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Excel Add-in Software

Digitorq_TNP_ENG_SEG

Instruction Manual

Be sure to read before use.

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NIDEC DRIVE TECHNOLOGY CORPORATION

Introduction

Thank you for using "Digitorq_TNP" software, specialized for the digital torque meter TNP.

This instruction manual describes the explanation of the operation of "Digitorq_TNP" software, specialized for the digital torque meter (hereinafter referred to as this software).

1. Overview

This software is an add-in application used to directly import torque measured by the digital torque meter into spreadsheet software via USB communication.

This software includes the following features.

- Opening/closing torque memory data import
- Continuous data import
- Comparator value read and configuration

When importing memory data, a frequency distribution graph can be created based on the imported memory data. When importing continuous data, a time and torque graph can be created.

2. Configuration

Operation environment
· Microsoft Windows® 10* (English environment) 64bit · Microsoft Excel® 2016* 32bit / 64bit · Microsoft Excel® 2019* 32bit / 64bit

* After confirming the digital torque meter is turned on, connect the USB cable to the PC.

*If you turn off the digital torque meter, change the comparator value or memory data, or change the measurement mode on the main unit when using Digitorq_TNP, it will not operate normally. Never perform the aforementioned operations when the digital torque meter is connected to the PC.

*Microsoft, Windows, and Excel are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Precaution

- All the rights including copyrights related to "Digitorq_TNP" and its relevant documents belong to NIDEC DRIVE TECHNOLOGY CORPORATION.
- For other precautions, refer to the terms of use presented when this software is installed.

3. Setup Procedure

Before using Digitorq_TNP, the communication driver and Digitorq_TNP need to be set up.

3.1 Decompression of the downloaded file

When you decompress the Digitorq_TNP_ENG_SEG_download_v***.zip file downloaded from our web page, the following files and folder will be created in the save destination folder.

* "***" shows the version information.

- Digitorq_TNP_ENG_SEG_v***.msi
- Digitorq_TNPInstructionmanual.pdf

3.2 Digitorq_TNP installation procedure

Double click the Digitorq_TNP_ENG_SEG_v*.**.msi file to start installing Digitorq_TNP.

Double click

(1)

Click "Next", and go to the next screen.

(2)

Read Terms of Service, and check "I Agree".
Click "Next", and go to the next screen.

(3)

Enter "Name" and "Organization".
Click "Next", and go to the next screen.

(4)

Click "Next" to start installation.

(5)

Click "Close", and installation is complete.

●When installing with standard user rights

When installing this software with a user account that has not logged on with administrator rights, the following screen will be displayed at the time of installation.

If you have set the password for the administrator account, enter the password, click "Yes", and continue installation.

*If you have not set the administrator password, leave the password input field blank, and click "Yes".

● When Digitorq_TNP installation is complete, the following folder and files will be created in the C:\folder.

```
TNT-TNP_ENG_SEG
+---  Driver                    :  USB driver folder*
+---  Digitorq_TNP_ENG_SEG.xla  :  Excel add-in software (Digitorq_TNP)
+---  digitorq.ini              :  Digitorq_TNP setup file*
```

* Never change the contents in the Driver folder or digitorq.ini file, or move them.

Failure to follow this may result in incorrect operation of this software.

3.3 USB driver installation procedure

When the TNP is turned on, connect the USB cable to the USB port on the PC.

The driver's installation method slightly differs depending on the PC environment.

Perform installation according to the PC environment specifications below.

Installation for Windows10

After turning on TNP, connect the USB cable between the stand and the PC. Then go to the Device manager.

●Administrator authority

Click "Update Driver" on the property screen, Start the driver updating.

●Standard user authority

If logging in with standard user authority, please change to administrator authority at first. Then click "Update Driver" on the property screen and start the driver updating.

Click "Browse my computer for driver software" and proceed to the next.

Select "C:¥TNT-TNP_ENG_SEG¥Driver" from "Browse" and click "Next"

After installation is completed, the above screen will be displayed. Please click "Close" to finish.

●Confirming COM port number

Check the assigned COM port on the device manager.

●Changing the COM port number

If you desire to change the COM port number, please refer to the screen shots below.

4. Add-in Software Description

4.1 Startup

Double click the "Digitorq_TNP.xla" file in the "TNT-TNP_ENG_SEG" folder under the C:\ directory. The Excel screen is launched.

- The enable/disable macros selection window is displayed when this software starts. Select "Enable Macros (E)".

  "Add-Ins" is added on the menu bar of Excel screen, and in it the "Digitorq_TNP_ENG_SEG" menu can be selected.

- Connect the TNP and PC, turn on the TNP, and open a new book file. Then,

  select "Start" from the "Digitorq_TNP_ENG_SEG" menu added in the Excel menu to start "Digitorq_TNP".

- Select "Version information" to check the software version.

● If the macro setting does not appear, change the settings manually by following the procedure below.

4.2 Initial screen

When this software starts normally, the initial screen is displayed.

Select the COM port and language, and press the OK button.

(1) COM port selection

Select from among COM1 and COM15 according to your PC setting.

(2) Language selection

Only "English" can be selected as the display language.

(3) OK button

Go to the next screen.

(4) Cancel button

Close the initial screen, and exit Digitorq_TNP.

If the PC cannot communicate with the digital torque meter correctly when you have pressed the OK button, the following message boxes will be displayed, and you will not be able to go to the next screen.

(1) When you have selected a different COM port from that in the PC setting, in the COM port selection, or when the PC does not connect to the digital torque meter

(2) When the main unit of the digital torque meter is not turned on, or any other communication errors occurs

4.3 Main Menu common items

When Digitorq_TNP starts, the following Main Menu is displayed.

(1) Import mode select : Select the tab from among "Memory", "Continuous", and "Print Settings" according to the feature you want to use.

(2) Cell selection : Select the start cell that stores the import data. (only when the graph creation is disabled)

(3) Model information : The model of the connected digital torque meter is displayed.

(4) Communication status : The communication status with the digital torque meter is displayed.

- Normal status : No display
- Normal communication in progress : "Communicating" is displayed
- Communication error : "Communication error" is displayed

(5) Each input button : Click to display the following numeric keypad screen.

Numeric keypad screen

Click the "Input" button next to each input item to display the following numeric keypad screen.
Use the numeric keypad on the screen, and enter the setting value.
Click the OK button on the numeric keypad screen to reflect the entered value in the input field. With each input item, besides using the numeric keypad screen, you can directly enter the value in the input field.
Use the DEL button to clear the entered contents.

4.4 Memory data import

In the memory data import mode, memory data for torque values measured by the digital torque meter can be imported into Excel.

(1) Open Torque	:	Import the opening peak torque data registered in memory, and save it in the cell.
(2) Close Torque	:	Import the closing peak torque data registered in memory, and save it in the cell.
(3) Clear All Memories	:	Clear all the opening and closing peak torque data registered in memory. Click this button to display the confirmation screen. Click "Yes" to clear all memory data.
(4) Torque Class	:	Determine the interval width per class when creating the frequency distribution graph.
(5) Start Torque	:	Determine the minimum class value displayed in the graph when creating the frequency distribution graph.
(6) End Torque	:	Determine the values included in the maximum class displayed in the graph when creating the frequency distribution graph. *For the input range of (4), (5), and (6), refer to "6. Input Range List" on page 26.
(7) Denominator for SD	:	Select the denominator to calculate the standard deviation from either N-1 or N. [Default: N-1]
(8) Frequency Distribution display	:	Check this option to move the sheet after importing the memory data, and create a frequency distribution graph. When unchecked, the sheet will not be moved, and the graph will not be created.[Default: OFF]
(9) Change button	:	Open the screen for changing the upper/lower limit judgment values (refer to the next section).
(10) Upper Limit	:	Display the upper limit judgment value. [Default value: Comparator upper limit value read from the digital torque meter]
(11) Lower Limit	:	Display the lower limit judgment value. [Default value: Comparator lower limit value read from the digital torque meter]

(12) Judgment : When the upper/lower limit judgment is enabled, the judgment result will be displayed with "OK" or "NG".

- OK judgment : Lower Limit ≤ | All torque values measured | ≤ Upper Limit
- NG judgment : When there is at least one torque value entry that meets the following conditions

  Upper Limit < | Measured torque value | or | Measured torque value | < Lower Limit

Screen for changing Upper/Lower Limit

(13) Upper Limit* : Display the upper limit torque judgment value entered by user.
[Default value: Comparator upper limit value read from the digital torque meter]

(14) Lower Limit* : Display the lower limit torque judgment value entered by user.
[Default value: Comparator lower limit value read from the digital torque meter]

(15) OK button : Send the changed contents to the digital torque meter.

(16) Cancel button : Return to the Main Menu without changing the upper/lower limit judgment values.

* The input range of the upper/lower limit judgment values is between 0 and the rated torque. Also, the number of digits after the decimal point that can be input will be determined with reference to the digital torque meter display (refer to the Input Range List).
Note that values cannot be input if the upper limit judgment value is less than the lower limit judgment value.

* Imported torque data will be judged by comparing the absolute torque value with the upper/lower limit judgment values, in either the memory data import or continuous data import modes. For this reason, only positive values can be input for the upper/lower limit judgment values.

- Calculating formula for standard deviation

The formula to calculate the denominator for standard deviation can be selected in the above item (7).

The calculating formula is as follows:

● For N-1 $$\text{Standard deviation} = \sqrt{\frac{\sum (Xi - \text{Average value})^2}{\text{N-1}}}$$

Average value = ∑Xi / N

Xi = Measurement data N = Number of memory

● For N $$\text{Standard deviation} = \sqrt{\frac{\sum (Xi - \text{Average value})^2}{\text{N}}}$$

Average value = ∑Xi / N

Xi = Measurement data N = Number of memory

4.4.1 Memory data format

Click the Open/Close (torque memory data) buttons to import the memory data into Excel.

	A	B	C	
1	Open Torque			(1)
2				
3	Date	7/7/2018 1:21:21 PM		(2)
4	Prepared by			(3)
5	Remarks			(4)
6				
7	Temperature			(5)
8	Humidity(%)			(6)
9				
10	Model	TNP-2		(7)
11	Unit	Nm		(8)
12				
13	Number of Data	10		(9)
14	Maximum	2.556		(10)
15	Minimum	0		(11)
16	Average	1.949		(12)
17	Standard Deviation	0.4186		(13)
18	Denominator for SD	N-1		(14)
19				
20	Upper Limit	1		(15)
21	Lower Limit	0		(16)
22				
23	Number of High NG	10		(17)
24	Number of Low NG	0		(18)
25	Defective rate(%)	200		(19)
26				
27	(20)	(21)	(22)	
28	Memory Number	Result	Torque (Nm)	
29	1	O	0	
30	2	O	0	

When importing the opening memory data

	A	B	C
1	Close Torque		
2			
3	Date	7/7/2018 1:18:56 PM	
4	Prepared by		
5	Remarks		
6			
7	Temperature		
8	Humidity(%)		
9			
10	Model	TNP-2	
11	Unit	Nm	
12			
13	Number of Data	10	
14	Maximum	2.877	
15	Minimum	0	
16	Average	2.189	
17	Standard Deviation	0.5409	
18	Denominator for SD	N-1	
19			
20	Upper Limit	1	
21	Lower Limit	0	
22			
23	Number of High NG	10	
24	Number of Low NG	0	
25	Defective rate(%)	100	
26			
27			
28	Memory Number	Result	Torque (Nm)
29	1	O	0
30	2	O	0

When importing the closing memory data

• Description for each item

(1) Memory data type Displays the opening/closing memory data	(12) Average Displays the average value of the imported torque data
(2) Date Displays the date and time when the test starts.	(13) Standard Deviation Displays the standard deviation of the imported torque data
(3) Prepared by The write column is created	(7) Denominator for SD Displays the denominator for standard deviation selected in the Main Menu
(4) Remarks The write column is created	(15) Upper limit judgment value Displays the upper limit judgment value currently specified.
(5) Temperature The write column is created	(16) Lower limit judgment value Displays the lower limit judgment value currently specified.
(6) Humidity (%) The write column is created	(17) Number of High NG Displays the number of the upper limit NG in all memory data
(7) Model Displays the model for the digital torque meter	(18) Number of Low NG Displays the number of the lower limit NG in all memory data
(8) Unit Displays the unit for the digital torque meter	(19) Defective rate(%) Displays the defective rate in all memory data
(9) Number of Data Displays the number of data entries of the imported torque data	(20) Memory Number Displays the memory number of the imported memory data
(10) Maximum Displays the maximum value of the imported torque data	(21) Result (H: High, O: Ok, L: Low) Displays the upper/lower limit judgment result for the torque value
(11) Minimum Displays the minimum value of the imported torque data	(22) Torque (Nm) Displays the torque value of the imported memory data

• About Number of High NG, Number of Low NG, and Defective rate

When importing the memory data, among the torque data entries registered in memory, the number of memory data entries of which the upper/lower limit judgment result is H (torque data>upper limit judgment value) is displayed as Number of High NG. The number of memory data entries of which the upper/lower limit judgment result is L (torque data<lower limit judgment value) is displayed as Number of Low NG.

The judgment results for each torque value will be written in the column of the above item (21).

In addition, add up the number of memory data entries of which the upper/lower limit judgment result is H or L, and calculate its rate in the number of all memory data entries, which is displayed as Defective rate (%).

The calculating formula for the defective rate is as follows:

$$\text{Defective rate}(\%) = \frac{\text{Number of High NG} + \text{Number of Low NG}}{\text{Number of all memory data entries}} \times 100$$

When both the upper and lower limit are 0, Number of High NG, Number of Low NG, and Defective rate will not be displayed.

4.4.2 Frequency distribution graph

- In the memory data import mode, a frequency distribution graph can be automatically created.
- When "Graph ON" is not selected in the Main Menu, the graph will not be created.
- When importing the memory data, if the graph creation is ON, the worksheets are added (sheet name: from Graph1 (serial number)) to the last sheet, and import the memory data to create a graph.
- One graph will be created per sheet. When a single memory data import finishes, a graph is created.

(1) Graph description

Horizontal axis: Torque class value, Vertical axis: Number of data entries

The class value width, start position (the minimum class value displayed in the graph), and end position (the maximum class value displayed in the graph) are those entered in the Main Menu, respectively.

The number of divisions is automatically specified based on the class value width, start position, and end position.

(2) Graph format (when the upper/lower limit judgment is ON)

When the upper/lower limit judgment is ON (unless upper limit judgment value = lower limit judgment value = 0), the following graph is displayed.

When the Upper/Lower Limit is ON

(1) Displays the class of "Start position" entered in the Main Menu.

(2) Displays the class of "End position" entered in the Main Menu.

(3) The class range width is "Class width" entered in the Main Menu.

(4) The bar graph for classes within the upper/lower limit judgment values range is displayed in aqua.

(5) The bar graph for classes beyond the upper/lower limit judgment values range is displayed in pink.

(6) If there are torque data entries beyond the upper/lower limit judgment values in a class including the upper/lower limit judgment values, the bar graph for that class is displayed in blue.

(7) The torque data before the start position is distributed in the first class (enclosed in red lines) of the graph. When the start position is 0, this class is not displayed.

(8) The torque data after the class at the end position or later is distributed in the first class (enclosed in red lines) of the graph.

• The class values in the graph are displayed as in the figure below.

The each class has the range of "Class value ≤ Torque value < Next class value on the right". The torque value of the memory data that fits in that range will be categorized to its class.

The above (7) is the range of "Torque value < Start position", and (8) is the range of "(Value of the class including the end position + Class width) ≤ Torque value".

(3) Graph format (when the upper/lower limit judgment is OFF)

When the upper/lower limit judgment is OFF (unless upper limit judgment value = lower limit judgment value = 0), the following graph is displayed without color coding for each class.

When the Upper/Lower Limit judgment is OFF

4.5 Continuous data import

In the continuous data import mode, torque values measured by the digital torque meter can be imported into Excel on a real-time basis.

(1) START button : Start importing the continuous data of torque values.

(2) STOP button : Stop importing the continuous data of torque values.

The click action is enabled only when the continuous data is being imported.

(3) Zero button : Return the display of the digital torque meter main unit to 0.

(4) Trigger : Determine the torque value to start importing the continuous data.

When the condition of Trigger ≤ | Torque | is satisfied, start importing the continuous data.

Entering 0 disables the trigger, and the continuous data import starts at the point when the START button is clicked. (For the input range, refer to "6. Input Range List" on page 26.

(5) Number of data : Specify the number of continuous data entries to be imported into Excel from 0 to 32,000.

When 0 is entered, the number of data entries to be imported is 32,000.

(6) Sampling Rate : Select the interval of importing the continuous data into Excel.

- "20 times/second" : Import approximately 20 torque value entries per second.
- "50 times/second" : Import approximately 50 torque value entries per second.
- "100 times/second" : Import approximately 100 torque value entries per second.

(7) Absolute ON : Check this option to display the torque data on the closing torque as the absolute value when importing the continuous torque data on the closing torque. When unchecked, the torque data on the closing torque is displayed as negative. [Default: ON]

(8) Graph ON : Check this option to move the sheet after importing the continuous data, and create a continuous data graph. When unchecked, the sheet will not be moved, and the continuous data graph will not be created. [Default: OFF]

(9) Status : The following status is displayed.

- Import Available : Shows the status that the continuous data can be imported
- Waiting : Shows the status of waiting for trigger
- Sampling : Shows the status that the continuous data is being imported
- Complete : Shows the status that a single continuous data import is complete
- Can't Import : Shows the status that the continuous data can not be imported due to communication error

4.5.1 Continuous data format

Click the START button to import the continuous data into Excel as follows:

	A	B	
1	Continuous data		(1)
2			
3	Date	7/7/2018 1:17:14 PM	(2)
4	Prepared by		(3)
5	Remarks		(4)
6			
7	Temperature		(5)
8	Humidity(%)		(6)
9			
10	Model	TNP-2	(7)
11	Unit	Nm	(8)
12			
13	Number of Data	41	(9)
14	Maximum	0.3	(10)
15	Minimum	0.1	(11)
16	Average	0.21	(12)
17			
18	(13)	(14)	
19	Time(sec)	Torque (Nm)	
20	0	0	

When importing the continuous data

• Description for each item

(1) Memory data type Displays "Continuous data"	(8) Unit Displays the unit for the digital torque meter
(2) Date Displays the date and time when the test starts.	(9) Number of Data Displays the number of data entries of the imported continuous torque data
(3) Prepared by The write column is created	(10) Maximum Displays the maximum value of the imported continuous torque data
(4) Remarks The write column is created	(11) Minimum Displays the minimum value of the imported continuous torque data
(5) Temperature The write column is created	(12) Average Displays the average value of the imported continuous torque data
(6) Humidity (%) The write column is created	(13) Time (sec)* Displays the elapsed time since the continuous torque data import starts
(7) Model Displays the model for the digital torque meter	(14) Torque (Nm) Displays the continuous torque data

*(13) Time (sec) is an approximate value, and does not ensure the correct elapsed time display.

4.5.2 Continuous data graph

- In the continuous data import mode, a continuous data graph can be automatically created.
- When "Graph ON" is not selected in the Main Menu, the graph will not be created.
- When importing the continuous data, if the graph creation is ON, add the worksheets (sheet name: from Graph1 (serial number)) to the last sheet, and import the continuous data to create a graph.

4.6 Return screen

When the memory data import or continuous data import is complete, the following return screen is displayed.

The bottom-left window is displayed when the upper/lower limit judgment is ON, and the bottom-right window is displayed when the upper/lower limit judgment is OFF, at the same time when a graph is created.

Click "Return to Main Menu" to return to the Main Menu.

When the upper/lower limit judgment is ON

When the upper/lower limit judgment is OFF

4.7 Print setting

In the print setting, the graph sheets created when the memory or continuous data has been imported can be changed into a one-sheet report format.

Write the contents entered in Memo into Excel to display the print preview.

*This feature is enabled only for the graph sheets created when the memory or continuous data has been imported.

(1) Title	:	Up to 20 characters can be entered in the title. [Default: Blank]
(2) Prepared by	:	Up to 20 characters can be entered in the field for the name of the person in charge of measurement. [Default: Blank]
(3) Remarks	:	Up to 20 characters can be entered in the remarks. [Default: Blank]
(4) Temperature	:	Temperature can be entered. You can enter the value directly, or using the numeric keypad screen.[Default: Blank] [Input range: 5-digit integer between 0 and 9999 (including the decimal point)]
(5) Temperature unit (ºC/ºF)	:	The temperature display unit can be selected from either Celsius (ºC) or Fahrenheit (ºF). [Default: Celsius (ºC) selected]
(6) Humidity (%)	:	Temperature can be entered. You can enter the value directly, or using the numeric keypad screen.[Default: Blank] [Input range: 5-digit integer between 0 and 9999 (including the decimal point)]
(7) Print preview button	:	Click the Preview button to put the description entered in (1) to (6) in the Excel sheet, and display the print preview screen (*).

*Precautions on the print preview screen

(1) The print range is automatically specified when the print preview button is pressed. However, the appropriate print range may not have been selected depending on your environment or application. In this case, exit this software once. Then, use the print setting feature in Excel, and specify the print range.

(2) For actual printing, start printing using the "Print" button on the print preview screen.

• Print preview screen

5. Typical Errors

Error messages	Causes	Countermeasures
	The USB cable has not been connected, or the driver has not been installed	Check the USB cable connection. Or, check that the driver has been installed correctly.
	The torque meter main unit is turned OFF	Check that the torque meter main unit is turned ON.
	When you have entered the values that provide Upper limit judgment value < Lower limit judgment value, and clicked the OK button on the screen for changing upper/lower limit judgment values	Enter an upper limit judgment value larger than the lower limit judgment value.
	When you have entered the values that provide End position < Start position, and clicked the Open or Close memory data button	Enter an end position value larger than the start position value.
	When you have clicked the Open or Close memory data button with each input item left blank, or clicked the START button on the continuous data import screen.	Refer to the error message, and enter the value in the blank item.
	When you have entered a value out of the input range in each input item	Refer to the error message, and enter a value within the input range.
	When you have entered the number of digits after the decimal point out of the input range in each input item	Refer to the error message, and enter the number of digits after the decimal point within the input range.

Error messages	Causes	Countermeasures
	When you have tried to write data in a place exceeding the display range in Excel	Select a different cell, or change the book sheet and write within the display range in Excel.
	When the cell selected in "Select Cell" is not displayed	Select the displayed cell in "Select Cell" again.
	• When you have clicked the "Clear All Memories" button under the condition that the number of registered memory data entries is 0 • When you have clicked the "Open (Close)" button under the condition that the number of registered memory data entries is 0	Perform operation under the condition that there is registered memory data.
	When the TNP main unit is in a mode other than the measurement mode (ex. function mode)	Set the mode in the digital torque meter main unit to the measurement mode.

6. Input Range List

Model	Item	Upper Limit		Lower Limit		Torque Class	
		N•m*1	N•cm	N•m*1	N•cm	N•m*1	N•cm
TNP-0.5	Input range	0 to 500.0	0 to 50.00	0 to 500.0	0 to 50.00	0.1 to 500.0	0.01 to 50.00
	Default value	*2	*2	*3	*3	0.1	0.01
	Number of places after the decimal point	1	2	1	2	1	2
TNP-2	Input range	0 to 2.000	0 to 200.0	0 to 2.000	0 to 200.0	0.001 to 2.000	0.1 to 200.0
	Default value	*2	*2	*3	*3	0.1	10
	Number of places after the decimal point	3	1	3	1	3	1
TNP-5	Input range	0 to 5.000	0 to 500.0	0 to 5.000	0 to 500.0	0.001 to 5.000	0.1 to 500.0
	Default value	*2	*2	*3	*3	0.25	25
	Number of places after the decimal point	3	1	3	1	3	1
TNP-10	Input range	0 to 10.00	0 to 1000	0 to 10.00	0 to 1000	0.01 to 10.00	1 to 1000
	Default value	*2	*2	*3	*3	0.5	50
	Number of places after the decimal point	2	0	2	0	2	0

Model	Item	Start Torque		End Torque		Trigger	
		N•m*1	N•cm	N•m*1	N•cm	N•m*1	N•cm
TNP-0.5	Input range	0 to 500.0	0 to 50.00	0 to 500.0	0 to 50.00	0 to 500.0	0 to 50.00
	Default value	0	0	500	50	500	50
	Number of places after the decimal point	1	2	1	2	1	2
TNP-2	Input range	0 to 2.000	0 to 200.0	0 to 2.000	0 to 200.0	0 to 2.000	0 to 200.0
	Default value	0	0	2	200	0	0
	Number of places after the decimal point	3	1	3	1	3	1
TNP-5	Input range	0 to 5.000	0 to 500.0	0 to 5.000	0 to 500.0	0 to 5.000	0 to 500.0
	Default value	0	0	5	500	0	0
	Number of places after the decimal point	3	1	3	1	3	1
TNP-10	Input range	0 to 10.00	0 to 1000	0 to 10.00	0 to 1000	0 to 10.00	0 to 1000
	Default value	0	0	10	1000	0	0
	Number of places after the decimal point	2	0	2	0	2	0

*1 mN•m only for TNP-0.5 *2 Default upper limit judgment value: TNP upper limit comparator value

*3 Default lower limit judgment value: TNP lower limit comparator value

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Nidec Shimpo Corporation change its company name to Nidec Drive Technology Corporation on April 1, 2023.