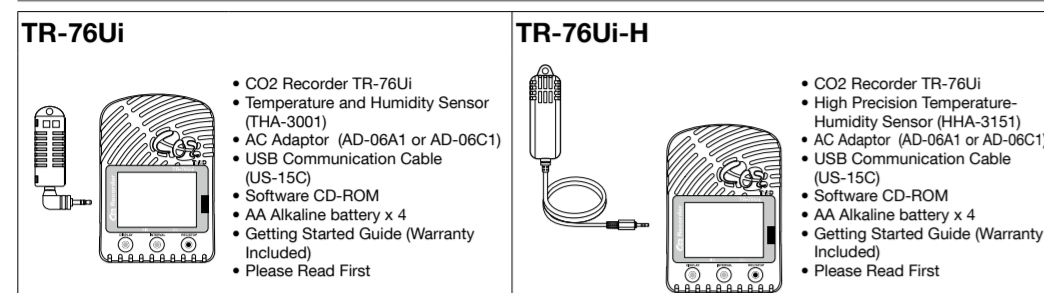


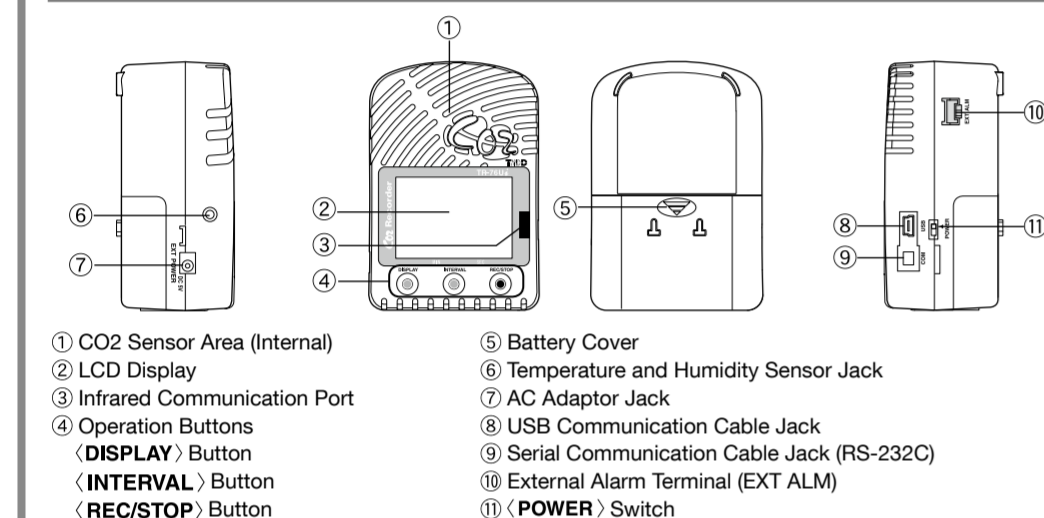
CO2 Recorder TR-76Ui Getting Started Guide

Package Contents



T&D Corporation
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http://www.tandd.com

Part Names and LCD Display



1 [REC] Mark	Shows recording status ON: Recording in progress BLINKING: Waiting for programmed start OFF: Recording stopped
2 Data Scale	At the beginning of every 2,000 readings the scale will be marked from left to right. Logging capacity is 8,000 readings.
3 [COM] Mark	Shows communication status but not displayed normally. ON: The unit is connected to a PC with a USB cable. RAPID BLINKING: The unit is in communication with the computer via USB or infrared communication.
4 Recording Mode	Recording mode settings can be made by using the supplied software. Endless: Upon reaching the logging capacity of 8,000 readings, the oldest data will be overwritten and recording will continue. One Time: Upon reaching the logging capacity of 8,000 readings, recording will automatically stop and in the LCD the current measurement and the word "FULL" will alternately appear.
5 Battery Mark	Shows source of power and voltage level ON: Running on external power source BLINKING: Running on battery power OFF: No battery
6 Current Temperature and Humidity Readings Area	Shows the current readings for temperature (°C or °F) and humidity (%RH). Pressing the [DISPLAY] button will change the measurement item to be displayed. By using the supplied software, the unit of temperature can be changed, is also used to display messages.
7 Current CO2 Readings Area	Shows the current readings for CO2 concentration (ppm). is also used to display messages.

Notes about Operation

- This product has been designed for use in normal living conditions, and is not suited for controlled environments such as a CO2 incubator. When measuring outdoors, avoid exposure to sunlight, dust, rain, or wind. Also make sure to use in the operating environment indicated in the specifications.
- This product cannot measure CO or O2. Do not use the unit for purposes such as avoiding O2 deficiency, CO intoxication or any other health related purpose.
- For one to two weeks after installation of the TR-76Ui, CO2 concentration measurements may fluctuate suddenly. This is due to the normal operation of Auto Calibration and is not a malfunction of the unit.
- Do not use or store the unit in areas exposed to direct sunlight and abrupt changes in temperature.
- Do not allow the unit to become wet. Do not use or store the unit in places where condensation occurs.
- To help prevent deterioration of the unit, do not use or store the unit in areas exposed to cigarette smoke, corrosive, explosive or organic gases or dust in the air.
- Do not expose the unit to a strong impact. This will adversely affect measurement accuracy and may cause the case to break resulting in bodily injury.
- The measurement accuracy of the CO2 sensor can not be guaranteed for CO2 concentrations of 5,000ppm or more.
- The Warning Monitoring function provided in the TR-76Ui is for informational purposes only. By clicking "I Agree" button you confirm your understanding that it is not to be relied upon for human health or safety.

Button Operations

- Upon the start of recording, all previously recorded data in the TR-76Ui will be deleted.
- If "Button Lock" has been set to ON in the CO2 Recorder for Windows, the operational buttons will not be active.

< REC/STOP > Button: Starting and Stopping Recording

Starting Recording
Press the < REC/STOP > button for about two seconds until the [REC] mark appears on the display.
• It is possible to start recording even while waiting for a programmed recording to start.



Stopping Recording
Press the < REC/STOP > button for about two seconds until the [REC] mark disappears from the display.



< DISPLAY > Button: Changing the LCD Display Pattern

It is possible to change the current readings display for temperature and humidity (upper row). CO2 concentration (lower row) is always displayed.

- With each pressing of the < DISPLAY > button the item on the display will change.

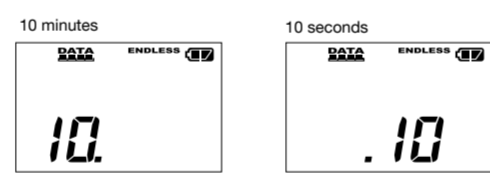
Temperature and Humidity: The display will alternate every one second.
Temperature only
Humidity only

- When the desired display pattern appears, stop pressing the button.

< INTERVAL > Button: Checking Recording Interval

It is possible to check the recording interval during recording or while waiting for a programmed recording to start.

- By pressing the < INTERVAL > button for about two seconds, the currently set recording interval will appear on the LCD display.
- If no operation is carried out after the recording interval has been displayed, the current measurement readings will return to the LCD display.



< INTERVAL > Button: Changing the Recording Interval Setting

Recording interval settings cannot be changed while a recording session is in progress.

- Stop recording.
- Press the < INTERVAL > button for about two seconds to display the currently set recording interval on the LCD screen.
- With each pressing of the < INTERVAL > button the recording interval time will change; stop pressing the button when the desired interval appears.
- Restart the recording session.

When [----] appears in the following:

- Temperature and Humidity Display Area**
This appears when the temperature-humidity sensor is not connected to the TR-76Ui, the connection is loose, the wire is broken, or when power has just been turned ON. If after re-connecting the sensor, measurements can still not be displayed, it is very possible that the sensor or the logger is defective or has been damaged.
- CO2 Concentration Display Area**
This appears when power has just been turned ON. If measurements don't appear in the display after waiting for a considerable time, there is a possibility that the sensor is defective or has been damaged. Also, the CO2 sensor will not work if battery power is low.
• Measurement and recording will continue in this situation, so battery power will be consumed.

Messages and Display on the LCD

Settings Messages



Button Lock

When "Button Lock" has been set to ON in CO2 Recorder for Windows, operational buttons are not active.



Memory Full

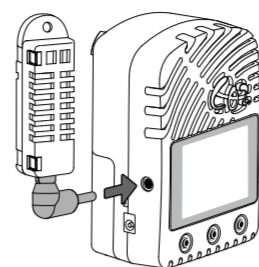
When recording mode has been set to "One Time" and the unit reaches its logging capacity of 8,000 readings, the measurement and the message [FULL] will alternately appear in the LCD. Stop recording and download the recorded data before re-starting recording.

- When this happens, measurement will continue so battery power will be consumed.

Setting up the TR-76Ui

- Make sure to install the provided software before connecting the TR-76Ui to your PC.

Connect the Temperature and Humidity Sensor



Turn On the Power

AC Adaptor

When measuring and recording over long periods of time, please use a supplied AC adaptor.

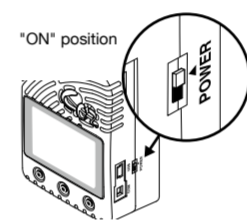
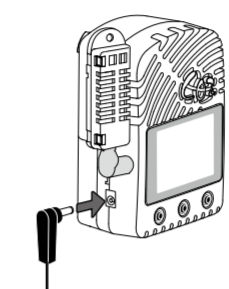
Four AA Alkaline Batteries

Keeping batteries in the unit allows a backup source of power * for when and if electrical power is cut from the AC adaptor. If running on only batteries, the estimated battery life is about two days.

- * Leaving alkaline batteries in the unit for a long period of time may cause battery leakage and corrosion. When using as a backup source, we recommend that you change the batteries every few years.

Turn On the < POWER > Switch

After setting up the power supply, turn on the < POWER > Switch.



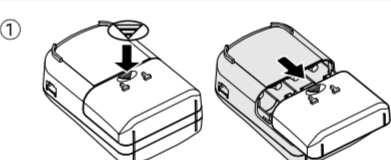
Warm-up Time for CO2 Sensor

After switching on the unit, it will take about one minute to display the normal CO2 concentration.

Install the Batteries

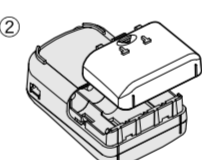
- If battery power is lost, all recorded data stored in the unit will be erased. Do not leave the unit without batteries.

- Remove the battery cover from the back of the unit.



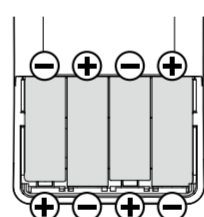
- While pressing down on the triangular mark, slide the cover to the bottom of the unit.

- Lift off the cover.



- Insert the batteries.

- Make sure to use four new batteries of the same kind.
- Make sure not to mistake + / -.
- Do not insert or change batteries with wet hands.
- Be sure to completely close the cover.



Interpreting the Battery Mark

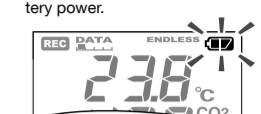
Checking the Power Supply Condition

Whether the battery mark is "blinking" or "on" indicates the source of power.

BLINKING (Running on battery):

The battery mark will blink on the LCD display when measuring and recording by battery power.

Mark blinks when running on battery power.



ON (Running on external power):

The battery mark will be on when measuring and recording by AC adaptor power.

Checking the Battery Level

The battery level will be shown in three stages as below.

- Battery Power - OK**
- Battery Power - Getting Low**
Please change the batteries as soon as possible.
- Battery Power - Too Low**
Battery power is too low to carry out measurement and recording of CO2 concentration.

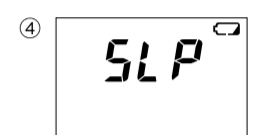


- When running on batteries only, it will take about 24 hours to go from Stage 1 to 2 and another 24 hours from Stage 2 to 3.

4 Sleep Mode (stopping measurement and recording)

After Stage 3, if the battery is not changed but it remains in use, the unit will enter sleep mode and stop measurement and recording in order to protect recorded data until this point.

- To continue recording, it is necessary to change the batteries before the unit enters sleep mode.
- If the unit is already in sleep mode, download the recorded data into the PC before re-starting recording.



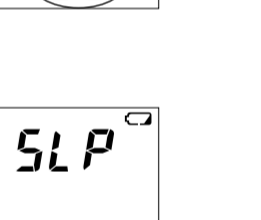
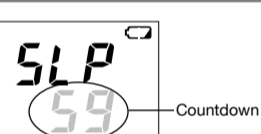
5 Erasing recorded data

If the battery is further left unchanged, the display will automatically shut off and all previously recorded data will be lost.
• Recording settings will remain. (See STEP 4 in the back side of this page for details.)



Removing the Batteries during Recording

- If the batteries are removed when running on battery power only, the unit will start a sixty-second countdown.
- To continue recording, before the countdown comes to an end, insert new batteries or connect the AC adaptor to supply power.
- If power is not supplied within 60 seconds, the unit will enter sleep mode.



Turning Off the < POWER > Switch

- During recording or when the "Button Lock" is set to ON in the CO2 Recorder for Windows, the power cannot be turned off even by pressing the < POWER > Switch.

- Stop recording.
- Turn off the < POWER > Switch.

Standby Power

If the TR-76Ui is connected to an AC adaptor, standby power will be supplied even after turning off the < POWER > switch, allowing the CO2 sensor to continue operation.

Notes on Special Functions

Getting Ready for Using Infrared Communication

In order to download recorded data from the TR-76Ui via infrared communication, it is necessary to purchase the dedicated Data Collector TR-57DCi (sold separately).

- Go to [Operation Guide] to see how to download data via data collector.

Getting Ready for Using the Warning Monitoring Function

It is possible to connect an external device such as siren or lamp to the TR-76Ui. Please make sure to check specification details of the external alarm terminal before purchasing or getting an external device ready for connection.

Upper and Lower Limit Settings

To use the warning monitoring function, go to the [Start Recording] tab in the CO2 Recorder for Windows and make settings for Upper and Lower Limits and Judgement Time. When the measurement exceeds one of the set upper and lower limits, the TR-76Ui will turn ON the external alarm terminal. Upon a warning, the measurement value on the display will also flash.

About the External Alarm Terminal (EXT ALM)

Enabling Warnings	①	Warning Output (Enable / Disable)	Internal Pull-up: 3V 100kΩ Maximum Input Voltage: 30V
	②	GND	
Warning Output (OUT)	③	Output Terminal (Warning Output)	Open Drain Output Voltage when OFF: DC less than 30V Current when ON: less than 0.1A Resistance when ON: 15Ω
	④	GND	

The connection between ① and ② decides whether Warning Output is enabled or disabled.

If a warning condition occurs while Warning Output is enabled, a connection between ③ and ④ will be established and a warning will be output.

About the Compatible Connector

The JST Connector PAP-04V-S is compatible with the external alarm terminal. For questions concerning sales of the connector, please directly contact JST Mfg. Co., Ltd. (<http://www.jst-mfg.com/>)

