TEAC

TD SERIES DATA VIEWER

TD-View

Instructions for Use

Thank you very much for using the TD-View TD Series Data Viewer.

Read this Instructions for Use before using it.

After reading it, keep it in a safe place for future reference.

TEAC Corporation
October 2020
Revision 2.0.0

Revision history

Revision	Date	Description
1.0.0	Nov. 2008	First edition
1.1.0	Nov. 2009	Support for added hold modes (multipoint modes, inflection point triggers)
1.1.1	July 2014	Name of contact department changed
1.1.2	June 2015	Name of contact department changed
2.0.0	Oct. 2020	Support for TD-9000T

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TEAC CORPORATION

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TEAC Data Recorder site (Inquiry Form)
https://datarecorder.jp/en/inquiry/

Instructions for Use overview

This Instructions for Use explains operation procedures for TD-View, which is a Windows PC data viewer program designed for use with TD-275/280T and TD-9000T models.
Read the Instructions for Use for the TD-275/280T or TD-9000T thoroughly before operating this program.

Conventions used in this Instructions for Use
Items and messages shown in the program are indicated with quotation marks, for example “MENU” and “Are you sure?”
Control buttons and selection items in the program are indicated with brackets, for example, [REC].

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1 – Overview

1.1. Introduction

TD-View is an offline data viewing program for TD-275/280T and TD-9000T digital indicators. Data can be shown in lists by folder, waveforms can be displayed and printed, and values totaled, for example.

1.2. Features

- Data recorded by a TD-275/280T or TD-9000T can be shown in the following formats.
  ⇒ Data recorded in a single folder can be shown in a list (with header information for file names, judgment results, hold values and other types of data)
  ⇒ Hold value data in a single folder can be shown plotted (load or displacement)
  ⇒ Hold value data in a single folder can be shown as a histogram (load or displacement)
  ⇒ Hold value data in a single folder can be shown as statistical values (load or displacement)
  ⇒ Any data in a single folder can be shown as a time series waveform (load or displacement)
  ⇒ Any data in a single folder can be shown as a displacement–load waveform
- Listed header data can be output in CSV format
- Graphs can be printed and copied to the clipboard

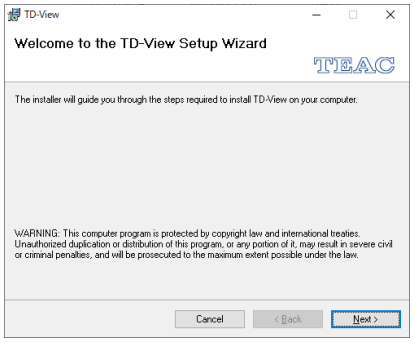
Notes:

2 – Program installation

2.1. Recommended computer set up for TD-View

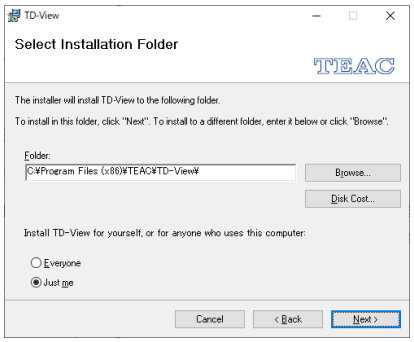
CPU:	2nd generation Intel® Core™ i5, 3.0 GHz or faster
OS:	Windows 10, Windows 7, Windows Vista, Windows XP
Memory:	4 GB or more
Hard drive open space:	10 GB or more
Screen resolution:	1024×768 pixels or more
.Net Framework	4 Client Profile

2.2. Installing TD-View

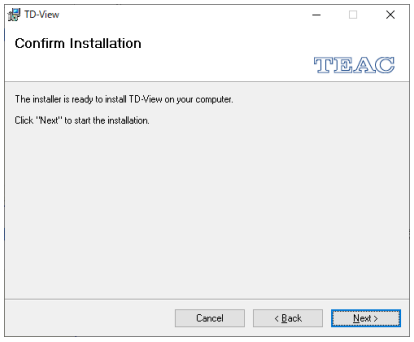


1. Double-click the TD-View installer (Setup.msi) to launch it.

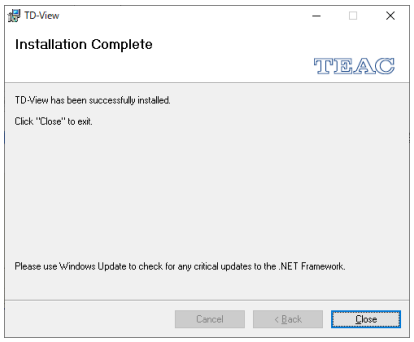
Click [Next > (N)] to open the next screen.



2. Select the installation folder. Click [Browse… (R)] to change the folder. Click [Next > (N)] to open the next screen.



3. A message to confirm the start of installation will appear. Click [Next > (N)] to start program installation.



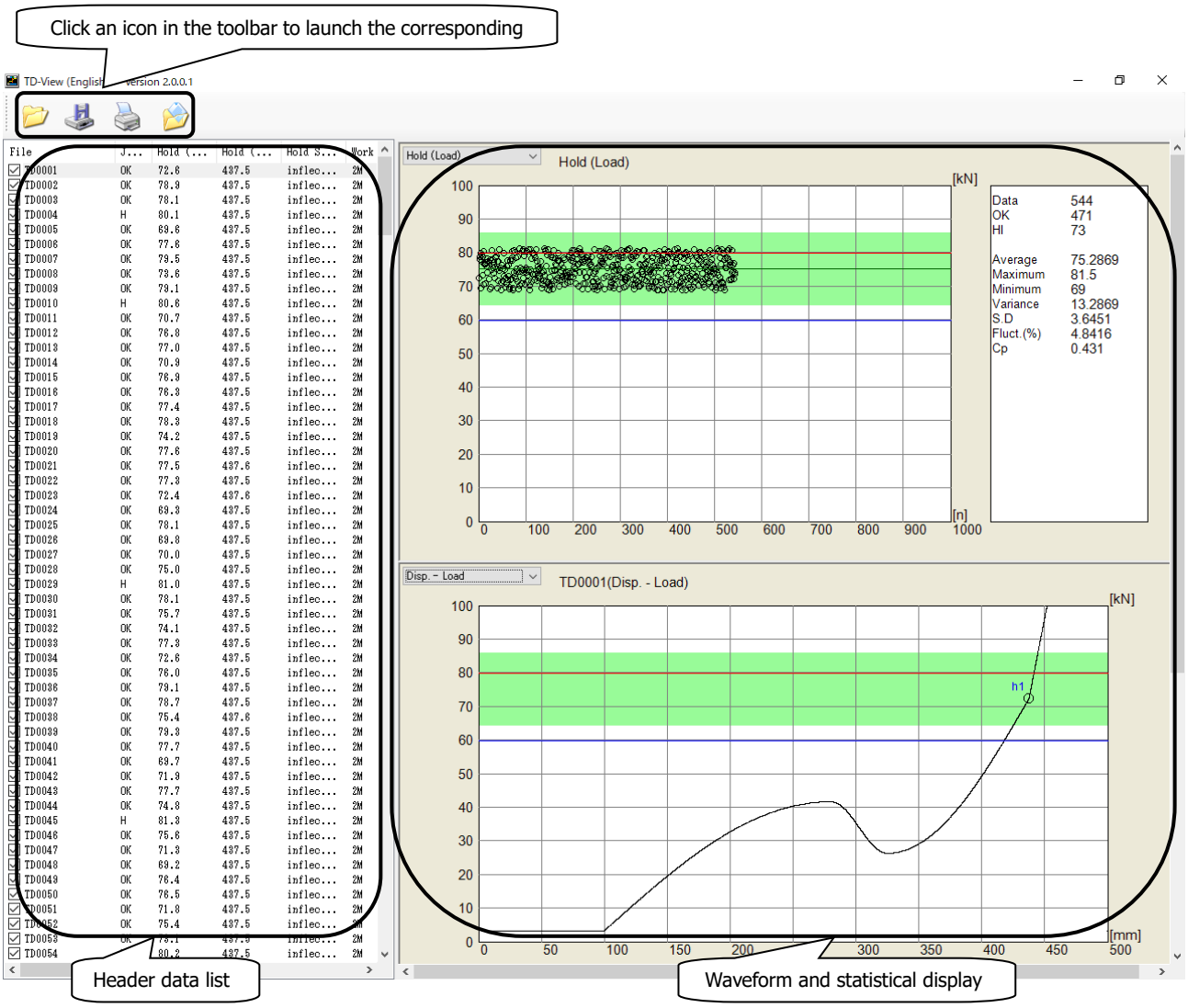
4. When program installation completes, the next message will appear. Click [Close (C)] to close the dialog.

Notes:

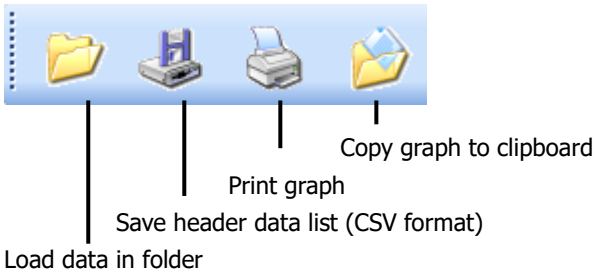
3 – Program operation

3.1. – Launching and closing the program

In the Start menu at the bottom left of the screen, click [TEAC] > [TD-View] to launch the TD-View program.



Toolbar explanation

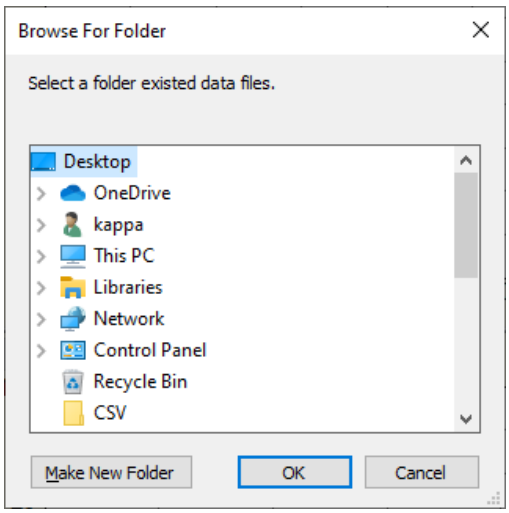


Click  at the top right of the main window to close the program.

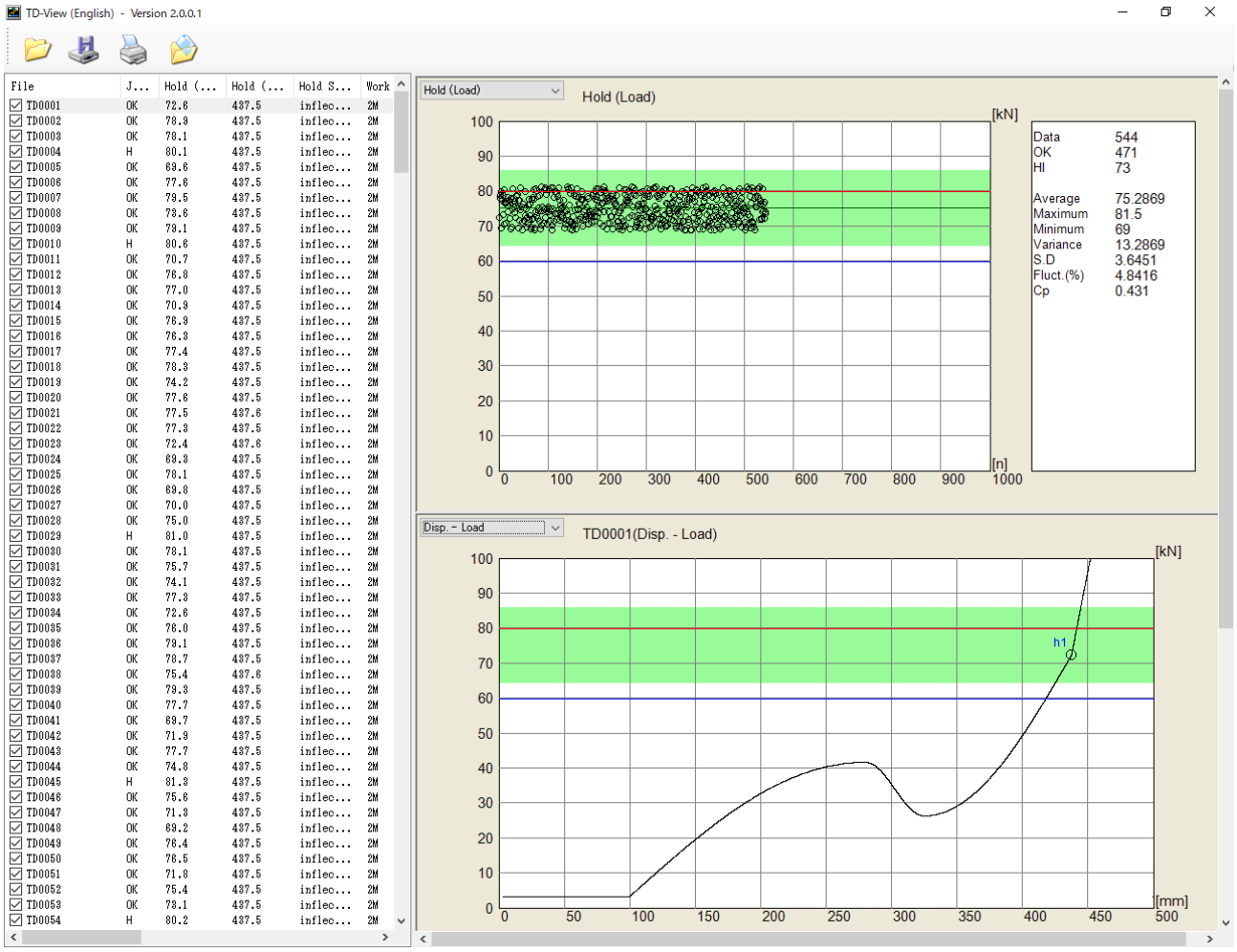
3.2. Viewing data

3.2.1. Viewing (loading) data in a folder

Click  in the toolbar to open the folder selection dialog.



Select the desired path and click [OK] to list the header data of the data files in the folder, and show the waveform that has been designated.



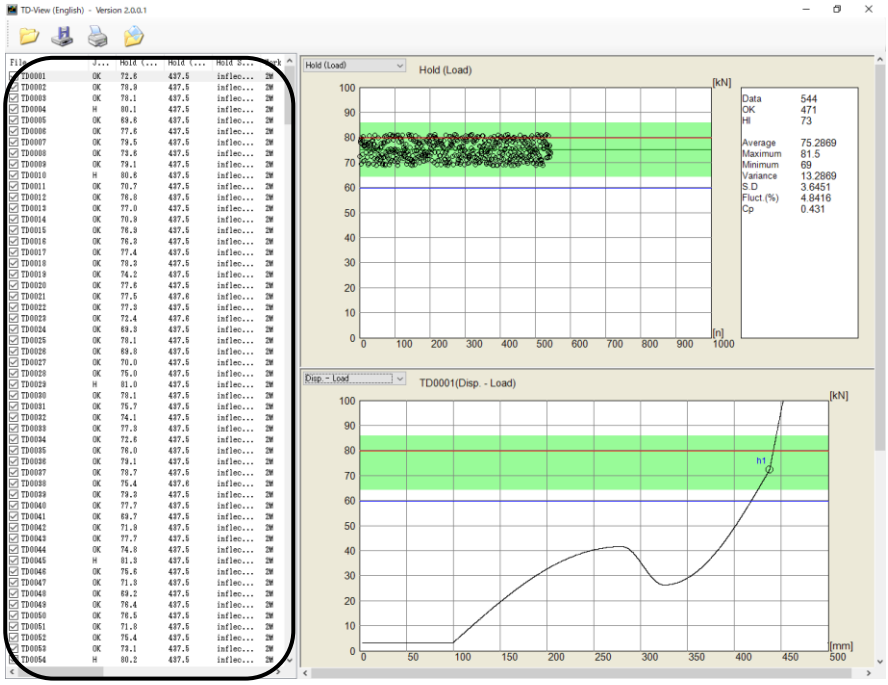
ATTENTION

⇒ Maximum quantity of data in a folder that can be processed is 262144. If the amount of data exceeds this, no data will be able to be listed.

⇒ The amount of time required to show the list is directly proportional to the amount of data in the folder. Moreover, the recording medium also affects the access speed.

3.2.2. Viewing lists

A list of header data for data files in the selected folder is shown on the left side of the window.



The meanings of the header data items are as follows.

1) File — Data file name (extension not shown)
⇒ Only checked data will be reflected in the hold and hold histogram graphs.

2) Judgment Result — Judgment result
OK/NG/H/L/HH/LL/NON or blank (none)
⇒ If displacement judgment is on for a TD-9000T, this will show load judgment followed by displacement judgment.

3) Hold (Load) — Load at hold time

4) Hold (Disp.) — Displacement at hold time

5) Hold Setting — Hold setting
TD-275/ 280T
sample/disp-sample/peak/disp-peak/displacement/inflection/maximum/minimum/multi/inflect trig/many begin/many peak
TD-9000T
band/sample/peak/bottom/p-p/average/inflect/maximum/minimum/multi
⇒ Multi (zone) holds will be shown as "multi-(each hold setting)".

6) WORK — Work number

7) Judgment Condition — Judgment condition
TD-275/280T: load/disp (displacement)/zone/zone time
TD-9000T: band/zone time/zone disp (zone displacement)

8) HI (HI (Load)) — Judgment high limit value (when Judgment Condition is load/disp/zone time)

Judgment load high limit value (when Judgment Condition is zone/band/zone disp)

9） LO (HI (Load)) Judgment low limit value (when Judgment Condition is load/disp/zone time)
Judgment load low limit value (when Judgment Condition is zone/band/zone disp)

10）HI (HI (Disp.) Judgment high high limit value (when Judgment Condition is load/zone time)
Judgment displacement high limit value (when Judgment Condition is zone/band/zone disp)

11）LL (LO (Disp.) Judgment low low limit value (when Judgment Condition is load/zone time)
Judgment displacement low limit value (when Judgment Condition is zone/band/zone disp)

12）Number of Data Number of data points
⇒ TD-275/280T: Since the sampling frequency is 2000 Hz, dividing by 2000 gives the recording time (in seconds).
⇒ TD-9000T: This is fixed at 2240. (This is the waveform data shown on the screen, not the raw data.)

13）Unit (Load) Load unit

14）Unit (Disp.) Displacement unit
⇒ TD-9000T: If the X axis is displacement, "-x" will be added to the end.

15）File Path File path name

16）Date Time Date and time

Multi-hold data overview

When multi-hold data is loaded, lists are created for each hold type.
TD-275/280T: A maximum of 3 lines are used per data point (Zone 3).
TD-9000T: A maximum of 6 lines are used per data point (Band 1, Zone 5).

File	J...	Hold (...	Hold (...	Hold Setting	Work
☑ TD0008	OK	35.0	278.5	Multi-maximum	5M
☐ TD0008	OK	65.7	437.5	Multi-infl...	5M
☐ TD0008	OK	122.4	500.0	Multi-peak	5M
☑ TD0009	OK	25.1	277.1	Multi-maximum	5M
☐ TD0009	OK	55.8	437.5	Multi-infl...	5M
☐ TD0009	OK	112.7	500.0	Multi-peak	5M
☑ TD0010	OK	37.0	279.1	Multi-maximum	5M
☐ TD0010	OK	67.6	437.5	Multi-infl...	5M
☐ TD0010	OK	125.4	500.0	Multi-peak	5M

Individual hold type and judgment conditions are recorded for Judgment Result, Hold (Load), Hold (Disp.), Hold Setting, Judgment Condition, HI, LO, HH and LL items. For other items, the same information is recorded.
Moreover, hold type will be shown as "multi-(each hold setting)".

Multipoint hold data overview

Since lists are created for each hold type when multipoint hold data is loaded, up to 7 lines are used per data point.

File	J...	Hold (...	Hold...	Hold Setting	Work
☑ TD0016	OK	92.9	450.0	many peak-X1	3M
☐ TD0016	OK	92.9	400.0	many peak-X2	3M
☐ TD0016	OK	85.6	350.0	many peak-X3	3M
☐ TD0016	OK	82.9	300.0	many peak-X4	3M
☐ TD0016	OK	80.3	250.0	many peak-X5	3M
☐ TD0016	OK	92.9	500.0	many peak-Peak	3M
☐ TD0016	OK	92.9	500.0	many peak-P...	3M

Individual hold type and judgment conditions are recorded for Judgment Result, Hold (Load), Hold (Disp.), Hold Setting, Judgment Condition, HI, LO, HH and LL items. For other items, the same information is recorded.
Moreover, hold type will be shown as "many begin - (each hold setting)" and "many peak - (each hold setting)".

Checks in the list

Only data with checks in their check boxes (enabled) in the list will be reflected in the hold and hold histogram graphs. Check boxes are enabled by default. In the case of multi-hold data, however, only the first hold type will be on (second and third types will be off).

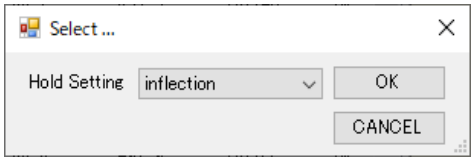
Click check boxes to turn them on/off.

File	J...	Hold (...	Hold (...	Hold S...	Work
TD0001	OK	72.6	437.5	inflec...	2M
TD0002	OK	78.9	437.5	inflec...	2M
TD0003	OK	78.1	437.5	inflec...	2M
TD0004	H	80.1	437.5	inflec...	2M
TD0005	OK	69.6	437.5	inflec...	2M
TD0006	OK	77.6	437.5	inflec...	2M
TD0007	OK	79.5	437.5	inflec...	2M
TD0008	OK	73.6	437.5	inflec...	2M
TD0009	OK	79.1	437.5	inflec...	2M
TD0010	H	80.6	437.5	inflec...	2M
TD0011	OK	70.7	437.5	inflec...	2M
TD0012	OK	76.8	437.5	inflec...	2M
TD0013	OK	77.0	437.5	inflec...	2M
TD0014	OK	70.9	437.5	inflec...	2M
TD0015	OK	76.9	437.5	inflec...	2M

To turn multiple items on/off simultaneously, use the Shift or Ctrl key on the keyboard to select them, and then click one of their check boxes.

File	J...	Hold (...	Hold (...	Hold S...	Work
TD0001	OK	72.6	437.5	inflec...	2M
TD0002	OK	78.9	437.5	inflec...	2M
TD0003	OK	78.1	437.5	inflec...	2M
TD0004	H	80.1	437.5	inflec...	2M
TD0005	OK	69.6	437.5	inflec...	2M
TD0006	OK	77.6	437.5	inflec...	2M
TD0007	OK	79.5	437.5	inflec...	2M
TD0008	OK	73.6	437.5	inflec...	2M
TD0009	OK	79.1	437.5	inflec...	2M
TD0010	H	80.6	437.5	inflec...	2M
TD0011	OK	70.7	437.5	inflec...	2M
TD0012	OK	76.8	437.5	inflec...	2M
TD0013	OK	77.0	437.5	inflec...	2M
TD0014	OK	70.9	437.5	inflec...	2M
TD0015	OK	76.9	437.5	inflec...	2M

In addition, clicking the [File] column name at the top of the list will open a “Select…” dialog.



If multi-hold data or multiple hold types have been recorded in a folder, this function can be used to check one hold type by itself.

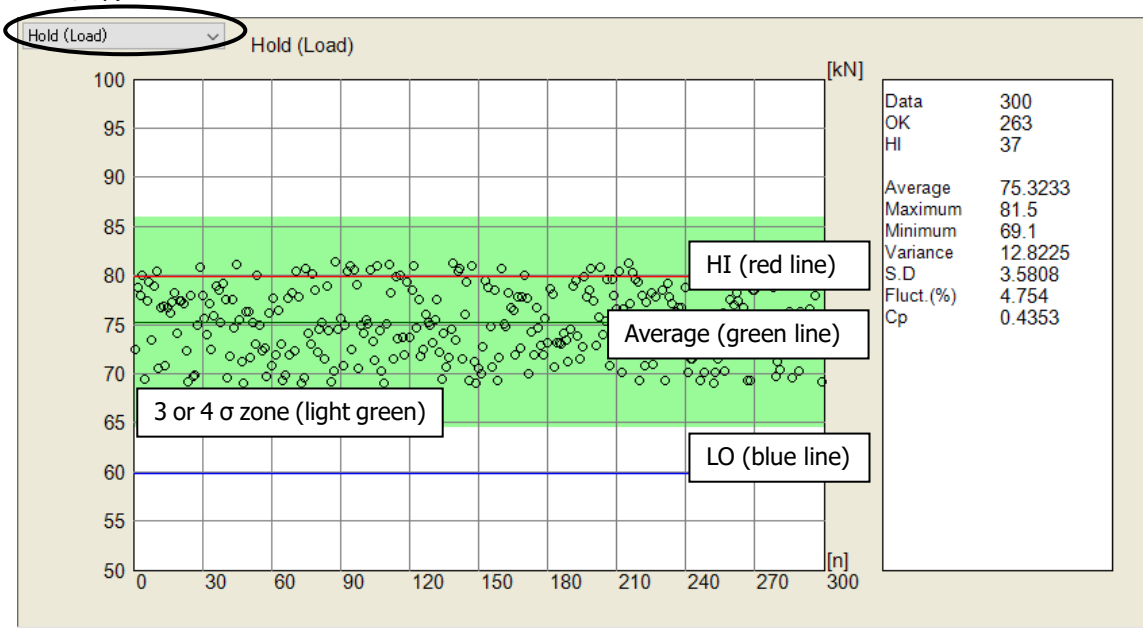
3.2.3. Viewing graphs

Three graph display areas appear on the left side of the window. They can each be set to different display formats as desired.

The 7 display formats are Hold (Load), Hold (Disp), Hold Histogram (Load), Hold Histogram (Disp.), Time – Load, Time – Disp., and Disp -Load. They can be selected from the pulldown lists at the top left corner of each area.

Hold

Hold value trends and statistically calculated values (Data, OK/NG Count, Average, Maximum, Minimum, Variance, S.D, Fluct., Cp) are shown.



⇒ The horizontal axis is data number and the vertical axis is displacement or load.

⇒ Fluct. is a value calculated from (S.D)÷(Average)×100.

⇒ Cp shows the larger of the following two values:

{(HI)−(Average)}÷{(S.D)×3} or

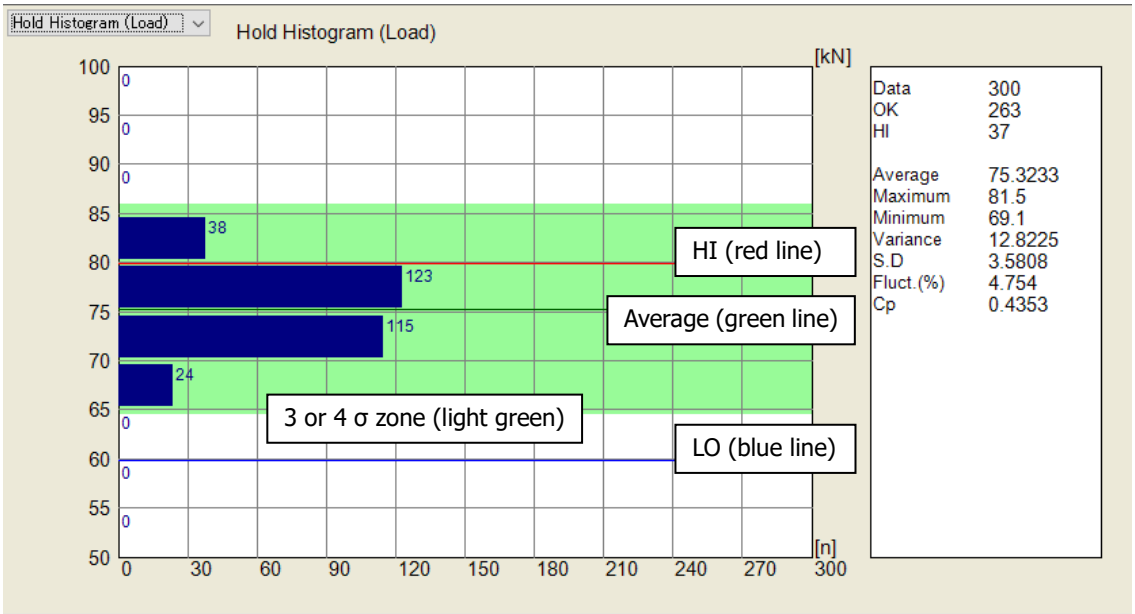
{(Average)−(LO)}÷{(S.D)×3}

⇒ HI and HH are shown with red lines and LO and LL are shown with green lines.

⇒ Only data that has been checked in the list is shown in the hold graph.

Hold histogram

A hold value histogram and statistically calculated values (Data, OK/NG Count, Average, Maximum, Minimum, Variance, S.D, Fluct., Cp) are shown.



⇒ The horizontal axis is data number and the vertical axis is displacement or load.

⇒ Fluct. is a value calculated from (S.D)÷(Average)×100.

⇒ Cp shows the larger of the following two values:

{(HI)−(Average)}÷{(S.D)×3} or

{(Average)−(LO)}÷{(S.D)×3}

⇒ HI and HH are shown with red lines and LO and LL are shown with green lines.

⇒ Only data that has been checked in the list is shown in the hold histogram.

⇒ The values for each interval are determined automatically by the vertical display range and the number of divisions.

For example, if the display range is from 50 to 100, and the number of divisions is 10, the value of each interval will be as follows.

Interval 1: 50 to less than 55

Interval 2: 55 to less than 60

:

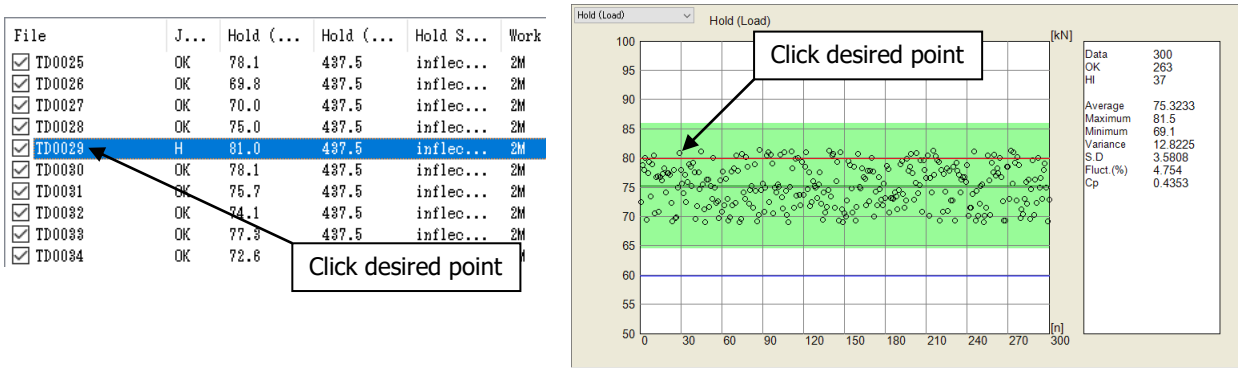
:

Interval 10: 95 to less than 100

Time series

Selected individual data points are shown.

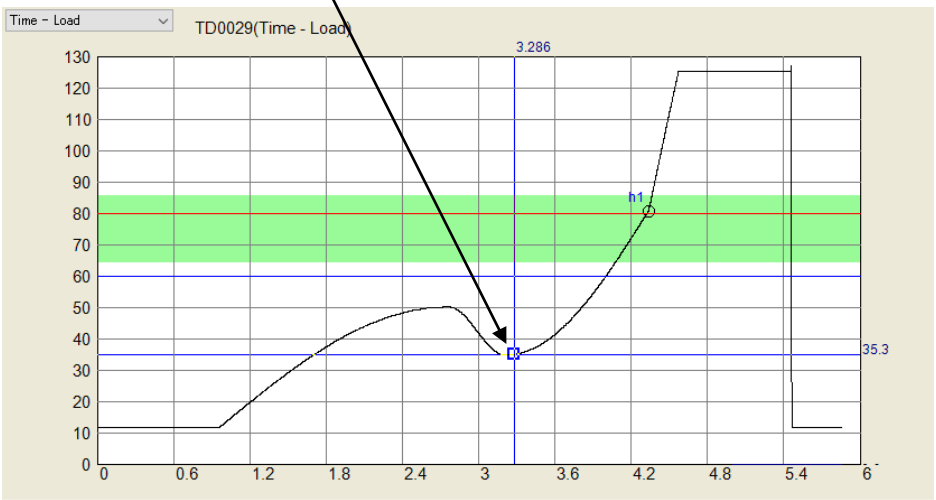
In addition to clicking on the list, selection is also possible by clicking on the hold graph.



⇒ The horizontal axis is time and the vertical axis is displacement or load.

⇒ The high high limit is shown with a red line and the low low limit is shown with a green line.

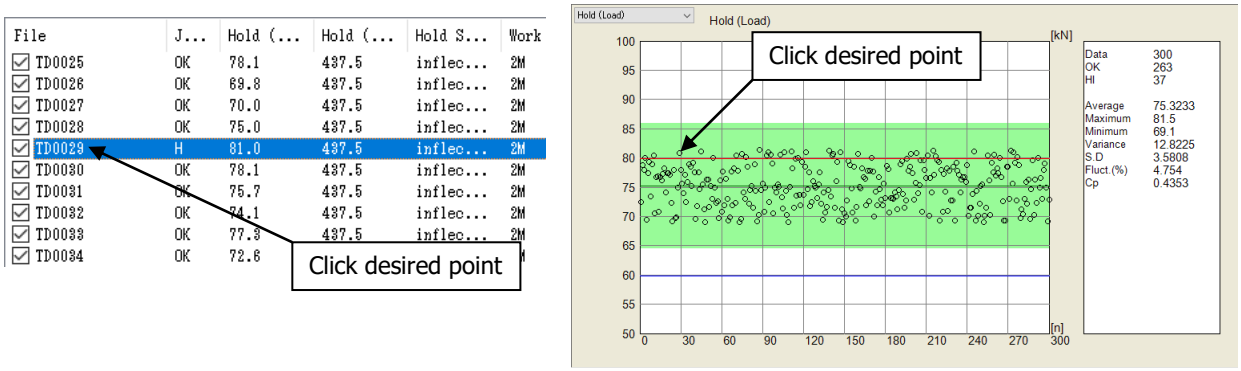
Drag on the graph to show the cursor.



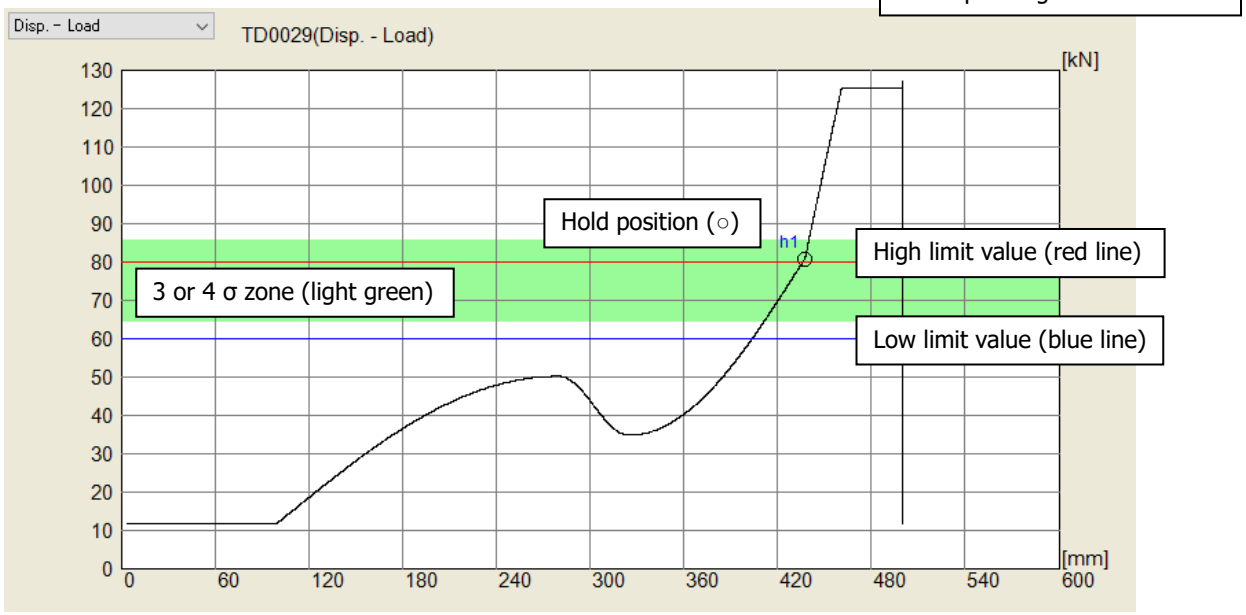
Load–displacement

Selected individual data points are shown.

In addition to clicking on the list, selection is also possible by clicking on the hold graph.



Corresponding data is shown



⇒ The horizontal axis is displacement and the vertical axis is load.

⇒ A cursor cannot be shown.

3.2.4. Changing graph display

Click a graph (or click the frames of hold and time series graphs) to open a dialog for changing the graph display range. Click [OK] to apply the changes. Click [Initialize] to restore all settings to their default values.

The functions of the setting items are as follows.

Graph 1/2/3 setting items

Type — Select the type of graph shown.
Hold (Load), Hold (Disp), Hold Histogram (Load), Hold Histogram (Disp.), Time – Load, Time – Disp., Disp -Load

X axis — Set the display range and the number of divisions shown with additional lines for the X axis.
For example, if the number of divisions is 10, 9 additional lines will divide the display area into 10 divisions.

Y axis — Set the display range and the number of divisions shown with additional lines for the Y axis.
⇒ The number of divisions becomes the number of intervals for hold histogram display.

Auto Range
If checked, when the "Type" or a graph is changed, the graph axes will automatically be set to the axis ranges set in "Signal Type".

Signal Type setting items

Time — Set the display range and the number of divisions for the time series axis.
If the Auto Range setting is checked, the display range will automatically be set to the recording time.
⇒ This is used for the Time (Load/Disp.) graph X axis.

Count — Set the display range and the number of divisions for the data number axis.
If the Auto Range setting is checked, the display range will automatically be set to the number of data points.
⇒ This is used for the Hold (Load,Disp)/Hold Histogram (Load,Disp.) graph X axis.

Load — Set the display range and the number of divisions for the load axis.
If the Auto Range setting is checked, the display range will be automatically set to the load value maximum and minimum.
(The maximum and minimum for auto range setting are the maximum and minimum hold load values

for Hold (Load) and Hold Histogram (Load) graphs and the maximum and minimum time series load values for Time – Load and Disp. - Load graphs.)

⇒ This is used for the Hold (Load)/Hold Histogram (Load)/Time – Load/Disp. - Load graph Y axis.

Disp. Set the display range and the number of divisions for the displacement axis.

If the Auto Range setting is checked, the display range will be automatically set to the displacement value maximum and minimum.

(The maximum and minimum for auto range setting are the maximum and minimum hold displacement values for Hold (Disp.) and Hold Histogram (Disp.) graphs and the maximum and minimum time series displacement values for Time – Disp. graphs.)

⇒ This is used for the Hold (Disp.), Hold Histogram (Disp.) and Time – Disp. Y axes, and for the Time – Disp. Graph X axis.

Sigma (σ) coefficient setting item

Sigma (σ) shows the standard deviation of statistical value calculations, and sets the range of the light green area shown in each graph.

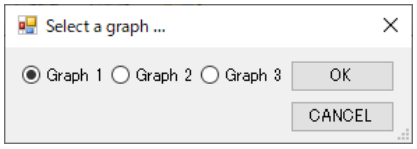
OFF	Light green area not shown.
3σ	The light green area shows a range of ±3 σ from the average value.
4σ	The light green area shows a range of ±4 σ from the average value.

3.3. Saving list data

Click  in the toolbar to open a file selection dialog, and save the header data shown in the list in CSV format.

3.4. Printing graphs

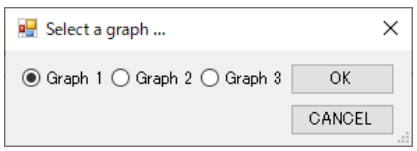
Click  in the toolbar to open the "Select a graph…" dialog.



This will only print the selected graph.

3.5. Copying graphs to the clipboard

Click  in the toolbar to open the "Select a graph…" dialog.



This will only copy the selected graph to the clipboard.

Notes