

# Compact Waterproof Data Logger

## TR-5i Series Features and Specs

### Measurement Items

Temperature /  
Voltage / 4-20mA /  
Pulse Count

### Data Collection

T&D Data Collection  
Devices

### Data Access

Local PC

### Warning Notification

LED

The TR-51i with internal sensor provides optimum waterproof and dustproof capabilities.

Model	Measurement Items	Measurement Range	Notes
TR-51i	Temperature 1ch (internal sensor)	-40 to 80°C	Gradual Response Time Optimum Waterproof and Dustproof Capabilities.
TR-52i	Temperature 1ch	-60 to 155°C	External Sensor for Quicker Response Time / Splashproof Wide Selection of Optional Sensors

The TR-55i allows for a variety of commercially available sensors to be connected to the included input module increasing the measurement possibilities.

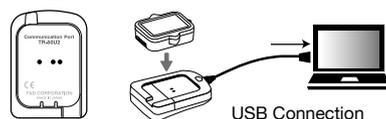
Model	Measurement Items	Measurement Range	Notes
TR-55i-TC	Temperature 1ch (Thermocouple)	-199 to 1760°C	For use with Thermocouple Sensor Types: K, J, T, S
TR-55i-Pt	Temperature 1ch (Pt100 / Pt1000)	-199 to 600°C	Supports 3-wire and 4-wire Sensors High Precision Measurement in Wide Temperature Range
TR-55i-V	Voltage 1ch	DC 0 to 22 V	Measurement Resolution: Minimum of 0.1mV Preheat Function / Scale Conversion
TR-55i-mA	4-20mA 1ch	0 to 20 mA	Operational up to 40 mA / Scale Conversion
TR-55i-P	Pulse Count 1ch	Pulse Count: 0 - 61439 Input Signal: Contact Input / Voltage Input	Scale Conversion

### Common Features

#### Collect Data using our Data Collection Devices

For Direct Data Downloading to PC via USB  
Communication Port TR-50U2 (sold separately)

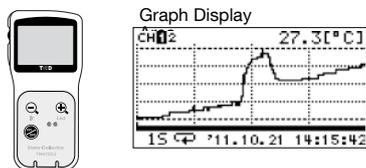
Place logger on TR-50U2



USB Connection

For On-Site Downloading (up to 16 units)  
Data Collector TR-57DCi (sold separately)

Download data via Infrared Communication



#### 15 Recording Intervals with Large Logging Capacity

Up to 16,000 readings per unit. Select from 15 recording intervals (from 1 second to 1 hour).  
Example: At a 60-minute recording interval, that gives you 666 days (almost 2 years) of non-stop recording.

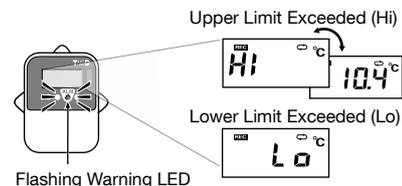
#### Temperature Adjustment Function

Entering adjustment values beforehand makes it possible to view and record the adjusted measurement values.

### Warning Monitoring Function

If a reading exceeds the set limit the warning LED will flash and an on-screen error message will appear. Warning display will stay on until data is downloaded.

Measurement and error message shown alternately



### TR-51i / 52i Features

#### Durable Waterproof and Dustproof Body

A data logger built for tough environments

### TR-55i Features

#### Scale Conversion (TR-55i-V / mA / P)

Upon the downloading of recorded data, the scale will be automatically converted according to pre-made settings. Graph will be displayed using the desired unit.

#### Two Recording Methods (TR-55i-V / mA)

Instantaneous: Records the measured value instantaneously at the set recording interval.

Average: Records the average of the measurements taken during the set recording interval.

#### Preheat Function (TR-55i-V)

This supplies power to the sensor immediately before measurement and turns off power until the next measurement. This saves battery life allowing for longer continuous recording.

## TR-51i/52i Specifications

	TR-51i	TR-52i
Measurement Channels	Temperature 1ch (Internal)	Temperature 1ch (External)
Sensor	Thermistor	Thermistor
Measurement Units	°C, °F	°C, °F
Measurement Range	-40 to 80 °C	-60 to 155 °C
Accuracy	Avg. $\pm 0.5$ °C	Avg. $\pm 0.3$ °C at -20 to 80 °C Avg. $\pm 0.5$ °C at -40 to -20 °C 80 to 110 °C Avg. $\pm 1.0$ °C at -60 to -40 °C 110 to 155 °C
Measurement Resolution	0.1 °C	0.1 °C
Responsiveness	Thermal Time Constant: Approx. 15 min. Response Time (90%): about 35 minutes	Thermal Time Constant: Approx. 30 sec. (in air) Approx. 4 sec. (in agitated water) Response Time (90%): Approx. 80 sec. (in air) Approx. 7 sec. (in agitated water)
Logging Capacity	16,000 readings	
Recording Interval	Select from 15 choices: 1, 2, 5, 10, 15, 20, 30 sec. or 1, 2, 5, 10, 15, 20, 30, 60 min.	
Recording Mode	Endless (Overwrite oldest data when capacity is full) or One Time (Stop recording when capacity is full)	
LCD Display Items	Measurements, Recording Status, Battery Life Warning, etc.	
Communication Interfaces	Optical Communication Infrared Communication: IrPHY 1.2 low power	
Power	Lithium Battery LS14250 x 1	
Battery Life (*1)	Approx. 4 years (2 years with Infrared Communication Enabled)	
Dimensions	H 62 mm x W 47mm x D 19 mm	
Weight	Approx. 45 g	
Operating Environment	-40 to 80 °C	
Waterproof Capacity	IP67: Immersion proof	IP64: Splash proof (rated for use in daily life)(*2)
Accessories	- Temperature Sensor TR-5106 Lithium Battery LS14250, Strap, Manual Set (Warranty Included)	
Data Collection Devices	Data Collector: TR-57DCi / 57U, RTR-57U Communication Port: TR-50U2 / 50U	

\*1: Battery life depends upon multiple factors including measuring environment, recording interval, and quality of the battery being used. When infrared communication function is enabled, battery life may be further shortened if the unit is used under the inverter type fluorescent lighting.

\*2: This is the waterproof capacity of the data logger with the sensor connected.  
The specifications listed above are subject to change without notice.

## TR-55i Specifications

	TR-55i-TC	TR-55i-Pt	TR-55i-V	TR-55i-mA	TR-55i-P
Measurement Channels	Temperature 1ch	Temperature 1ch	Voltage 1ch	4-20 mA 1ch	Pulse Count 1ch
Sensor	Thermocouple Type K, J, T, S	Pt100, Pt1000 3-wire, 4-wire (*1)	-	-	-
Measurement Units	°C, °F	°C, °F	V, mV	mA	P
Measurement Range	K -199 to 1370 °C J -199 to 1200 °C T -199 to 400 °C S -50 to 1760 °C	-199 to 600 °C	0 to 22 V	0 to 20 mA Operational up to 40mA	
Accuracy (*2)	Thermocouple Measurement K, J, T : ±(0.3 °C+0.3% of reading) S : ±(1 °C+0.3 % of reading)  Cold Junction Compensation ±0.3 °C at 10 to 40 °C ±0.5 °C at -40 to 10 °C, 40 to 80 °C	±(0.3 °C + 0.3 % of reading) at 10 to 40 °C  ±(0.5 °C + 0.3 % of reading) at -40 to 10 °C, 40 to 80 °C	±(0.5 mV + 0.3% of reading) at 10 to 40 °C  ±(1 mV + 0.5% of reading) at -40 to 10 °C, 40 to 80 °C	±(0.05 mA + 0.3% of reading) at 10 to 40 °C  ±(0.1mA + 0.3% of reading) at -40 to 10 °C, 40 to 80 °C	Input Signal Non-voltage Contact Input Voltage Input (0 to 27V)  Detection Voltage Lo: 0.5 V or less Hi: 2.5 V or more  Input Impedance Approx.100 KΩ pull up  Chattering Filter ON: 15 Hz or less OFF: 3.5 kHz or less
Note: The temperature range shown above represents the operating environment of the Input Module.					
Measurement Resolution	K, J, T: 0.1 °C S: approx. 0.2 °C	0.1 °C	Up to 400 mV : 0.1 mV Up to 800 mV : 0.2 mV Up to 999 mV : 0.4 mV Up to 3.2 V : 1 mV Up to 6.5 V : 2 mV Up to 9.999 V : 4 mV Up to 22 V : 10 mV	0.01 mA	Maximum Count 61,439/Recording Interval
Logging Capacity	16,000 readings				
Recording Interval	Select from 15 choices: 1, 2, 5, 10, 15, 20, 30 sec. or 1, 2, 5, 10, 15, 20, 30, 60 min.				
Recording Mode	Endless (Overwrite oldest data when capacity is full) or One Time (Stop recording when capacity is full)				
LCD Display Items	Measurements, Recording Status, Battery Life Warning, etc.				
Communication Interfaces	Optical Communication Infrared Communication: IrPHY 1.2 low power				
Power	Lithium Battery LS14250 x 1				
Battery Life (*3)	Approx. 14 months 10 months with IR Communication Enabled	Approx. 24 months 14 months with IR Communication Enabled	Approx. 16 months 11 months with IR Communication Enabled	Approx. 16 months 11 months with IR Communication Enabled	Approx. 16 to 24 months 11 to 18 months with IR Communication Enabled
Dimensions	H 62 mm x W 47 mm x D 19 mm				
Weight	Approx. 45g				
Operating Environment	-40 to 80°C				
Waterproof Capacity	IP64: Splash proof (rated for use in daily life) (*4)				
Accessories	Input Module TCM-3010	Input Module PTM-3010	Input Module VIM-3010	Input Module AIM-3010	Input Module PIC-3150
Lithium Battery LS14250, Strap, Manual Set (Warranty Included)					
Data Collection Devices	Data Collector: TR-57DCi Communication Port: TR-50U2 / 50U				

\*1: In the case of a 4-wire sensor, one wire will be left unused.

\*2: For TR-55i-TC and TR-55i-Pt, sensor inaccuracies are not included.

\*3: Battery life varies depending upon multiple factors including ambient temperature, recording interval, frequency of communication, and battery performance. All estimates are based on operations carried out with a new battery and are in no way a guarantee of actual battery life. Battery life may be shortened further if the unit is used under inverter type fluorescent lighting.

\*4: This is the waterproof capacity of the data logger with the Input Module connected. Input Module itself is not water resistant.

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