a thermocouple type and measures actual temperature. Both types of gauges enable accurate measurement and greatly simplify installation and wiring work compared to the use of separate thermometers.

Strain gauge type with built-in temperature measuring function **KM-100HM**
Built-in thermocouple temperature measuring function **KM-100MT**

Example of individual temperature data

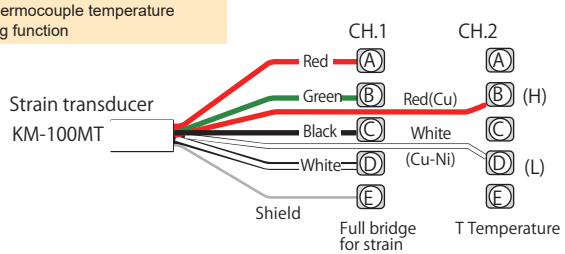


Strain gauge type with built-in temperature measuring function



Connect to any two consecutive channels on the instrument. Be sure to connect the red, yellow, and black cores of the strain transducer cable to the CH.2 side of the temperature measurement channel, and short A-A and C-C with copper wire.

Built-in thermocouple temperature measuring function



Connect to any two consecutive channels on the instrument.

To obtain more accurate strain with this instrument, correct the zero shift.
We can provide individual temperature data of zero shift for each strain transducer separately upon request.

Point4. The height at which surface strain is measured is lower than that of conventional products, reducing the effects of bending and temperature differences between the base material and sensor

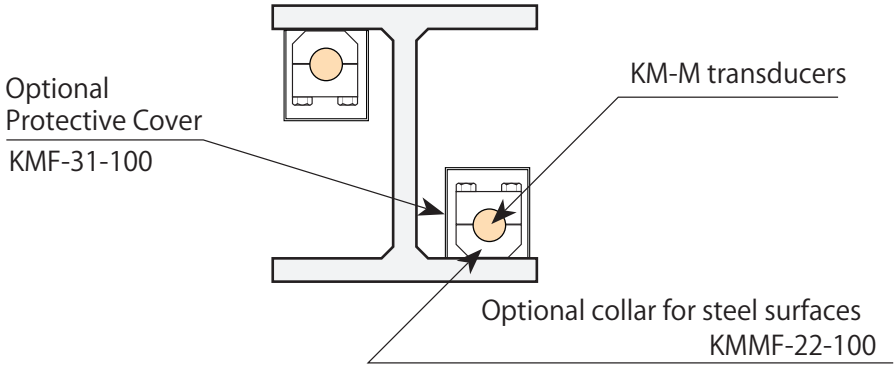
◆For use in surface strain measurement

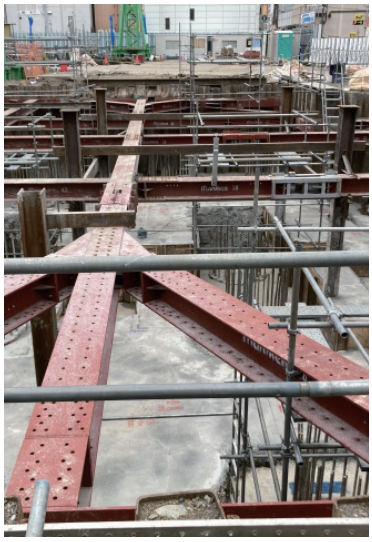
Applicable strain transducer **KM-100M/KM-100MT/KM-100HM**

Surface strain measurement onto steel and concrete structures is available with KM-100M / KM-100MT / KM-100HM.
(When mounting the strain transducer mounting foot, use a simulated strain transducer (KMMF-12-100) for accurate positioning of the target point distance.)

【Example of installation on reinforced concrete structure】

The KM-M strain transducer is installed on the steel surface in combination with the KMMF-22-100 mounting foot for steel surfaces (weld-fixed type) in order to measure the strain generated on the steel surface.

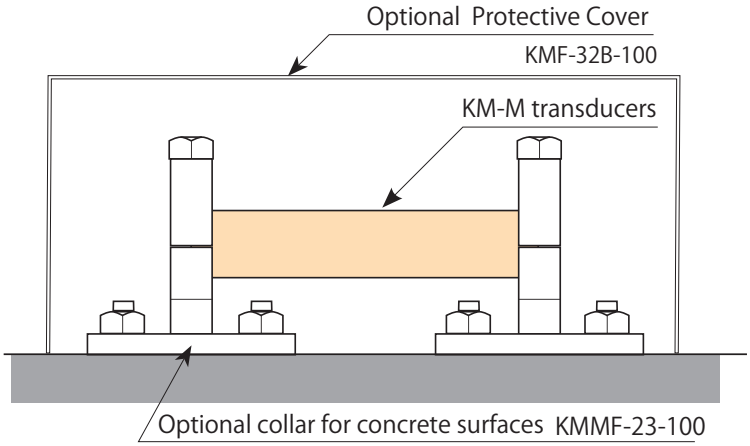




The strain transducer is installed (welded in place) in combination with mounting foot KMMF-22-100 for steel surfaces.

【Example of installation on concrete surface】

The KM-M strain transducer is installed on a concrete surface in combination with the KMMF-23-100 mounting foot for concrete surfaces to measure surface strain.



The strain transducer is fixed with anchor bolts (M6) in combination with the mounting foot KMMF-22-100 for concrete surfaces.

Approval Certificate **ISO9001**
Design and manufacture of strain gauges, strain measuring equipment and transducers

TML URL www.tml.jp/e

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