



Digital Indicator **TD-700T**



*Supports remote sense functions.

Offers 5 different functions: displays static strain, dynamic strain, analog data value, digital data value and used as a signal conditioner.



Portable Digital Indicator **TD-01**



Graphical displays allow you to see numeric values or waveforms as you easily monitor and record your measurements.



Digital Indicator **TD-275T/TD-280T**



Supports a variety of hold functions, digital and waveform display and recording measured value, it's the high-end indicator with high-performance. The TD series are used in fabrication, as well as quality control and advanced analysis.



Signal Conditioner **TC-11DC**



The optimal conditioner equipped with all the functions needed to detect the appropriate current or voltage to load cells for measurement and control.

TEAC's load cells provide solutions for force measurements.

■ Eliminates confusing configuration steps

TEAC load cells and indicators utilizing TEDS perform auto-calibration and eliminates manual settings and human errors.

■ Measures a variety of ranges accurately

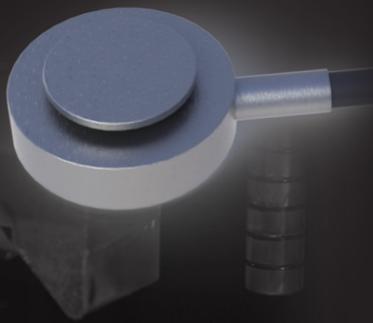
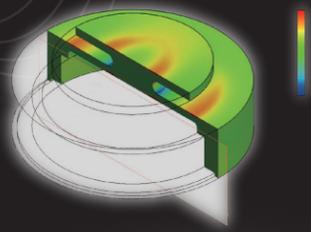
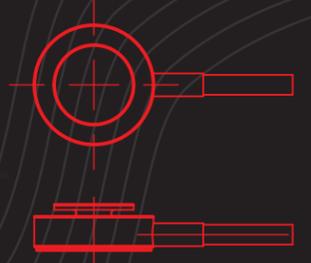
A variety of compact, precision and reliable load cells are ready to use.

■ Ease of Use

The TEDS function of both load cell and indicator provides plug and play operation

■ Designed to prevent cable breaking

TEAC's load cell and cables are designed to be resistance to mechanical stress.



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TEAC's strain gauge based load cells

TEAC's many years of experience and expertise have developed load cells that have **High-responsiveness, High-accuracy and High-stability.**



All combinations of load cells and indicator are available.

TEAC offers a wide variety of strain based load cells, indicators, signal conditioner, amplifiers and accessories to support your system without delay.

What is TEDS?

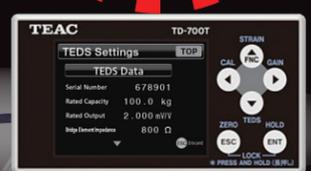
TEAC sensors and indicators support IEEE 1451.4 TEDS. TEDS compatible sensors store specific information that contain the model name, serial number, sensitivity and calibration information in its memory. This provides an automatic way to identify the sensor and program the indicator which eliminates any set up errors.

TEDS Advantages

- Connecting or changing sensors saves time.
- Eliminates confusing configuration steps.
- Eliminates the need to remember or have on hand calibration data since it is read from the sensor.
- Eliminates scaling and calibration errors.
- Gives a secure solution for your measurement.

Each TEDS sensor contains specific information.

Reading
 Calibration is completed automatically by the information stored in the sensor!



Products with TEDS

Tension/Compression type	TC-BSR(T)-G TC-SR(T)-G TC-MR(T)-G
Tension type	TU-QR(T)-G TU-MXR2(T)-G TU-CR(T)-G
Compression type	TC-AR(T)-G TC-FR(T)-G TC-KR(T)-G TC-XR(T)-G TC-LPR(T)-G TC-NSR(T)-G TC-NSRSP(T)-G TC-USR(T)-G TC-MFSR(T)-G
Indicators	TD-280T TD-275T TD-260T TD-700T TD-01

*Model number enables you to know TEDS-compliant sensors.

Ex) TU-QR (T) -G → RoHS compliant
 → TEDS compliant

TEAC has various TEDS load cells and indicators for performing reliably and accurately in a variety of industries.

For more information <http://loadcell.jp/en/teds.html>

Glossary

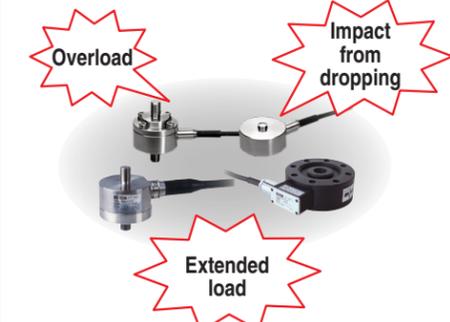
- Rated Capacity / R.C.**
The maximum capacity (load) that the load cell will be subjected to its specification.
- Safe overload**
The maximum load that can be applied without permanent characteristic change (damage) to the load cell.
- Maximum safe overload**
The limiting load that can be used without causing damage or breaking.
- Rated Output / R.O.**
The value subtracted the non-load output from the output resulted by applying the rated load. That is expressed in the output per applied voltage. (mv/V)
- Non-Linearity**
Maximum deviation of a calibration curve to a specified straight line (reference curve, which is determined by connecting the no-load output and the rated load output). Measured when increasing calibration load.
- Hysteresis**
Maximum difference in output produced in the same load when the load increasing or decreasing (between no-load and rated capacity). That is expressed as %R.O.
- Non-Repeatability**
Maximum difference in outputs when calibration loads are applied repeatedly under the same conditions and ambient. That is expressed as %R.O.
- Maximum Excitation**
The maximum voltage that the load cell can be continuously subjected to and keep within its specification.
- Input/output terminal resistance**
Resistance between the input (or output) terminals under the output terminals opened with no load.

- Insulation Resistance**
DC resistance between the load cell electrical circuit and the load cell body.
- Compensated temperature range**
Temperature ranges by which the rated output and the zero balance are compensated to meet specifications.
- Operating temperature range**
Temperature range that the load cell within the stated specifications.
- Safe temperature range**
The temperature range which can be used without permanent characteristic change (damage) to the load cell.
- Temperature effect on zero**
The rated output shift at no-load due to a change in ambient temperature. That is expressed as %R.O. per 10 degrees.
- Temperature effect on output**
The output shift due to a change in ambient temperature. That is expressed as %R.O. per 10 degrees.
- Static strain**
Static strain is a measure of deformity in non-dynamic conditions. By recording and managing the amount of static strain in the no-load state, it is possible to identify load cell defects and other problems through plastic deformity.
- Robot cable**
A cable used in moving applications such as industrial robots and has excellent characteristics such as bending resistance, twist resistance, oil resistance and chemical resistance.

The static strain makes it easier to check load-cells for plastic deformation.

The strain gauge based load cell produces the value of load and weight by generating strain within the elastic region on the sensing element. When the sensing element is undergoing permanent deformation, the load cell will not only fail to perform within specified parameters, but it may also cause failure of the load cell and critical damage to the whole system. Since indicators can show the input signal as microstrain, it is possible to check and monitor a load cell's condition accurately.

Load cell defect causes



For management load cell conditions



When static strain is displayed any plastic deformation of a load cell is easier to check.

TEAC's load cells are used in a variety of industries

Semiconductor technology is essential for many consumer products, such as appliances. TEAC's highly accurate force measurement allows the handling of delicate micro parts.

- Measuring and monitoring the force of a wafer prober
- Managing polishing force on the wafer polishing machine
- Force management during bonding of the wire bonding machine
- To control the loading pressure of SMT placement equipment
- Checking variation in fluid weight of residual quantity detecting

Load cell indicator and signal conditioner



Digital Indicator for load cells TD-700T



Signal Conditioner TC-11



TC-MFSR(T)-G



TC-SR(T)-G
TC-SR



TC-USR(T)-G



TC-NSR(T)-G



TC-NSRSP(T)-G



TC-BSR(T)-G



TU-QR(T)-G



TU-PGRS

Load cell LINEUP

For semiconductor

Load cells suitable for semiconductor production process

Model	Type	Rated Capacity[N]																			Rated Output [mV/V]	Non-Linearity [% R.O.]	Dimension (Diameter) [mm]	TEDS	Robot Cable	
		0.5	1	2	5	10	20	50	100	200	500	1k	2k	5k	10k	20k	50k	100k	200k	1000k						
TC-MFSR(T)-G	Compression						●	●														1.0	0.5	φ12	●	●
TC-SR(T)-G	Compression				●	●	●	●	●	●	●	●										1.0	1	φ12~φ20	●	●
TC-SR	Compression												●	●								1.0	1	φ25		
TC-USR(T)-G	Compression	●	●	●	●	●	●	●	●	●	●	●	●									0.5(~10N) 0.75(20N~)	0.3(2N/5N) 0.1	φ17~φ34	●	●
TC-NSR(T)-G	Compression											●	●									0.75	1	φ20	●	●
TC-NSRSP(T)-G	Compression							●	●	●	●											1.3	0.2	φ20	●	●
TC-BSR(T)-G	Compression														●	●	●					1.0(10kN) 1.5(20, 50kN)	1.0(10, 50kN) 2.0(20kN)	φ21~φ22	●	●
TU-QR(T)-G	Tension/ Compression							●	●	●	●	●	●									0.5	0.5	φ28	●	●
TU-PGRS	Tension/ Compression								●	●	●	●	●	●	●	●	●					2.0	0.03	φ58~φ118		

Performing reliably and accurately in a variety of industries

TEAC's many years of experience and expertise in the measurement instruments industries allows us to provide a variety of reliable, robust and accurate load cells. Let us help you select the right load cell for your application, contact TEAC today.

Application of load cells in production process

- Control a critical force in process of press-fitting, press-forming and so on.
- Measuring or managing of the force on universal testing machine.
- Measuring frictional force of sliding parts at products inspection.
- Managing quantity or weight of tanks and hoppers.

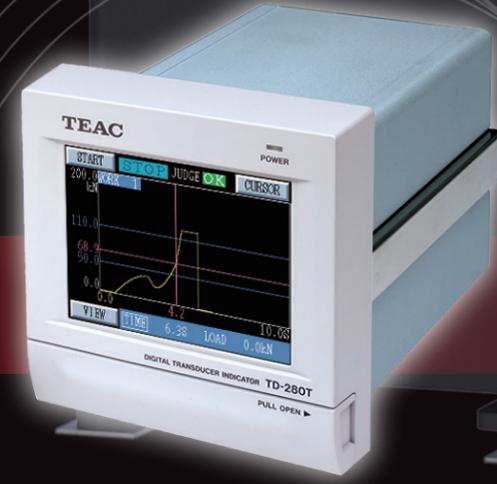
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Load cell indicators

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Portable Digital Indicator
TD-01



Digital Indicator for load cells
TD-280T

- For manufacturing

Load cells suitable for various production process

Model	Type	Rated Capacity[N]																			Rated Output [mV/V]	Non-Linearity [% R.O.]	Dimension (Diameter) [mm]	TEDS	Robot Cable			
		20	50	100	200	300	500	1k	2k	3k	5k	10k	20k	30k	50k	100k	200k	300k	500k	1000k								
TC-KR(T)-G	Compression																						1.0	0.5	φ40~φ100	●	●	
TU-PGRS	Tension/Compression			●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2.0	0.03	φ58~φ118		
TC-WAR-G	Compression						●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	2.0	0.15(~20k) 0.1(50k~)	φ60~φ116			
TC-AR(T)-G	Compression																						2.0	0.15(~30k) 0.1(50k~)	φ60~φ120	●	●	
TU-BR-G	Tension/Compression			●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	3.0	0.05	W60~74 D60~90			
TC-XR(T)-G	Compression																						1.0	0.5	φ62~φ100	●	●	
TU-GR-G	Tension/Compression																						2.0	0.05(~200k) 0.15(500k~)	φ105~φ460			



TC-KR(T)-G



TU-PGRS



TC-WAR-G



TC-AR(T)-G



TU-BR-G



TC-XR(T)-G



TU-GR-G

Load cell LINEUP