DATASHEET

# TR-75nw

T&D

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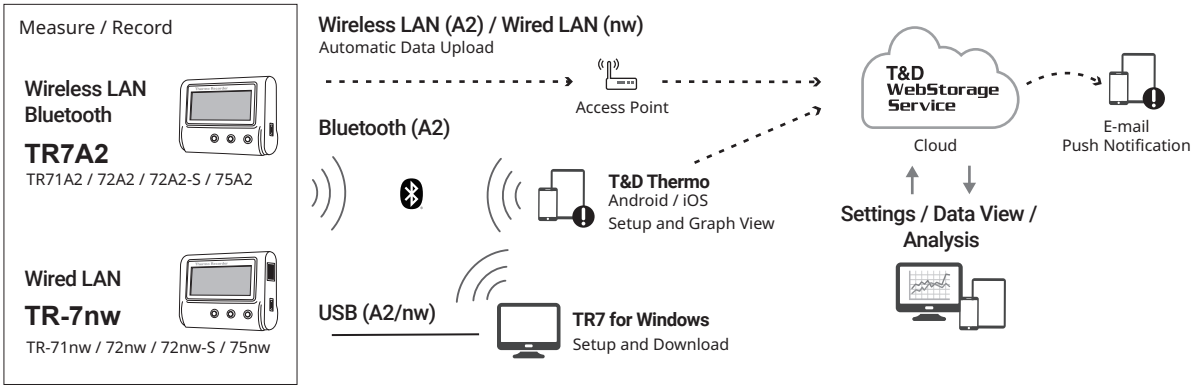
## Data Logger for Cloud Storage

# TR7 Series Features and Specs

| Measurement Items | Data Collection | Data Access | Warning Notification |
|---|---|---|---|
| Temperature<br>Humidity | LAN, Bluetooth,<br>USB Connection | T&D WebStorage Service,<br>Intranet, Local PC | E-mail,<br>Push Notification |

TR7 Series, with multiple types of communication interface (Wireless/Wired LAN, Bluetooth®, and USB) have been designed to meet your temperature and humidity data management environment and needs.




* T&D WebStorage Service is a free cloud-based storage service provided by T&D Corporation. A LAN based environment with Internet connection is necessary to use this service.

### Automatic Data Upload to the Cloud via LAN

TR7 Series has a feature to automatically upload the recorded data to T&D's free cloud storage via wired/wireless LAN. The data stored on the cloud can be monitored using a web browser on your smartphone or PC. TR7A2 supports secure (HTTPS) communication.

### Mobile App for Configuration and Graph View

The "T&D Thermo" app allows you to carry out operations such as making settings, collecting data and viewing graph from your smartphone through Bluetooth communication with nearby devices. Data stored in the cloud can also be viewed with this app.

### USB/Bluetooth Communication with PC

Using the USB connection and PC software "TR7 for Windows" allows device setup, data download, and temperature/humidity management without a network.
"TR7 for Windows" also supports Bluetooth connectivity with the TR7A2.

| Model | Measurement Items | Measurement Range | Notes |
|---|---|---|---|
| TR71A2 / TR-71nw | Temperature 2ch | -60 to 155 °C | The measurement range depends on the sensor type.<br>Wide selection of optional sensors available |
| TR72A2 / TR-72nw | Temperature, Humidity 1ch Each | 0 to 55 °C, 10 to 95 %RH | |
| TR72A2-S / TR-72nw-S | Temperature, Humidity 1ch Each | -25 to 70 °C, 0 to 99 %RH | The supplied sensor for the S model provides higher accuracy to ±2.5 %RH |
| TR75A2 / TR-75nw | Temperature 2ch (Thermocouple) | -199 to 1760 °C | For use with Thermocouple Sensor Types: K, J, T, E, S, R |

### Sending Warning Report Mails

Warning e-mails can be sent upon T&D WebStorage Service receiving warning information from the data logger.

### Data Management on Intranet

You can set up a PC as a data destination by installing our free-of-charge "T&D Data Server" software. Functions such as saving received recorded data, monitoring and graph display with a web browser, and warning mail transmission are available even in environments where you cannot use the cloud service.

### TR71A2/75A2: VFC/CDC Compliant Models

[Vaccine Mode] operation for managing vaccine temperature.
TR75A2 is capable of measuring ultra low temperatures.

### TR7A2: Max/Min and ALM Display on LCD

In addition to the measurements of two channels, TR7A models can display the maximum and minimum values and warning notification (ALM) for each channel on the LCD.

### TR7A2 Series: Secure Connection

The TR7A2 models support wireless LAN connectivity with WPA2-Enterprise (IEEE 802.1X authentication) and data transmission over HTTPS.

* The Bluetooth® trademark and logo are registered trademarks owned by Bluetooth SIG, Inc. T&D Corporation uses these marks under license.

# TR7A2 Series Specifications

| | TR71A2 | TR72A2 | | TR72A2-S | | TR75A2 |
|---|---|---|---|---|---|---|
| Measurement Channels | Temperature 2ch | Temperature 1ch, Humidity 1ch | | Temperature 1ch, Humidity 1ch | | Temperature 2ch |
| Sensor | Thermistor | Thermistor | Polymer Resistance | Thermistor | Polymer Resistance | Thermocouple:<br>Type K, J, T, E, S, R (*1) |
| Measurement Units | °C, °F | °C, °F | %RH | °C, °F | %RH | °C, °F |
| Measurement Range<br>Internal Sensor | -10 to 60 °C (*2) | - | - | - | - | - |
| External Sensor | -40 to 110 °C<br>(Supplied Sensor)<br>-60 to 155 °C<br>(Optional Sensor: Fluoropolymer Coated Type) | 0 to 55 °C | 10 to 95 %RH | -25 to 70 °C | 0 to 99 %RH<br>(*3) | Type K : -199 to 1370 °C<br>Type J : -199 to 1200 °C<br>Type T : -199 to 400 °C<br>Type E : -199 to 1000 °C<br>Type S : -50 to 1760 °C<br>Type R : -50 to 1760 °C |
| Accuracy | (Supplied Sensor)<br>Avg. ± 0.3 °C<br>at –20 to 80 °C<br>Avg. ± 0.5 °C<br>at –40 to –20 °C,<br>80 to 110 °C | ±0.5 °C | ±5 %RH<br>at 25 °C, 50 %RH | ±0.3 °C<br>at 10 to 40 °C<br>±0.5 °C<br>all other temperatures | ±2.5 %RH<br>at 15 to 35 °C,<br>30 to 80 %RH | Thermocouple Measurement<br>(Sensor inaccuracies not included)<br>Type K, J, T, E:<br>± (0.5 + 0.003 × t) °C<br>at –100 °C or above<br>Type S, R:<br>± (1.5 + 0.003 × t) °C<br>at 100 °C or above<br>t = absolute value of measurement in °C<br>Cold Junction Compensation<br>±0.5 °C<br>at 10 to 40 °C<br>±0.8 °C<br>other temperatures within the operating environment of the logger |
| Measurement Resolution | 0.1 °C | 0.1 °C | 1 %RH | 0.1 °C | 0.1 %RH | Type K, J, T, E: 0.1 °C<br>Type S, R: Approx. 0.2 °C |
| Responsiveness | (Supplied Sensor)<br>Response Time (90 %):<br>Approx. 190 sec. | Response Time (90 %):<br>Approx. 7 min. | | Response Time (90 %):<br>Approx. 7 min. | | - |

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| Logging Capacity | 30,000 data sets (One data set consists of readings for all channels.) |
| 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) |
| Measurement Mode (TR71A2/75A2 only) | Normal Mode: Max/Min values and ALM display based on the readings on the LCD<br>Vaccine Mode (*4): Max/Min values and ALM display based on the recorded values |
| LCD Display Items | Measurements, ALM Display, Recording Status, Recording Mode, Battery Warning Mark, Communication Status, etc.<br>Measurements: Ch1 & Ch2 current values / Ch1 Max & Min values / Ch2 Max & Min values<br>Display Pattern: Alternating or Fixed display |
| Auto-upload Interval | Select from 15 choices: OFF (No auto-upload), 1, 2, 5, 10, 15, 20, 30 min. or 1, 2, 3, 4, 6, 12, 24 hrs. |
| Communication Interfaces | Wireless LAN Communication : IEEE 802.11b/g/n (2.4 GHz only)<br>Security: WPA-PSK(AES/TKIP), WPA2-PSK(AES/TKIP), WPA2-EAP(AES/TKIP)<br>WPS 2.0: Push Button Configuration<br>IEEE 802.1X Authentication: EAP-TLS, EAP-PEAP(MSCHAPv2) (*5)<br>Protocol (*6): HTTP, HTTPS, SNTP, DHCP, DNS<br>Bluetooth Communication: Bluetooth 4.2 (Bluetooth Low Energy)<br>USB Communication: USB 2.0 (Mini-B connector) |
| Power | Battery: AA Alkaline LR6 x 2, AA Ni-MH x 2<br>External: USB Bus 5V 200mA, AC Adaptor (AD-05A2 or AD-05C2) (*7) |
| Battery Life (*8) | Power Saving Settings: OFF<br>Approx. 5 days<br>(Auto-Upload Interval 1 min, Rec Interval ≥ 1 min)<br>Approx. 7 months<br>(Auto-Upload Interval 1 hr, Rec Interval ≥ 1 min)<br>Approx. 18 months<br>(Auto-Upload Interval ≥ 6 hr, Rec Interval ≥ 1 min)<br>Power Saving Settings: ON (Auto-Upload Pause for 12 hours)<br>Approx. 10 days<br>(Auto-Upload interval 1 min, Rec Interval ≥ 1 min)<br>Approx. 12 months<br>(Auto-Upload interval 1 hr, Rec Interval ≥ 1 min)<br>Approx. 18 months<br>(Auto-Upload interval 3 hr, Rec Interval ≥ 1 min)<br>1.2 times longer with Bluetooth OFF<br>Approx. 18 months with Bluetooth & Auto-Upload OFF |
| Dimensions | H 58 mm x W 78 mm x D 26 mm |
| Weight | Approx. 55 g |
| Operating Environment | Temperature: -10 to 60 °C, Humidity: 90 %RH or less (no condensation) |

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|---|---|---|---|---|
| Included Items | Temperature Sensor TR-0106 x 2 | Temperature-Humidity Sensor THA-3001 x 1 | High Precision Temperature-Humidity Sensor SHA-3151 x 1 | (Sensor not provided) |
| | AA Alkaline Battery LR6 x 2, Registration Code Label, Manual Set (Warranty Included) | | | |
| Software (*9) | PC Software (Windows)<br>TR7 for Windows (*10), T&D Graph, T&D Data Server<br>Mobile Application (iOS, Android)<br>T&D Thermo | | | |

*1: We do not handle the sale of thermocouple sensors.
The input terminal block (screwless type) supports AWG 28–22 wires (single wire: Ø0.32–0.64 mm; twisted wire: 0.08–0.32 $mm^2$, Ø0.12 mm or more in diameter).
Recommended wire size: AWG 22.
*2: When Auto Upload is used frequently, the measurement of the internal sensor may rise by around 0.3 °C.
When using external power, the data logger itself generates heat and the internal sensor will report a temperature much higher than ambient; we recommend using an external temperature sensor in this case.
*3: When continually used in environments with temperatures above 60 °C, accuracy of humidity measurements will decrease over time. Also, humidity cannot be measured at temperatures below -20 °C.
*4: Vaccine mode complies with the CDC (Centers for Disease Control and Prevention) requirements for vaccine management.
*5: When using EAP-PEAP, server certificate verification using the CA certificate is not available.
*6: Client function. Only HTTP proxy is supported (not HTTPS).
*7: The optional AC adaptor "AD-05A2" (Type A Plug) can be used in the USA and Canada, and "AD-05C2" (Type C Plug) in Europe. For usage in other countries, please contact your local distributor.
*8: Battery life in the table above is for two AA Alkaline type batteries, and varies depending upon multiple factors including frequency of communication, network environment, ambient temperature, recording interval, 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.
*9: Free software download and information on OS compatibility is available on the Software page of our website at https://tandd.com/software/.
*10: TR7 for Windows requires a PC with Bluetooth capability (4.0 or above) or a USB communication cable (available as option: US-15C).
The specifications listed above are subject to change without notice.

## TR-7nw Series Specifications

| | TR-71nw | TR-72nw | | TR-72nw-S | | TR-75nw |
|---|---|---|---|---|---|---|
| Measurement Channels | Temperature 2ch | Temperature 1ch, Humidity 1ch | | Temperature 1ch, Humidity 1ch (High-Precision Type) | | Temperature 2ch |
| Sensor | Thermistor | Thermistor | Polymer Resistance | Thermistor | Polymer Resistance | Thermocouple:<br>Type K, J, T, E, S, R (*1) |
| Measurement Units | °C, °F | °C, °F | %RH | °C, °F | %RH | °C, °F |
| Measurement Range<br>Internal Sensor | -10 to 60 °C (*2) | - | - | - | - | - |
| External Sensor | -40 to 110 °C<br>(Supplied Sensor)<br>-60 to 155 °C<br>(Optional Sensor: Fluoropolymer Coated Type) | 0 to 55 °C | 10 to 95 %RH | -25 to 70 °C | 0 to 99 %RH<br>(*3) | Type K : -199 to 1370 °C<br>Type J : -199 to 1200 °C<br>Type T : -199 to 400 °C<br>Type E : -199 to 1000 °C<br>Type S : -50 to 1760 °C<br>Type R : -50 to 1760 °C |
| Accuracy | Avg. ±0.3 °C<br>at −20 to 80 °C<br>Avg. ±0.5 °C<br>at −40 to −20 °C<br>80 to 110 °C | ±0.5 °C | ±5 %RH<br>at 25 °C,<br>50 %RH | ±0.3 °C<br>at 10 to 40 °C<br>±0.5 °C<br>all other temperatures | ±2.5 %RH<br>at 15 to 35 °C,<br>30 to 80 %RH | Thermocouple Measurement<br>(Sensor inaccuracies not included)<br>Type K, J, T, E:<br>± (0.5 + 0.003 × t) °C<br>at −100 °C or above<br>Type S, R:<br>± (1.5 + 0.003 × t) °C<br>at 100 °C or above<br>t = absolute value of measurement in °C<br>Cold Junction Compensation<br>±0.5 °C<br>at 10 to 40 °C<br>±0.8 °C<br>other temperatures within the operating environment of the logger |
| Measurement Resolution | 0.1 °C | 0.1 °C | 1 %RH | 0.1 °C | 0.1 %RH | Type K, J, T, E: 0.1 °C<br>Type S, R: approx. 0.2 °C |
| Responsiveness | Response Time (90 %):<br>Approx. 190 sec. | Response Time (90 %):<br>Approx. 7 min. | | Response Time (90 %):<br>Approx. 7 min. | | - |

| | |
|---|---|
| Logging Capacity | 8,000 data sets (One data set consists of readings for all channels in that type of unit.) |
| 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 (fixed or alternating display), Recording Status, Recording Mode, Battery Warning Mark, etc. |
| Auto-upload Interval | Select from 15 choices: OFF (No auto-upload), 1, 2, 5, 10, 15, 20, 30 min. or 1, 2, 3, 4, 6, 12, 24 hrs. |
| Communication Interfaces | Wired LAN Communication: 100BASE-TX/10BASE-T (RJ45 Connector)<br>Protocol: HTTP (*4), DHCP, DNS<br>USB Communication : USB 2.0 (Mini-B connector) |
| Power | Battery: AA Alkaline LR6 x 2, AA Ni-MH x 2<br>External: USB Bus 5V 200mA, AC Adaptor AD-05A2 or AD-05C2 (*5), PoE IEEE 802.3af (*6) |

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|---|---|---|---|---|
| Battery Life (*7) | Approx. 10 days<br>(when Auto-upload interval is 1 min)<br>Approx. 1 year<br>(when Auto-upload interval is 1 hr)<br>Approx. 1.5 years<br>(when Auto-upload interval is 12 hr or more)<br>Approx. 1.5 yrs with Auto-Upload OFF | | | Approx. 10 days<br>(when Auto-upload interval is 1 min)<br>Approx. 7 months<br>(when Auto-upload interval is 1 hr)<br>Approx. 1 year<br>(when Auto-upload interval is 12 hr or more)<br>Approx. 1 yr with Auto-Upload OFF |
| Dimensions | H 58 mm x W 78 mm x D 26 mm | | | |
| Weight | Approx. 55 g | | | |
| Operating Environment | Temperature: -10 to 60 °C (*8), Humidity: 90 %RH or less (no condensation) | | | |
| Included Items | Temperature Sensor TR-0106 x2 | Temperature-Humidity Sensor THA-3001 x1 | High Precision Temperature-Humidity Sensor SHA-3151 x1 | (sensor not provided) |
| | AA Alkaline Battery LR6 x 2, Registration Code Label, USB Mini-B Cable US-15C, Manual Set (Warranty Included) | | | |
| Software (*9) | PC Software (Windows)<br>TR7 for Windows, T&D Graph, T&D Data Server<br>Mobile Application (iOS, Android)<br>T&D Thermo | | | |

*1: We do not handle the sale of thermocouple sensors.
The input terminal block (screwless type) supports AWG 28–22 wires (single wire: Ø0.32–0.64 mm; twisted wire: 0.08–0.32 $mm^2$, Ø0.12 mm or more in diameter).
Recommended wire size: AWG 22.

*2: When Auto Upload is used frequently, the measurement of the internal sensor may rise by around 0.3 °C.
When using external power, the data logger itself generates heat and the internal sensor will report a temperature much higher than ambient; we recommend using an external temperature sensor in this case.

*3: When continually used in environments with temperatures above 60 °C, accuracy of humidity measurements will decrease over time. Also, humidity cannot be measured at temperatures below -20 °C.

*4: HTTP client. Proxy supported.

*5: The optional AC adaptor "AD-05A2" (Type A Plug) can be used in the USA and Canada, and "AD-05C2" (Type C Plug) in Europe. For usage in other countries, please contact your local distributor.

*6: When using PoE, use of STP (shielded) cables may cause PoE failure or device malfunction. We strongly recommend using UTP cables.

*7: Battery life in the table above is for two AA Alkaline type batteries, and varies depending upon multiple factors including frequency of communication, network environment, ambient temperature, recording interval, 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.

*8: -10 to 45 °C when using external power.

*9: Free software download and information on OS compatibility is available on the Software page of our website at https://tandd.com/software/.

The specifications listed above are subject to change without notice.