

# DTS-C2

## Operation Manual

### 1. Precautions for using this device.

- Since this device uses wireless transmission, it may not function in locations where it is difficult for radio waves to penetrate, such as tunnels, underground passages and some buildings, in areas where radio waves are weak, or out of service are of GSM. Also, communication may be interrupted even when the signal meter on the device indicates there are strong radio waves and you are not moving (traveling).
- Since this device uses radio waves to send the data, it is possible that a third party may attempt to tap your data. However, the GSM system automatically applies a confidential communication function to all data transmissions, so even if a third party could somehow tap the transmission, they find only meaningless data.
- Since this device uses wireless transmission, when you are operating the device while moving to a location subject to weaker radio wave condition, the transmitted digital data may not be correctly decoded and as a result the decoded data may differ somewhat from the actual data.
- The user hereby agrees that we do not make any representation and warranty for the pure economic loss or damages caused by the loss of data communication, which are happened by the illegal or mal function of the device, or external factors such as power failure.

### 2. Precautions for safety (Always follow these directions)

- Before using this device, please read the following precautions to ensure safe use and handling. After reading this manual, keep it in a safe place.
- These precautions are intended to protect you and others around you. Please read and follow them carefully to avoid injury, damage to the product or damage to property.
- The signs below differentiate between the levels of danger that can occur if the product is not used within the specified guidelines.

 <b>DANGER</b>	This sign denotes that death or serious injury may directly result from improper use.
 <b>WARNING</b>	This sign denotes that death or serious injury may result from improper use.
 <b>CAUTION</b>	This sign denotes that bodily injury or damage to property may result from improper use.

- The symbols below show specific directions.

 Don't	This symbol denotes that the action is prohibited.
 No disassembly	This symbol denotes that disassembling this device is not allowed.
 No liquids	This symbol denotes that using this device in the water-splashing place or to get wet is not allowed.
 Do	This symbol denotes that an instruction must be obeyed at all times.

### 3. For handling of this device

 <b>DANGER</b>	
 No disassembly	<b>Please do not disassemble or remodel the device.</b> May cause fire, injuries, electric shock, or mal-function.
 No liquids	<b>Please do not let the device get wet.</b> Contact with water or other liquids may cause heating, electric shock, fire, mal-functions or injuries. Please take care of the place for use and treatment of the device.

 <b>WARNING</b>	
 Don't	<b>Please do not throw, drop, or give hard shock to the device.</b> May cause the device to mal-function, or fire.
 Don't	<b>Please keep conductive materials (metal pieces, pencil lead, etc.) from external connection jack.</b> <b>Please do not put those materials inside the device.</b> May cause fire, mal-functions, or injuries subject to electrical short.
 Do	<b>If the equipment starts giving off a strange smell, overheats, becomes discolored or deformed during use, charging or in storage, please immediately turn the device OFF, and remove the power cable from the device.</b> May cause fire, electric shock, or mal-functions.
 Do	<b>Please turn the device OFF near high-precision electronic control equipment or electronic equipment using low-power signals.</b> May cause the electronic equipment to avoid. ※Examples of electronic equipment that I would like you to note it Healing aids, implanted pacemakers or defibrillators, other electronic medical equipment. Users wearing these electronic medical equipment should check with the manufacturer or sales outlet about the effect of radio frequencies on the device.

 <b>CAUTION</b>	
 Don't	<b>Please do not put magnetic card close to the device or the external antenna.</b> May cause loss of data in bank card, credit card, phone card, or floppy disk.
 Don't	<b>Please do not put foreign objects such as liquid like water, metal pieces or burnable things into the connectors of the device.</b> May cause fire, electric shock, or mal-function.
 Do	<b>Please use only designated SIM card for the device.</b> <b>Moreover, please do not pulling out or insertion of the SIM card, while the power of the device ON.</b> May cause the damage of SIM card.

#### **4. For handling this device in the vicinity of a electric medical equipment**

These precautions are based on the guidelines produced at the Electromagnetic Compatibility Conference Japan, regarding the protection of electronic medical equipment from radio waves emitted by mobile phone units.

<b>WARNING</b>	
 Do	<p><b>Wearers of implanted pacemakers or defibrillators must install and use the external antenna of the device at least 22cm away from the implanted device.</b> The signals of the device may affect the operation of implanted pacemakers or defibrillators, and other devices.</p>

#### **5. For using Bluetooth function**

- In the bandwidth used by this device, in addition to home electric appliances such as a microwave oven and industrial / scientific / medical devices, in-plant radio stations used to identify mobile objects used in production lines of a factory that require a license, specified low power radio stations, or amateur radio stations that do not require a license (hereafter "other radio stations") can be in operation.
  1. Before using Bluetooth function of the device, check whether other radio stations are in operation in your neighbourhood.
  2. If radio wave interference occurs between the terminal and "other radio stations", use the terminal in a different location or turn the power OFF to avoid the radio wave interference.

#### **6. Handling Precautions**

##### **(1) "Information transmission medium" of the digital tachograph**

Under the normal operation condition, please note that wireless communication system (GSM communication) and SD memory card cannot be used simultaneously.

The capacity of the SD memory card that can be used with this device is maximum 2GB.

##### **(2) Installation to the vehicle**

For the installation of this device to the vehicle, please follow the instruction described in "Installation Manual" (separate volume manual).

##### **(3) Precautions in use**

While using this device, please pay attention to the precautions below:

- ① Do not disassemble or remodel the device. The device is out of warranty in case the seal fastening upper and lower cover of the device indicating that the covers had opened.
- ② Do not install the device in the following places. It may cause mal-functions.
  - Areas under strong direct sunlight
  - Extremely hot or cold areas
  - Extremely dusty areas
  - Areas with thumping vibration
  - Extremely humid areas
- ③ Please do not splash water or soft drinks onto the device. In case splashed, please wipe off the liquid immediately.
- ④ Please do not drop the device or give hard shock to it.
- ⑤ In case of long time preservation, please do not store the device in the areas with vibration, dusty, extremely hot or cold, humid, or under strong direct sunlight.
- ⑥ In case the device is following mal-status, please detach it from the vehicle.
  - LED doesn't light while writing the data to SD card.
  - The fuse on the harness blew.In case above situation has happened, please detach the device from the vehicle, and contact the person in charge of maintenance to order repair.
- ⑦ In case repair or maintenance, battery change, or attach the loading equipment of the vehicle, please pull out the connectors of the harness from the device.  
(Please note that forcibly pulling out the connectors of the harness may causes the breaking of the wire in the harness or connectors.)

⑧ Do not put foreign objects such as clips into SD card slot or connectors.

#### (4) Cleaning

In case the front panel or other part of the device became dirty, please wipe it with a cloth dipped into diluted neutral detergent and squeezed tightly, or a dry cloth.

Do not use volatile solvent like alcohol, paint thinner, or benzine to wipe the device. It may cause disappearance of printings.

## 7. Outline of the device

This device is a digital tachograph with wireless communication style, mounting GSM communication module as standard. By wireless communication style operation, the data of each vehicle operation is transmitted and recorded automatically to the server in the data center. Users need not mind the space of the memory card. Daily monitoring and check the operation data of the vehicles are available through the internet.

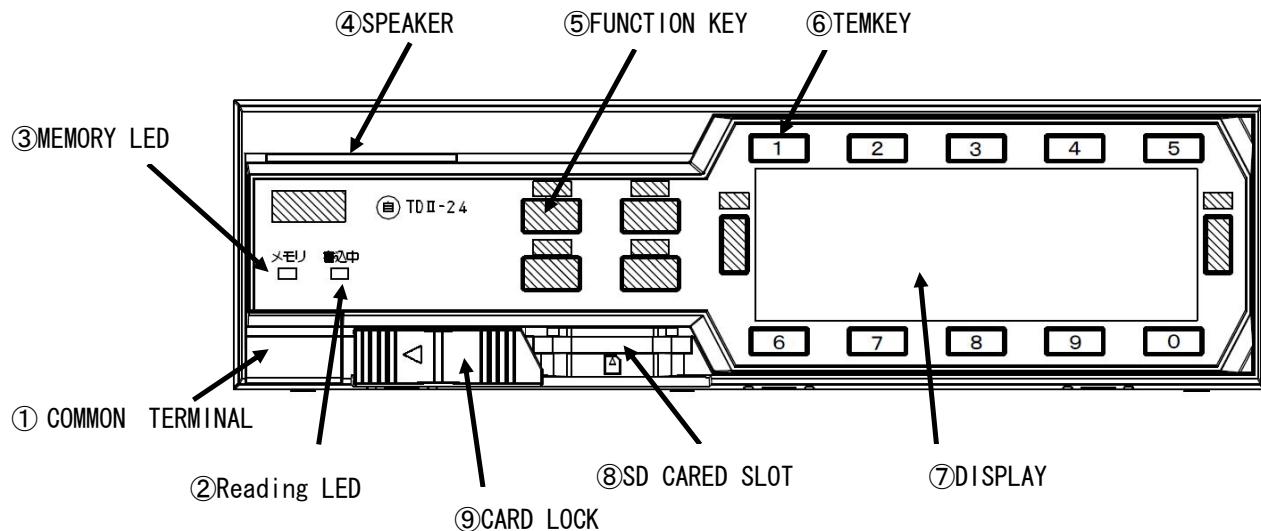
GPS module is also mounted as standard. It provides automatic clock adjustment function, adjusting the clock of the device at operation start.

Please use the device installed in the vehicle, connecting RF antenna for wireless communication (GSM) and GPS antenna.

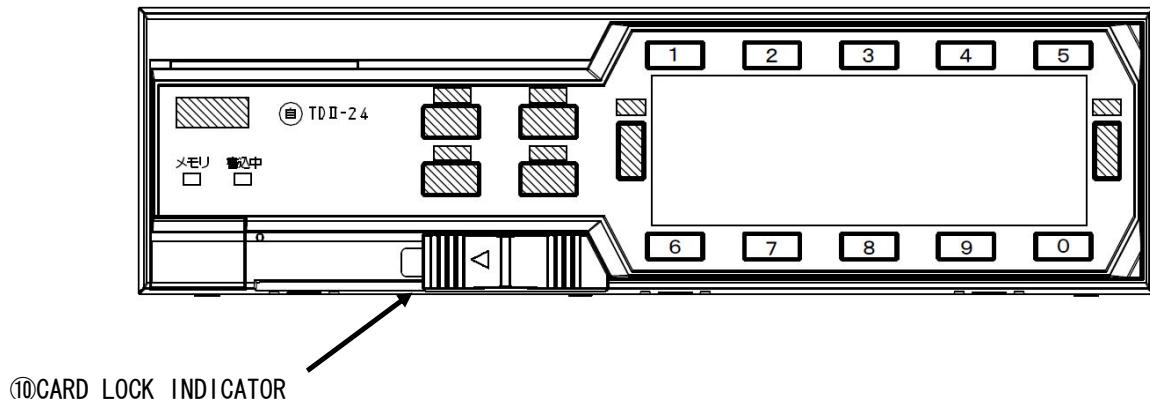
## 8. Part names and functions

### Front panel

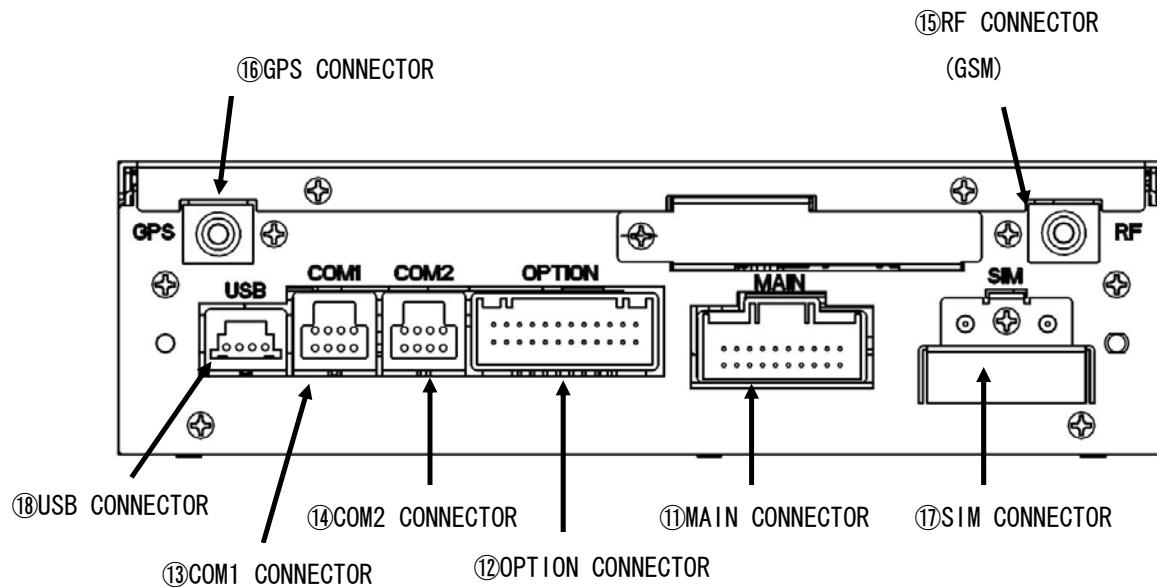
<Figure of card lock open>



<Figure of card lock closed>



## Rear panel



①Common terminal : It uses it to read the data recorded in the digital operation record area with the connector only for the police when the accident generation is analyzed.

Please do not open the cap in use.

**!CAUTION**

②DATA LED : Green (Please refer to clause 11, describing for LED).

③ALARM LED : Red (Please refer to clause 11, describing for LED).

④SPEAKER : The warning voice, the application, and the voice or the sound of the business are output.

⑤SD CARD SLOT : It is a loading slot of the SD memory card. Please insert it straight carefully in the direction of the memory card. Please do not insert it impossibility.

⑥CARD LOCK : It is a card to make it lock to take it out while writing the SD memory card lock. Please open and shut it right and left at insertion/exhaust time of the SD memory card.

⑦CARD LOCK INDICATOR : When the print display of green is seen, the card is being locked.

⑧Main Connector : It is a connector that inputs the vehicle power supply, the vehicle switch, the vehicle speed pulse, and the engine rotation pulse.

⑨OPTION Connector : It is a connector that inputs the enhancing sensors such as the temperature sensors and the door sensors.

⑩COM1 Connector : It is a connector that connects an optional equipment (operation PAD) etc.

⑪COM2 Connector : It is a connector that connects an optional equipment (status switch) etc.

⑫RF Connector (GSM communication) : It is a connector that connects an attached RF (GSM communication) antenna.

⑬GPS Connector : It is a connector that connects an attached GPS antenna.

⑭SIM Connector : It is a connector that sets SIM card.

⑮USB Connector : It is a connector that connects optional external USB equipment.

Please connect RF antenna (GSM communication) and GPS antenna.

**!CAUTION**

## 9. Turning on the Power

The power supply of this device usually enters though it depends on the wiring situation of the content of the program and the distributing cable registered in this device when the key to the vehicle is adjusted to the ACC position or the turning on position (After starting the engine).

LED of 'Memory' and 'writing' of the front panel lights with 2 pieces as movement of this device. After a while, It is the display in the operation data logging LED lights.

The voltage might decrease momentarily when the vehicle starts the engine to need a large electric power when the engine starts even if the power supply is supplied to the key while a state of ACC or turned on once. In that case, it is not in the breakdown though the power supply of this device might become a cutting condition once. Normality will be reactivated, and operate as for this device after it returns to a normal voltage.

## 10. SD Memory Card

When the operationed data transfer in the wireless communication system cannot be done, it is possible to back up to the SD memory card.

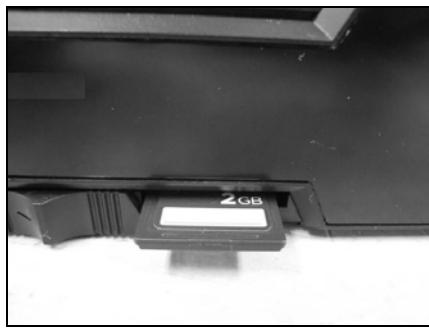
Please put the key to the vehicle into the "OFF" state (Before turning on the power supply of this device), and install the memory card when you install the memory card in this device. Please go refer the following procedures when you install it.

Please insert the memory card. Please refer the following procedures when you install it.

- (1) Please slide the card lock to right side until the card lock display of green disappears.
- (2) Please push it until inserting the memory card in 'Card insertion entrance' of the front panel, and bumping.

Please note the insertion direction in the memory card.

 **CAUTION**



- (3) Please slide the card lock to where it limit and if it shuts until being locked and the card lock display of green is seen at this time, is locked in the card normally.

Please do the operation that extracts the memory card from this device after stopping the engine, and turning off all LED at the end of work.

- (1) The card lock is released, and please do the slide until the card lock display of green disappears left and release the card lock.
- (2) Please take it out if the memory card is pushed, and eject is done.

## 1.1. LED Display

Front panel LED display of this device is as follows.

Please note that the content of the display is somewhat different for operation and memory card [niteno] [hako] by the wireless communication system.

(1) 『Writing』 LED (green)、『Memory』 LED (red)

Two the above-mentioned LED displays the state of the recording area in the data logging of the operation of wireless telecommunications of a memory card and this device internal memory part.

The display relation is as follows.

① 『Writing』 (green) Lighting、『Memory』 (red) At turning off

The operation data is written in the memory card or the wireless telecommunications operation data logging part.

② 『Writing』 (green) Lighting、『Memory』 (red) At blinking

The remainder capacity of the recording area in the memory card or the wireless telecommunications operation data logging part has decreased.

③ 『Writing』 (green) At turning off, 『Memory』 (red) At lighting

The recording area in the memory card or the wireless telecommunications operation data logging part was filled.

Please note that the following operation is not recorded on the memory card under use.

④ 『Writing』 (green) At turning off, 『Memory』 (red) At blinking



It is running while inserted for specification off the subject whether the memory card has been inserted in the card operation mode a card.

'Memory' (red) It is a state of turning off if not running.

⑤ 『Writing』 (green) Blinking、『Memory』 (red) At turning off

The card lock has been released though the memory card has been inserted.

If you run in a state as it is it enters the state of the above-mentioned item④.

At this time, the operation data is not recorded, and the slide is done right, and put the card lock into the state of the card lock, please as you see the card lock display of green without fail.



## 1.2. Vehicle speed sensor pulse

This device corresponds to the following vehicle speed sensor pulses.

Pulse number		Pulse number	
Per 1km (Pulse)	Per 1rotation (Pulse)	Per 1km (Pulse)	Per 1rotation (Pulse)
1,274	2.0	6,052	9.5
2,548	4.0	6,243	9.8
4,586	7.2	6,497	10.2
4,714	7.4	6,752	10.6
4,905	7.7	7,007	11.0
5,096	8.0	7,262	11.4
5,287	8.3	7,517	11.8
5,478	8.6	8,281	13.0
5,669	8.9	10,192	16.0
5,860	9.2	15,925	25.0

Please note the following points when you set up this device in the vehicle.

- The vehicle speed sensor of the vehicle must confirm to the vehicle maker etc. whether the one of what pulse is installed, and investigate.
- An initial value of the device is set to 5.096 pulses (8.0 pulses).  
(Please consult charge business when the setting change is necessary. )
- When this device is replaced between vehicles, it is necessary to confirm the number of vehicle speed pulses.

### 1 3 . Specifications

#	Item	Specification
1	Power supply voltage	DC12V/2A As follows、DC24V/2AAs follows
2	Display	『DATA』 LED (green) × 1 『ALARM』 LED (red) × 1
3	External dimensions (mm)	178(w) × 50(l) × 162(d) (exclude projection portion)
4	Mass (kg)	1. 0±0. 1
5	Operating voltage	DC10V~DC32V
6	Operating temperature range	-20°C~70°C
7	Storage temperature range	-30°C~80°C
8	Operating humidity	No condensation
9	Shock resistance	10Hz~100Hz, 4. 4G
10	Accessories included	① GPS antenna、RF antenna、Operating instructions (this document)

### 1 4 . FCC and other information

#### NOTE:

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.

**NOTICE:**

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

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.

**NOTICE:**

Changes or modifications made to this equipment not expressly approved by TRANSTRON Inc. may void the FCC authorization to operate this equipment.

**Radiofrequency radiation exposure Information:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



## Use in safety-conscious applications

This product is designed, developed and manufactured as contemplated for general use, including without limitation, general office use, personal use, household use, and ordinary industrial use, but is not designed, developed and manufactured as contemplated for use accompanying fatal risks or dangers that, unless extremely high safety is secured, could lead directly to death, personal injury, severe physical damage or other loss (hereinafter "High Safety Required Use"), including without limitation, nuclear reaction control in nuclear facility, aircraft flight control, air traffic control, mass transport control, medical life support system, missile launch control in weapon system. You shall not use this Product without securing the sufficient safety required for the High Safety Required Use. If you wish to use this Product for High Safety Required Use, please consult with our sales representatives in charge before such use.

### Asking for receipt and recycling of used product of business system

- When the product abandoned after used becomes an industrial waste treatment, and is abandoned, the issue of a manifest slip (waste management table) is needed when the property right of this product is an entrepreneur.
- When abandonment is requested from the product owner by our company, it receives it in our company or the distribution company (industrial waste collection transportation permission trader) that is cooperation with our company. Please consult charge business or dispose of our homepage (<http://jp.fujitsu.com/>) IT product, and see recycling for details.
- Our company constructs the Fujitsu recycling system, and does recycling parts and recycling to the material by dismantlement and the discretion processing of a used product at the recycling center.

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## DTS-C2 Operating Instructions

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