

# Handheld Digital Tachometer DT-2100 Specialized Software

# **Instruction Manual**

Be sure to read before use.

# Precaution

- All the rights including copyrights related to the tachometer "DT-2100", specialized software, and its relevant documents belong to NIDEC-SHIMPO CORPORATION.
- For other precautions, refer to the terms of use described in this instruction manual.
- Some specifications differ depending on the sales area of the DT-2100.

# **NIDEC-SHIMPO CORPORATION**

# Contents

1. Introduction	2
2. Software Operation Requirements	2
3. Installation	3
4. Starting Application	5
5. Main Screen	6
5.1 USB Connection Status	6
6. Continuous Data Import Screen	7
6.1. Measurement Display	8
6.2 Measurement Results	9
6.3 CSV File Operation	12
7. Graph Screen	13
7.1. Graph Drawing	
8. Continuous Data Import Screen	16
8.1 Continuous Memory	
8.2 Each Memory	10 17
8.3 Statistics Memory	
8.4 CSV File Operation	
9. SET_USER Screen	18
10. SET_SYSTEM Screen	19
11. SEL_USER Screen	20
12. Error Message List	21
13. Terms of Use	24
14 Communication Commands	25

# 1. Introduction

Thank you for purchasing the Handheld Digital Tachometer "DT-2100" (hereinafter referred to as the DT-2100).

This instruction manual summarizes the operation procedure of the DT-2100 specialized software.

# 2. Software Operation Requirements

The software operation requirements for the DT-2100 specialized software is as follows:

#### Software Operation requirements

- •DOS/V compatible machines
- •Microsoft Windows® 7\* (Japanese/English environment) (32 bit/64 bit)
- •Microsoft Windows® 8\* (Japanese/English environment) (32 bit/64 bit)
- •Required Memory 2GB RAM

# Communication method: RS-232C (Virtual COM port)

#### Communication protocol

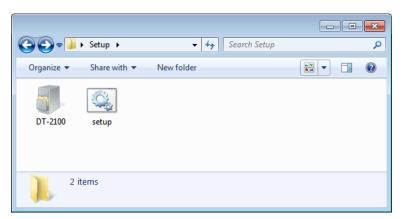
Baud rate	38400bps
Data	8bit
Parity	None
Stop bit	1bit
Flow control	None

<sup>\*</sup>Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

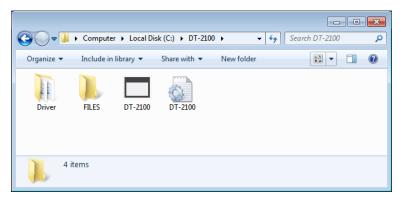
# 3. Installation

# (1) Application installation

Double click setup.bat in the installation media "setup" folder to execute installation.



When installation is completed, the following files and folders are created under "C:\DT-2100".



# (2)File configuration

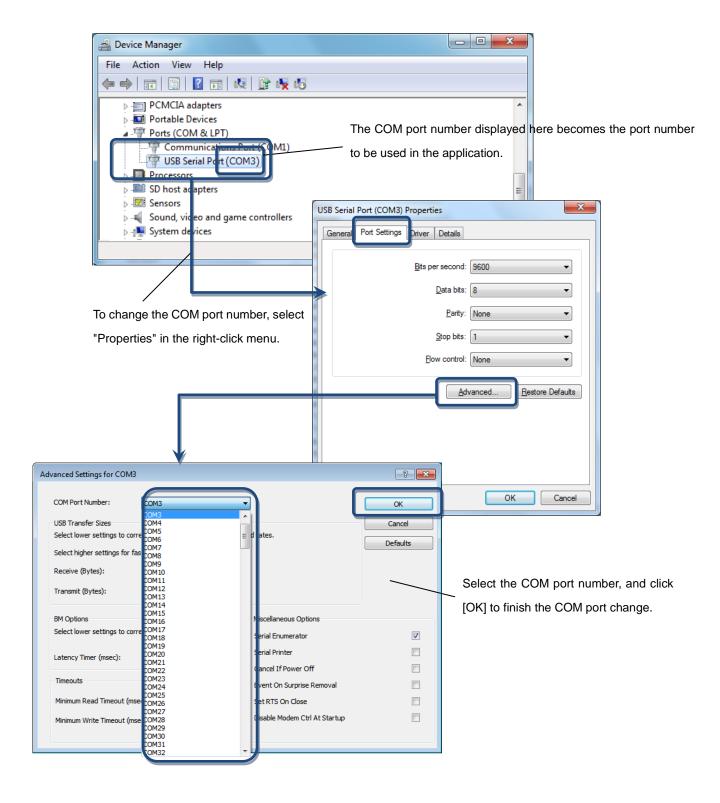
Installation	Folder		Remark
destination			
C drive	C:\DT-2100	DT-2100.exe	Execution file
		DT-2100.ini	Setting value save file
		FILES	Used for saving the CSV file
			Initial folder to be specified at the time of
			saving
		Driver	USB driver

#### (3) USB driver installation

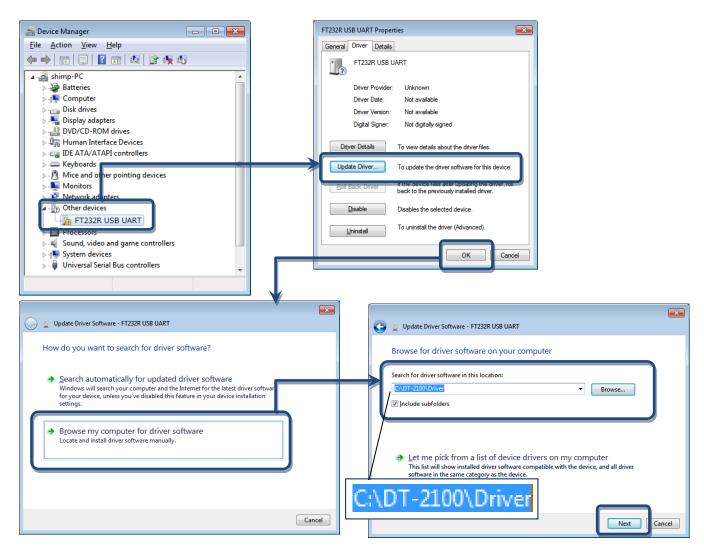
When connecting a USB device to the PC where the DT-2100 has been installed, the USB driver is automatically installed. Wait for several minutes until the installation is completed.

# (4) COM port setting

Select "USB Serial Port" created under [Control Panel] - [Device Manager], and start to set the port.

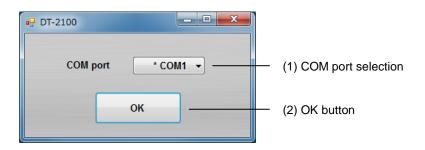


If the driver is not recognized correctly, perform [Update Driver] according to the following procedure.



# 4. Starting Application

Double click "DT-2100.exe" in the installation folder to start application.

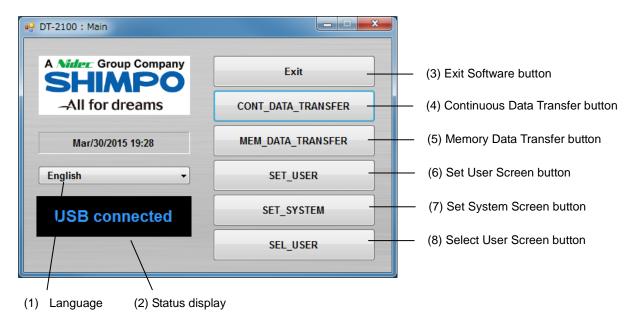


(1)COM port selection*	Select from among COM1 to COM15.	
	Detects the available ports automatically, and attaches "*" before the COM number.	
(2)OK button	Opens the selected COM port, and displays the main screen.	

<sup>\*</sup>Label and message descriptions depend on the language setting. (same as those for other screens)

<sup>\*</sup>The initial language setting is English. From the next startup, the application starts with the language set when last closed.

# Main Screen



(1) Language selection	Select the language from Japanese or English.
(2) Status display	Displays the USB connection status.
(3) Exit button	Exits the application.
(4) CONT_DATA_TRANSFER button	Displays the Continuous Data Mode screen.
(5) MEM_DATA_TRANSFER button	Displays the Memory Mode screen.
(6) SET_USER button	Displays the SET_USER screen.
(7) SET_SYSTEM button	Displays the SET_SYSTEM screen.
(8) SEL_USER button	Displays the SEL_USER screen.

# 5.1 USB Connection Status

Check the connection status with the DT-2100 in the status display screen.

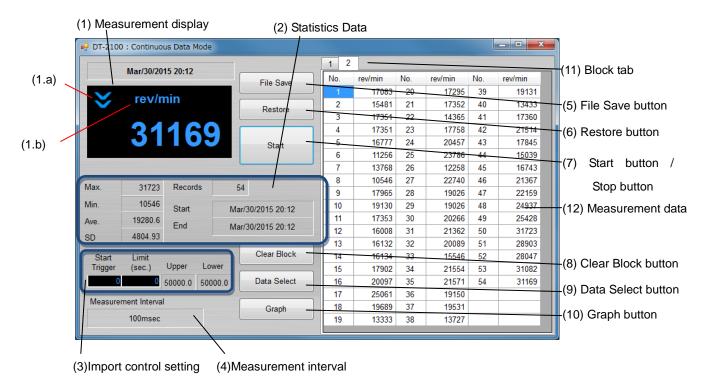
USB connected

Connected

Disconnected

# 6. Continuous Data Import Screen

Select the "CONT\_DATA\_TRANSFER button" in the menu to display the continuous data import screen.



(1) Measurement display	(1.a) Upper/lower judgment marks: Compared to the values specified in the user setting, indicates the upper limit mark when the upper limit value is less than the measurement value, and the lower limit mark when the lower limit value is more than the measurement value.
	(1.b) Measurement unit: Indicates the unit specified in the user setting, and indicates "OVER" when the measured value exceeds the measurement range.  Measurement value: Indicates the measurement value (6 digits + decimal point).  When the measurement value exceeds 999999, indicates "" (hyphens).
(2) Statistics Data	For the imported measurement data, indicates the maximum value, minimum value, average value, standard deviation, the number of measurement data, and the measurement start, end time. Updates during measurement.  For the average value, when the integer part of the calculated result has x digits, the number of digits after decimal point becomes 6-x.
(3) Import control setting	Import start trigger: After the measurement value exceeds the user defined Start Trigger, importation of data begins Import time limit: Importation ends when the user defined limit (sec), setting value has elapsed. Upper/lower judgment values: Indicates the upper/lower judgment values specified in the user setting screen.
(4) Measurement interval	Indicates the measurement interval specified in the system setting.
(5) File Save button	Generates the save destination folder selection screen.  Saves the measurement data being displayed and statistics data (Max./Min./Ave./SD) to the file in the CSV format.
(6) Restore button	Indicates the file selection screen.  Creates a new block, and reads the selected measurement data into it.

(7) Start button	Press the Start button to start importing the data. The Start button then becomes the	
/Stop button	Stop button.	
·	Press the Stop button to finish importing the data. The Stop button then becomes the	
	Start button.	
	During data import, buttons other than the Stop and Graph buttons, as well as the	
	selection columns are disabled.	
(8) Clear Block button	Click this button to display the confirmation screen. Click OK to delete the block that	
	has been selected.	
	When there are blocks No.1 to 4 and you delete block No.3, block No.4 is changed to	
	No.3.	
(9) Data Select button	Click this button to keep only the data that has been selected.	
(10) Graph button	Click this button to display the Graph screen.	
(11) Block tab*	Indicates the measurement data for every measurement. Up to 1000 block.	
	Creates a new block for every measurement by pressing the Start button.	
	You cannot switch data tabs while taking measurement.	
(12) Measurement data*	Indicates the measurement value. Up to 65535 data points can be imported.	
	Importing ends automatically when the maximum number of data points is attained.	

<sup>\*</sup>The measurement data and block tab are synchronized with the graph screen.

# 6.1 Measurement Display

Indicates the data importing status during measurement.

# (1) Measurement value

•Indicates the measurement value (6 digits + decimal point).



•When the measurement value exceeds 999999, indicates "-----" (hyphens).



# (2) Upper/lower limit judgment marks

• Indicates the upper limit mark when COMPARATOR UPPER\_LIMIT in the user setting is less than the measurement data.

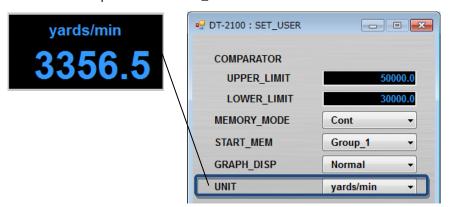


• Indicates the lower limit mark when COMPARATOR LOWER\_LIMIT in the user setting is more than the measurement data.



# (3) Measurement unit

•Indicates the unit specified in the SET\_USER.



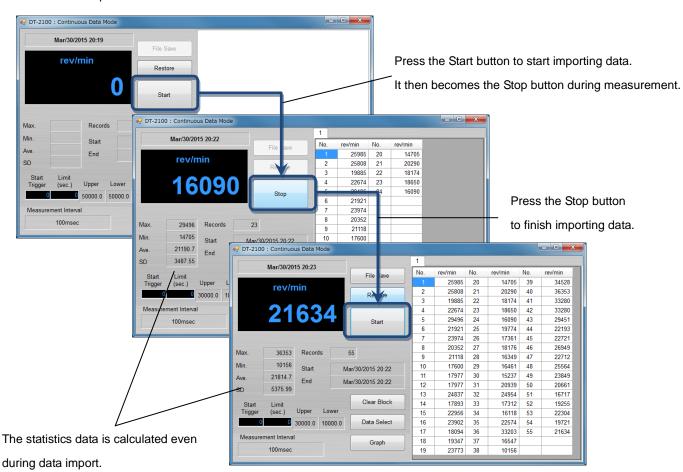
•Indicates "OVER" when the measured value exceeds the measurement range.



# 6.2 Measurement Results

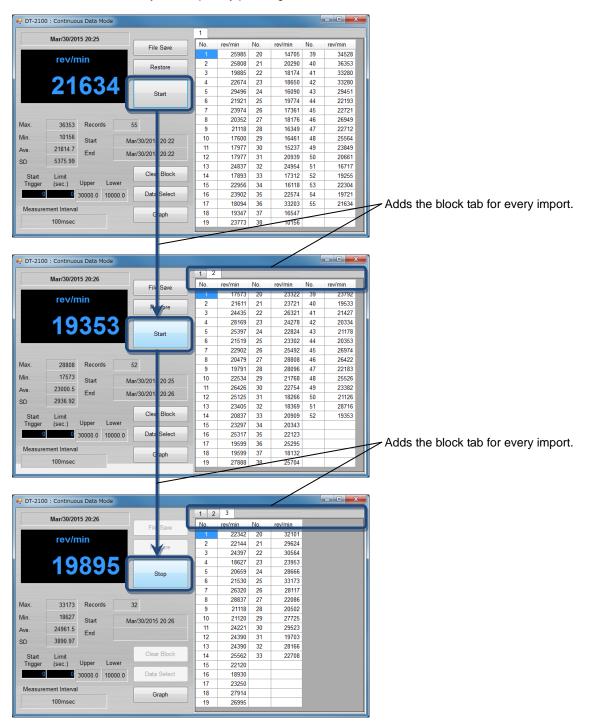
#### (1) Measurement data

Measurement operation - 1



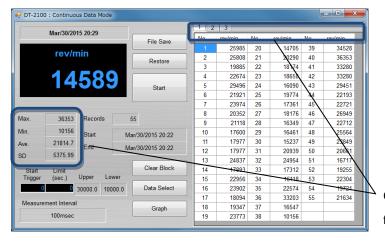
#### Measurement operation - 2

Adds a new block for every data import by pressing the Start button. Measurement data is retained.



# (2) Statistics Data

From the measurement data, calculates the maximum value/minimum value/average value/standard deviation (Max./Min./Ave./SD). Indicates and retains the data for every import.



Calculate and holds the statistics data for every import.

#### (3) Exporting the measurement data

20334

23925.0 End

2454.87

ent Interval

100msec

Start

Upper

30000.0

Mar/30/20

Mar/30/201

0:25

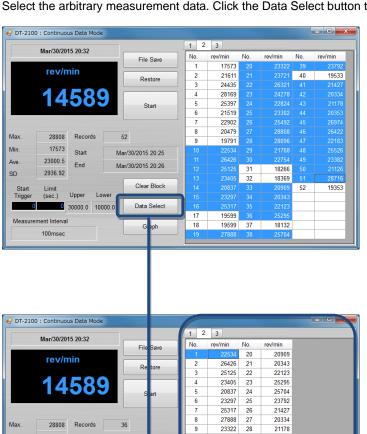
20:26

Data Select

Min

SD

Select the arbitrary measurement data. Click the Data Select button to export the selected data.



10 11

12

13 14

16 17

18 19

23721 29

24278 31

23302 33

28808 35 36

21768

\*Multiple data may be selected when you press and hold the Ctrl key while clicking cells with the mouse button. Groups may be highlighted and selected by dragging the mouse while holding the Ctrl key.

20353

26422

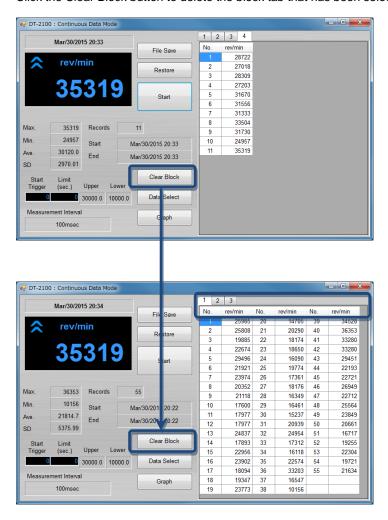
22183

25526

23382

21126

Click the Clear Block button to delete the block tab that has been selected.



# 6.3 CSV File Operation

The measurement results can be saved in or read from the arbitrary CSV file.

#### • Save the measurement results in the CSV file

Click the File Save button to display the "Save as" dialog window.

Specify the arbitrary file name and save destination and click the save button to save the setting contents.

#### • Read the measurement results from the CSV file

Click the File Save button to display the "Open" dialog window.

Select the CSV file you want to open and click the "Open" button.

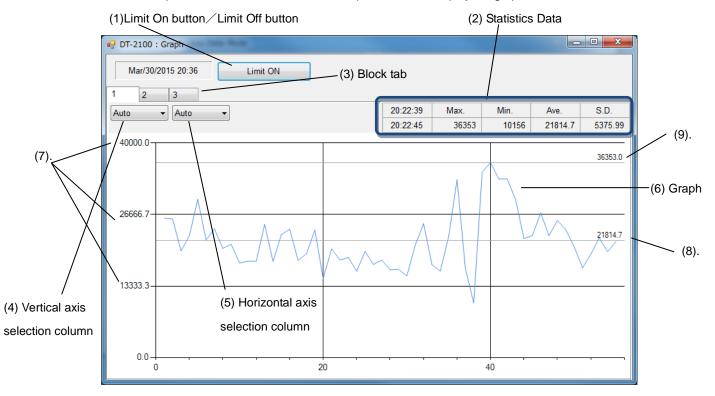
A new block tab is created and the measurement data as well as statistics data are displayed in the tab.

Only CSV files that have been saved with this application can be opened here.

If you try to open files other than those specified above, they cannot be opened normally.

# 7. Graph Screen

Select the "Graph button" in the continuous data import screen to display the graph screen.



		$\overline{}$
(1)Limit On button ✓ Limit	Press the Limit On button to draw the upper/lower limit graph. The Limit On butto	'n
Off button	then becomes the Limit Off button	
	Press the Limit Off button to erase the upper/lower limit graph lines. The Limit Off	
	button then becomes the Limit On button	
(2) Statistics data	For the imported measurement data, indicates the maximum value/minimum	
	value/average value/standard deviation, the number of measurement data, and th	ie
	measurement start/end time. Updates during measurement.	
	For the average value, when the integer part of the calculated result has x digits, th	ie
	number of digits after decimal point becomes 6-x.	
(3) Block tab	Synchronized with the block tab in the continuous data import screen, stores the	
	measurement data and statistics data.	
(4) Vertical axis selection	Select the maximum value on the vertical axis and specify the measurement dat	ta
column	range.	T
	Ranges depend on each unit setting.  Auto 1000000	
	If the measurement data does not fit within the range, the scroll bar	
	becomes enabled to allow you to scroll up or down the column.  50000 20000	
	If the Auto setting is selected, it switches the range automatically based 10000 5000	
	on the measured data. 2500	
	1500 600	
	<u> </u>	

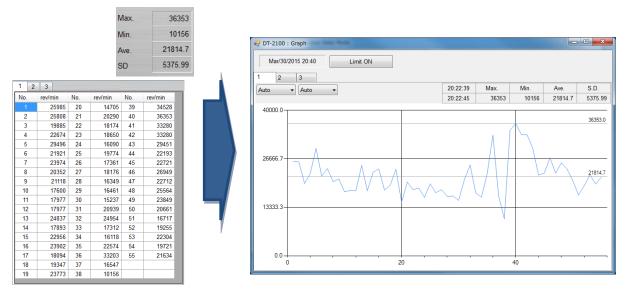
(5) Horizontal axis selection	Select the maximum value on the horizontal axis.	
column	Auto: Automatically adjusts to the time during measurement.	
	Limit: Applies the Limit setting in the USB main screen. When the Limit	10sec
	ia O tha rango actting is some as that for the Auto	100sec 300sec
	10sec, 100sec, 300sec: Sets to the specified measurement time. If the	
	measurement data exceeds the setting range, the scroll bar becomes enabled to	
	allow you to scroll up and down the column.	
(6) Graph	Indicates the real-time graph.	
(7) Graph values	Indicates the maximum graph value divided into three	
(8) Average value	Indicates the average value of measured data	
(9) Max value	Indicates the maximum value of measured data	

# 7.1 Graph Drawing

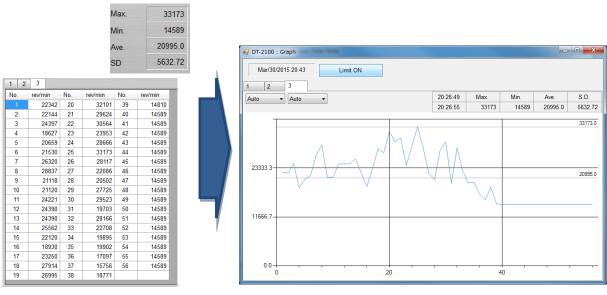
# (1) Synchronization of measurement data and statistics data with the continuous data import screen

The graph and statistics data to be displayed are synchronized with the block tab in the continuous data import screen.

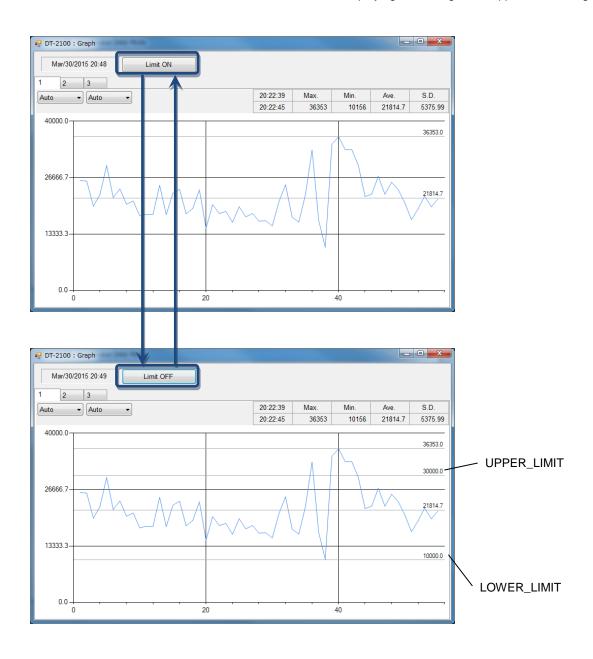
#### The 1st measured data



#### The 3rd measured data

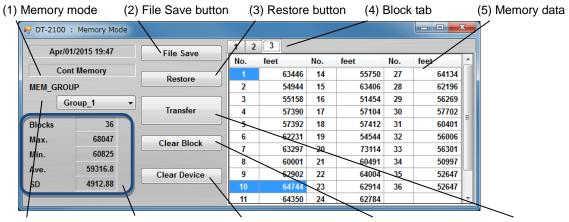


Use the Limit On button/Limit Off button to switch between displaying and hiding of the upper/lower limit graph.



# 8. Memory Data Import Screen

Select the "MEM\_DATA\_TRANSFER button" in the menu to display the memory data import screen.



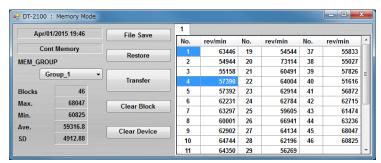
(6) MEM\_GROUP (7) Statistics data (8) Clear Device button (9) Clear Block button (10) Transfer button

(1) Memory mode	Indicates the memory mode specified in the user setting.	
(2) File Save button	Indicates the save destination folder selection screen.	
	Saves the memory data being displayed to the file in the CSV format.	
(3) Restore button	Indicates the file selection screen.	
	Creates a new block, and reads the selected memory data into it.	
(4) Block tab	Indicates the measurement data every time the memory data is read from the DT-2100. Up	
	to 1000 blocks.	
(5) Memory data	Indicates the memory data that has been read.	
	The contents depend on the measurement mode (continuous memory/each	
	memory/statistics memory).	
(6) MEM_GROUP	Select the MEM_GROUP.	
(7) Statistics Data	Indicates the maximum value, minimum value, average value, and standard deviation for the	
	selected block number. Indicates the number of memory data in Blocks.	
(8)Clear Device button	Click this button to display the confirmation screen. Click OK to delete the memory data for	
	the MEM_GROUP that has been selected.	
(9)Clear Block button	Click this button to display the confirmation screen. Click OK to delete the block that has	
	been selected.	
(10) Transfer button	Reads the memory data for the MEM_GROUP that has been selected.	

# 8.1 Continuous Memory

Displays "No." and the corresponding "measurement value" recorded on the first row of the memory data, and the serial number and memory data below them.

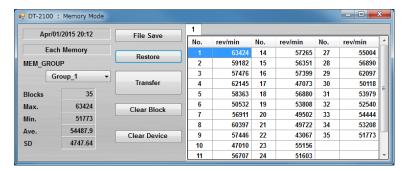
Indicates the statistics data corresponding to the memory data on the statistics data column.



# 8.2 Each Memory

Displays "No." and the corresponding "measurement value" on the first row of the memory data, and the serial number and memory data below them.

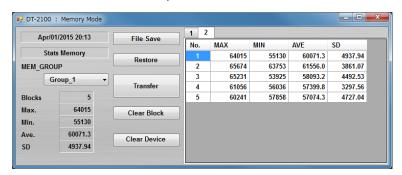
Indicates the statistics data corresponding to the memory data on the statistics data column.



# 8.3 Statistics Memory

Indicates "No.", "MAX", "MIN", "AVE", and "SD"on the first row of the memory data, and the serial number and memory data below them.

Indicates the selected memory data on the statistics data column.



# 8.4 CSV File Operation

The measurement results can be saved in or read from the arbitrary CSV file.

# • Save the measurement results in the CSV file

Click the File Save button to display the "Save as" dialog window.

Specify the arbitrary file name and save destination. Click the save button to save the setting contents.

#### • Read the measurement results from the CSV file

Click the File Save button to display the "Open" dialog window.

Select the CSV file you want to open and click the "Open" button.

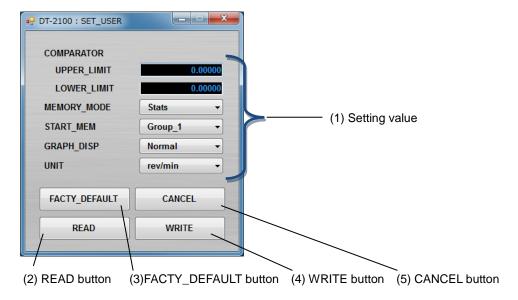
A new block tab is created and the measurement data as well as statistics data are displayed in the tab.

Only CSV files that have been saved with this application can be opened here.

If you try to open files other than those specified above, they cannot be opened normally.

# 9. SET\_USER Screen

Select "SET\_USER button" in the menu to display the SET\_USER screen.

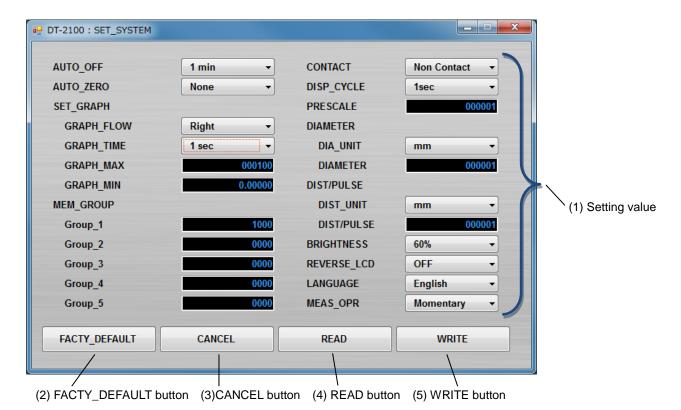


(1) Setting value	COMPARATOR	_	
	UPPER_LIMIT	Enter 0.00000 to 999999 ( <u>0.00000</u> )	
	LOWER_LIMIT	Enter 0.00000 to 999999 ( <u>0.00000</u> )	
	MEMORY_MODE	Select from Cont, Each, or Stats	
	START_MEM	Select from <b>Group 1</b> , Group_2, Group_3, Group_4, or	
		Group_5	
	GRAPH_DISP	Select from Normal, Graph_1, Graph_2, or Graph_3	
	UNIT	Select from the following items	
		rev/min, m/min, cm/min, inch/min, feet/min, yards/min,	
		rev/sec, m/sec, cm/sec, inch/sec, km/h, miles/h, cm, m, km,	
		inch, feet, yards, or STP	
(2) READ button	Reads the current user setting information from the DT-2100.		
(3) FACTY_DEFAULT	Indicates the factory default values.		
button			
(4) WRITE button	Saves the user setting in the DT-2100 and returns to the main screen.		
	If the MEMORY_MODE value is different from the current setting value in the		
	DT-2100, the confirmation message (OK/Cancel) is displayed.		
(5) CANCEL button	Returns to the main screen without saving the changed content.		

Note: default value indicated in bold letters

# 10. SET\_SYSTEM Screen

Select "SET\_SYSTEM button" in the menu to display the SET\_SYSTEM screen.



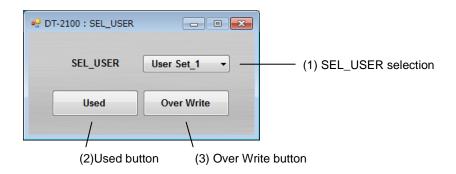
(1) Setting value	AUTO_OFF	Select from 1min, 10min, or 30min
	AUTO_ZERO	Select from 1sec, 10sec, 30sec, 60sec, or None
	SET_GRAPH	_
		Select Right or Left
	RAPH_FLOW	
		Select from 1sec, 10sec, 50sec, or 100sec
	GRAPH_TIME	
		Enter 0.00001 to 999999 ( <b>000100</b> )
	GRAPH_MAX	
		Enter 0.00000 to 999999 ( <b>0.00000</b> )
	GRAPH_MIN	
	MEM_GROUP	_
	Group_1	0 to <u>1000</u> /100/100 (Cont/Each/Stats)
	Group_2	<u>0</u> to 1000/100/100 (Cont/Each/Stats)
	Group_3	<b>0</b> to 1000/100/100 (Cont/Each/Stats)
	Group_4	<b>0</b> to 1000/100/100 (Cont/Each/Stats)
	Group_5	<b>0</b> to 1000/100/100 (Cont/Each/Stats)
	CONTACT	Select from Contact, Non Contact, Auto, or Contact(Low)
	DISP_CYCLE	100msec, 500msec, <u>1sec</u> , 5sec
	PRESCALE	Enter 0.00001 to 999999 ( <b>000001</b> )
	DIAMETER	_
	DIA_UNIT	Select from mm, cm, m, inch, feet, or yards
	DIAMETER	Enter 0.00001 to 999999 ( <b>000001</b> )

	DIST/PULSE	_	
DIST_UNIT		Select from mm, cm, m, inch, feet, or yards	
	Enter 0.00001 to 999999 (000001)		
	DIST/PULSE		
	BRIGHTNESS	Select from 20%, 40%, <u>60%</u> , 80%, or 100%	
	REVERSE_LC	Select OFF or ON	
	D		
	LANGUAGE	Select Japanese or English	
	MEAS_OPR	Select Momentary or Continuous	
(2) FACTY_DEFAULT button	Overrides the factory default values.		
(3) CANCEL button	Returns to the main screen without saving the changed content.		
(4) READ button	Reads the current system setting information from the DT-2100.		
(5) WRITE button	Saves the system setting in the DT-2100 and returns to the main screen.		

Note: default value indicated in bold letters

# 11. SEL\_USER Screen

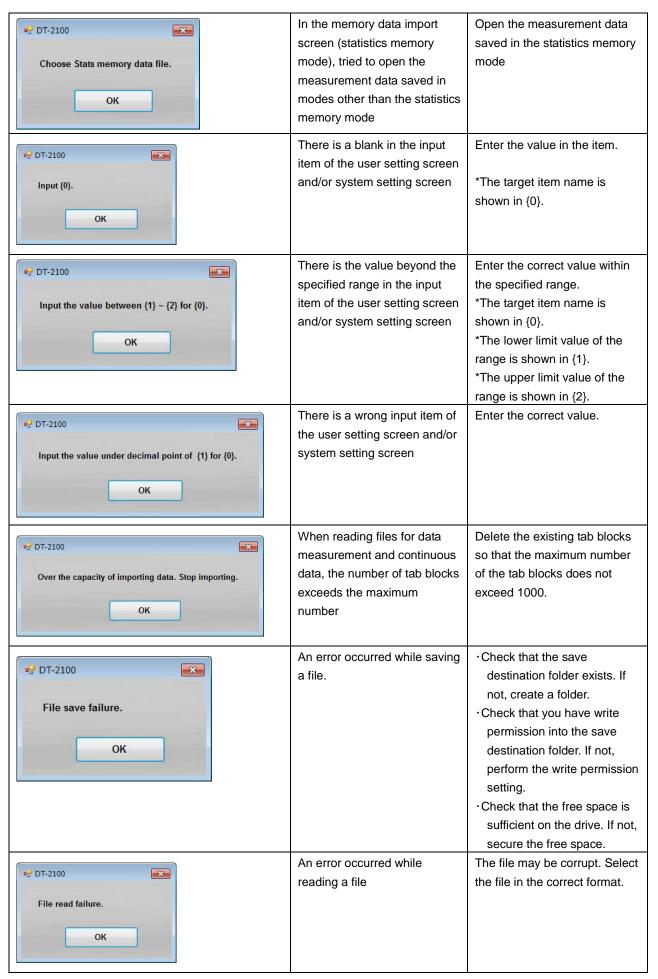
Select "SEL\_USER button" in the menu to display the SEL\_USER screen.

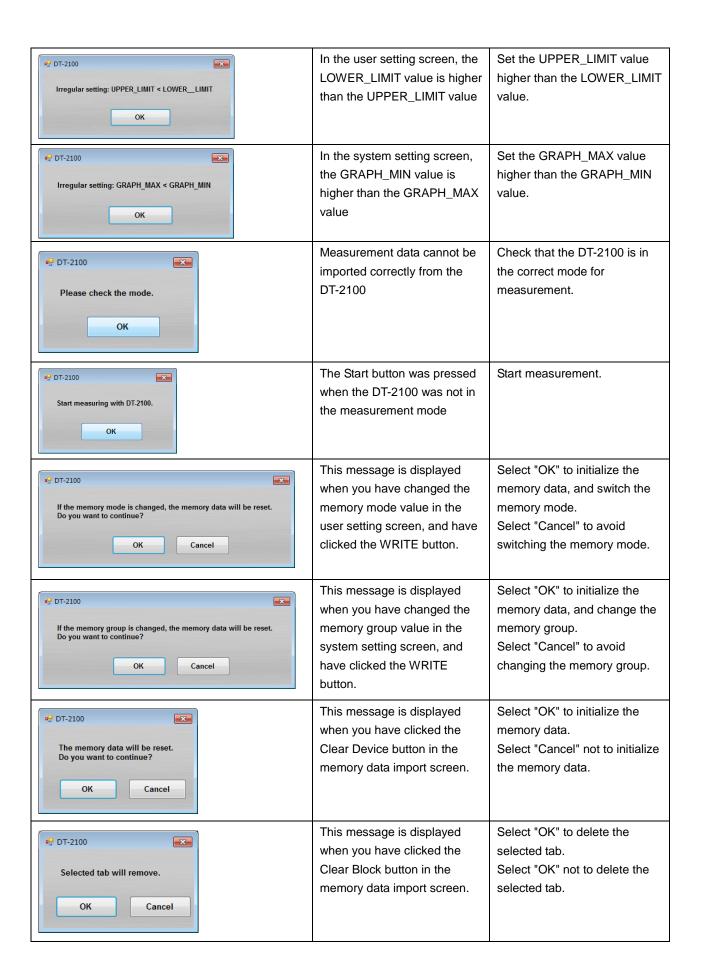


(1) SEL_USER selection	Select SEL_USER from User Set_1, User Set_2, or User Set_3.		
(2) Used button	Reads the user setting and system setting contents for the selected SEL_USER.		
(3) Over Write button	Writes the contents specified in the user setting and system setting for the selected		
	SEL_USER.		

# 12. Error Message List

Error Message	Cause	Countermeasure
Language file not found.	A valid localized file does not exist in the "lc" folder	Perform reinstallation of this application.
Communication failure. Check connection.	The DT-2100 cannot communicate normally with PC Or the COM port number is incorrect	Check communication     between the DT-2100 and     PC, as well as the power     supply.     Check the COM port number     from the Device Manager.
Choose the data file imported as Each memory data.	Tried to open continuous data CSV file in the MEM_DATA_TRASFER screen.	Open the measurement data saved in the memory data import screen.
Choose the data file imported as Cont memory.	Tried to open memory data CSV file in the CONT_DATA_TRASFER screen.	Open the measurement data saved in the measurement data import screen.
No memory data in {0}.	There is no memory data in the group where the memory is imported	The target group is shown in {0}.
Choose Cont memory data file.	In the memory data import screen (continuous memory mode), tried to open the measurement data saved in modes other than the continuous memory mode	Open the measurement data saved in the continuous memory mode
Choose Each memory data file.	In the memory data import screen (each memory mode), tried to open the measurement data saved in modes other than the each memory mode	Open the measurement data saved in the each memory mode





#### 13. Terms of Use

Please read the conditions of use below carefully before using this Special software of Handheld Digital Tachometer DT-2100 (hereinafter referred to as "this software"). By using this software, the user shall be subject to the terms and conditions below.

#### 1. Rights

Nidec-Shimpo Corporation (hereinafter referred to as "the company") shall grant the user a license to use this software only for our company's products; provided, however, that the company shall retain all rights including, but not limited to, the copyrights related to this software and applicable documentations.

#### 2. Restrictions

- (1) Acts such as modification, alteration, extraction, reverse engineering, decompilation or disassembly of this software shall be entirely prohibited. The company shall provide no warrants for such acts by the user.
- (2) Acts including, but not limited to, replication, reproduction, editing, distribution and selling of this software shall be entirely prohibited.
- (3) The user of this software shall not be allowed to transfer the use of this software or its copy to a third party, or to permit the use of this software or its copy by a third party, regardless of whether compensation is received or not.

#### 3. Exemption of Liability

- (1) The installation and use of this software shall be entirely based on the user's decision and responsibility, and the company shall be no part of such acts.
- (2) The user shall be entirely responsible and/or liable for any damages caused to the user or a third party as a result of using this software, and the company shall bear no responsibility and/or liability for such damages. Also, the company shall pay no compensation for direct and/or indirect damages caused by such damages.
- (3) The company shall not guarantee that this software is accurate, appropriate or suitable for the user's purpose for using this software, and the company shall bear no responsibility for this software.
- (4) The company shall bear no obligation to modify or correct any possible flaw or defect of this software.

#### 4. Modifications to This Software and the Terms of Service

This software and the terms of service are subject to changes and/or modifications without prior notice.

#### 5. Export Control

The user shall comply with export control-related laws and regulations both inside and outside Japan when he/she takes this software out of the country.

#### 6. Cancellation of License

The user's license to use this software shall be automatically cancelled if the user violates any of the terms of service above. Should such violation occur, the user shall either dispose of or delete this software.

# 14. Communication Commands

For communication commands, refer to the "RS232C Command List".

