User's Manual   92015
                 Communication Package for
                 Digital Multimeters

This manual describes the specifications and handling precautions of the package. Before using this product, thoroughly read this manual to obtain a clear understanding on proper use.

YOKOGAWA ◆

Yokogawa Test & Measurement Corporation

Precautions before Use

● This communication package is for our digital multimeters (DMM) and cannot be used with other Yokogawa products.
● To ensure safety, turn off the DMM and remove the testing leads before attaching the communication adapter.
● Read through the user's manual of the DMM as well.

General Specifications

● Infrared Communication Adapter
    External dimensions   : 65(W)×40.6(H)×22.5(D)
    Cable length   : Approx 2m
    Weight   : Approx 80g
    Specification of USB   : Ver.1.1 (Reference)
● Communication Application Software
  ・System Requirements
    Operating system   : Windows 7/8/10(32/64bit)
    Memory   : At least 64 MB
    Storage device   : Hard disk with at least 10 MB of free space and one CD drive
    Microsoft Excel   : Excel2003 or later
  ・Main Specifications for Communication Application Software
    Data receiver   : Can receive save-mode and logging-mode memory data, and real-time data from a DMM. (Maximum receive real-time data: 32767)
    Data processor   : Can display digital data and trend graphs, saved and read data, and transfer data to Excel.

Windows and Excel are registered trade marks of Microsoft in the United States.
For Models:TY720,TY710,TY530,CA450(*)
(*):When using CA450, functions of "Receives DMM save mode data" and "Receives DMM logging mode data" are not valid.
For more information on Communication of CA450, see Section 6. Communication of User's Manual (IM CA450-EN).

External View
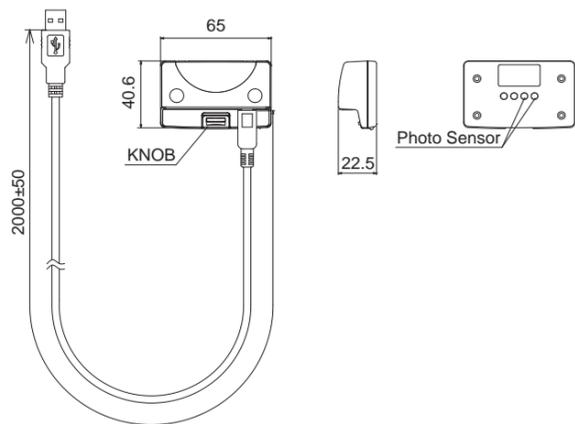

Connecting to DMM
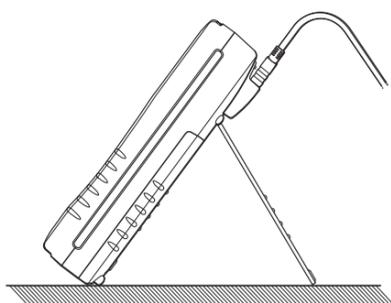
Attach the adapter to the back of the DMM in such a way that the cable is positioned in an upward direction.

Installing DMM Application Software

Insert the CD-ROM into the CD drive.
If the installer doesn't run automatically, execute the Install.exe contained in the CD.
Follow the instructions in the supplied user's manual to install the application.

Starting Application Software

Click on the Windows Start Menu and point to Programs and then DMM Application. The following screen appears.
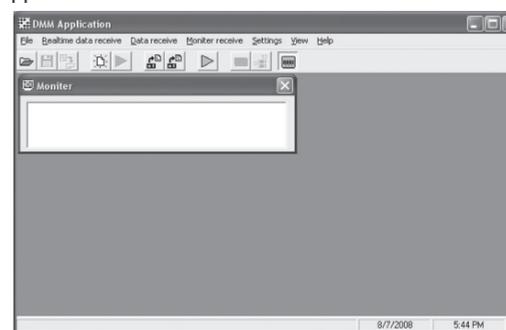

● Descriptions of Toolbar Buttons

📂 Reads saved data.	💾 Saves received data.
Transfers displayed data to Excel.	Specifies new settings for receiving real-time data.
▷ Starts receiving real-time data.	Receives DMM logging-mode data.
Receives DMM save-mode data.	▷ Starts receiving monitor data.
Specifies interval and period for receiving real-time data.	Specifies graph scaling.
Turns on/off monitor display.	

How to Use the Product

● Connecting to Personal Computer
    Connect the communication to a USB Port of the personal computer.
● Setting Communication Port
    Set the communication port to which the product is connected.
    Select Settings and then Communication Port. Specify the communication port number of the personal computer used. Refer to "3-1 COM Port Number" and "3-2 Changing the COM Port Number" in the supplied Installation Instructions for the port number.
● Receiving Data
    Turn on the DMM to receive real-time data, logging-mode data and save-mode data. These data can be received by clicking the respective toolbar buttons shown above. Do not select the PRINT function of the DMM during a data receiving.
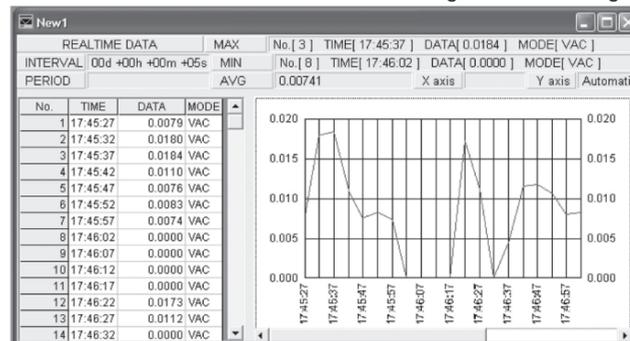
* This figure is an example of real-time data reception

● Auto-transferring Data to Excel
    Whenever you attempt to receive each data, a message appears asking whether or not to transfer the data to Excel. Click OK to receive data and transfer them simultaneously.
    Specify a file type from New or Custom in the dialog box that appears:
        New file   : You can arbitrarily choose a file name when saving from Excel.
        Custom file : Adds a new spreadsheet to an existing file.
    You can also specify a graph title. Enter any title in the box shown in the dialog box and check the respective check boxes to store the existing custom file name and the title to memory until you restart DMM Application and transfer data to Excel.
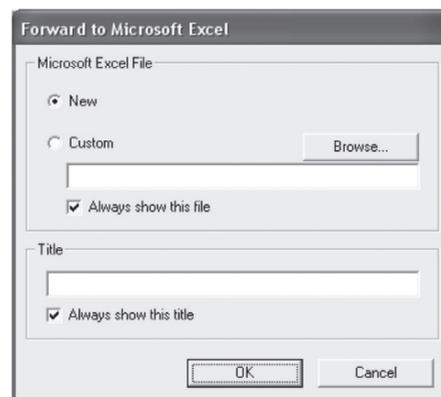
Clicking OK automatically activates Excel and starts data transfer. When the transfer is complete, a graph frame and the graph are automatically generated. When you select Forward to Microsoft Excel from the File menu after receiving each data, the acquired data is immediately transferred and a frame and graph are generated.
Note: To interrupt data receiving or display a trend graph while real-time data is being received and transferred to Excel simultaneously, display DMM Application which is running in the background by clicking DMM Application on the taskbar.

● Reading and Saving File
    You can read or save each of the acquired data. Select the commands from the File menu or the respective toolbar buttons for reading or saving the existing data.
    Note: Data is saved as a CSV file. You can directly read the file in Excel, but do not overwrite the data. Doing so results in you not being able to read the data from DMM Application.

● DMM Monitor
    The DMM measured values can be regularly displayed on a personal computer screen. The Monitor screen is displayed by clicking the button for starting data reception.

0.0130VAC

Communication Settings

The communication settings for the TY700 and TY500 series of digital multimeters are fixed as follows:

Baud rate	: 9600 bps
Parity	: None
Stop bit	: 2 bits
Data length	: 8 bits
Handshake	: None
Delimiter	: <CrLf> fixed

Command References

● Request to Send Real-time Data

RR command	
Description	Used to acquire current measured value. The data can be consecutively acquired with a parameter following the command.
Command	・Single data acquisition : RR,1<CrLf> ・Consecutive data acquisition : RR,2<CrLf> ・Consecutive acquisition stop : RR,0<CrLf>
Return	・Single and consecutive data acquisition 　　RR, S, MDDDDDDAUFFx<CrLf> 　　　　S : Status→　N=Normal　O=Over　　B=LowBatt 　　　　M : Sign "−" or "+" 　　　　DDDDDD : measured value 　　　　A : auxiliary unit (k, m, etc.) 　　　　U : unit (V, A, etc.) 　　　　FF : measurement function (DC, AC, etc.) 　　　　x : Checksum 　　Example) 　　　　DC432.10mV → RR, N, +432.10mVDC7<CrLf>

● Request to Send Save-mode Data

RS command	
Description	Used to acquire the data from DMM save-mode memory. The number of memory data can be specified with a parameter following the command.
Command	RS, nn<CrLf> 　　nn : memory number (01 to 50)　(734) 　　nn : memory number (00 to 99)　(TY710, TY720 ,TY530)
Return	・When data with a specified number exists in save-mode memory 　　RS, S, MDDDDDDAUFFx<CrLf> 　　　　S : Status→ N=Normal O=Over B=LowBatt 　　　　M : Sign "−" or "+" 　　　　DDDDDD : measured value 　　　　A : auxiliary unit (k, m, etc.) 　　　　U : unit (V, A, etc.) 　　　　FF : measurement function (DC, AC, etc.) 　　　　x : Checksum ・When data with a specified number does NOT exist in save-mode memory 　　RS5<CrLf>

● Request to Send Logging-mode Data

RL command	
Description	Used to acquire data from DMM logging-mode memory. The number of memory data can be specified with a parameter following the command.
Command	RL, nnnn<CrLf> 　　nnn　: memory number (001 to 600)　(734) 　　nnnn : memory number (0000 to 0999) (TY710) 　　nnnn : memory number (0000 to 9999) (TY720) 　　nnnn : memory number (0000 to 1599) (TY530)
Return	RL, S, MDDDDDDAUFFx<CrLf> 　　　　S : Status→ N=Normal O=Over B=LowBatt 　　　　M : Sign "−" or "+" 　　　　DDDDDD : measured value 　　　　A : auxiliary unit (k, m, etc.) 　　　　U : unit (V, A, etc.) 　　　　FF : measurement function (DC, AC, etc.) 　　　　x : Checksum ・When data with a specified number does NOT exist in logging-mode memory 　　RLE<CrLf>

● Request to Send Logging-mode Data Count

RN command	
Description	Used to acquire the count of data in DMM logging-mode memory.
Command	RN<CrLf>
Return	RN, nnnnnx<CrLf> 　　nnn　 : logging-mode data count　(000 to 600)　(734) 　　nnnnn : logging-mode data count　(00000 to 01000) (TY710) 　　nnnnn : logging-mode data count　(00000 to 10000) (TY720) 　　nnnn　 : logging-mode data count　(0000 to 1600) (TY530) 　　x : Checksum

● Request to Send Interval of Logging-mode Data

RI command	
Description	Used to acquire the measurement interval of data in DMM logging-mode memory.
Command	RI<CrLf>
Return	RI, nnnnx<CrLf> 　　nnnn : interval of logging-mode data (0001 to 1800) 　　x : Checksum