



TD-SC1 Setup Program

TD-SC1 Setup

Instructions for Use

Thank you very much for using the TD-SC1 Setup Program.

Read this manual before using it.

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

Revision history

Revision	Date	Description
1.0.0	Oct. 2020	First edition
1.1.0	Dec. 2020	Support for linearization calibration and input/output tests

Note

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Manual overview

This manual explains operation procedures for TD-SC1 Setup, which is a Windows PC setup program designed for use with the TD-SC1. Read the Instructions for Use for the TD-SC1 thoroughly before operating this program.

Conventions used in this manual

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-SC1 Setup is a set up program designed for TD-SC1 digital indicators.

1.2 Features

By connecting to a TD-SC1 by USB, the following operations are possible with that TD-SC1.

- ⇒ Importing and exporting TD-SC1 setting values
- ⇒ Loading and saving TD-SC1 setting value files
- ⇒ Digitally displaying current TD-SC1 values

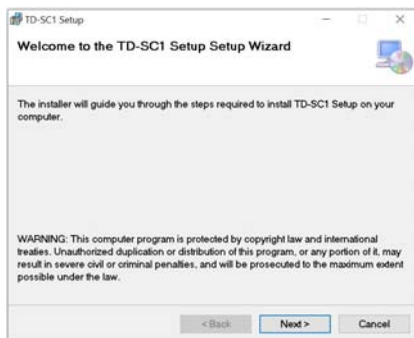
Note:

2 - Program installation

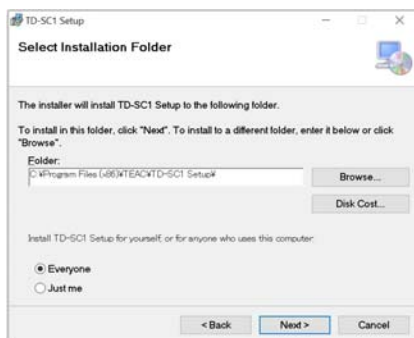
2.1 Recommended computer system for TD-SC1 Setup

CPU:	6th generation Intel® Core™ i5, 2.4 GHz or faster
OS:	Windows 10
Memory:	4 GB or more
Hard drive open space:	10 GB or more
USB 2.0	1 or more ports
Screen resolution:	1024×768 pixels or more
.Net Framework	4.7.2

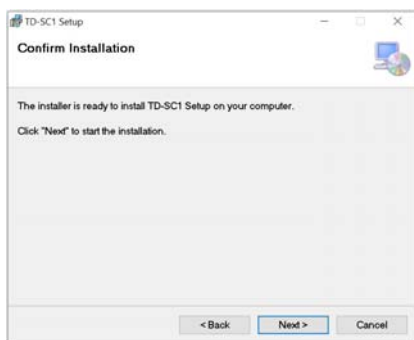
2.2 Installing TD-SC1 Setup



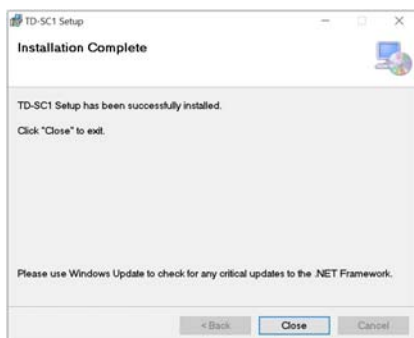
1. Double-click the TD-SC1 Setup installer (Setup.exe) to launch it.
Click [Next >] to open the next screen.



2. Select the installation folder. Click [Browse...] to change the folder.
Click [Next >] to open the next screen.



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



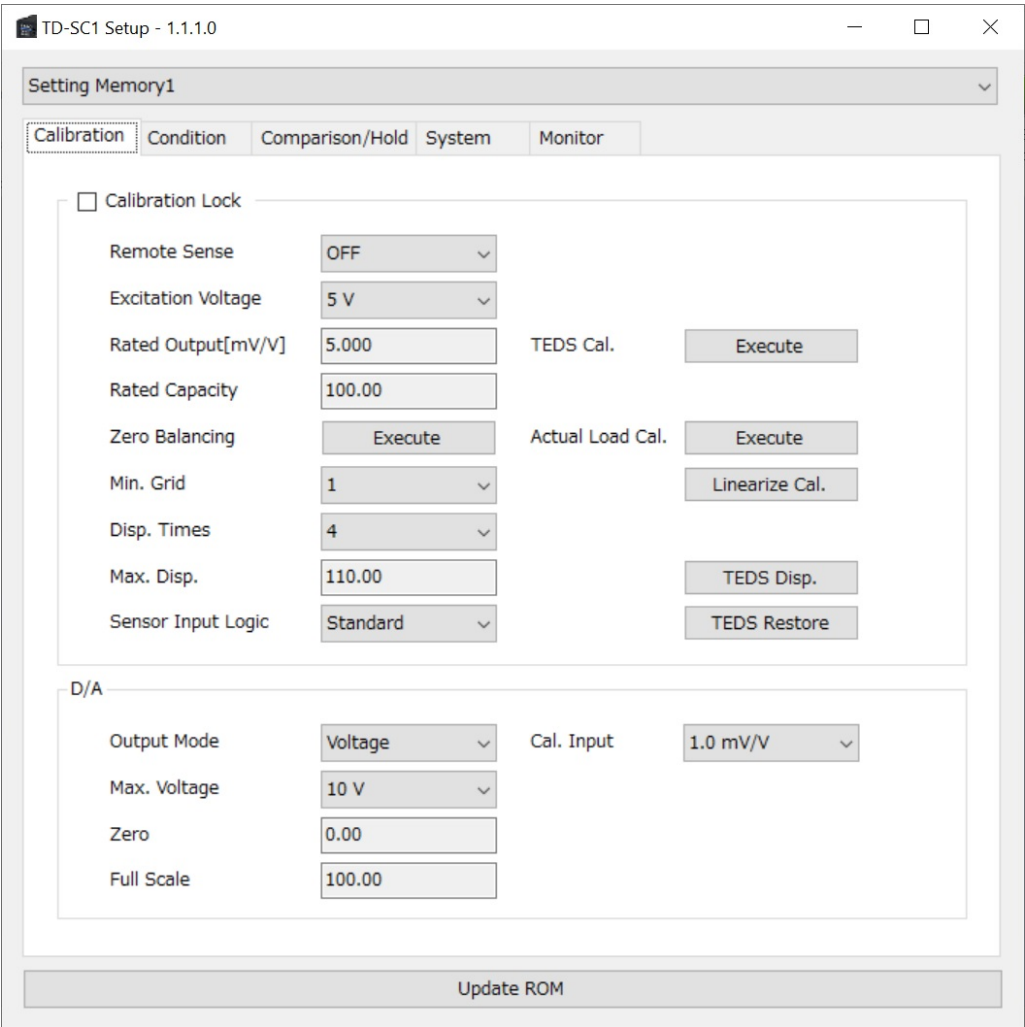
4. When program installation completes, the next message will appear.
Click [Close] to close the dialog.

Note:

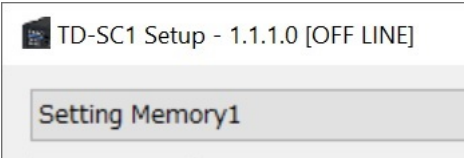
3 - Program operation

3.1 Launching and closing the program

In the Start menu at the bottom left of the screen, click [TEAC] > [TD-SC1 Setup] to launch the TD-SC1 Setup program.

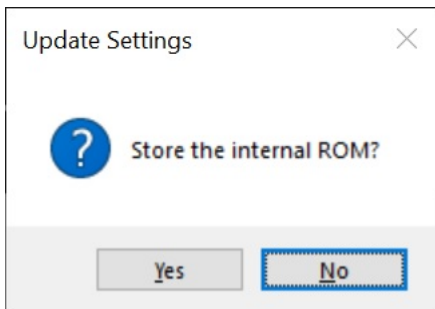


When running, it will always try to connect with the TD-SC1.
When not connected, "TD-SC1 Setup - file version [OFF LINE]" will appear in the window title bar.



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

The following menu will open before closing.

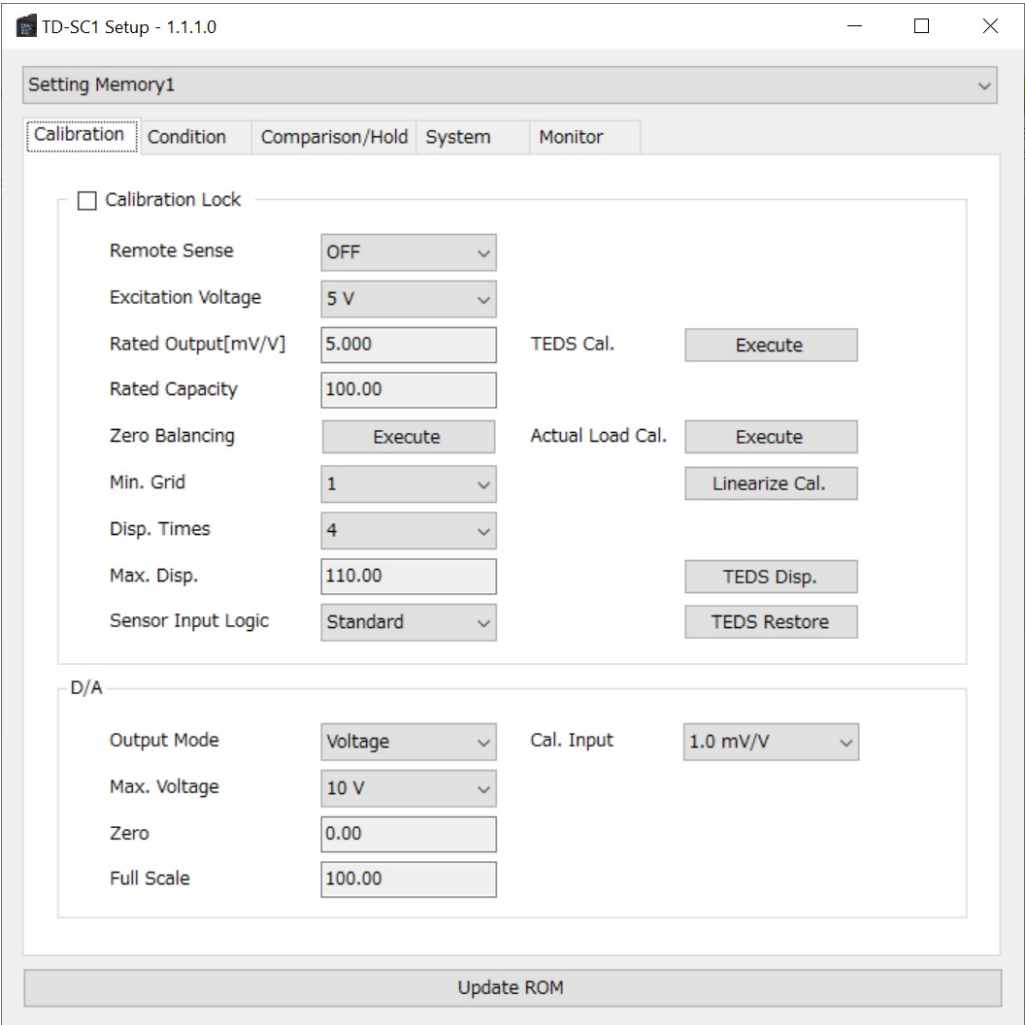


Click "Yes" to save to the unit's ROM. By doing this, the settings will be retained even if the unit is turned off.

(Clicking "Update ROM" at the bottom of the main window has the same effect. "Update ROM" becomes available when settings have been changed.)

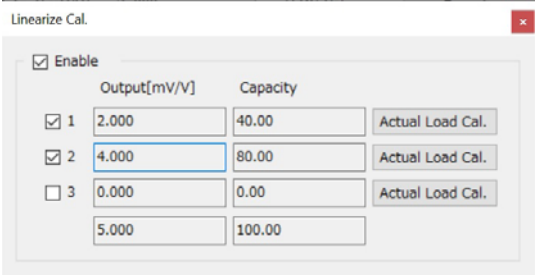
3.2 Calibrating

Make the “Calibration” tab active. (Click the “Calibration” tab if another tab is active.)



Calibration Lock	Remove the check to enable setting of the calibration items. (Remote Sense, Excitation Voltage, Rated Output, Rated Capacity, Zero Balancing, Actual Load Cal., TEDS Cal., Min. Grid, Disp. Times, Sensor Input Logic)
Remote Sense	Turn Remote Sense on/off.
Excitation Voltage	Set the excitation voltage.
Rated Output [mV/V]	Use when conducting equivalent input calibration. Click the field showing the value to open a setting dialog. Click “Set” to change the setting.
	<div><div>Rated Output[mV/V]</div><div><div>5.000</div><div>Set</div></div></div>
Rated Capacity	Use when conducting equivalent input calibration and actual load calibration. Click the field showing the value to open a setting dialog. Click “Set” to change the setting.
Zero Balancing	Click the “Execute” button to conduct zero balancing. Always conduct this with no load immediately after equivalent input calibration or TEDS calibration, as well as immediately before actual load calibration.

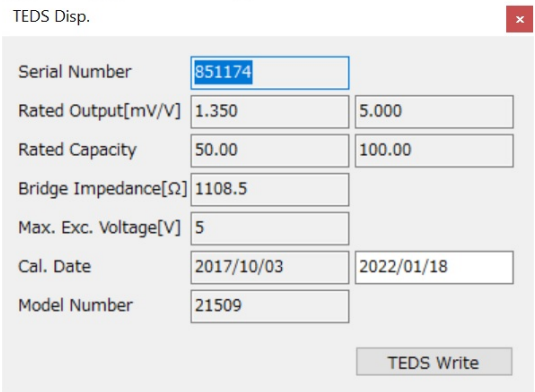
- Actual Load Cal.
TEDS Cal.
Linearize Cal.
- Click the "Execute" button to conduct actual load calibration.
Always conduct this with the rated capacity load that was set in advance.
Click the "Execute" button to conduct TEDS calibration.
Click the "Linearize Cal. " button to open a dialog.
Check "Enable" to conduct linearization calibration for up to three points.
From the left, each point has an on/off checkbox, an output value (mV/V) and a capacity value. Set the output value (mV/V) first. Click the "Actual Load Cal. " button if actual load calibration is necessary.



The "Linearize Cal." dialog box has a title bar with a close button. It contains an "Enable" checkbox which is checked. Below it is a table with three columns: a checkbox, "Output[mV/V]", and "Capacity". There are three rows of data, each with an "Actual Load Cal." button to its right.

	Output[mV/V]	Capacity	
<input checked="" type="checkbox"/> 1	2.000	40.00	Actual Load Cal.
<input checked="" type="checkbox"/> 2	4.000	80.00	Actual Load Cal.
<input type="checkbox"/> 3	0.000	0.00	Actual Load Cal.
	5.000	100.00	

- Min. Grid
Disp. Times
Max. Disp.
Click the field showing the value to open a setting dialog.
- Set the minimum digital change of the indicator value.
Set the number of times that the indicator value is shown per second.
Set the highest indicator value.
- Sensor Input Logic
TEDS Disp.
- Click "Set" to change the setting.
The sensor input logic can be reversed artificially. Normally, "Standard" should be used.
This writes the current rated output, rated capacity and calibration date to the TEDS memory.
Click the "TEDS Disp." button to open the setting dialog.
The left side shows the current TEDS memory values and the right side shows the current rated output, rated capacity and calibration date. Click the "TEDS Write" button to open a request for the write password. Input "000015". When writing succeeds, a "Succeeded" message will appear.



The "TEDS Disp." dialog box has a title bar with a close button. It contains several input fields and a "TEDS Write" button.

Serial Number	851174	
Rated Output[mV/V]	1.350	5.000
Rated Capacity	50.00	100.00
Bridge Impedance[Ω]	1108.5	
Max. Exc. Voltage[V]	5	
Cal. Date	2017/10/03	2022/01/18
Model Number	21509	

TEDS Write

- TEDS Restore
- Restore calibration values that were changed using "TEDS Write" to product factory defaults.
(If writing has not been conducted once, restoring will fail.)
Click the "TEDS Restore" button to open a request for the restore password. Input "000015". When restoring succeeds, a "Succeeded" message will appear.

Enabled only for D/A models

- Output Mode
Max. Voltage
Zero
Full Scale
Cal. Input
- Set this to voltage output or current output.
When using output voltage, set the maximum voltage from 1—10 V.
Set the indicator value output for 0V voltage or 4mA current.
Set the indicator value output for maximum voltage or 20mA current.
When the CAL button is pressed, voltage equivalent to the value input for this setting is output.
(This is also output during input/output tests.)

3.2.1 Conducting equivalent input calibration

TD-SC1 Setup - 1.1.1.0

Setting Memory1

Calibration Condition Comparison/Hold System Monitor

☐ Calibration Lock ① ⑦

Remote Sense ② OFF

Excitation Voltage ② 5 V

Rated Output[mV] ③ 5.000 TEDS Cal. Execute

Rated Capacity ④ 100.00

Zero Balancing ⑤ Execute Actual Load Cal. Execute

Min. Grid ⑥ 1 Linearize Cal.

Disp. Times ⑥ 4

Max. Disp. 110.00 TEDS Disp.

Sensor Input Logic Standard TEDS Restore

D/A

Output Mode Voltage Cal. Input 1.0 mV/V

Max. Voltage 10 V

Zero 0.00

Full Scale 100.00

Update ROM

- ① Disable calibration locking (uncheck the box.)
- ② Set the Remote Sense and Excitation Voltage.
- ③ Set the Rated Output value (with up to 3 decimal places.)
- ④ Set the Rated Capacity value. Set the number of digits after the decimal place accurately (0—4 digits can be set).
- ⑤ With no load, execute Zero Balancing.
- ⑥ Set the Min. Grid, Disp. Times, Max. Disp. and Sensor Input Logic.
- ⑦ Enable calibration locking (check the box.)

Calibration will change the following items, so check them beforehand.

D/A Zero, Full Scale

Moreover, decimal point position changes will be applied to the following items.

Condition Motion Detect Width, Zero Tracking Width, Digital Zero Limit Value, Digital Zero Offset

Comparison Comparison Values (HI, LO), Hysteresis, Bar Meter Zero Position

3.2.2 Conducting actual load calibration

TD-SC1 Setup - 1.1.1.0

Setting Memory1

Calibration Condition Comparison/Hold System Monitor

☐ Calibration Lock ① ⑦

Remote Sense ② OFF

Excitation Voltage ② 5 V

Rated Output[mV/√n] 5.000 TEDS Cal. Execute

Rated Capacity ③ 100.00

Zero Balancing ④ Execute Actual Load Cal. ⑤ Execute

Min. Grid ④ 1 Linearize Cal.

Disp. Times 4

Max. Disp. ⑥ 110.00 TEDS Disp.

Sensor Input Logic Standard TEDS Restore

D/A

Output Mode Voltage Cal. Input 1.0 mV/V

Max. Voltage 10 V

Zero 0.00

Full Scale 100.00

Update ROM

- ① Disable calibration locking (uncheck the box.)
- ② Set the Remote Sense and Excitation Voltage.
- ③ Set the rated capacity value of the actual load. Set the number of digits after the decimal place accurately (0—4 digits can be set).
- ④ With no load, execute Zero Balancing.
- ⑤ With the actual load, execute Actual Load Calibration.
- ⑥ Set the Min. Grid, Disp. Times, Max. Disp. and Sensor Input Logic.
- ⑦ Enable calibration locking (check the box.)

Calibration will change the following items, so check them beforehand.

D/A Zero, Full Scale

Moreover, decimal point position changes will be applied to the following items.

Condition	Motion Detect Width, Zero Tracking Width, Digital Zero Limit Value, Digital Zero Offset
Comparison	Comparison Values (HI, LO), Hysteresis, Bar Meter Zero Position

3.2.3 Conducting TEDS calibration

TD-SC1 Setup - 1.1.1.0

Setting Memory1

Calibration Condition Comparison/Hold System Monitor

☐ Calibration Lock

Remote Sense OFF

Excitation Voltage 5 V

Rated Output[mV/V] 5.000

Rated Capacity 100.00

Zero Balancing Execute

Min. Grid 1

Disp. Times 4

Max. Disp. 110.00

Sensor Input Logic Standard

TEDS Cal. Execute

Actual Load Cal. Execute

Linearize Cal.

TEDS Disp.

TEDS Restore

D/A

Output Mode Voltage

Max. Voltage 10 V

Zero 0.00

Full Scale 100.00

Cal. Input 1.0 mV/V

Update ROM

- ① Disable calibration locking (uncheck the box.)
- ② Set the Remote Sense to OFF and set the Excitation Voltage.
- ③ Execute TEDS Calibration.
- ④ With no load, execute Zero Balancing.
- ⑤ Set the Min. Grid, Disp. Times, Max. Disp. and Sensor Input Logic.
- ⑥ Enable calibration locking (check the box.)

Calibration will change the following items, so check them beforehand.

D/A Zero, Full Scale

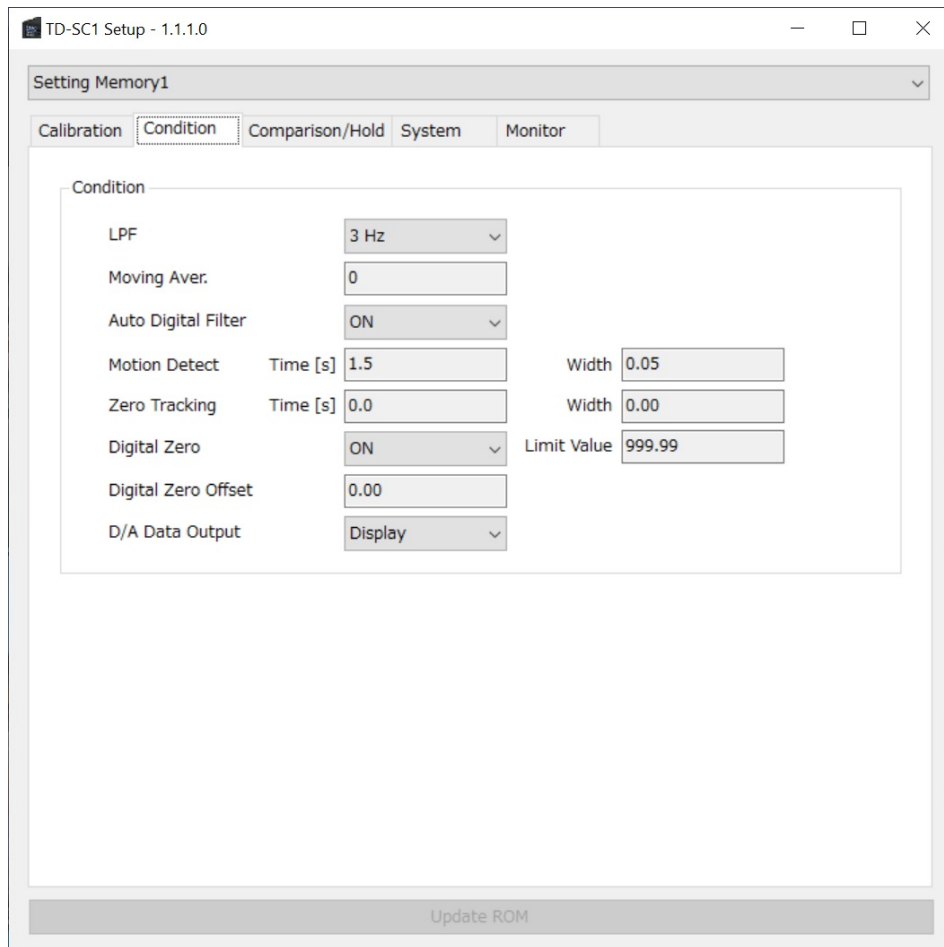
Moreover, decimal point position changes will be applied to the following items.

Condition Motion Detect Width, Zero Tracking Width, Digital Zero Limit Value, Digital Zero Offset

Comparison Comparison Values (HI, LO), Hysteresis, Bar Meter Zero Position

3.3 Making condition settings

Make the "Condition" tab active. (Click the "Condition" tab if another tab is active.)



LPF	Set the low pass filter cutoff frequency.
Moving Aver.	Set the moving average number. Click the field showing the value to open a setting dialog. Click "Set" to change the setting.
Auto Digital Filter	Turn Auto Digital Filter ON/OFF
Motion Detect	Set the Time (s) and Width used to detect stability. Click the field showing the value to open a setting dialog. Click "Set" to change the setting.
Zero Tracking	Set the Time (s) and Width used to automatically track and correct drift and other gradual changes to the zero point. Click the field showing the value to open a setting dialog. Click "Set" to change the setting.
Digital Zero	Turn Digital Zero ON/OFF. Click the field showing the Limit Value used for the Digital Zero function to open a setting dialog. Click "Set" to change the setting.
Digital Zero Offset	The set value is subtracted from the measured value. Click the field showing the value to open a setting dialog. Click "Set" to change the setting.
D/A Data Output	Set whether to link D/A output to display or input.

3.4 Making comparison/hold settings

Make the “Comparison/Hold” tab active. (Click the “Comparison/Hold” tab if another tab is active.)

TD-SC1 Setup - 1.1.1.0

Setting Memory1

CalibrationConditionComparison/HoldSystemMonitor

Comparison

Comp. Value

HI100.00LO50.00

Comp. PatternLO/OK/HI

Comp. ModeAlways

Hysteresis0.00

Comp. Output PatternStandard Output

Bar Meter Zero Position1.00

Hold

Hold ModeSAMPLE

External Hold ModeLevel

CLEAR SignalON

Zone DefinitionOFF

Auto ZeroOFF

Update ROM

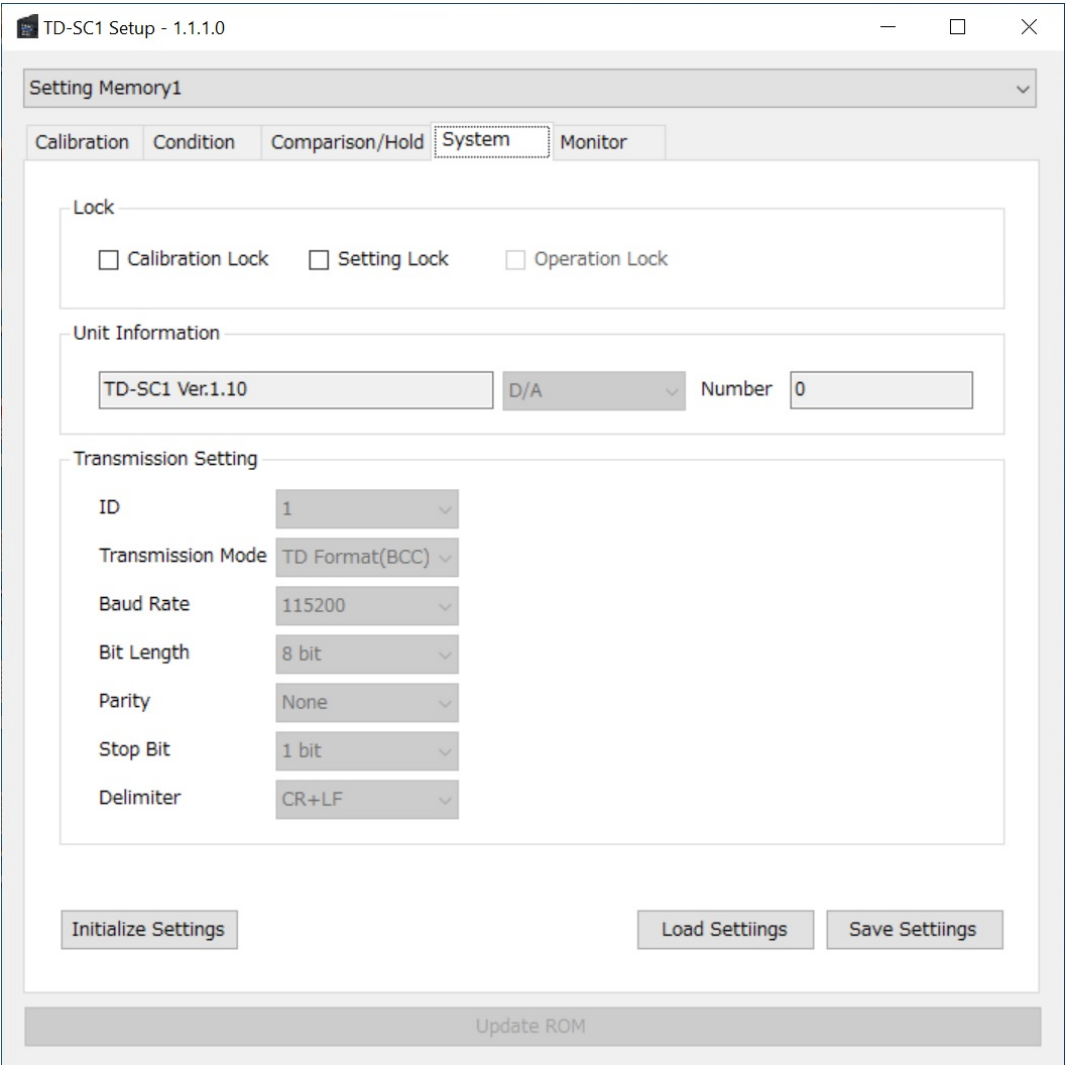
Comp. Value	Set the high limit and low limit values, compare them with indicator values, and turn judgment output ON for each one. Click the field showing the value to open a setting dialog. Click “Set” to change the setting.
Comp. Pattern	Set the comparison judgment OK pattern for the set comparison values.
Comp. Mode	Set the conditions for conducting comparison judgment.
Hysteresis	Set the width for switching judgment output. Click the field showing the value to open a setting dialog. Click “Set” to change the setting.
Comp. Output Pattern	Set judgment output operation to Standard Output or Area Output.
Bar Meter Zero Position	Set the range in which indicator values are evaluated as being nearly zero. Click the field showing the value to open a setting dialog. Click “Set” to change the setting.
Hold Mode	Set the indicator value hold condition.
External Hold Mode	Set the control input terminal HOLD signal format.
CLEAR Signal	Set whether control input terminal CLEAR signals are enabled (ON) or disabled (OFF).

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Zone Definition	When set to ON, the indicator value will continue to be shown after the hold ends. Use a control input terminal CLEAR signal to stop showing it.
Auto Zero	Set whether or not to automatically execute a Digital Zero when a hold starts (ON/OFF).

3.5 Making system settings

Make the “System” tab active. (Click the “System” tab if another tab is active.)



Calibration Lock	Remove the check to enable setting of the calibration items. (Remote Sense, Excitation Voltage, Rated Output, Rated Capacity, Zero Balancing, Actual Load Cal., TEDS Cal., Min. Grid, Disp. Times, Sensor Input Logic)
Setting Lock	Remove the check to enable setting D/A, Condition, Comparison and System items. (All D/A items, all Condition items, all Comparison/Hold settings, Unit Information Number)
Operation Lock	This shows the panel lock status of the unit. If the box is unchecked, it is unlocked.
Unit Information	This shows the model name, firmware version and communication option setting. The option mode can be changed when offline.
Number	This sets the identification number of the unit. Click the field showing the value to open a setting dialog. Click “Set” to change the setting.

Enabled only for RS-485 models

ID	Set the RS-485 COM port number.
Transmission mode	Set the RS-485 transmission mode.
Baud Rate	Set the RS-485 baud rate.
Bit Length	Set the RS-485 bit length.
Parity	Set the RS-485 parity bit.
Stop Bit	Set the RS-485 stop bit.
Delimiter	Set the RS-485 delimiter.
Initialize Settings	Initialize the settings. Initialization will not be executed if calibration or setting values are locked.
Load Settings	Load settings saved in a file. Initialization will not be executed if calibration or setting values are locked.
Save Settings	Save the current settings.

3.6 Changing setting memories

Setting Memories 1–4 can be changed, and the current Setting Memory can be set.

TD-SC1 Setup - 1.1.1.0

Setting Memory1

Setting Memory1

Setting Memory2

Setting Memory3

Setting Memory4

Remote Sense

OFF

Excitation Voltage

5 V

Rated Output[mV/V]

5.000

Rated Capacity

100.00

Zero Balancing

Execute

Min. Grid

1

Disp. Times

4

Max. Disp.

110.00

Sensor Input Logic

Standard

TEDS Cal.

Execute

Actual Load Cal.

Execute

Linearize Cal.

TEDS Disp.

TEDS Restore

D/A

Output Mode

Voltage

Max. Voltage

10 V

Zero

0.00

Full Scale

100.00

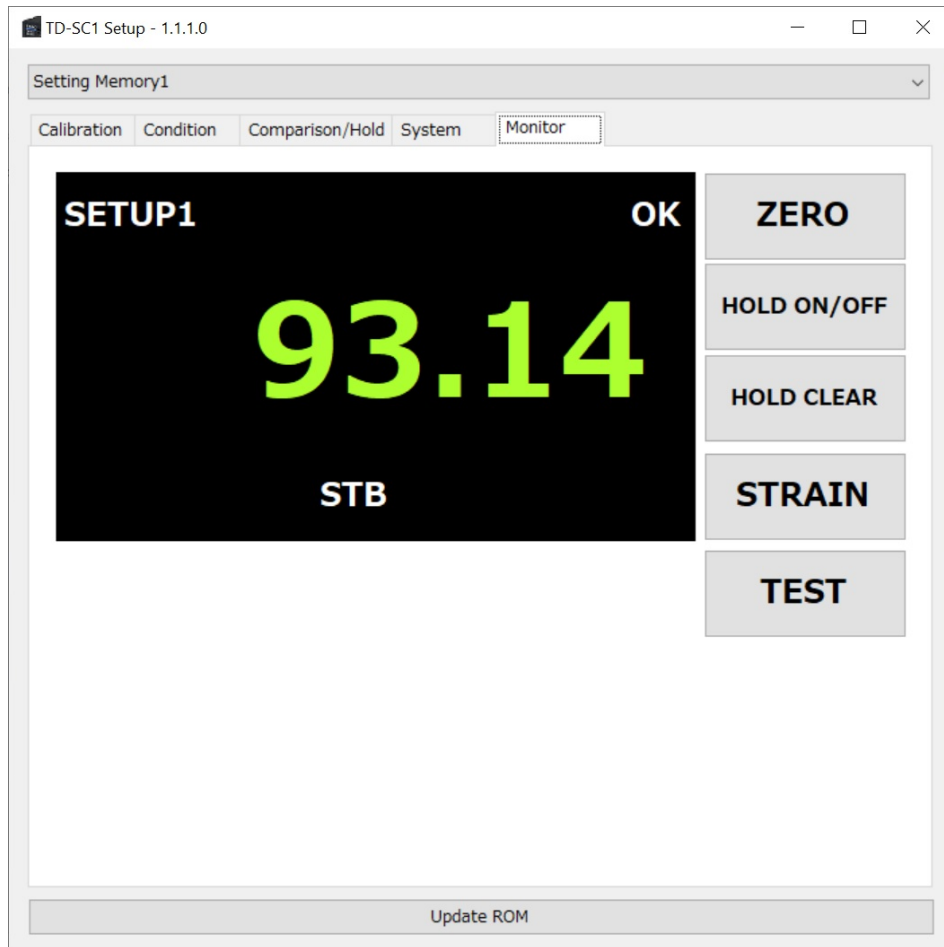
Cal. Input

1.0 mV/V

Update ROM

3.7 Monitoring

Make the "Monitor" tab active. (Click the "Monitor" tab if another tab is active.)



Indicator Value

SETUP (number)

LO/OK/HI/FULL

ZERO

STB

HOLD

The current indicator value is shown.

This shows the current setting memory number.

This shows the comparison judgment.

This appears when the indicator value is nearly zero.

This appears when the indicator value is stable.

This appears when the indicator value is held.

ZERO button

HOLD ON/OFF button

HOLD CLEAR button

STRAIN button

TEST button

Click to execute the Digital Zero function.

Click to turn hold on/off.

Click to clear a hold.

Click to show/hide static strain.

Execute an input/output test. When Input is ON (LOW), it becomes light blue.

Click an Output button to switch it on/off. (Light blue is on.)

