

Thermo Recorder

TR-77Ui

User's Manual



Notices about this User's Manual

In order to properly use this product, please carefully read this manual before using. T&D Corporation accepts no responsibility for any malfunction of and/or trouble with this product or with your computer that is caused by the improper handling of this product and will deem such trouble or malfunction as falling outside the conditions for free repair outlined in the attached warranty.

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- Company names and product names are trademarks or registered trademarks of each company.
- Specifications, design and other contents outlined in this manual are subject to change without notice.
- On screen messages in this manual may vary slightly from the actual messages.
- Please notify the shop where you purchased this product or T&D Corporation of any mistakes, errors or unclear explanations in this manual. T&D Corporation accepts no responsibility for any damage or loss of income caused by the use of our product.
- This product has been designed for private or industrial use only. It is not for use in situations where strict safety precautions are necessary such as in connection with medical equipment, whether directly or indirectly.
- We are not responsible for any malfunction or trouble caused by the use of our product or by any problem caused by the use of measurement results of our Unit. Please be fully aware of this before using our product.
- Some of our products, which come under the category of strategic goods in foreign trade law, need the permission of the Japanese government to be exported outside of Japan.
- Please read the warranty and provisions for free repair carefully.

Contents

FCC Compliance Statement for American Users

This device complies with Part 15 of the FCC Rules.

Operation is subject to following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE

This equipment has been tested and found to comply with the limits for a Class A Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING

This equipment has been verified to comply with the limits for a Class A personal digital device, pursuant to Subpart B of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified or verified to comply with the Class A or B limits may be attached to this equipment. Operation with non-certified or non-verified personal computer and/or peripherals is likely to result in interference to radio and TV reception. The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. You are cautioned that changes or modifications not expressly approved by party responsible for compliance could void your authority to operate the equipment.

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Safety Precautions and Instructions

To ensure safety be sure to obey all of the following warnings.







The following items should be strictly obeyed for the safe usage of this Unit, and for protecting yourself and other people from bodily harm and/or damage to property.

Explanation of Symbols

Explanation of Warning Symbols

 DANGER	These entries are actions that absolutely under no circumstance should be taken. The taking of such an action may cause serious personal physical damage or death.
 CAUTION	These entries are actions that if taken may lead to physical injury or damage to persons or things.

Explanation of Picture Symbols

	Denotes an important warning or caution. Inside or near the symbol will appear another symbol giving details. (EX:  stands for CAUTION AGAINST ELECTRIC SHOCK)
	Denotes a forbidden action. Inside or near the symbol will appear another symbol giving details. (EX:  stands for DO NOT TAKE APART)
	Denotes an action that you must take. Inside or near the symbol will appear another symbol giving details. (EX:  stands for UNPLUG POWER PLUG FROM OUTLET)

DANGER



Do not take apart, repair or modify the Unit.

Doing so may cause fire or electrocution.



If water or a foreign body enters into the Unit, immediately turn OFF the power, remove batteries, and stop using.

Continued use may cause fire or electrocution.



Do not use this Unit in wet or humid places, such as a bathroom.

It may cause a fire or other trouble including malfunction.



Store the TR-77Ui Unit, sensors, batteries and communication cables out of the reach of children.

Touching them may cause injury and swallowing batteries is extremely dangerous.



If any smoke or strange smells are emitted from the Unit, immediately turn OFF the power, remove batteries, and stop using.

Continued use may cause fire or electrocution.



Do not drop the Unit, or expose the Unit to a strong impact. If that happens to the Unit, immediately turn OFF the power, remove batteries, and stop using.

Continued use may cause fire or electrocution.



This device is designed exclusively to measure and record temperature and humidity. Do not use it for any other purpose than to measure and record temperature and humidity.

CAUTION



This Unit is not waterproof.

If the Unit gets dirty, wipe it with a clean cloth and a mild detergent.



Harmful gases or chemicals may cause corrosion and/or other danger to the Unit. Also, by coming in contact with hazardous substances, harm may occur to the people handling the Unit. Therefore, do not use or store the Unit in any environment that is exposed to chemicals and harmful gases.



Battery life varies depending upon the type of battery, the battery performance, the measuring environment, and the frequency of communication.



Battery terminals may provide insufficient contact due to age or vibration. This may lead to data loss.



Condensation may occur if the Unit is moved from one environment to another where the difference in temperature is great.

Use the Unit in an environment where the ambient temperature is from -10 to 60°C and the humidity is 90%RH (no condensation) or less.



To prevent damage to the Unit from static electricity, remove static electricity from your body by touching metal around you (door knob, window frame) before touching the Unit. Static electricity may cause not only damage to the Unit, but may cause breaks in or a loss of data.



If the Unit is not to be used for a long period of time, for safety reasons please remove the battery. If left in the Unit, it may leak and lead to malfunctioning.



Please take extra caution when plugging in and pulling out the USB plug while another USB device such as CDD or HDD is in operation.

It may cause problems to your CD-RW or other device.



We shall not guarantee the operation of our device if you have connected it to your computer using a USB hub or a USB extension cable.



Please do not insert your fingers or any foreign objects into any of the devices' jacks.



Do not use any other batteries than those that are specified in this User's Manual.

It may cause a fire or other trouble including malfunction.

Do not use or store the TR-77Ui Unit in any of the following places. Doing so may cause electrocution, fire and/or other adverse effects to the device and/or your computer.

- Areas exposed to direct sunlight

This will cause the inside of the device to become overheated and may cause fire, deformation, and/or other damage including malfunction.

- Areas prone to strong magnetic fields

This may cause damage including malfunction.

- Areas exposed to water leakage

This may cause electrocution or other damage including malfunction.

- Areas exposed to excessive vibration

This may cause injury, malfunction, damage or loss of proper electrical contact.

- Areas near fire or exposed to excessive heat

This may cause damage including malfunction and deformation.

- Areas prone to smoke, dust and dirt

This may cause damage including malfunction.

Cautions about using the Sensors

When using the Temperature/Humidity Sensor HHA-3151, please take note of the following:



The sensor can measure temperature within the range of -30 to 80°C and humidity within the range of 0 to 99%RH. Only use the sensor within these measurable ranges.



If extremely severe temperature changes occur, the humidity measurements may appear abnormal. Once the sensor's temperature becomes stable, the measurements will return to normal.



During use, the surface of the temperature/humidity sensor will accumulate impurities (dirt) causing a decrease in the sensor's accuracy and sensitivity. If the sensor is being used in a bad environment (smoky or dusty places) it may be necessary to change the sensor sooner.



This temperature/humidity sensor is not waterproof. If the sensor gets wet, immediately remove the sensor from the Unit and wipe it with a clean cloth as soon as possible. Then allow the sensor to dry in normal room temperature before using it again.



Do not expose the temperature/humidity sensor to a strong impact. This may effect measurements or cause damage, including malfunction.



When the temperature/humidity sensor is not being used, please place it in the attached vinyl bag with the drying agent included and store it in a cool dark place with a temperature of between 15 to 30°C and a humidity of below 30%RH.

Before Using this Product

Please be careful about the procedures when using this product with USB communication.

In order to use a USB connection to communicate between this product and a computer, it is necessary to install the software and the USB device driver.

Before connecting this product to a computer with a USB communication cable, it is necessary to first install the software and the USB device driver. If you connect a TR-77Ui to the computer before installing, the USB device driver may not be installed properly.

If you have connected a TR-77Ui to your computer before installing the USB device driver, make sure to click the [Cancel] button in the Wizard window when it pops up on the computer display. Then disconnect the USB communication cable from the TR-77Ui.

For more details about the proper installation procedure, see the Software User's Manual that accompanies "T&D Recorder for Windows".

Basic Procedures

The following outline shows the basic procedures for getting ready, making settings and using the product.

1. Getting Ready (provided in this manual)

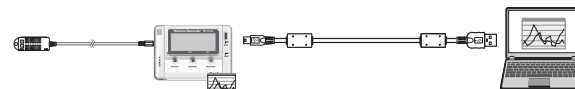
1. Install the software "T&D Recorder for Windows"
2. Get the TR-77Ui ready to use
3. Install the USB device driver and confirm its usage

2. Making the TR-77Ui Unit Settings (using supplied software) / Starting Recording*

1. Make Settings for Device Names, Recording Intervals and Recording Modes
2. Start Recording

3. Downloading Data / Displaying Graphs*

1. Connect the TR-77Ui with a USB communication cable to a computer
2. Download data via the Software
3. Display graphs via the Software



*For details about making TR-77Ui Unit Settings or about Downloading Data, see the explanation in the Software User's Manual and/or the Software "Help".

What is TR-77Ui Thermo Recorder?

Outline

TR-77Ui Thermo Recorder is a data logger capable of measuring, displaying and recording temperature and humidity. TR-77Ui has one temperature channel and one humidity channel. The measuring accuracy of $\pm 2.5\%$ RH enables more precise measurements and allows for measurement within a wider range.

The data recorded into the TR-77Ui Units can then be downloaded quickly via USB communication cable to your computer whereby with our exclusive software you can easily process the data into graphs, tables, save to files and/or print it out to help you analyze that data.

Basic Functions

- Humidity Measuring Range: 0 to 99%RH

The TR-77Ui with the sensor included in this package can simultaneously measure and record temperature in a range of -30 to 80°C and humidity in a range of 0 to 99%RH.

- Data Recording Capacity: 8,000 readings x 2 channels

One channel can record and hold up to 8,000 measurement readings. At the longest recording interval of 60 minutes, recording can continue consecutively for one year.

- Ten Months of Operation with just One AA Alkaline Battery

Our low energy consumption design gives you ten months of continuous operation with only one AA alkaline battery. This enables measuring and recording over long periods of time.

NOTE:

Battery life varies depending upon the type of battery, the battery performance, the measuring environment, and the frequency of communication. Specifications and explanations used in this User's Manual are based on operations carried out with a new battery and are in no way a guarantee of your actual battery life.

- Battery Life Warning Display

When the battery power becomes low, a battery life warning signal will appear in the Unit's LCD display. If the battery power becomes even lower the Unit will automatically go into sleep mode in order to protect the data.

- Data Protection Function

When battery power becomes low, a battery life warning signal will appear in the Unit's LCD display and if the battery power becomes even lower the Unit will automatically go into sleep mode in order to protect the data. In sleep mode all normal operations will stop and it will become impossible to switch on the power of the Unit.

NOTE:

If the Unit remains in sleep mode for about 2 months without a change of battery, or if the battery is left out of the Unit for more than 2 minutes, all recorded data will be lost.

- Current Readings Monitoring Display

With our exclusive software, you cannot only monitor the current measurements at a set interval, but can view those measurements in a continually changing graph. You can simultaneously display the current measurements and corresponding graphs for the number of Units you have connected.

- 15 Recording Intervals

Select from 15 recording intervals (from 1 second to 1 hour) to meet your needs.

Also, there are two recording modes to choose from: ONETIME and ENDLESS.

ONETIME: Upon reaching capacity of 8,000 readings, "FULL" will appear on the LCD display and recording will automatically stop.

ENDLESS: Upon reaching capacity of 8,000 readings, the oldest data is overwritten and recording continues.

- Adjustment Function

By entering the adjustment values beforehand, it is possible to view and record the adjusted measurement values.

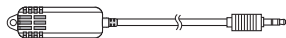
Adjustment values are written directly into the sensors themselves, not into the Units. Therefore, when replacing a sensor, it is necessary to re-set any desired adjustment settings into the newly connected sensor. Note that when replacing one sensor in which adjustment settings have been made with another one in which adjustment settings have been written, the original sensor's adjustment values will become invalid and the newly connected sensor's adjustment values will become valid.

Package Contents

The following items are included in the package:



TR-77Ui Unit × 1



Temperature/Humidity Sensor HHA-3151 × 1



AA Alkaline Battery × 1



USB Communication Cable
US-15C × 1



T&D Recorder for Windows
Software CD-ROM × 1



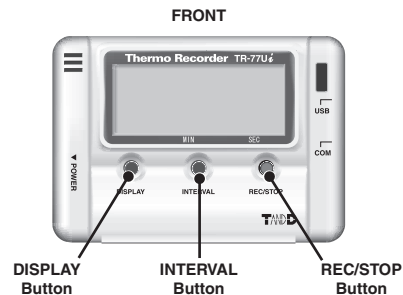
Hardware User's Manual (Warranty) × 1



Software User's Manual × 1

TR-77Ui Appearance Diagram and Part Names

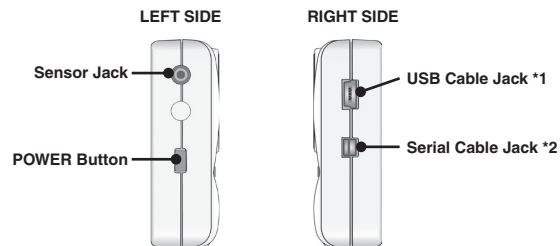
Part Names and Functions



DISPLAY: Pressing this button will change the LCD display mode.

INTERVAL: It is possible to make or change recording interval settings from this button on the Unit, and view the currently set recording interval.

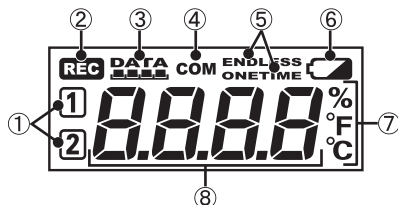
REC/TOP: Pressing this button will start or stop recording.



*1: Enable communication by connecting the data logger to the computer with a USB cable. Before communicating via USB it is necessary to install the USB device driver. After installing the USB device driver, your computer will be able to detect and recognize any TR-77Ui Unit that is connected with a USB communication cable. For details about how to install the USB device driver, see "Installing the USB Driver" in the Software "T&D Recorder for Windows (TR-5,7xU)" User's Manual.

*2: Serial Communication Cable is an Optional Accessory.

LCD Display



① Channel Mark

The Channel No. of the measurement being displayed will appear.

② Recording Mark

The recording status will appear.

ON: Recording in progress / BLINKING: Waiting for programmed start

③ Data Capacity Scale

After every 2,000 readings the scale will be marked from left to right.

④ COM Mark

ON: Connected via USB cable

BLINKING: Data is being sent or received (In communication with the computer)

⑤ Recording Mode

ONETIME: Upon reaching capacity of 8,000 readings, "FULL" will appear in the Unit's LCD display and recording will automatically stop.

ENDLESS: Upon reaching capacity of 8,000 readings, the oldest data is overwritten and recording continues.

⑥ Battery Life Warning Signal

When the battery power becomes low, a mark will appear in the Unit's LCD display. If the battery power becomes even lower, "SLP" will appear and normal operations will stop. Please change the battery as soon as the Battery Warning Mark appears.

⑦ Unit of Measurement

The unit of the measurement (°C, °F, %) for the display will appear.

⑧ Measurements and Messages Area

Current measurements or operational messages such as "FULL" or "SLP" will appear.

Main Display Messages

The following are the main display messages that appear on the LCD display.

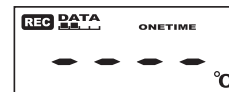
FULL (The data capacity is FULL)

Upon reaching capacity of 8,000 readings, "FULL" will appear on the LCD display. When this message appears, recording has been stopped. (Only when recording in ONETIME mode will this be displayed.)



Sensor Error

This will be displayed when a sensor has not been connected, has not been completely inserted or the wire has been broken. Measurement and recording will continue so battery power will be consumed.



SLP (Sleep Mode)

If the battery power becomes extremely low, this message will appear on the LCD display. When this appears, recording has been stopped in order to save the already recorded data. See "Changing the Battery" on page 16 and change the battery.



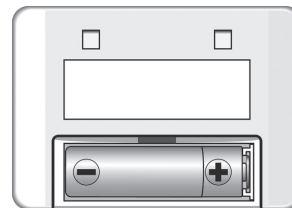
Nothing Appears

If after going into sleep mode above, the battery is further left unchanged the display will automatically shut off. If that occurs, all recorded data will be lost. See "Changing the Battery" on page 16 and change the battery.

Installing the Battery

1. Remove the battery cover from the back of the Unit.
2. Always use a new battery.

Insert one AA alkaline battery, making sure that the – and + are in the correct direction.



3. Replace and close the battery cover.

Changing the Battery

- ❗ Besides the Unit's LCD display, the battery level can be displayed on the computer screen via the software if a Unit is connected to the computer with a USB communication cable.
- ❗ If a Unit is left without a battery for some time, all data may be lost, so please work quickly when changing the battery.

When a battery life warning signal appears, try to replace the battery with a new one as soon as possible.

1. When it is time for the battery to be replaced, a battery life warning signal will appear.



- * If, at this time you change the battery, recording will continue uninterrupted and all data will be saved for downloading.

2. If the battery is not changed but it remains in use, "SLP" will appear in the LCD display. Recording will stop in order to protect recorded data until this point.



- * If you change the battery at this point, it is still possible to download all saved recorded data.

3. If the battery is further left unchanged, the display will automatically shut off and all previously recorded data will be lost.

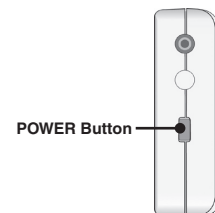
About Battery Life

A TR-77Ui Unit can be used continuously for about ten months with one AA Alkaline Battery.

Battery life varies depending upon the type of battery, the battery performance, the measuring environment, and the frequency of communication.

Turning ON the Power

By holding in the POWER button at the left side, the Unit will turn on.



Turning OFF the Power

By holding in the POWER button, "OFF" will appear in the LCD display and the Unit will turn off.

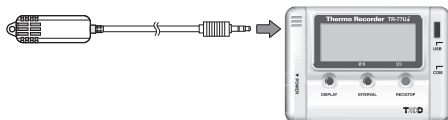
NOTE:

- During recording, the power cannot be turned off. Please stop recording first and then press the POWER button to turn off the power.
- Even if the power has been turned off, the recorded data will be saved. However, if the battery power is totally lost, all data will be lost, so please download data as soon as possible to avoid losing any necessary data.

Connecting the Sensor

Connect the sensor to the sensor jack on the TR-77Ui Unit.

- To avoid poor connections, be sure to push the sensor connector securely into the jack.
- The temperature/humidity sensors included with the TR-72U and the TR-72W are not compatible with the TR-77Ui. Make sure to use the sensor exclusively designed to be compatible with the TR-77Ui.



Starting Recording from TR-77Ui Unit Button

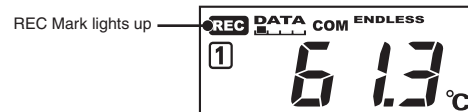
By pressing the REC/STOP button on the TR-77Ui Unit, you can start a recording session immediately.

***NOTE:**

The Device Name, Channel Name, Recording Mode and all other recording condition settings must be made first via the computer using the software.

Start Recording

Press in the REC/STOP button on the front of the Unit until the REC mark appears in the LCD display. When displayed, recording has begun.

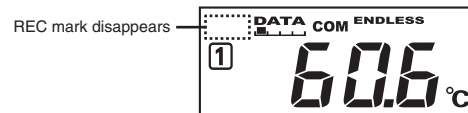


NOTE:

- By starting a new recording session, all data currently saved in the Unit will be erased.
- Even if the Unit is waiting for a programmed start, by pressing the REC/STOP button until the [REC] mark appears, you can start a new recording session immediately.

Stop Recording

You can stop a recording session by pressing the REC/STOP button until the [REC] mark disappears from the LCD display. When it has disappeared, recording has stopped.



Setting Recording Interval from TR-77Ui Unit Button

You can make or change recording interval settings from the INTERVAL button on the front of the TR-77Ui Unit.

1. Press in the INTERVAL button on the front of the Unit until the recording interval appears in the LCD display.
2. With each pressing of the INTERVAL button the recording interval time will change. Press until the desired setting appears.



15 seconds



15 minutes

3. When the desired recording interval appears, stop pressing the INTERVAL button. Within a few seconds, the current measurement readings will return to the display and the setting will be finished.

** By pressing the INTERVAL button during recording or while waiting for a programmed recording to start, the currently set recording interval will be displayed.*

** During recording or while waiting for a programmed recording to start, you cannot make recording interval settings.*

Changing the LCD Display Mode from TR-77Ui Unit Button

You can make or change the LCD display settings from the DISPLAY button on the front of the TR-77Ui Unit.

There are two LCD display modes for current readings: Alternating Display and Fixed Display.

Alternating Display:

The LCD display shows Temperature and Humidity alternatingly in the following order:

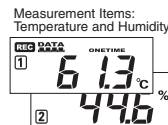
Temperature (°C / °F) >> Humidity (%) >>

Fixed Display:

The LCD display shows one measurement item specified by pressing the button on the Unit.

❗ The factory default setting is an alternating display between Temperature and Humidity.

Example: ① During an Alternating Display ① By pressing the button

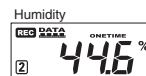


↓ Press the button

② Fixed Display



↓ Press the button



↓ Press the button

③ Alternating Display

① By pressing the button when the Unit has been set to an Alternating Display, the LCD display mode will change to a Fixed Display.

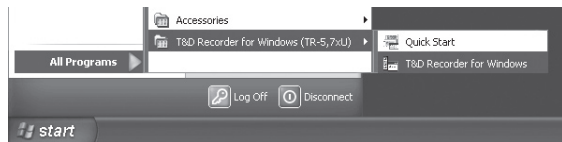
② With each pressing of the button the item for a Fixed Display will change.

③ The LCD display mode will change to an Alternating Display.

How to Open the Application and Help

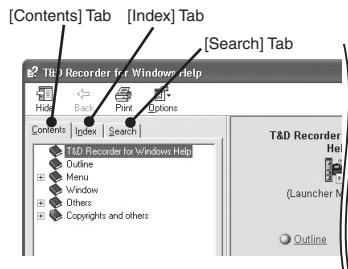
After software installation has been completed, "T&D Recorder for Windows" will be registered in the Windows Start Menu.

Click as follows to open: Windows Start >> All Programs >> T&D Recorder for Windows (TR-5,7xU) >> T&D Recorder for Windows (application)



"T&D Recorder for Windows" is made up of two applications: "T&D Recorder for Windows" and "Quick Start".

To get any necessary help, go to the "Help" menu in "T&D Recorder for Windows" as opened above, click on "Search by Topic" to show the top window in which all of related topics are listed.



[Search] Tab

Enter the keyword you wish to search for and click the [List Topics] button. All topics that contain the keyword will be displayed. By selecting a Keyword in the Keyword list, and clicking the [Display] button at the bottom, a detailed explanation window will appear.

[Contents] Tab

By clicking on one of the topics listed, you can find detailed information for that subject.

[Index] Tab

By selecting a Keyword in the Keyword list, and clicking the [Display] button at the bottom, a detailed explanation will appear.

Specifications

Device Type	TR-77Ui	
Number of Measurement Channels	2 Channels 1 Temperature / 1 Humidity	
Measurement Items	Temperature	Humidity
Attached Sensor	-30 to +80°C	0 to 99%RH
Measuring Accuracy (with Attached Sensor)	±0.3°C (at +10°C to +40°C) ±0.5°C (at all other temperatures)	±2.5%RH (at 25°C and 10% to 85%RH) ±4%RH (at 25°C and 0% to 10%RH or 85% to 99%RH) Add ±0.1%RH/°C (When at other than 25°C, add to the accuracy noted above) Hysteresis: ±1.5%RH or lower (when used at temperature / humidity equal to or lower than the following: 50°C/75%RH, 60°C/50%RH, 70°C/35%RH, 80°C/25%RH)
Measurement / Display Resolution	0.1°C	0.1%RH
Sensor	Platinum Resistance Sensor	Electrostatic Capacitance Type
Recording Interval	Select from 15 choices: 1, 2, 5, 10, 15, 20 and 30 seconds / 1, 2, 5, 10, 15, 20, 30 and 60 minutes	
Recording Capacity	8,000 readings × 2 channels	
Recording Modes	ENDLESS / ONETIME	
LCD Displayed Items	Measurements (Ch.1 only, Ch.2 only, alternating display) / Measurement and Recording Status / Battery Life Warning / Amount of Recorded Data / Unit of Measurement	
Power	1 AA Alkaline Battery (LR6)	
Battery Life*1	About 10 months	
Data Backup	Activated when battery power is low or when switch is off (About 1 year)	
Interface*2	USB Communication, Serial (RS-232C) Communication	
USB Communication Time	When downloading 1 Unit of full data: about 8 seconds	
Dimensions / Weight of TR-77Ui Unit	H55×W78×D18 mm / about 62 g (including one AA battery)	
Operating Environment	Temperature: -10 to +60°C / Humidity: under 90%RH (no condensation)	
Attached Sensor	HHA-3151 × 1	
Accessories Included in Package	AA alkaline battery LR6 × 1, USB Communication Cable × 1 US-15C; length 1.5 m Software (CD-ROM) / Hardware User's Manual (Warranty) / Software User's Manual	

*1: Battery life varies depending upon the type of battery, the measuring environment, the frequency of communication, and the ambient temperature in which it is used.

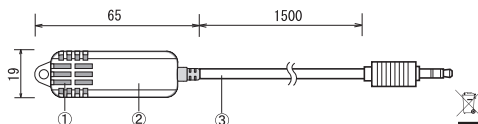
*2: If necessary, serial communication can be established by using our TR-77Ui communication protocol (contact your local dealer) to write a software program. In this case, it will be necessary to connect to your computer using our optional serial communication cable (TR-07C). Please contact your local dealer or the Sales Department of T&D Corporation for details.

Options

Temperature/Humidity Sensor (HHA-3151)

unit: millimeters

Cable Length: 1.5 m



Materials:

① Temperature/Humidity Sensor ② Polycarbonate ③ Vinyl chloride-shielded wire

Humidity Measurement Range: 0 to 99%RH

Temperature Measurement Range: -30 to +80°C

Humidity Measurement Accuracy: $\pm 2.5\%RH$ (at 25°C and 10% to 85%RH)
 $\pm 4\%RH$ (at 25°C and 0% to 10%RH or 85% to 99%RH)
 Add $\pm 0.1\%RH/^{\circ}C$ (When at other than 25°C, add to the accuracy noted above)

Sensor Response Time Humidity: About 21 seconds (90%)

Temperature: About 7 minutes (90%)

Long Term Stability: 1%RH/yr, $\pm 0.1^{\circ}C/yr$

Humidity Hysteresis: $\pm 1.5\%RH$ or lower (when used at temperature / humidity equal to or lower than the following: 50°C/75%RH, 60°C/50%RH, 70°C/35%RH, 80°C/25%RH)

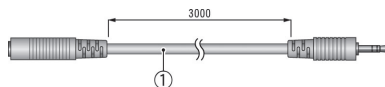
Sensor Temperature Durability: -30 to +80°C

Conditions for Use: Do not expose to condensation, dampness, corrosive gases or organic solvents

Sensor Extension Cable (TR-1C30)

unit: millimeters

Cable Length: 3.0 m



Materials: ① Vinyl chloride-shielded wire

NOTE:

It is possible to use up to three extension cables per sensor.

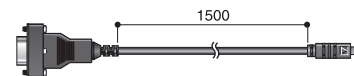
Serial Communication Cable (TR-07C)

unit: millimeters

Connector Type: Specialized Connector D-sub9 pin

For communication with computer

Cable Length: 1.5 m

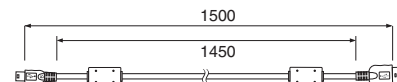


USB Communication Cable (US-15C)

unit: millimeters

Connector: mini-B/A plug

For communication with computer



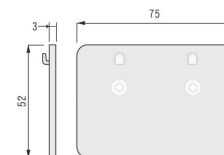
Wall Attachment (TR-07K2)

unit: millimeters

Included: Screw $\times 2$ and Double-sided Tape $\times 1$

Compatible Device: TR-77Ui

Materials: Polycarbonate



■ For product information or questions contact us at:

T&D CORPORATION

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Thermo Recorder TR-77Ui User's Manual

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Provisions for Free Repair

1. If the Unit does not work properly despite the fact that the customer used it properly and in line with the User's Manual, the Unit shall be repaired free of charge through the distributor which sold the Unit.
2. If the customer requests free repair because of trouble within the warranty period, bring or send the Unit along with the warranty to the dealer. A service charge may be added if a repairperson must be sent out to the place of use for repair.
3. If you have moved after purchasing, or the product was received as a gift, or there are difficulties contacting the shop from which you purchased the Unit, please contact T&D directly for service.
4. Free repair is not available in the following cases even though it is within the warranty period:
 1. Trouble or damage was caused by careless operation, natural disaster, fire, public pollution, or use of a power source other than specified.
 2. If repair, adjustment, disassembly or modification of the Unit has been carried out by a person other than a T&D authorized engineer.
 3. Trouble or damage was caused by transportation, movement or dropping of the Unit after purchase.
 4. Failure to submit the Warranty or failure to fill in all items required in the Warranty.
5. The Warranty cannot be reissued.

This Warranty only promises customers free repair within the period and conditions clarified in this Warranty. Therefore, the customer's legal rights will not be limited by this Warranty. For further information on repair and others service questions after the termination of the warranty period, contact your dealer.

Thermo Recorder **TR-77Ui** Warranty

Warranty period	1 year from date of purchase
Customer's name :	
Address :	
Phone No. :	
Date of Purchase	
Dealer's name :	
Address :	
Phone No. :	
Object of Repair	Main Unit (excluding sensors and any other options.)
Method of Repair	Send in for Repair
Free repair of the Unit will be carried out according to the details laid down in this manual only if the unit has broken down under normal usage as outlined in this User's Manual and during the stated warranty period. Please contact your dealer about repair and present this document when seeking repair.	

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