

Bluetooth® Thermo Recorder

TR4A series

Model No. TR41A, TR42A, TR43A, TR45

Safety Instructions and Specifications

Thank you for purchasing our product.

Please read carefully the following safety instructions and specifications to prevent damage to personnel and property, and to ensure safe and proper use of this product.

Explanation of Symbols

	DANGER	These entries are actions that, if taken, 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.
	Denotes an important warning or caution.	
	Denotes a forbidden action.	
	Denotes an action that should be carried out.	

DANGER | To Prevent Serious Accidents

- Do not disassemble, repair or modify the unit.
- Do not use the unit in any environment that is exposed to chemicals and harmful gases. Doing so may cause corrosion and/or other damage to the product. Also, coming in contact with hazardous substances may cause bodily harm to the user or people nearby.
- The TR45 and temperature-humidity sensors (for TR43A) are not water resistant. Only use in an environment where there is no condensation or possibility of becoming wet. If liquid enters the product, immediately remove the battery and stop using it.
- If the unit is subjected to significant temperature change while wet, it may cause condensation inside the case. Especially be careful with temperature changes from high to low; if the unit has condensation on the inside, it may cause malfunction, damage, and/or unexpected accidents.
- Do not insert or replace batteries or sensors with wet hands.
- Do not touch the product, sensor cable or AC adaptor during thunder and lightning. Doing so may cause electric shock.
- Please be careful not to touch the product or sensor during or after use in overly hot or cold environments. It may cause burns or frostbite.
- This product has been designed for private and/or industrial use only. It should not be used in situations where strict safety precautions are necessary such as with medical equipment, or in systems directly or indirectly connected with human life or well-being.
- Do not drop or expose the unit to a strong impact.
- Do not cut or process the sensor cables. Also, do not twist, pull on or swing them.
- To prevent damage to the unit from static electricity, remove static electricity from your body by touching metal around you (such as a door knob and window frame) before touching the unit.
- Store the unit and battery out of the reach of children.
- Do not use any sensors other than those specified by T&D Corporation.
- Make sure the sensor is inserted fully, so as not to cause an improper connection. Also, when unplugging the sensor from the unit, do not pull the cord, but hold the connector to disconnect.
- If the unit produces heat, emits smoke or a strange smell, or makes unusual noise, immediately remove the battery and stop using it.
- Check the rubber packing inside the case for deterioration, damage, dust and dirt, and periodically replace with the silica gel.
- Contact with oil may cause cracks to appear in the casing of the unit. When using this unit in environments where such oils are present, please ensure that it is protected from contact through use of a polyethylene bag or other means.

DANGER | Places NOT Suitable for Installation and Storage

- Areas exposed to excessive vibration
- Areas exposed to excessive smoke, dust or dirt.
- Areas exposed to direct sunlight
- Areas subject to direct flames or heaters, as well as areas in which hot air accumulates and creates extremely high temperatures
- Areas exposed to static electricity
- Areas exposed to strong magnetic fields

CAUTION | About the Sensors

Temperature Sensor TR-S106 (Provided with TR42A)

- Do not bend or press the last 5cm to the tip of the sensor, as this may damage it.
- Insert the sensor tip to at least 5cm or more to obtain an accurate temperature measurement.
- Use the sensor within its resistance range (-70 to 180°C).

Temperature-Humidity Sensor THB3001 (Provided with TR43A)

- This sensor is not water resistant. Do not expose to condensation, dampness, corrosive gases or organic solvents. 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 sensor to a strong impact. This may adversely affect measurement accuracy and cause damage or malfunction.
- Continued use may cause a decrease in the sensor's accuracy and sensitivity even under normal operational conditions. Periodic calibration may be required.
- When the sensor is not to be used for a long period of time, please store it at normal temperature and humidity.

CAUTION | Others

- Use the unit and the sensor in the specified operating environment, and do not use in any other purposes than those intended.
- Do not allow dust or foreign objects to get into the sensor jack.
- If the product gets dirty, wipe it with a clean cloth.
- Battery terminals may provide insufficient contact due to age or vibration. This may lead to data loss.
- Please be careful not to let a third party know of your registration code. The registration code cannot be reused or changed.

CAUTION | About the Lithium Battery

- Do not install the battery in the wrong direction. Doing so may result in product malfunction, battery leakage, overheating or explosion.
- Do not short the battery with metal objects. Doing so could cause leakage, overheating, fire or explosion. When carrying or storing batteries, avoid direct contact with metal objects by putting them in a separate container.
- If battery fluid gets on your eyes, skin or clothes, wash thoroughly with clean water. See a doctor immediately if it gets in your eyes.
- This battery is non-rechargeable and should not be recharged
- Do not use any other batteries than those that are specified in this Manual. There is a risk of explosion if the battery is replaced by an incorrect type.
- If the unit is not to be used for a long period of time, remove the battery. If left in the unit, the battery may leak and lead to malfunctioning.
- Do not remove or reinsert the battery once it has been set; continue using until battery power is depleted. Always use a new battery for replacement.
- Do not put the battery in a fire, attempt to heat it, disassemble or deform it. Do not place the battery on or near fires, or other high temperature locations. Doing so may cause the battery to overheat or ignite.
- Do not expose to strong impact or throw it.
- Do not expose to extremely low air pressure, as this may result in explosions or leakage of flammable liquids and gases.
- Immediately disconnect the battery if, during operation, battery emits an unusual smell, feels hot, changes shape, or appears abnormal in any other way.
- Dispose of batteries in accordance with local regulations.
- Use in high or low temperature environments will result in a shortening of the battery life as shown below. In environments of 60°C or higher, not only will battery life be shortened but the unit itself and its parts will deteriorate more rapidly. Please do not use in such environments for prolonged periods of time.
 - 20°C: one half of life compared to normal temperatures
 - 30°C: one third of life compared to normal temperatures
 - 60°C: one half of life compared to normal temperatures
- When using lithium batteries other than LS14250 produced by SAFT, such as CR2, product specifications cannot be guaranteed nor can the performance of some functions, such as the battery warning function.
- Please avoid using the CR2 in the following situations:
 - Using the unit in an environment below 0 °C or above 60 °C
 - Exposing the CR2 to continuous vibration such as in transportation

Compliance Information

<For FCC Model>
FCC andISED Statement
 This device complies with part 15 of FCC Rules and Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the 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.

Le présent appareil est conforme à la partie 15 des règles de la FCC et aux normes des CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC Class B Statement
 This equipment has been tested and found to comply with the limits for a Class B 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.

FCC Caution:
 Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
 This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

ISED Class B Statement
 This Class B digital apparatus complies with Canadian ICES-003.
 Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

FCC/ISED Radiation Exposure Statement
 This equipment complies with FCC/ISED radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the ISED radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body.
Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles des radioélectriques (RF) de la FCC. Lignes directrices d'exposition et d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'ISDE. Cet équipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le radiateur et le corps humain.

<For EC Model>
CE Statement
 Hereby, T&D Corporation declares that the radio equipment type TR4A Series is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: tandd.com/manual/

<Important Notice>
 Wireless products cannot be used in countries other than where those products have been approved for use, according to that country's wireless regulations. T&D Corporation shall in no manner whatsoever take responsibility for the usage of these products, nor be liable in any manner for legal consequences stemming from the usage of these wireless products in unapproved areas.

사용자 안내문
 이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다. 취득등록증명서-저파수신용기, 비등록, 公司, 商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信; 經發現有干擾現象時, 應立即停用, 並改善至無干擾時方得繼續使用。前述合法通信, 指依電信管理法規作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波射頻性電機設備之干擾。

電波法に関するご注意

本製品は、電波法に基づく特定小電力無線機器として、技術基準適合証明 (利用に関してはお客様の免許申請等が必要) を受けています。必ず次の点を守ってお使いください。
 ・分解・改造をしないでください。分解・改造は法律で禁止されています。
 ・技術基準適合ラベルははがさないでください。ラベルのないもの使用は禁止されています。
 ・Bluetooth 機能は日本の技術基準適合証明、FCC、ISED、CE、KC、NCC の認証を受けています。それら以外の認証が必要な国、地域でのご利用は法律により罰せられることがあります。

Bluetooth® low energy の電波に関して
 本製品における Bluetooth low energy の使用周波数帯では、電子レンジ等の産業・科学・医療用機器のほか工場の製造ライン等で使用されている移動体識別用の構内無線局 (免許を要する無線局) 及び特定小電力無線局 (免許を要しない無線局) 並びにアマチュア無線局 (免許を要する無線局) が運用されています。
 (1) 本製品を使用する前に、近くで移動体識別用の構内無線局及び特定小電力無線局並びにアマチュア無線局が運用されていないことを確認してください。
 (2) 万一、本製品から移動体識別用の構内無線局に対して有害な電波干渉の事例が発生した場合には、速やかに使用周波数を変更するか又は電波の放射を停止した上、下記連絡先にご連絡頂き、復旧のための処置等 (例えば、パーテーションの設置など) についてご相談下さい。
 (3) その他、本製品から移動体識別用の特定小電力無線局あるいはアマチュア無線局に対して有害な電波干渉の事例が発生した場合など何かお困りのことが起きたときは、弊社までお問い合わせ下さい。
 Distributor List: tandd.com/purchasing/ort/

電波の種類と干渉距離

	2.4	使用周波数帯域: 2.4GHz 帯
	FH	変調方式: FH-SS 方式
	3	想定干渉距離: 30m 以下
		全帯域を使用し、かつ移動体識別装置の帯域を回避不可

Bluetooth® のワードマークおよびロゴは、Bluetooth SIG, Inc. が所有する登録商標であり、株式会社ティアンドティはこれらのマークをライセンスに基づいて使用しています。

Product Specifications

	TR41A	TR42A	TR43A		TR45	
Measurement Channels	Temperature 1ch	Temperature 1ch	Temperature 1ch, Humidity 1ch		Temperature 1ch	
Sensor	Thermistor (Internal)	Thermistor	Thermistor	Polymer Resistance	Thermocouple: Type K, J, T, S, R (Not provided)	Pt100, Pt1000 (3-wire, 4-wire*1) (Available as option)
Measurement Units	°C, °F	°C, °F	°C, °F	%RH	°C, °F	°C, °F
Measurement Range	-40 to 80 °C	-60 to 155 °C	0 to 55 °C	10 to 95 %RH	Type K : -199 to 1370 °C Type J : -199 to 1200 °C Type T : -199 to 400 °C Type S : -50 to 1760 °C Type R : -50 to 1760 °C	-199 to 600 °C
Accuracy	Avg. ±0.5 °C	Avg. ±0.3 °C at -20 to 80 °C Avg. ±0.5 °C at -40 to -20 °C, 80 to 110 °C Avg. ±1.0 °C at -60 to -40 °C, 110 to 155 °C	±0.5 °C	±5 %RH at 25 °C, 50 %RH	Thermocouple Measurement (Sensor inaccuracies not included) Type K, J, T : ±(0.5 °C + 0.3 % of reading) at -100°C or above Type S, R : ±(1.5 °C + 0.3 % of reading) at 100°C or above Cold Junction Compensation ±0.5 °C *at 10 to 40 °C ±0.8 °C *at -40 to 10 °C, 40 to 80 °C Note: The temperature range shown above (*) represents the operating environment of the logger.	±(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
Measurement Resolution	0.1 °C	0.1 °C	0.1 °C	1 %RH	Type K, J, T: 0.1 °C Type S, R: approx. 0.2 °C	0.1 °C
Responsiveness	Response Time (90%): Approx. 35 min.	Response Time (90%): Approx. 80 sec. (in air) Approx. 7 sec. (in agitated water)	Response Time (90%): Approx. 11 min.		-	-
Logging Capacity	16,000 readings	16,000 readings	8,000 data sets (One data set consists of readings for multiple channels.)		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 (alternating display for multiple channel devices), Recording Status, Battery Life Warning, etc.					
Communication Interfaces	Bluetooth 4.2 (Bluetooth Low Energy)			Bluetooth 4.1 (Bluetooth Low Energy)		
Communication Time	Data Download Time (full logger) : Approx. 15 seconds			Data Download Time (full logger): Approx. 1.5 minutes		
Power	Lithium Battery (LS14250) x 1					
Battery Life (*2)	Approx. 1.5 years (*3)			Approx. 1 year (*3)		
Dimensions	H 62 mm x W 47 mm x D 19 mm (excluding protrusions and sensor)			H 62 mm x W 47 mm x D 26.5 mm (excluding protrusions and sensor)		
Weight	Approx. 45 g			Approx. 50 g		
Operating Environment	-40 to 80 °C -30 to 80 °C during wireless communication			Temperature: -40 to 80 °C (-25 to 80 °C during wireless communication) Humidity: 90 %RH or less (no condensation)		
Waterproof Capacity	IP67: Immersion proof	IP64: Splash proof (rated for use in daily life) (*4)		None		
Accessories	-	Temperature Sensor TR-5106	Temp-Humidity Sensor THB3001		Cable Clamp	
Software (*5)	Mobile Applications (iOS, Android) T&D Thermo, TR4 Report			Mobile Applications (iOS, Android) T&D Thermo, ThermoREC, ThermoStorage, TR4 Report		

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

*2: Battery life varies depending upon multiple factors including ambient temperature, recording interval, usage of applications, 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.

*3: Estimated battery life when recording data at an interval of more than 10 seconds and displaying a graph in the app once a day.

*4: This is the waterproof capacity of the data logger with the sensor connected. Note that the temperature-humidity sensor is not water resistant.

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

The specifications listed above are subject to change without notice.

Disclaimer

In order to properly use this product, please carefully read all documents that accompany the product before using.

- All rights of the attached documents belong to T&D Corporation. It is prohibited to use, duplicate and/or arrange a part or whole of the attached documents without the permission of T&D Corporation.
- Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.
- Google, Android, and Google Play are trademarks or registered trademarks of Google Inc.
- Apple and App Store are trademarks or registered trademarks of Apple, Inc. in the U.S. and other countries.
- The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by T&D Corporation is under license.
- All registered trademarks, company names, product names and logos mentioned herein or for products being used are the property of T&D Corporation or of their respective owners.
- Specifications, design and other contents outlined in the attached documents are subject to change without notice.
- Please follow the safety precautions outlined in the attached documents carefully. We cannot guarantee nor are we responsible for safety if this product is used in any manner other than was intended.
- We are not responsible for any damage, malfunction or trouble, whether direct or indirect, caused by the use of our product.
- On-screen messages in the attached documents may vary slightly from the actual messages.
- Please note that this document has been written based on the presupposition that details about contracts with an Internet provider, specific network environments and the set-up of any other necessary equipment to enable network connection has already been taken care of by the User and that connection has been confirmed as workable. T&D Corporation shall not be responsible for any damages which a contractor, a user or a third party may suffer, whether direct or indirect, due to the inability to communicate or use communication devices.
- Please notify the shop where you purchased this product or T&D Corporation of any mistakes, errors or unclear explanations in the attached documents. T&D Corporation accepts no responsibility for any damage or loss of income caused by the use of our product.
- Accompanying documents cannot be reissued, so please keep them in a safe place.
- Please read the included warranty card and provisions for free repair carefully.

Warranty

Model Number			
Warranty Period	1 year from date of purchase	Date of Purchase	
Distributor's Name			
Object of Warranty: Main Unit only (Sensors and all other options are not covered under this warranty.)			
For details about repairs, first contact the distributor from which the product was purchased.			

Provisions for Free Repair

1. If the product does not work properly despite the fact that the customer used it properly and in line with the manual, the product shall be repaired free of charge through the distributor which sold the product.
 2. If the customer requests free repair because of trouble within the warranty period, take the product along with this warranty to the distributor.
 3. If the customer has moved after purchasing, or there are difficulties contacting the distributor from which the product was purchased, 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 product 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 product after purchase.
 4. Failure to submit the warranty or failure to fill in all items required in the warranty.
 5. This warranty cannot be reissued.
- This warranty only promises customers free repair within the period and conditions clarified in this warranty, but the customer's legal rights are not limited by this warranty. For further information on repair and other service questions after the termination of the warranty period, contact your distributor.

T&D Corporation

tandd.com/
FAX: +81-263-40-3152
E-mail: support@tandd.com