



## TRANSDUCERS/CIVIL ENGINEERING TRANSDUCERS

### Transducers

Strain gage-type transducers electrically measure physical quantities such as load and displacement.

They operate by converting measured physical quantities into mechanical stress, and then detecting that stress with a strain gage.

TML offers a number of products according to the item and quantity measured.

Since our products use strain gages, they can be connected to all types of strainmeters, such as Data Loggers and dynamic strainmeters, for taking measurements.

This enables capabilities like automatic multiple-point measurement as well as measurement via computer.

Our strain gage-type transducers offer a variety of features like compact size, light weight and easy operation, high-precision measurements with excellent linearity and consistency, as well as dynamic measurement capability that is available in many of our products.

- **LOAD CELLS**

Load cells are used to measure force as well as load, and TML offers a number of models with capacities ranging from 10 N to 10 MN. Our line begins with a standard model for measuring compression loads, but also includes center hole, compression/tension universal and tension models. These products are all easy to operate and will maintain consistent characteristics over long periods of time because none have internal moving parts.

- **DISPLACEMENT TRANSDUCERS**

Displacement transducers are used to measure displacement, and TML offers a line of products ranging in capacity from 5 mm to 300 mm that measure displacement by moving the measuring shaft. These displacement transducers are compact, easy to operate and applicable in a wide range of applications. Our large-capacity displacement transducers are tape measure types with capacities ranging from 500 to 2,000 mm. We also offer other models including a crack-type that is used to measure crack opening displacement (COD) in materials.

- **PRESSURE TRANSDUCERS**

Pressure transducers are used to measure the pressure of gases like air as well as fluids like oil and water. We offer standard model with capacities ranging from 100 kPa to 50 MPa, large-capacity models with capacities ranging from 70 to 200 MPa, and flash diaphragm models ideal for dynamic measurements. All products in this line are compact, light weight and easy to operate.

- **ACCELERATION TRANSDUCERS**

Acceleration transducers are used to measure vibration acceleration in structures and machinery. Our products range in capacity from 10 to 2,000 m/s<sup>2</sup>, and are available in waterproof, double axis or triple axis configurations. All models are compact, light weight and capable of high-precision measurement since they tend not to disturb vibrations in specimens being measured.

### Civil Engineering Transducers

Strain gage-type civil engineering transducers made by TML electrically measure physical quantities like concrete strain as well as soil pressure, water pressure, reinforcing bar stress, displacement and inclination.

They operate by converting measured physical quantities into mechanical strain, and then detecting that strain with a strain gage. The strain gages we developed exclusively for transducers incorporate structural and design elements that draw on many years of experience and field-proven performance in order to ensure consistent measurements over long periods of time.

Our strain gage-type transducers are easier to operate and offer both higher sensitivity and higher precision than either differential transformer or Carlson-type transducers.

They can measure multiple points automatically or take measurements via computer simply by connecting them to a strain measuring instrument like the Data Logger.

These superior features led to their widespread use as sensors for testing and research as well as for installation and maintenance control on general structures, bridges, roads, tunnels and dams.

- **EMBEDMENT STRAIN GAUGE**
- **DISPLACEMENT TRANSDUCERS**
- **INCLINOMETER**
- **LOAD CELL**
- **PRESSURE TRANSDUCERS**
- **TEMPERATURE Gage**

