Thermo Recorder

TR-7U Series Data Loggers

Reliable Loggers for Every Need
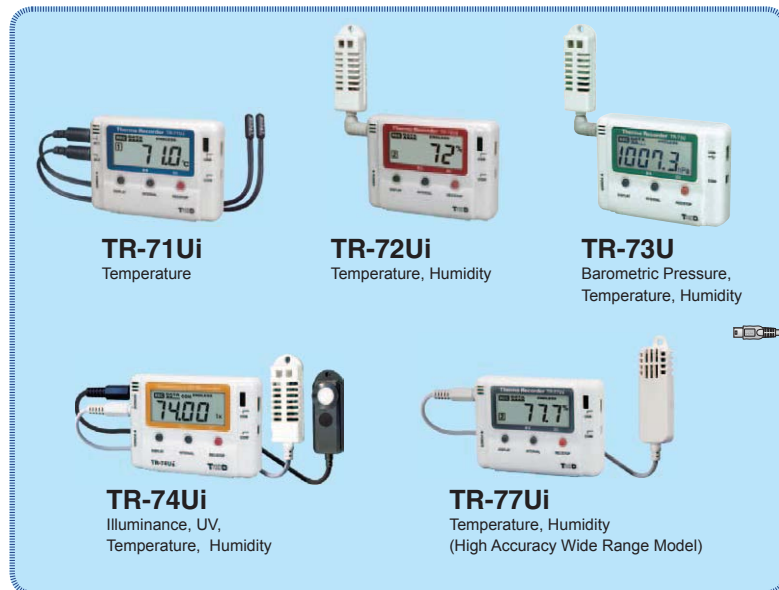**Temperature / Humidity / Barometric Pressure / Illuminance / UV Intensity**

Easy-to-Use
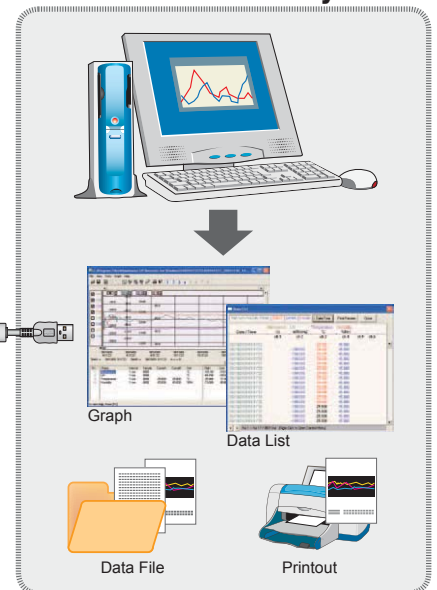## All-in-One-Package

T&D Corporation

Thermo Recorder TR-7U Series

Our TR-7U Series of Data Loggers is comprised of compact, battery operated, highly portable data loggers which are designed with an array of features and functions. These ultra-reliable loggers make it a snap to measure and record a wide variety of measurement items; the application possibilities are endless.

Measure and Record

TR-71Ui
Temperature

TR-72Ui
Temperature, Humidity

TR-73U
Barometric Pressure,
Temperature, Humidity

TR-74Ui
Illuminance, UV,
Temperature, Humidity

TR-77Ui
Temperature, Humidity
(High Accuracy Wide Range Model)

Connect
USB Cable

Download and Analyze

Graph

Data List

Data File

Printout

USB Connection

Our easy-to-use USB computer connection makes things not only simple, but allows the user to connect several Units at the same time.

Large Storage Capacity: 8,000 Readings

Each data logger can record and store up to 8,000 readings (One reading is a set of data which includes measurements for that unit type's number of channels). If set at a recording interval of 60 minutes, it gives the user one year's worth of measurements.

Accurate, Compact, Lightweight and Affordable

Our exclusive technology has allowed T&D to design and manufacture a high performance yet affordable and compact Unit (55 × 78 × 18 mm, 62 g).

Easy Operation via Front Buttons

It is possible to start and stop recording and to make or change recording interval settings by using buttons on the face of the Unit.

Ready to Use - All in One Package

All-in-One Package: Simply connect to a PC via supplied USB cable, carry out a few easy settings and measurement and recording can be started.

Reliable Data Protection

With the reliable data protection function we have removed the worry about losing data when battery power becomes low.

When Battery Power is Low:
When the battery power becomes low, a battery life warning signal will appear in the Unit's LCD display to show the low battery power status. If within a short time the battery is changed, measurement and recording will not be interrupted and there will be no data loss. If the battery power becomes even lower the Unit will automatically go into sleep mode. In sleep mode, measurement and recording will stop and protect recorded data until this point for the following 2 - 3 months.

When Switch is OFF:
Even if the power has been turned off, the recorded data will be saved.

NOTE: If the battery is further left unchanged even after the Unit has entered sleep mode, or if the battery is left out of the Unit for some time, all recorded data will be lost.

Product Line-up

Unit Type	TR-71Ui	TR-72Ui	TR-73U	TR-74Ui	TR-77Ui
Temperature	-40 to 110°C	0 to 50°C	0 to 50°C	0 to 55°C	-30 to 80°C
Humidity	--	10 to 95%RH	10 to 95%RH	10 to 95%RH	0 to 99%RH
Barometric Pressure	--	--	750 to 1,100 hPa	--	--
Illuminance	--	--	--	0 to 130,000 lx	--
UV Intensity	--	--	--	0 to 30 mW/cm^2	--
Storage Capacity	8,000 (2ch)	8,000 (2ch)	8,000 (3ch)	8,000 (4ch)	8,000 (2ch)
Battery Life	About 1 year	About 1 year	About 10 months	About 6 months	About 10 months
For details	Page 3	Page 3	Page 3	Page 4	Page 4

* The measurement range shown here is only for when using the sensor included in the package. For detailed product specifications, please see page 8.
* Battery life varies depending upon the type of battery, the battery performance, the measuring environment, and the frequency of communication. If infrared communication is set to be permitted, battery life will be shortened.

TR-71Ui / 72Ui   Temperature / Humidity

TR-71Ui

TR-71Ui Temperature Data Logger is a two-channel data logger capable of measuring and recording temperature data. By using our optional sensor, the TR-71Ui can measure and record in a range of -60 to 155°C. To meet customer needs, we offer various types of optional sensors. Moreover, sensor extension cables connected to a Unit allow the user to simultaneously measure and record temperatures at two different locations.

TR-72Ui

TR-72Ui Temperature and Humidity Data Logger is a two-channel combination temperature and humidity data logger. In addition to measuring temperature from 0 to 50°C, this model also measures and records humidity in a range of 10 to 95%RH.
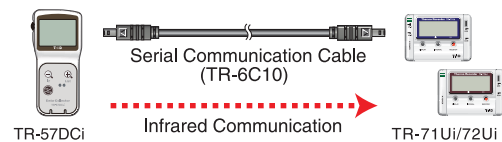
Simple, Direct USB Connection

USB cable connection makes it a snap to connect a Unit to a PC. If a PC has more than one port, multiple Units can be connected to the PC at the same time.

On-site Data Collection and Graph Display via Data Collector TR-57DCi

The Data Collector TR-57DCi (sold separately) enables the user to not only easily collect recorded data from the TR-71Ui/72Ui, but allows the user to view the data as a Graph on the spot; all without a PC.

Serial Communication Cable (TR-6C10)

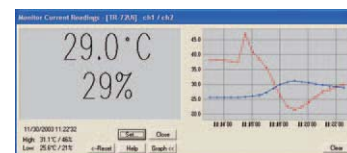TR-57DCi   Infrared Communication   TR-71Ui/72Ui

One Year of Operation with just One Battery

Our special low energy consumption design gives the user one year of continuous operation with only one AA alkaline battery. As the battery allows for measurement and recording over long periods of time there is no need to worry about where the user place it; whether it is in transit or in a distant place.

Simultaneously View Multiple Channels of Data in Trend Graph

With our exclusive software, it is possible not only to monitor the current measurements, but also to simultaneously view those measurements in a continually changing graph on a PC screen.

Application Examples
- Performance testing of humidity and heat control in housing
- Temperature and humidity management for greenhouses
- Humidity and temperature management in mushroom cultivation
- Recording temperature and humidity in subways and train cars

TR-73U   Barometric Pressure / Temperature / Humidity

Barometric Pressure Measurement Range: 750 to 1,100 hPa

Equipped with an internal sensor, the TR-73U can measure and record barometric pressure from 750 to 1,100 hPa. The large LCD display allows for on-site, real-time monitoring of ambient pressure data while logging data.

Ready to Use All-in-One Package

Everything the user needs to get started (Main Unit, Sensor, Battery, Software, Communication Cable and User's Manual) is included in this All-in-One Package. Shipping complete with the essentials, the data logger comes ready to measure and record data readings without any troublesome preparation.

Direct and Easy USB Connection

Connection to a PC is accomplished by connecting the TR-73U to a PC with a USB cable. The ultra-simple USB connectivity provides for the easy viewing and saving of data.

Application Examples
- Measuring weather data
- Measuring the degree of air tightness in packaging during transportation
- Setting barometric pressure for the use of industrial and medical equipment

TR-74Ui   Illuminance / UV / Temperature / Humidity

Measure and Record Illuminance, Ultraviolet Light (UV), Temperature and Humidity

TR-74Ui Illuminance UV Recorder is a specialized data logger designed to simultaneously measure and record four items: Illuminance, Ultraviolet Light (UV), Temperature and Humidity. This versatile data logger can be applied in a wide range of applications, from business to personal use.

View Cumulative Illuminance and Cumulative Amount of Ultraviolet Light in LCD Display

In addition to Illuminance, Ultraviolet Light (UV), Temperature and Humidity, the TR-74Ui is also capable of displaying Cumulative Illuminance and Cumulative Amount of Ultraviolet Light in the LCD display.

Cumulative Illuminance Display Range: 0 to 90,000,000 lx·h
Cumulative Amount of Ultraviolet Light Display Range: 0 to 62 W/cm²·h

Measure Illuminance within a Wide Range (from dim moonlight to the summer sun)

Illuminance can be measured within a wide range of 0 to 130,000 lx.

Six Months of Operation with just One Battery

Our special low energy consumption design gives the user six months of continuous operation with only one AA alkaline battery. As the battery allows for measurement and recording over long periods of time there is no need to worry about where the user place it; whether it is in transit or in a distant place.

Extend Sensor Cable up to Ten Meters

Up to three sensor extension cables can be used in conjunction with a Unit; allowing the user to place the sensor up to ten meters away from the Unit.

View and Record Illuminance in Resolutions to 0.01 lx

High resolutions of up to 0.01 lx make it possible to measure even under less light conditions.

Application Examples
- Management during all aspects of plant and food production
- Development, testing, manufacture and sales of products for cutting UV rays
- UV reduction management in schools from kindergartens to universities
- Home and office use in the management or illuminosity and UV rays
- Design and management of homes and buildings
- Managing the reduction of UV rays at swimming pools, the ocean, mountains and in parks
- Management and adjustment of illuminosity for photography and film
- Management in the production, storage and sales of foodstuffs and beverages
- Using at supermarkets, convenience stores and drugstores in UV product sales promotion materials
- In art museums and other exhibit forums to manage illuminosity and help prevent deterioration of exhibits

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TR-77Ui   Temperature / Humidity in Wide Range

Measure and Record Temperature and Humidity in a Wider Range with Greater Accuracy

The measurement and recording range for temperature is from -30 to 80°C and for humidity is from 0 to 99%RH with accuracy reaching ±2.5%RH at 25°C and 10 to 85%RH.

Ten Months of Operation with just One Battery

The low energy consumption circuit design provides up to ten months of operation with just one AA alkaline battery.

Improved Sensor Durability

The improved more durable sensor can be exposed to short term moisture and after simply drying can be re-used.

Extend Sensor Cable up to Ten Meters

Up to three sensor extension cables can be used in conjunction with a Unit; allowing the user to place the sensor up to ten meters away from the Unit.
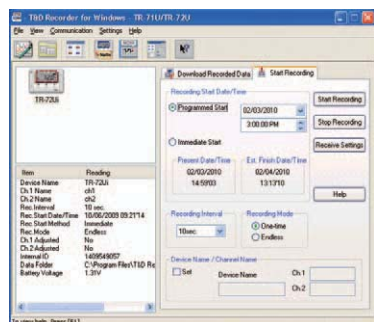
Application Examples
- Managing Temperature and Humidity in Pharmaceutical Companies and Research Institutes
- Evaluating Heat and Humidity Retention in Homes and Office Buildings
- Managing Temperature and Humidity in Server Rooms
- Temperature and Humidity Management in Hospitals, Museums, and Temperature Controlled Warehouses
- Management of Temperature and Humidity in Subway and Train Cars
- Temperature and Humidity Management in Clean Rooms and Environmental Testing Facilities

Software

T&D exclusive software is provided with any of the TR-7U family of loggers in two versions: "Illuminance UV Recorder for Windows" for use with the TR-74Ui or "T&D Recorder for Windows" for use with TR-71Ui, 72Ui, 73U and TR-77Ui. The high-performance yet user-friendly software offers outstanding functionality; including the control of all aspects of data downloading, control of recording settings, graph display, printing, and file output.
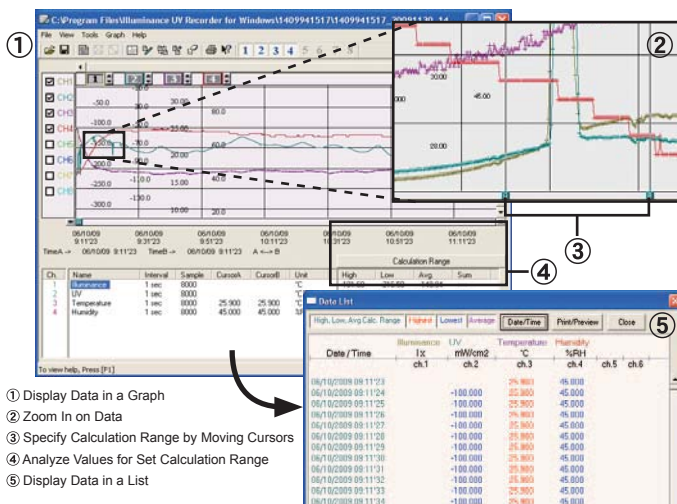
Control the Function of Unit via a PC

By simply connecting a Unit with a communication cable to a PC, the user can make upper and lower limit settings, set the clock in the data logger Unit, manage downloading of recorded data as well as carry out a wide range of other operations and settings.
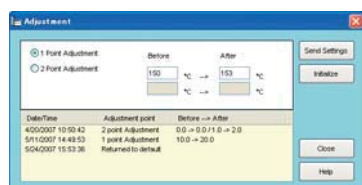
Export Data to be Saved or Printed

Recorded data can be easily saved into files or exported for printing. Because the data can be stored in text file format it is readable by most common spreadsheet software on the market.
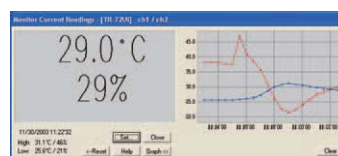
Adjustment Function

Adjustment is a function which allows the user to correct for inaccuracies found in measured values when compared to a standard or reference measurement. By entering adjustment values beforehand, measurements will be adjusted using the generated simple equation and only the adjusted measurements will recorded and available for view.

Interpret Data in Graphs and Tables

Recorded data can be downloaded to a PC where it can be viewed and analyzed in colorful easy-to view graphs and tables.

① Display Data in a Graph
② Zoom In on Data
③ Specify Calculation Range by Moving Cursors
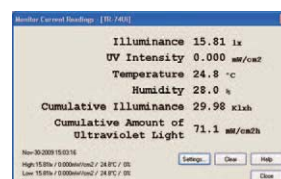④ Analyze Values for Set Calculation Range
⑤ Display Data in a List

View Current Readings from Connected Logger

Communication will occur at the set interval to intermittently gather and display the gathered current readings on your PC screen. It is possible to open and view a "Current Readings Monitoring Window" for each data logger connected to your PC thereby making it possible to view several sets of current data at the same time. Furthermore, in the "Current Readings Monitoring Window" of the software "T&D Recorder for Windows", it is possible to view the current readings in a continually changing graph called "the Data Transfer Graph" on your PC display.

T&D Recorder for Windows

Illuminance UV Recorder for Windows

Software Specifications

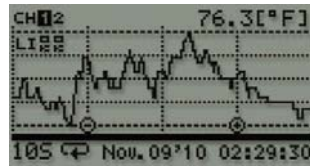| Software		T&D Recorder for Windows	Illuminance UV Recorder for Windows
Compatible Devices		TR-71Ui / 72Ui / 73U / 77Ui	TR-74Ui
Communication Functions		Start Recording (Immediate Start, Programmed Start) / Stop Recording / Get Unit Settings (Channel Names, Recording Interval, and Recording Mode) / Download Recorded Data / Monitor Current Readings / Adjustment	
Screen Display	Graph	Temperature / Humidity Graph, Multi-Scale Graph (8 Channels of Data Simultaneous Display and Processing)	Multi-Scale Graph (8 Channels of Data Simultaneous Display and Processing)
	Data	Channel Name / Recording Interval / Number of Data / Highest, Lowest and Average / Unit of Measurement	
File Output		Special T&D Data File, Text File (CSV, etc) (Selected Range or Time Period Possible)	
Printing		Graphs / Tables	
Compatible OS *		Microsoft® Windows® 7 32/64bit English, Microsoft® Windows Vista® 32bit English, Microsoft® Windows® XP 32bit(SP2 or above) English	
PC/CPU		A Stable Windows Operating Environment	
Memory Capacity		A Stable Windows Operating Environment	
Disk Space		More than 40 MB of free space (Data will need more space)	More than 20 MB of free space (Data will need more space)
Monitor		VGA (640×480 or higher recommended) / More than 256 colors	SVGA (800×600 or higher recommended) / More than 256 colors

* It is necessary to have Administrator rights to install the software. Operation under a 64 bit OS is not supported.

Data Collector TR-57DCi — Handy Data Collector

The TR-57DCi is a hand held data collector that can be used to gather recorded data from the TR-7Ui / TR-7U Series data loggers. No longer it is necessary to manually gather the data loggers, allowing for on-the-spot checking of data readings.
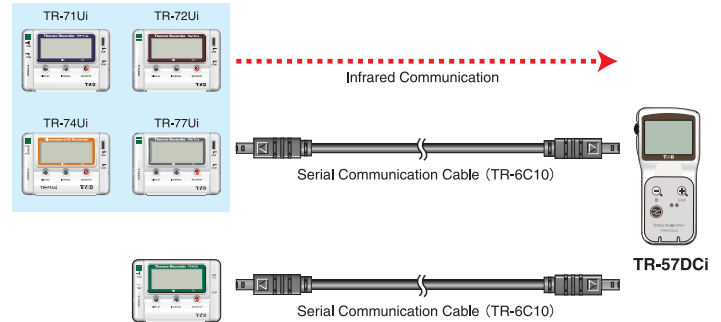
Graph display

Large Storage Capacity: 256,000 Readings

The device can store up to 256,000 data readings. This capability allows for collecting and storing 16 Units of TR-7Ui/TR-7U at full capacity (8,000 data readings × 2 Ch).

Check the Limits at the time of Download

By making settings in the TR-57DCi for upper and lower limits, the data readings will be checked at collection to make sure they fall within the acceptable range and results will be displayed.

Manage Recording Settings for a Variety of Loggers

In addition to the Downloading of Data, Recording Settings such as Recording Mode, Recording Interval, and Recording Start Method (Immediate Start / Programmed Start) can be made for TR-7Ui / TR-7U series data loggers via the TR-57DCi.

TR-71Ui   TR-72Ui

TR-74Ui   TR-77Ui

Infrared Communication

Serial Communication Cable (TR-6C10)

TR-57DCi

Serial Communication Cable (TR-6C10)

Graph Display on High Quality Dot Matrix LCD

The integrated LCD instantly shows the collected data in graphical format. A Graph will be displayed for each channel data. The handy operation dial and buttons on the face of the Unit make it possible to scroll both left and right. The Handy Data Collector TR-57DCi makes on-the-spot checking of data a snap.

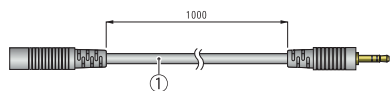# Options for TR-71Ui / 72Ui / 73U / 74Ui / 77Ui

unit: mm

For TR-72Ui/73U

TR-5C10

Sensor Extension Cable
Cable Length: 1 m
Note:
- Only one cable per TR-3100 sensor.
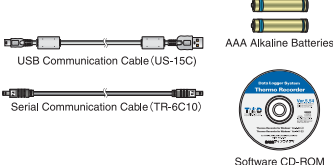- Cannot be used with Temp / Humidity Sensor TR-3110.

1000
①

Materials: ①Vinyl Coated Electrical Wire

For TR-71Ui/72Ui/73U/74Ui/77Ui

TR-57DCi

Data collector

USB Communication Cable (US-15C)

Serial Communication Cable (TR-6C10)

AAA Alkaline Batteries

Software CD-ROM

TR-6C10

Serial Communication Cable
(For TR-57DCi)
Cable Length: 1 m

1000

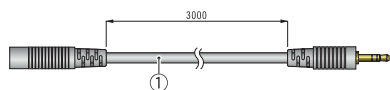**TR-1C30**

Sensor Extension Cable
Cable Length: 3 m
Note:
- Temperature Durability: -25 to 60℃
- Cannot be used with Temp / Humidity Sensor TR-3110 or TR-3100.
- For TR-74Ui/77Ui, it is possible to use up to three extension cables for each sensor.
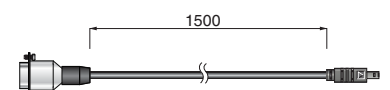
3000
①

Materials: ①Vinyl Coated Electrical Wire

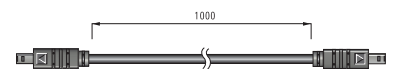**US-15C**

USB Communication Cable
Cable Length: 1.5 m

1500

TR-07C

Serial Communication Cable
(For PC)
Cable Length: 1.5 m
Connector Type: Specialized Connector D-sub9pin

1500

TR-07K2

Wall Attachment
Included:
Screw × 2
Double-sided tape × 1

3   75
52

Materials: Polycarbonate

Optional Sensors

unit: mm

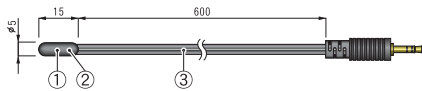## For TR-71Ui/72Ui/73U

Temperature Measurement Range: -40 to 110°C, Sensor Temperature Durability:-50 to 115°C, Measuring Accuracy: Avg. ±0.3°C (-20 to 80°C) Avg. ±0.5°C (-40 to -20°C / 80 to 110°C)
Materials: ① Thermistor ② TPE resin-shielded sensor ③ TPE resin-shielded wire ④ M3Screw Hole ⑤ Compaction Tube ⑥ Stainless Pipe (SUS304) ⑦ Stainless Pipe (SUS316) *Only stainless section is water resistant.

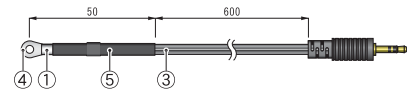### TR-0106
TPE-resin-shielded Sensor
Cable Length: 0.6 m
Thermal Time Constant
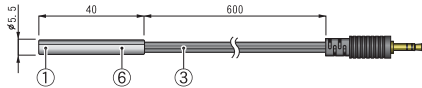 In the Air: Approx. 75 Sec

TR-0206
Screw-down Sensor
Cable Length: 0.6 m
Thermal Time Constant
 In the Air: Approx. 75 Sec

TR-0306
Stainless Protection Sensor
Cable Length: 0.6 m
Thermal Time Constant
 In agitated Water: Approx. 18 Sec

TR-0406
Stainless Protection Sensor
Cable Length: 0.6 m
Thermal Time Constant
 In agitated Water: Approx. 20 Sec

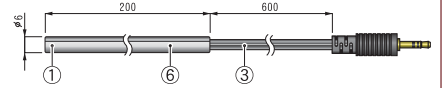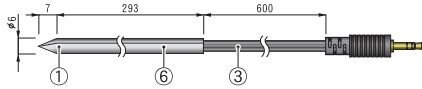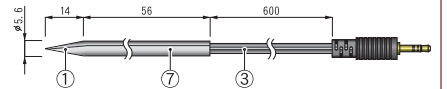### TR-0506
Stainless Protection Sensor
Cable Length: 0.6 m
Thermal Time Constant
 In agitated Water: Approx. 20 Sec

TR-0706
Stainless Protection Sensor
Cable Length: 0.6 m
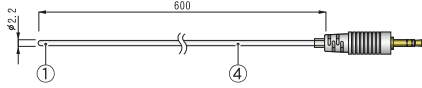Thermal Time Constant
 In agitated Water: Approx. 18 Sec

For TR-71Ui

Possible Measurement Range: -60 to 155°C, Sensor Temperature Durability: -70 to 180°C, Measuring Accuracy: Avg. ±0.5°C (-40 to 80°C) Avg. ±1.0°C (-60 to -40°C / 80 to 100°C) Avg. ±2.0°C (100 to 155°C)
Materials: ① Thermistor ② Stainless Pipe (SUS316) ③ Fluoropolymer-Coated Compaction Tube ④ Fluoropolymer-Coated Electrical Wire
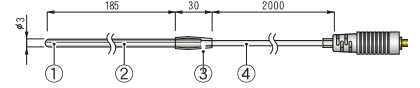
TR-1106
Fluoropolymer-Coated Sensor
Cable Length: 0.6 m
Thermal Time Constant
 In the Air: Approx. 30 Sec
 In agitated water: Approx. 4 Sec
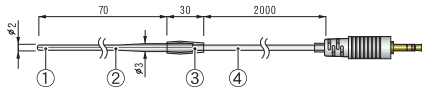
TR-1220
Stainless Protection Sensor
Cable Length: 2 m
Thermal Time Constant
 In the Air: Approx. 36 Sec
 In agitated water: Approx. 7 Sec

TR-1320
Stainless Protection Sensor
Cable Length: 2 m
Thermal Time Constant
 In the Air: Approx. 12 Sec
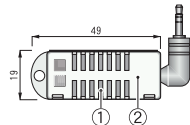 In agitated water: Approx. 2 Sec

For TR-72Ui/73U

Humidity Measurement Range: 10 to 95%RH, Temperature Measurement Range: 0 to 50°C, Sensor Durability Range: -10 to 55°C, Humidity Measuring Accuracy: ±5%RH (at 25°C and 50%RH)
Materials: ① Temperature/Humidity Sensor ② Polypropylene Resin ③ Vinyl Coated Electrical Wire
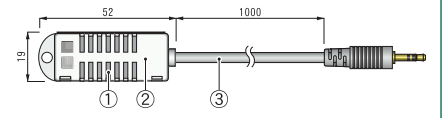
TR-3100
Temperature/Humidity Sensor
Sensor Response Time: About 7 min. (90%)

TR-3110
Temperature/Humidity Sensor
Cable Length: 1 m
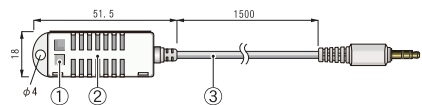Sensor Response Time: About 7 min. (90%)

For TR-74Ui

Materials: ① Temperature/Humidity Sensor ② Polypropylene Resin ③ Vinyl Coated Electrical Wire ④ Glass

THA-3151
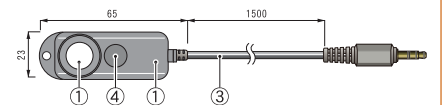Temperature/Humidity Sensor
Cable Length: 1.5 m

Measurement Items	Temperature	Humidity
Measurement Range	0 to 55°C	10 to 95%RH
Measurement Resolution	0.1°C	1%RH
Measuring Accuracy	Avg. ±0.3°C	±5% (At 25°C 50%RH)
Sensor Response Time	About 7 min. (90%)	
Humidity Hysteresis	–	±1%RH (30 to 90%RH)
Operating Environment	Temperature: 0 to 55°C, Humidity: 90%RH or less (no condensation)	
Storage Environment	Temperature: -10 to 55°C, Humidity: 90%RH or less (no condensation)	
Conditions for Use	Do not expose to condensation, dampness, corrosive gases or organic solvents	
Sensor Life	1 year (under normal operational conditions)	
Sensor Dimensions	H18 × W51.5 × D10 mm	

ISA-3151
Illuminance UV Sensor
Cable Length: 1.5 m

Measurement Items	Illuminance	Ultraviolet Light
Measurement Range	0 to 130,000 lx	0 to 30 mW/cm²
Measurement Resolution	Minimum: 0.01 lx	Minimum: 0.001 mW/cm²
Measuring Accuracy	10 to 100,000 lx: ±5% (At 25°C 50%RH)	0.1 to 30 mW/cm²: ±5% (At 25°C 50%RH) *1
Relative Spectral Response	Approximated to the CIE standard response function V (λ)	260 to 400 nm
Cosine Correction Characteristics (cos θ)	Within ±1.5% at 10°; Within ±3% at 30°; Within ±10% at 60°; Within ±30% at 80²	–
Operating Environment	Temperature: -10 to 60°C, Humidity: 90%RH or less (no condensation)	
Storage Environment	Temperature: -10 to 60°C, Humidity: 90%RH or less (no condensation)	
Conditions for Use	Do not expose to condensation, dampness, corrosive gases or organic solvents	
Sensor Dimensions	H23 × W65 × D12.6 mm	

*1: Compared to the value measured by the T&D standard sensor for calibration under our calibration light source.

For TR-77Ui

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

HHA-3151
Temperature/Humidity Sensor
Cable Length: 1.5 m
Humidity Measurement Range: 0 to 99%RH
Temperature Measurement Range: -30 to +80°C
Humidity Measuring Accuracy: ±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). When used at other than 25°C, add ±0.1%RH/°C to the previously noted accuracy.
Sensor Response Time Humidity: About 21 sec. (90%), Temperature: About 7 min. (90%)
Long Term Stability: 1%RH/yr, ±0.1°C/yr
Humidity 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)
Sensor Temperature Durability: -30 to +80°C
Conditions for Use: Do not expose to condensation, dampness, corrosive gases or organic solvents

Specifications

Unit Type	TR-71Ui	TR-72Ui		TR-73U		
Measurement Channels	Temperature (2 Ch) *1	Temperature (1 Ch)	Humidity (1 Ch)	Temperature (1 Ch)	Humidity (1 Ch)	Barometric Pressure (1 Ch)
Measurement Range — Internal Sensor	-10 to 60°C	-10 to 60°C	-	-10 to 60°C	-	750 to 1100 hPa
Attached Sensor	-40 to 110°C	0 to 50°C	10 to 95%RH	0 to 50°C	10 to 95%RH	-
Optional Sensor	-60 to 155°C	-40 to 110°C	-	-40 to 110°C	-	-
Measuring Accuracy (Attached Sensor)	Avg. ±0.3°C (-20 to 80°C) Avg. ±0.5°C (-40 to -20 / 80 to 110°C)		±5%RH (at 25°C 50%RH)	Avg. ±0.3°C (-20 to 80°C) Avg. ±0.5°C (-40 to -20 / 80 to 110°C)	±5%RH (at 25°C 50%RH)	±1.5 hPa
Measurement / Display Resolution	0.1°C	0.1°C	1%RH	0.1°C	1%RH	0.1°C
Sensor Materials	Thermistor	Thermistor	Macromolecular Humidity Sensor	Thermistor	Macromolecular Humidity Sensor	Barometric Pressure Sensor
Storage Capacity	8,000 Readings (One reading is a set of data which includes measurements for that unit type's number of channels.)					
Recording Interval	Total of 15 choices: 1, 2, 5, 10, 15, 20, 30 sec. / 1, 2, 5, 10, 15, 20, 30, 60 min.					
Recording Mode	Endless (Overwrite oldest data when capacity is full), One-time (Stop recording when capacity is full)					
LCD Display Items	Measurements / Recording Status / Battery Life Warning / Amount of Recorded Data / Unit of Measurement					
Power	AA Alkaline Battery (LR6) × 1					
Battery Life	About 1 year *2			About 10 months *2		
Data Back-up	Activated when battery power is low or when switch is off (About 1 year)					
Communication Interface	USB Communication / Serial (RS-232C) Communication / Infrared Communication			USB Communication / Serial (RS-232C) Communication *3		
Infrared Communication	IrPHY 1.2 low power					
Communication Time	When downloading a Unit at full storage capacity: USB Communication: about 8 sec. / Infrared Communication: about 55 sec. (TR-57DCi)			When downloading a Unit at full storage capacity: USB Communication: about 12 sec.		
Dimensions / Weight of Main Unit	H55 × W78 × D18 mm / About 62 g (Including one AA battery)					
Operating Environment	Temperature: -10 to 60°C / Humidity: 90%RH or less (no condensation)					
Attached Sensor	TR-0106 × 2 (TEP Resin-coated sensors)	TR-3100 × 1 (Temp / Humidity Sensor)		TR-3100 × 1 (Temp / Humidity Sensor)		
Accessories Included	AA Alkaline Battery (LR6) × 1 / USB Communication Cable (US-15C) × 1 / User's Manual × 2 / Software Set × 1					

Unit Type	TR-74Ui			
Measurement Channels	Illuminance (1 Ch)	UV Intensity (1 Ch)	Temperature (1Ch)	Humidity (1 Ch)
Unit of Measurement	lx, Klx	mW/cm²	°C / °F	%
Measurement Range (Attached Sensor)	0 to 130,000 lx	0 to 30 mW/cm²	0 to 55°C	10 to 95%RH
Display Range of Cumulative Measurement *4	0 to 90,000,000 lx·h	0 to 62 W/cm²·h	-	-
Unit of Cumulative Measurement	Cumulative Illuminance lx·h, Klx·h, Mlx·h	Cumulative Amount of Ultraviolet Light mW/cm²·h, W/cm²·h	-	-
Measuring Accuracy (Attached Sensor)	10 to 100,000 lx: ±5% (at 25°C 50%RH)	0.1 to 30 mW/cm²: ±5% (at 25°C 50%RH) *5	Avg. ±0.3°C	±5%RH (at 25°C 50%RH)
Measurement / Display Resolution	Minimum: 0.01 lx 4 digit	Minimum: 0.001mW/cm² 4 digit	0.1°C	1%RH
Relative Spectral Response	Approximated to the CIE standard response function V (λ)	260 to 400 nm	-	-
Cosine Correction Characteristics (cosθ)	Within ±1.5% at 10°; Within ±3% at 30°; Within ±10% at 60°; Within ±30% at 80°	-	-	-
Storage Capacity	8,000 Readings (One reading is a set of data which includes measurements for that unit type's number of channels.)			
Recording Interval	Total of 15 choices: 1, 2, 5, 10, 15, 20, 30 sec./ 1, 2, 5, 10, 15, 20, 30, 60 min.			
Recording Mode	Endless (Overwrite oldest data when capacity is full), One-time (Stop recording when capacity is full)			
LCD Display Items	Recording Status / Battery Life Warning / Amount of Recorded Data / Unit of Measurement			
Power	AA Alkaline Battery (LR6) × 1			
Battery Life	About 6 months *2			
Data Back-up	Activated when battery power is low or when switch is off			
Communication Interface	USB Communication / Serial (RS-232C) Communication *3 / Infrared Communication			
Infrared Communication	IrPHY 1.2 low power			
Communication Time	When downloading a Unit at full storage capacity: USB Communication: about 45 sec. / Infrared Communication: about 77 sec. (TR-57DCi)			
Dimensions / Weight of Main Unit	H55 × W78 × D18 mm / About 62 g (Including one AA battery)			
Operating Environment	Temperature: -10 to 60°C / Humidity: 90%RH or less (no condensation)			
Attached Sensors	THA-3151 × 1 (Temp / Humidity Sensor), ISA-3151 × 1 (Illuminance and UV Sensor) *6			
Accessories included in package	AA Alkaline Battery (LR6) × 1 / USB Communication Cable (US-15C) × 1 / Introductory Manual (Warranty) × 1 / Software Set × 1			

Unit Type	TR-77Ui	
Measurement Channels	Temperature (1 Ch)	Humidity (1 Ch)
Measurement Range (Attached Sensor)	-30 to 80°C	0 to 99%RH
Measuring Accuracy (Attached Sensor) *7	±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 Resistor Sensor	Electrostatic Capacitance Type
Storage Capacity	8,000 Readings (One reading is a set of data which includes measurements for that unit type's number of channels.)	
Recording Interval	Total of 15 choices: 1, 2, 5, 10, 15, 20, 30 sec./ 1, 2, 5, 10, 15, 20, 30, 60 min.	
Recording Mode	Endless (Overwrite oldest data when capacity is full), One-time (Stop recording when capacity is full)	
LCD Display 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	AA Alkaline Battery (LR6) × 1	
Battery Life	About 10 months *2	
Data Back-up	Activated when battery power is low or when switch is off (About 1 year)	
Communication Interface	USB Communication / Serial (RS-232C) Communication / Infrared Communication	
Infrared Communication	IrPHY 1.2 low power	
Communication Time	When downloading a Unit at full storage capacity: USB Communication: about 8 sec. Infrared Communication: about 55 sec. (TR-57DCi)	
Dimensions/Weight of Main Unit	H55 × W78 × D18 mm / About 62 g (Including one AA battery)	
Operating Environment	Temperature: -10 to 60°C / Humidity: 90%RH or less (no condensation)	
Attached Sensor	HHA-3151 × 1 (Temp / Humidity Sensor)	
Long Term Stability	1%RH/yr, ±0.1°C/yr	
Accessories included in package	AA Alkaline Battery (LR6) × 1 / USB Communication Cable (US-15C) × 1 / User's Manual × 2 / Software Set × 1	

*1: Ch 1: For measurement by the Internal Sensor and one External Sensor; Ch 2: For measurement by two External Sensors *2: 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. If infrared communication is set to be permitted, battery life will be shortened. *3: If you wish to use the TR-73U and TR-74Ui with a serial (RS232C) communication, it will be necessary to write a software program by using our communication protocol (contact your local dealer). *4: Cumulative values cannot be recorded. *5: Compared to the value measured by the T&D standar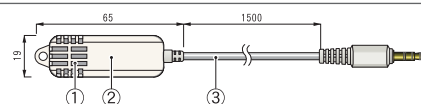d sensor for calibration under our calibration light source. *6: Sensor Life: THA-3151 about 1 year, ISA-3151 about 2 years (estimate based on normal usage under normal conditions). *7: When used at temperatures equal to or higher than 0°C, the Humidity Measuring Accuracy will be as shown here.

⚠ Caution regarding safety — For safe operation carefully read instructions before using this Unit.

T&D's TR-71Ui/72Ui/73U and TR-51S/52S have been tested for electro-magnetic radiation and confirmed to comply with the requirement of RTCA DO-160E, Section 21: Emission of Radio Frequency Energy.

What is "RTCA DO-160E, Section 21"?

RTCA stands for "Radio Technical Commission for Aeronautics", a not-for-profit corporation formed to advance the art and science of aviation and aviation electronic systems for the benefit of the public, helps to develop standards to assure the safety and reliability of all airborne equipment. (http://www.rtca.org)

The "DO-160E", published by RTCA, is widely used as a standard for environmental qualification testing to show compliance with appropriate airworthiness requirements. "Section 21 of DO-160E" concerns the "Emission of Radio Frequency Energy". The tests in this section are performed to determine that the device does not emit radio frequency interference in excess of the specified limits. Every carry-on electronic device must comply with radio frequency emission and susceptibility guidelines outlined in "Section 21 of the RTCA DO-160E" document, whether it flies in the passenger cabin or cargo hold. The "DO-160E" is recognized by the International Organization for Standardization (ISO) as a de facto for international standard "ISO-7137".

Web Site T&D Online — Product information, FAQ and software update downloads. http://www.tandd.com/

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