

PNP type

NPN type

- Standard Model
- CC-Link Model
- EtherNet/IP™ Model

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CC-Link EtherNet/IP™ CE C-PA US

Specifications

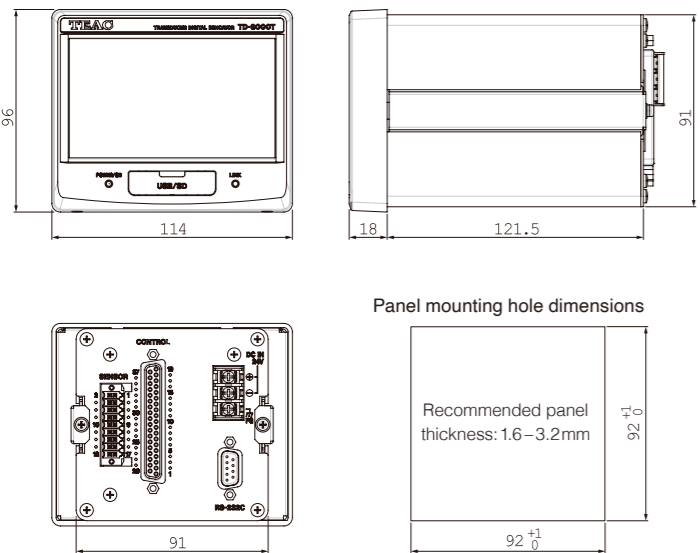
■ Sensor input		
Load sensor input		
Bridge voltage	2.5V / 5V / 10V ±10% (30mA current maximum, can be used with remote sensing)	
Signal input range	Strain gauge sensor ±3.2mV/V	
Calibration	Calibration range	0.1mV/V to 3.2mV/V
	Calibration method	Equivalent Input / Actual Load / TEDS
	Linearize function	Five-point adjustment
Precision	Linearity	Within 0.01%F.S. +1digit (when input is 3.0mV/V)
	Zero drift	Within 0.5µV/°C (Input conversion value)
	Gain drift	Within ±0.005%F.S/°C
Filter	Low pass	OFF / 3 / 10 / 30 / 100 / 300 / 1000Hz (Digital filter, -6dB/oct)
	Moving average	OFF / 2 to 2048 times
	Auto digital	Only digital value display (constant judgment)
A/D conversion	Sampling rate	5000 times per second, 25000 times per second
	Resolution	24-bit (binary)
TEDS function	IEEE1451.4 class 2 mix mode interface	

■ Device settings		
Power supply	24V DC (±10%) 13W, AC100-240V (AC adapter is optional)	
Environment	Temperature	0°C to 40°C (Operating) / -20°C to 60°C (Storage)
	Humidity	85% RH or less (without condensation)
Dimensions/ Weight	Approx. 114 x 96 x 140 mm (protrusions not included) / About 960g	
Applicable standards	EMC	FCC (class A)
	Safety	CE, UL
Display	4.3 inch LCD color resistive touchscreen	
Display range	±32000	
Language	Japanese / English / Chinese / Korean	
Screen	Digital load value, Waveform, Archive data, Setting	
Waveform	Time	80ms* / 170ms* / 400ms / 800ms / 2.0s / 4.0s / 10.0s / 30.0s / 60.0s / 120.0s *cannot be selected when the sampling frequency is set to 5 kHz.
	Displacement	2000 / 4000 / 6000 / 8000 / 10000 / 15000 / 20000 / 30000
Y-axis	Load (STD) / Load and displacement (biaxially)	
Band judgment	Offset reference band / Designated value band	
Multi-zone judgment	Up to 5 judgment zones can be set by device/ external signal	
Comparison waveform	Comparison judgment	Load: HH / HI / OK / LO / LL Displacement: HI / OK / LO
	Hold setting	Constant comparison, sampling, peak, bottom, peak to peak, maximum/minimum, inflection point and average value
Beep function	Sounding when judgments are not OK (ON / OFF Switchable)	
Measurement work settings	Number of works 16 (Work can be copied) Switching External input signal / manual	
Data recording	Built-in memory (up to 70) or SD cards	
Recording media	SD / SDHC (2 to 32GB, Class 10 recommended)	
D/A converter	Output range	Isolated, Current (4-20mA), Voltage (-10V to +10V)
	Conversion rate	Same as A/D converting rate
	Resolution	current output: about 1/43000, voltage output: about 1/59000 (when set to ±10V)
Impedance	350Ω or less (Current output) / 2kΩ or more (Voltage output)	
Communication interface	RS-232C (D-sub 9-pin), USB	
Input signal	Differential pulse displacement sensor (A phase, B phase), Back light On/Off, Touchscreen lock, reset, Work select, Hold zone select, Clear, judgment On/Off, Measurement Start/End, Preset displacement, Digital zero A signal is input by shorting/opening the input voltage using a relay or transistor, etc.	
Control input/ output signal (Photocoupler insulation)	Load judgment (HH/HI/OK/LO/LL), Displacement judgment (HI/OK/LO), Load cell error, Measurement Completed, Trigger (1, 2), Band judgment output (HI, OK, LO)	
Output signal	Open collector output (NPN or PNP: factory setting) NPN type: collector current max. 20mA / withstand voltage max. 30V PNP type: collector current max. 20mA (the output voltage will drop from the input voltage of the external power supply due to the internal circuitry.) Input voltage 24V ±10% (PNP type only)	
Check functions	Load cell check (static strain/interruption detection), contact terminal check	
Date and time setting	Date (YYYY/MM/DD, etc.) / time can be set	

Displacement Sensor Input (pulse)	
Pulse type	A/B phase or A phase, differential square wave (RS-422 conformance)
Maximum input freq.	2MHz
Maximum count value	15,000,000
Calibration method	Equivalent Input / Actual Load
Moving average filter	OFF / 2 to 2048 times
Power supply for sensor driving	5V ±10% (at no load), 500mA Max.

Displacement Sensor Input (voltage)		
Input voltage range	±5.2V	
Calibration	Calibration range	0.1 to 5.2V
	Calibration method	Equivalent Input / Actual Load
Precision	Linearity	Within 0.01%F.S. ±1digit (Input ≥3.3V)
	Zero drift	Within 0.005%F.S/°C
	Gain drift	Within 0.02%F.S/°C
Filter	Low pass	OFF / 10 / 30 / 100 / 300Hz (-6dB/oct)
	Moving average	OFF / 2 to 2048 times
A/D conversion	Resolution 24-bit (binary)	
Power supply for sensor driving	DC 12V (±10%), 250mA Max.	

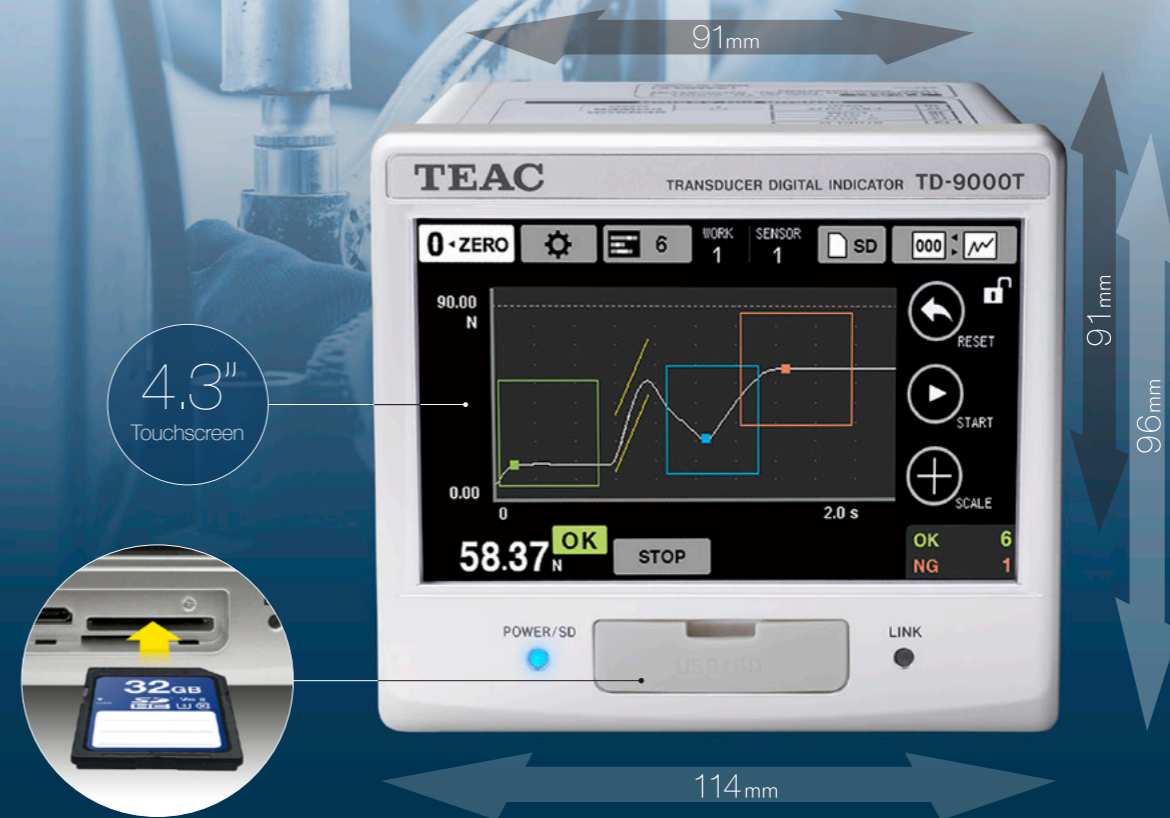
External drawings Units: mm



- Included accessories**
- SENSOR connector plug 1
 - CONTROL connector plug 1
 - Plug case for CONTROL connector

- Options**
- AC adapter PA-91 (AC100 to 240V, compliant to the safety standards of Japan and North America)
 - EtherNet/IP
 - CC-Link

Ideal for load control and quality control of press machines for press fit, caulking, etc.
A variety of judgment functions ensure reliable OK/NG judgment.



The popular TD-9000T is a digital indicator for load management that supports two inputs, load (load cell) and stroke (displacement gauge). In addition to the existing [NPN type], the [PNP type], which is mainly used in Europe, will be added to the external input/output contact type.

Touchscreen

Waveform

Judgments

D/A OUT

Linearization

Static strain

External record

RS-232C

4 languages

RoHS

TEDS

High-speed A/D conversion
25000 times/second

Compact body
with large LCD display

Load + Displacement
2-input real-time judgment

plus
More enhanced functions
than ever before

Waveform reference point
change function

+

Scale shift & zoom

+

Real-time hold function

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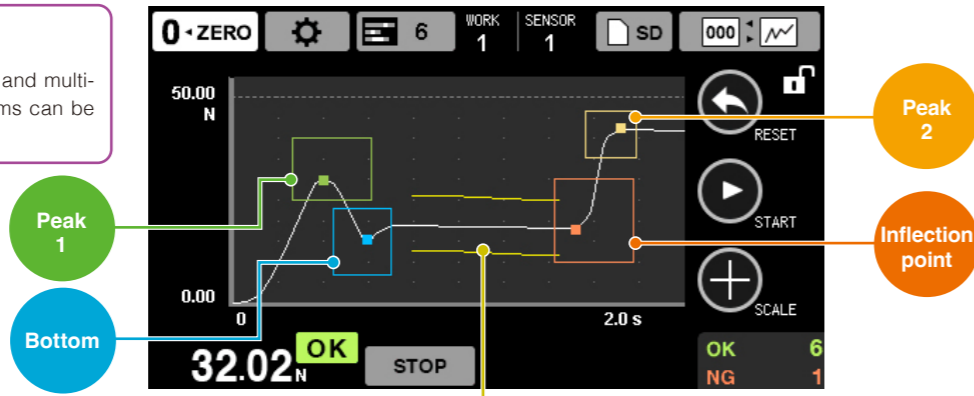
Waveform judgment in real time

Combination judgment

Simultaneous judgment by combining band and multi-zone judgments. Even complicated waveforms can be judged in detail.

Values are held by judgment methods set in respective zones.

The indicator value shows the value of "Peak 1". The hold value to be shown can be designated in settings.



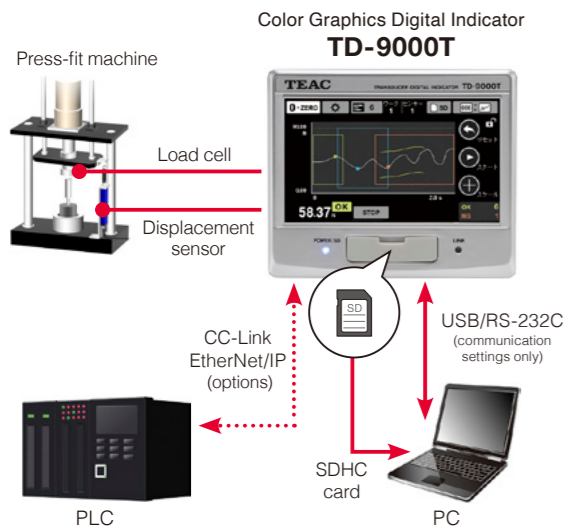
Continuous judgment



Continuous judgment is conducted when the status is "CONTINUE". Support for 4 contacts of high high limit, high limit, low limit, and low limit. OK/NG judgment in real time for the load value for a certain value.

Notification by beep sound in addition to the display

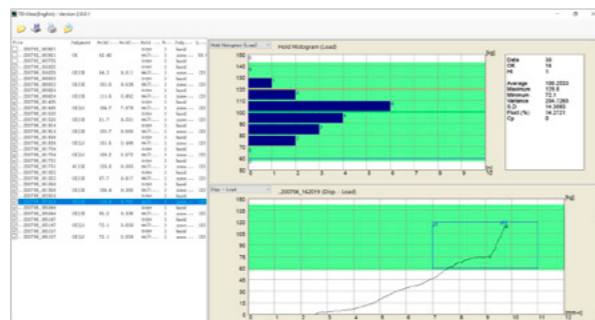
System configuration



Software

Dedicated offline data viewer TD-View

TD-View is software that displays and statistically analyzes the data recorded on the SD/SDHC card on a PC. It shows its true ability in statistical process control. Displayable contents vary depending on hold mode and others. Not merely individual measurement data (Time-Load, Time-Displacement, Displacement-Load), but also trends and histograms of OK/NG judgment points for the entire list and statistically calculated values (Data, OK/NG Count, Average, Maximum, Minimum, Variance, S.D, Fluct., Cp) are displayed.



Recommended Operating Environment
 CPU: 2nd generation Intel® Core™ i5, 3.0GHz or faster
 OS: Windows 10, Windows 11
 Memory: 4 GB or more



Contact from here
<https://loadcell.jp/en/products/indicator/td-9000t/download.html>

Data saving functions

Saving in the built-in memory

Not only measurement values, but also waveforms and judgment results are saved in the main unit memory. The saved data can be used for judgment settings of other measurements (up to 70).

Equipped with SD card drive

Measurement data, setting information, judgment results (OK/NG, judgment values) and others are saved in CSV format on the SD card, which can be verified with your spreadsheet software.

Size of one data : approx. 30KB to 60KB

The data is processed and recorded for 2240 dots on the horizontal axis of the screen. The processing interval varies depending on the full scale value of the horizontal axis. However, the value of the judgment method is not subject to processing.

To ensure stable recording, use an SD/SDHC card with a capacity of 2GB or more. For details, please refer to the Instructions for Use.



Improved SD card recording function

- Save function for each folder linked to works (up to 16)
- Newly equipped with overwrite mode. Up to 5000 items can be set (recommended: about 1000 items)

Features

1 High-speed processing 25000 times/sec

Realizing more reliable measurement without missing momentary changes.

2 Compact + Large touchscreen

A 4.3-inch wide touchscreen monitor is mounted on a general-purpose 92 x 92 mm panel mounting hole size.

3 Comes standard equipped with displacement input

Supporting pulse input (A/B phase/A phase, RS-422 compliant line driver output signal) and voltage input of ± 5.2 V. Not only time-load but also displacement-load management is possible.

4 Intelligent calibration functions

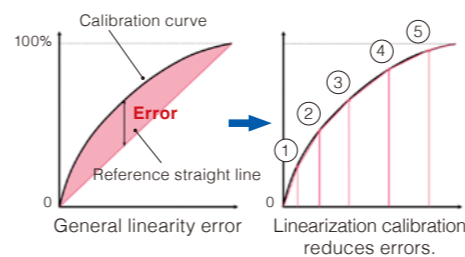
4-1 TEDS function (Sensor Plug and Play)

Realizing sensitivity automatic calibration by supporting TEDS. Contributing to reducing complicated procedures and management in calibration.



Supports IEEE1451.4 (V1.0), 4K bit, Class 2 mixed mode interface

4-2 Linearization calibration function



By linearly interpolating between any five points, an output with little error close to the output characteristics can be obtained.

5 Output functions

5-1 Analog output

- Voltage output: 0 to ± 10 V
- Current output: 4 to 20mA

5-2 Digital output

- RS-232C
- USB
- RS-232C and USB cannot be used at the same time.

Options

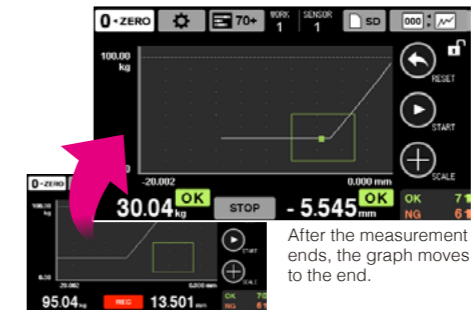
Communication options that can be used with a variety of systems

Various fieldbus options are available.

- EtherNet/IP
- CC-Link

6 End reference

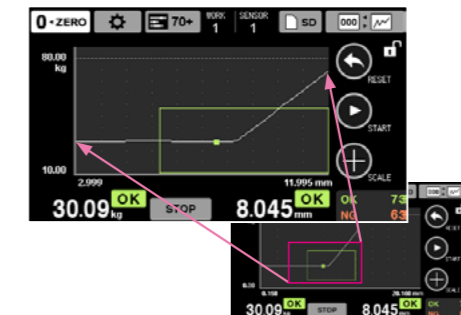
The end reference function that uses the measurement end displacement as the reference (0) and the measurement start point as the negative.



During measurement (graph drawing from the left end)

7 Scale shift & zoom

The scale shift & zoom function allows you to expand the selected area to full scale.



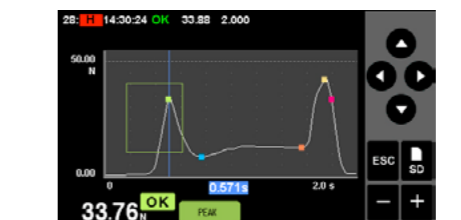
8 Real-time hold

In continuous judgment mode, the real-time hold function freezes the displayed value using a preset hold method.



9 Judgment result display function

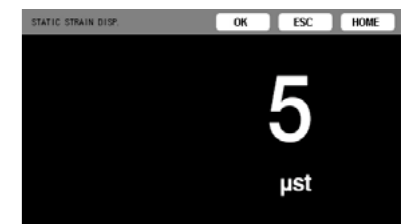
The data you care about can be checked on the spot with the judgment result.



10 Load cell diagnostic functions

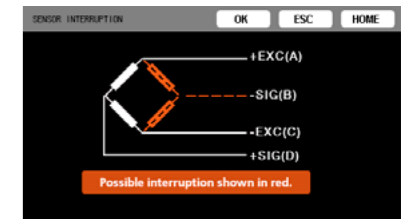
10-1 Static strain display

The function can investigate defects such as load cell deterioration and plastic deformation.



10-2 Disconnection detection

Also, the disconnection detection allows to check the location of the load cell disconnection.



11 Useful functions

11-1 EXT. TERMINAL check

Possible to check the control I/O signal status, which can be used for wiring checks and others.

11-2 Multilingual support

Languages can be switched among Japanese, English, Chinese, and Korean.



11-3 Screen BMP function

The contents displayed on the home screen can be saved and exported as a bitmap image.

11-4 Compliance of various regulations and standards

CE, UL, FCC (Class A)

11-5 Supports date and time settings

The date and time are recorded along with the measurement results.

Power option

AC adapter

- PA-91 (AC100 to 240V, compliant to the safety standards of Japan and North America)