

IT-480
Virtual COM Port Driver

Reference Manual

CODE:GZ0000484723

Preface

This manual describes the operation of the IT-480, Virtual COM Port Driver.

Be sure to read this manual before using the product to ensure proper and safe operation of the product. Also safely store the manual so it is readily available whenever necessary.

Product specifications and appearance, as well as the contents of this manual are subject to change without notice.

System Requirements

This software functions on personal computers (referred to as PC in the rest of this document) or tablets installed with either the 32-bit or 64-bit version of Windows 7, Windows 8, Windows 8.1, and Windows 10.

Trademarks

- Windows is registered trademarks or trademarks of Microsoft Corporation in the United States and other countries.

Other company names and brand names are either registered trademarks or trademarks of the respective companies. (R), (TM) symbols may be omitted in this manual.

Manual Information

Description in this manual

Note

This interprets the necessary points for correct operation and notifies the important points for handling the product.

Reference

This indicates the part where to refer for information.

Tip

This indicates reference information.

Original language

This is the English translation of an original Japanese document.

Documents related to this product

The following documents are related to this product.

■ **Instruction Manual for the IT-480**

This volume mainly discusses Infrared Thermometer IT-480.

■ **User Manual for the IT-480 Data Acquisition**

This volume mainly discusses the IT-480 Data Acquisition.

■ **Reference Manual for the IT-480 Virtual COM Port Driver (this manual)**

This volume mainly discusses the IT-480 Virtual COM Port Driver.

Version of Windows in operating

This manual indicates operating in Windows 7. When operating in a different version, procedures is different.

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1 Outline

Installing the IT-480 virtual COM port driver on a PC enables serial communication with IT-480 devices using communication software such as "Tera Term" or some other customer-developed software.

Operations available by serial communication include viewing and changing IT-480 device setup and acquiring measurement results.

Installation of this virtual COM port driver is unnecessary if the serial communication function is not used.

2 Virtual COM Port Driver

2.1 Installation

Operation procedure

1. Access the download page at the HORIBA website (<http://www.horiba.com/software/it-480/>).
2. Download and unzip the driver.zip file that contains the IT-480 virtual COM port driver.
A folder named driver will be created after the file is unzipped.
3. Double-click the Setup.exe file in the driver folder to start the installation.

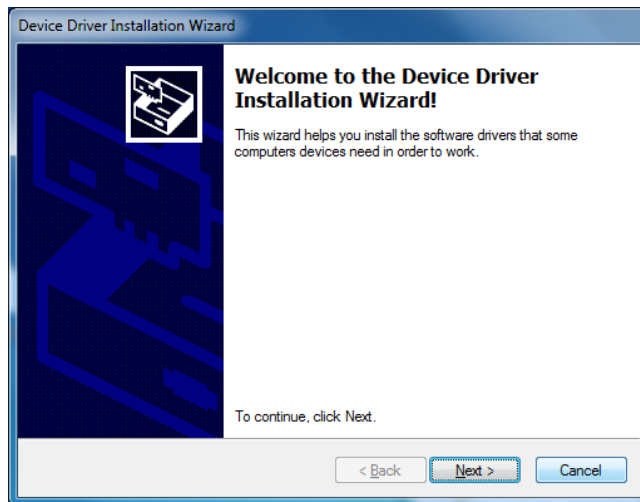


Fig. 1 Device driver installation wizard start window

Once the installation completes successfully, the window as illustrated in Fig. 2 appears.

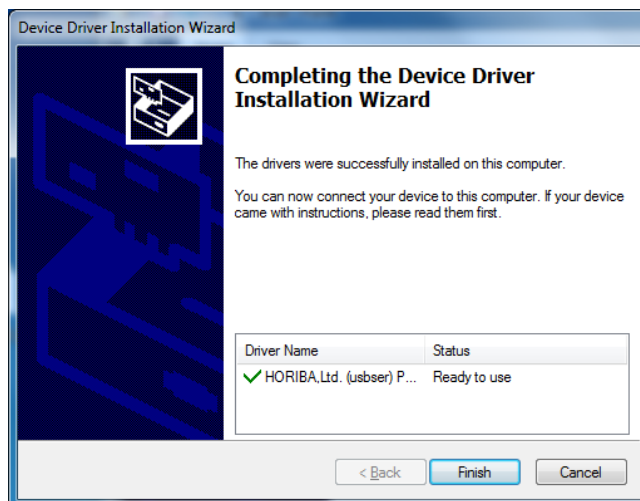


Fig. 2 Device driver installation wizard complete window

4. Click [Finish] to complete the installation.

2.2 Connecting IT-480 devices

Connect the IT-480 to a PC with a USB cable.

The instrument can be operated by the USB bus power, eliminating the need to connect an external power supply.

However, multiple IT-480s or other USB devices are connected to USB hub causes power shortage. Use a self-powered USB hub that takes external power supply (e.g. AC adapter).

Note

When operated by USB bus power only, performing the current output test is not available. If you need to perform the current output test, also connect an external power supply.

The IT-480 connection status can be checked in Windows Device Manager window.

Windows 7 procedure

Open the start menu and select [Control Panel]. Open [Device Manager] and select [Ports (COM LPT)].

Fig. 3 is an example in which the device is assigned to COM18.

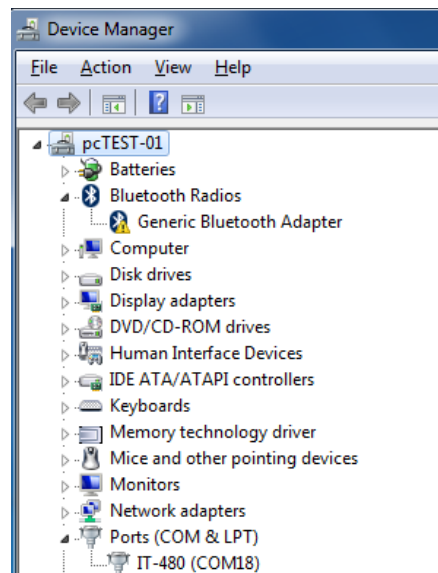




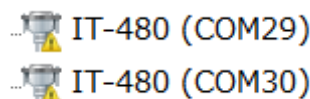
Fig. 3 Device Manager window

Note

- The COM port number assigned depends on the customer environment.
- If the  icon appears next to the IT-480 device as illustrated in the figure below, or the connected IT-480 does not appear in device manager, wait a few moments and check the connection status again.

If the  icon still appears, the device may be not successfully connected. Disconnect and reconnect the USB cable and USB hub. It may take several minutes before the USB cable reconnection is recognized.

If the device is still not successfully connected, connect the USB cable to other USB port or replace the USB hub and/or the USB cable.



3 Communication Commands

3.1 Specifications

Communication speed:	115,200 bps
Data length:	8 bits
Start/stop bit:	1 bit respectively
Parity bit:	None
Hardware/software flow control:	None

3.2 Communication procedure

IT-480 devices are ready to receive commands once the external power supply is turned ON or USB bus power is supplied.

IT-480 devices send responses to commands within 300 ms of receipt.

3.3 Command format

<Command Name>[,<Data String 1>[,<Data String 2>]]+Termination Code<CR>

Table 1 Command format

Element	Description
<Command Name>	Text string consisting of alphabet characters and "." (periods)". Commands are case-insensitive.
<Data String 1><Data String 2>	Text string consisting of numerical characters, symbols, and periods. Some commands take only data string 1 or no data strings. Errors occur in the following scenarios. <ul style="list-style-type: none"> • Number of data strings do not match the command syntax • Specified data string is outside the valid range • Number of digits after the decimal point exceeds configurable range
Separating character	Command names and data strings as well as between data strings are separated by ", (commas)". Spaces or tabs inserted before commas will result in error.
Termination Code	The "CR" text string is used to terminate commands and data strings.

3.4 Response format

<Command Name>,<Error Code>[,<Data String 1>,<Data String 2>]+Termination Code<CR>

Table 2 Response format

Element	Description
<Command Name>	Same text strings as those for in received command names. Lowercase characters are converted into uppercase characters.
<Data String 1><Data String 2>	Text string consisting of numerical characters, symbols, and ". (periods)". Errors occur in the following scenarios. <ul style="list-style-type: none"> • Number of data strings do not match the command syntax • Number of digits after the decimal point exceeds configurable range
Separating character	Command names and data strings 1 as well as data strings 1 and data strings 2 are separated by ", (commas)".
Termination Code	The "CR" text string is used to terminate commands and data strings.

3.5 Command list

Table 3 Command list

Command name	Function	Command data	Response data	Data length/ range
G.VER	Checks the program version of the IT-480 device	None	Version No.	-
G.MODEL	Checks the model of the IT-480 device	None	Model name	-
G.NAME	Reads the label text string* ¹	None	Label name	Max. of 30 characters
S.NAME	Writes the label text string* ¹	Label	None	Max. of 30 characters
G.ID	Reads the ID text string* ¹	None	ID text string	Max. of 30 characters
S.ID	Writes the ID text string* ¹	ID text string	None	Max. of 30 characters
G.T	Reads temperature measurement results	None	Temperature	Down to one decimal point
G.EMI	Checks the emissivity setting	None	Emissivity setting	-
S.EMI	Sets the emissivity setting	Emissivity setting	None	0.100 to 1.999
G.AVG	Checks the moving average count setting	None	Moving average count setting	-
S.AVG	Configures the moving average count setting	Moving average count setting	None	-

Command name	Function	Command data	Response data	Data length/range
G.SCL	Checks the current output scaling	None	Lower limit, upper limit* ²	-
S.SCL	Configures the current output scaling	Minimum, maximum	None	-
T.OUT	Starts the current output test* ³	Current output value	None	4 or 20 only
E.OUT	Ends the current output test	None	None	-

- *1: Labels and IDs are used to identify individual IT-480 devices in the IT-480 Data Acquisition.
- *2: The lower limit is the temperature equivalent to 4 mA of current output. The upper limit is the temperature equivalent to 20 mA of current output. An error occurs if the difference between the upper limit and the lower limit is less than 10.0°C.
- *3: Current output value is set to 4 mA or 20 mA at any temperature measurement results.

3.6 Error codes

Table 4 Error code list

Error code	Status	Notes
00	Command has been processed successfully.	-
99	An undefined command was received.	-
01	Command could not be processed due to incorrect data format.	-
02	Command could not be processed due to invalid data range.	-
03	Command could not be executed.	-
05	Failed to write the setting value, name, or ID.	-
06	Failed to read the setting value, name, or ID.	-
07	Measurement result is below the guaranteed accuracy range. Alternatively, the IT-480 internal temperature is less than the specified range.	G.T command only
08	Measurement result exceeds the guaranteed accuracy range. Alternatively, the IT-480 internal temperature exceeds the specified range.	G.T command only
09	Object temperature cannot be calculated.	G.T command only
1X to 7X	Internal IT-480 device error, such as a circuit failure, was detected.	G.T command only, X represents a number between 0 to 9.

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