

**Specified Low-power
1mW Transmitter**

【AN426T II】

Instruction Manual

V1.70

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Chapter 1 Before Use

1-1 Introduction

This instruction manual contains necessary information for using the product, such as general description, installation, and operation of the product.

We thus ask that you read the manual carefully before proceeding to use the product and keep it available at hand for ready reference whenever you need it.

The transmitter AN426 is certified as radio equipment for specified low-power radio stations telemeter & telecontrol.

Information on radio equipment for telemeter & telecontrol

Radio equipment for telemeter:

Refers to radio equipment which is intended to utilize radio waves to automatically display or record the measurement results of a remotely located measuring instrument.

Radio equipment for telecontrol:

Refers to radio equipment which is intended to utilize radio waves to transmit the signals for starting, changing, or stopping the functions of a remotely located device.

1. Do not use this equipment for any applications that could cause harm or damage to human life or to other equipment or devices. Also, do not use it in the vicinity of any devices that could malfunction due to the radio waves from the equipment.
2. Disassembling or making modification to any devices certified is prohibited by law.
3. Do not remove the certification label for compliance with technical standards from the casing. Using the equipment with the certification label removed is prohibited by law.
4. This equipment is exclusively for use in Japan.
It may not be used outside Japan because the applicable radio law is only effective in Japan. Besides, it may not be used in a condition that it is connected with an electrical communication line.
5. The communication performance varies depending on the ambient environment. Before installation, ensure that the installation location is within the coverage.

1-2 Accessories



■ AC Adapter [ADB05100] x 1

* For use in earlier modes (AN426T), an earlier mode seal is to be attached.

1-3 Safety precautions (Be sure to read)


The description here highlights the precautionary matters that must be strictly observed in order to prevent physical harm to the user or other personnel or damage to the property.

- This manual employs the following pictorial symbols to alert the reader of criticality levels and details of harms or damages that could result if the product is not used in a proper way, disregarding the respective instructions.


 Warning	Indicates that disregarding the instruction “could result in death or serious injury.”
 Caution	Indicates that disregarding the instruction “could cause injury, or physical damage alone.”

Caution

- For common handling of equipment, devices, units, components, etc.:



● Avoid using equipment etc. in a moist or dusty area. It may allow dust or moisture to enter equipment etc., thus causing failure, fire, or electrical shock.	 Prohibited
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- For handling this equipment:

● This equipment is radio communication equipment composed of precision parts. Do not disassemble or make modification to it. Otherwise, an accident or failure may result.	 Prohibited
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Warning

- For handling this equipment:

● Do not use this equipment for such applications as require an extremely high level of reliability that could fatally affect human life unless it is satisfied.	 Prohibited
● Do not use this equipment in any areas where coverage assurance is uncertain.	 Prohibited



Warning

■ For handling the power supply:

Always observe the following instructions to ensure prevention of accidents such as heating, breakage, and firing of the AC adapter or the power cord.

● Do not bring the AC adapter or the power cord close to fire or put it into fire. The AC adapter or the power cord could explode or get inflamed, causing an accident.	 Prohibited
● Do not use the AC adapter or the main unit at a non-specified power voltage to prevent breakage or firing.	 Prohibited
● Do not use the AC adapter or the main unit in an area where it is prone to get wet. It may cause failure or accidents such as heat initiation, firing, and electrical shock.	 Prohibited
● Do not touch the AC adapter, the main unit, the power cord, or the receptacle by wet hands. It may cause accidents such as electrical shock.	 Prohibited
● Do not damage the power cord. A short circuit or heat initiation may result, causing fire or electrical shock.	 Prohibited
● Do not use the power plug with dust left adhered. A short circuit or heat initiation may result, causing fire or electrical shock.	 Prohibited
● Do not give an intense shock to the AC adapter. It may cause an accident or failure.	 Prohibited
● Do not use the AC adapter if it is found to have deformation etc. It may cause an accident or failure.	 Prohibited
● Do not charge the main unit where an inflammable gas could be generated. Otherwise, firing or a similar accident may result.	 Prohibited
● Never disassemble the AC adapter. Otherwise, an accident or failure may result.	 Prohibited

■ When something erroneous occurred during use:

It may be a cause of fire, electrical shock, etc. Remove the power plug from the receptacle and contact the dealer where you bought the product or us to ask for repair.

● If smoke comes out or there is an unusual smell, remove the power plug from the receptacle promptly and contact the dealer where you bought the product or us to ask for repair.	 Attention
● Do not use the power cord if it is damaged. Using the damaged power cord could result in fire or electric shock.	 Prohibited

1-4 General description

The transmitter "AN426TII" is the equipment designed to send code signals in accordance with inputs via either the button keys or the terminals at the terminal block.

Using this equipment requires no license as it is certified as "radio equipment for specified low-power radio stations telemeter & telecontrol."

- (1) A communication channel can be set in a range from 1CH up to 10CH (using the rotary switch for CH settings).
- (2) Key inputs and terminal inputs are available respectively by means of keys 1-4 and terminals 1-4.
- (3) As the power supply, either the attached AC adapter or size AA batteries (three) can be chosen.
- (4) For the purpose of equipment identification, a set No. ("0-9"), a unit No. ("0-9"), and/or an equipment No. ("0-9") can be set (using the rotary switches for the respective settings).
The numbers must be set in accordance with the settings at the receiver side, because the range of numbers that can be received differs depending on the receiver.
- (5) For transmission, there are two transmission modes available to choose from (using the MODE DIP switch).

Normal transmission: While there is any input or terminal input going on, a sequence of a code transmission (lasting 5 seconds or shorter) and a transmission pause (lasting 2 seconds or longer) is repeated.

Event transmission: A transmission (lasting approx. 4 seconds) is performed when there is any change in input conditions.

- (6) A switchover to AN426T modes (earlier modes) can be implemented (with the MODE DIP switch).

Switching to an AN426T mode causes the code system to switch over to the one for the AN426T, which consists of [CALL], [STOP], and [CLR] codes.

If the MODE DIP switch is set to event transmission, the mode will switch over to the earlier special transmission mode.

1-5 Specifications

1-5-1 Radio section

Item	Specifications
Device category	A specified low-power radio station in compliance with ARIB STD-T67. (Radio equipment for specified low-power radio stations telemeter & telecontrol)
Working frequency	426.0250 MHz to 426.1375 MHz (12.5 kHz steps / 10 waves / switchable with a rotary switch)
Emission class	F1D
Antenna power	1mW +20% -50%
Antenna	$\lambda/4$ whip antenna (non-detachable)
Modulation system	Direct 2-value FSK
Modulating speed	977 bps
Communication method	Simplex communication x Sporadic communication (Note 1)
Others	Transmission time constraints: Transmission time: 5 seconds or shorter / Transmission pause time: 2 seconds or longer (Note 2)

Note 1) "Simplex communication" is a type of communication in which a transmitting device can only engage in one-way transmission to a single receiving device.

Note 2) This equipment can execute a transmission only after the emission of radio waves has been stopped during a transmission duration after the start of emission and the time of a transmission pause has elapsed after that.

However, it can re-execute a transmission without a transmission pause of 2 seconds or longer intervened only if the emission of radio waves has been stopped within five consecutive seconds after the start of emission.

(This feature is a requirement for this equipment being certified as "radio equipment for specified lower-power radio stations telemeter & telecontrol.")

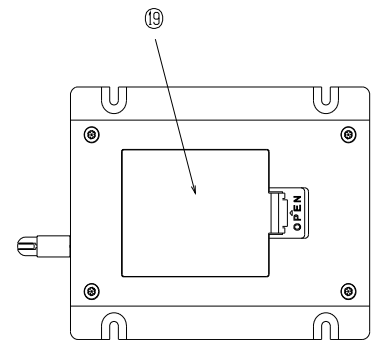
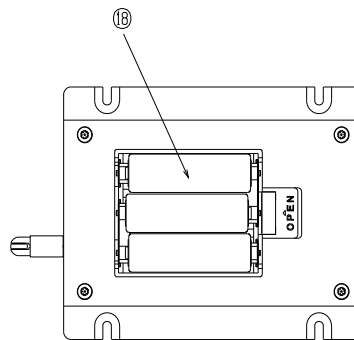
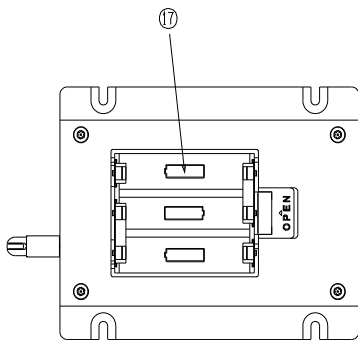
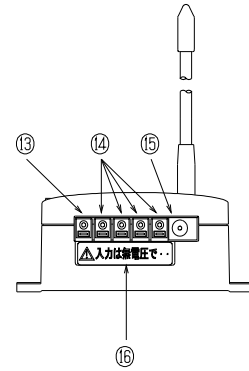
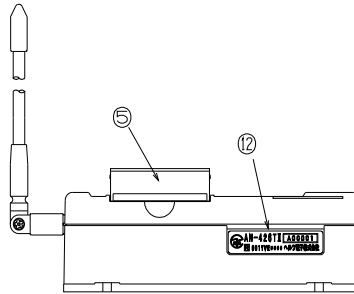
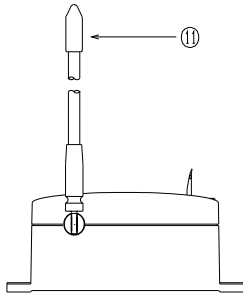
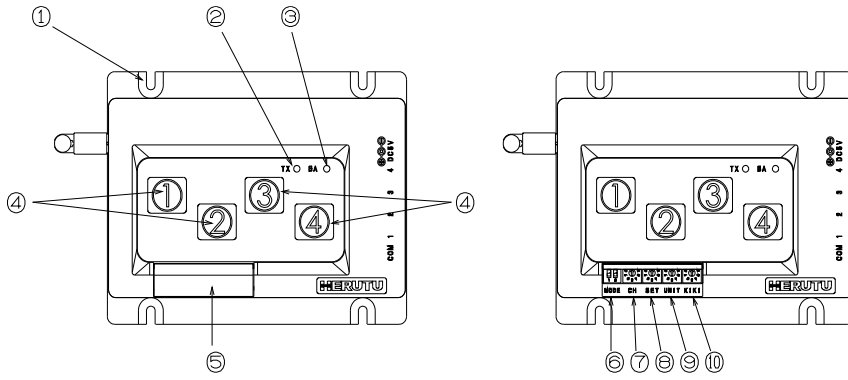
1-5-2 General section

Item	Specifications
Input	Push-button input x 4 (1-4) Dry contact input x 4 (1-4) *1
Setting switch	2P DIP switch x 1 (for switching a transmission mode) Rotary switch x 4 (for setting a channel, a set No., a unit No., and an equipment No.)
Display element	Red LED (BA) x 1 (for power alarm) Green LED (TX) x 1 (lights during transmission)
Power supply	DC5 V Attached AC adapter (AC100-240V→DC5 V), or size AA battery x 3
Power consumption	Refer below
Dimensions	approx. 120 (W) x 95 (H) x 37.5 (D) mm (with projections excluded)
Weight	approx. 170 g (with batteries excluded)
Service environment	Temperature: 0 to + 50°C Humidity: 85% or less (No condensation)

*1: Applicable wire range: Single wire: $\phi 0.4\text{mm}$ (AWG26) to $\phi 1.0\text{mm}$ (AWG18)
 Strand wire: $\phi 0.3\text{ mm}^2$ (AWG22) to $\phi 0.75\text{mm}^2$ (AWG20)
 Strand diameter: $\phi 0.18$ or more

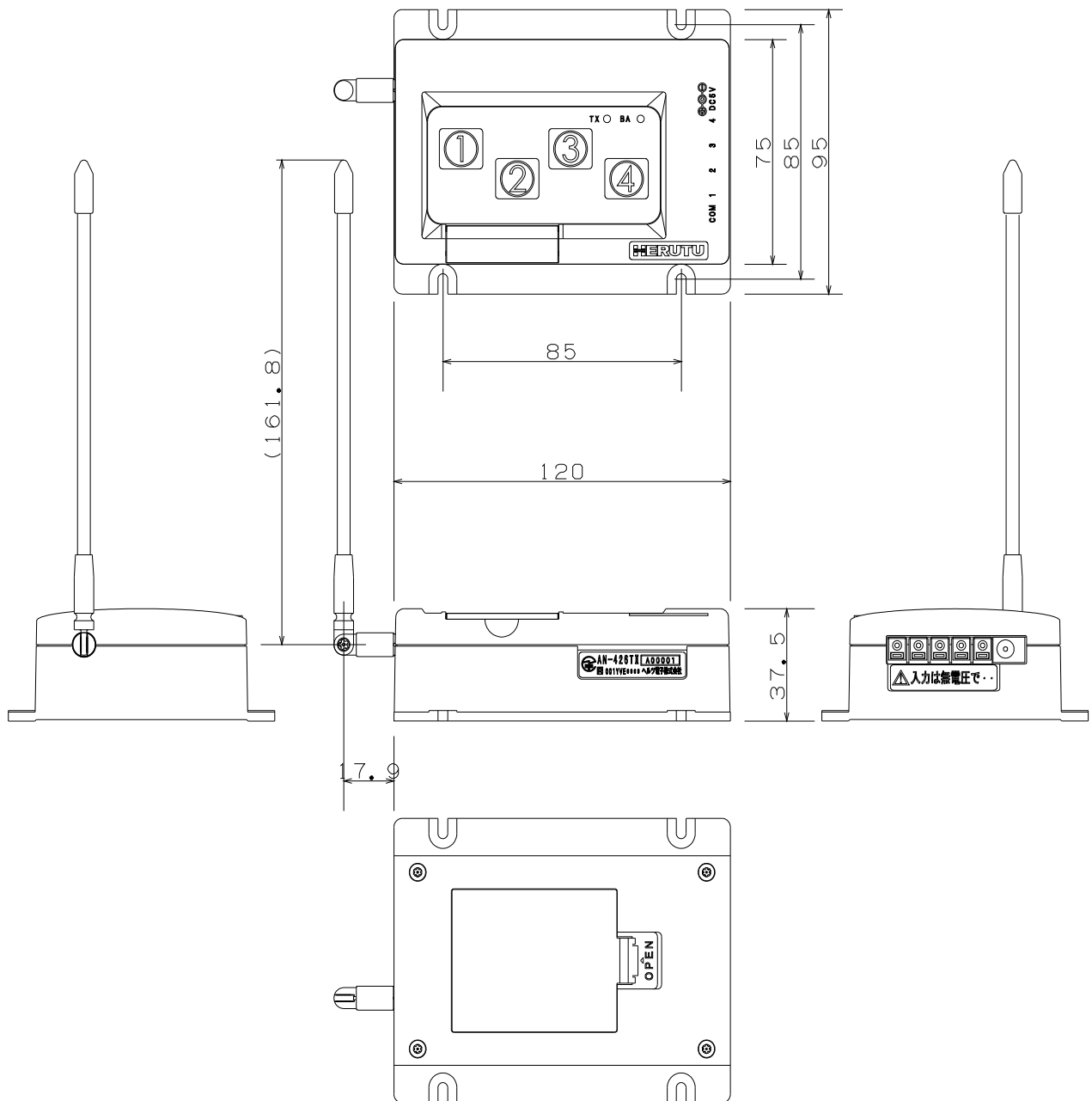
Condition	consumption current	
	Using Battery (DC4.5V)	Using AC adapter (DC5V)
1Push-button transmission	Approx. 35mA	Approx.100mA
1Push-button transmit pause	Approx2mA	Approx.65mA
1terminal-input transmission	Approx.40mA	Appro105mA
1terminal-input transmit pause	Approx8.5mA	Approx70mA
Standby	Approx.0.5 μ A	Approx60mA

1-6 Exterior features



No.	Name	Function
①	Mounting slots	Used to anchor the transmitter to a panel etc. R1.75 mm, R central pitch: 85 x 85 mm
②	TX lamp	Green transmission lamp. Lights during transmission.
③	BA lamp	Red power alarm lamp. If the lamp remains lit during transmission in response to a key input or a terminal input, then the battery voltage has dropped. If the lamp flashes, the battery voltage has more dropped. It is the situation not to transmit. When using dry batteries, replace them with new ones timely.
④	Keys 1-4	For key input operation to transmit respective code signals.
⑤	Setting switch cover	Cover for the setting switches.
⑥	MODE setting switch	1: Toggles between AN426TII mode & AN426T mode (earlier mode). 2: Toggles between normal transmission mode & event transmission (special transmission) mode.
⑦	CH setting switch	Used to set a communication channel. (Of total 10 waves, 1 wave to be set.)
⑧	SET setting switch	Used to set a set No. (0-9).
⑨	UNIT setting switch	Used to set a unit No. (0-9).
⑩	KIKI setting switch	Used to set an equipment No. (0-9).
⑪	Antenna	Antenna.
⑫	Certification label	Certification label that carries model No., serial No., and certification No.
⑬	COM terminal	COM terminal for input
⑭	Input terminals 1-4	1 to 4 terminal inputs whereby a code signal is transmitted in response to an input.
⑮	DCIN jack	Used to connect to the attached AC adapter.
⑯	Caution seal	Seal that bears a cautionary statement for terminal inputs.
⑰	Dry battery polarity marking	Polarity marking for size AA dry battery
⑱	Battery case cover	Cover for size AA dry battery compartment.
⑲	Battery	Size AA dry battery (power source option)

1-7 Dimensional drawing



1-8 Installation

1-8-1 Installing the AN426TII

For installation, pay attention to the following:

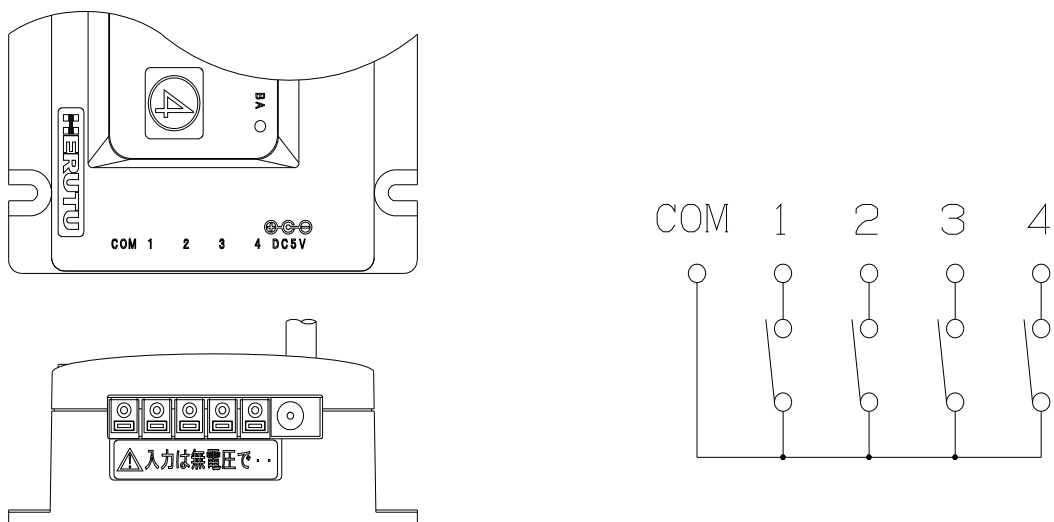
- (1) Set the antenna as upright as possible so as to ensure it is not parallel to any metallic sheet or wire.
- (2) Keep the antenna as far away from any metallic sheet or wire as possible.
- (3) Space the antenna and any noise source apart as far as possible.
- (4) Wherever possible, choose an installation location free from shielding objects between the antennas of the transmitter and the receiver.
- (5) The communication performance largely depends on the installation environment. Before installation, make sure the location is within the coverage.
- (6) When anchoring the transmitter to a panel etc., use the mounting slots.
- (7) This equipment is not dust-proof or drip proof in construction. Take a dust- or drip-proofing measure if the installation environment so requires.

<Notes for installation>

For installation, avoid choosing such installations as:

- (1) Within reach of direct sunlight
- (2) In the presence of an extremely high level of moisture
- (3) In the vicinity of TV or radio
- (4) In the vicinity of sparking devices such as a motor
- (5) In the presence of an intense magnetic field.
- (6) In an area surrounded by steel frames or metallic walls
- (7) In the vicinity of any devices that could malfunction due to the radio waves from this equipment.

1-8-2 Terminal block input section



To the external input terminals (terminals 1-4) of this equipment, dry contacts are to be contacted, such as a relay, a micro switch, and a limit switch.

A terminal code from 1 to 4 is transmitted in accordance to an input at the respective input terminal.

- For connections to the terminals, choose a dry contact that is not only less susceptible to chattering but also meets the following requirements:
 - For attached AC adaptor: Steady ON/OFF switching of voltage/current 5 V/3 mA
 - For dry batteries: Steady ON/OFF switching of voltage/current 3.0 V/2.5 mA
- Input detection
Input signals are recognized as input values when the conditions of every key input and terminal input remain unchanged during the chattering checking time (approx. 50 msec).

1-8-3 Power input section

The polarity of the DCIN jack for a connection to the AC adaptor is center-negative.
When using an adapter other than the attached AC adaptor, pay attention to its polarity.
Also, choose an adapter that is designed for an output voltage of DC5 V and an output current of 400 mA.

1-8-4 Setting switches

The set conditions of setting switches are loaded when an input is initiated. While the CPU is active, they are not loaded even when they are changed in any way. They are loaded by means of an input initiated after the following sequence: The input is gone, the time of a transmission has elapsed, and after that the CPU has gone standby.

(1) Mode setting (MODE)

- AN426TII mode / AN426T mode (CALL / STOP / CLR code transmission)

Toggle the DIP switch "1" between ON & OFF to switch the mode as follows:

ON: AN426TII mode OFF: AN426T mode (earlier mode)

- Normal transmission / Event transmission (special transmission)

Toggle the DIP switch "2" between ON & OFF to switch the mode as follows:

ON: Normal transmission mode. (A sequence of a 5-sec or shorter transmission & a 2-sec or longer pause is repeated while there is any input going on.)

OFF: Event transmission mode. (The special transmission mode is obtained when the DIP switch "1" is set to OFF (AN426T mode).)

A transmission lasting approx. 0.4 sec is performed when there is any change in input conditions. For details, see "6-4-2 Transmission in the event transmission mode."

(2) Communication channel setting (CH)

There are communication channels from 1CH up to 10CH. The rotary switch "0" corresponds to 10CH. For relations between channel Nos. and communication frequencies, see "6-2 Communication channels."

(3) Set No. setting (SET)

A set No. can be set in a range from "0" to "9". There are some numbers that are rejected depending on the receiving equipment. Check with the instruction manual of the receiver.

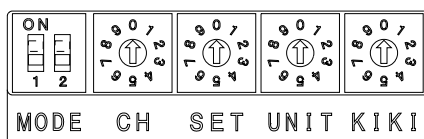
If the SET switch is to "0" in an AN426T mode (earlier mode), it follows that there is no set No..

(4) Unit No. setting (UNIT)

A unit No. can be set in a range from "0" to "9". There are some numbers that are rejected depending on the receiving equipment. Check with the instruction manual of the receiver.

(5) Equipment No. setting (KIKI)

An equipment No. can be set in a range from "0" to "9". There are some numbers that are rejected depending on the receiving equipment. Check with the instruction manual of the receiver.



Chapter 2 Use

2-1 Detection of key input & terminal input

Input signals are recognized as input values when the conditions of every key input or terminal input remain unchanged during the chattering checking time (50 msec).

2-2 Communication channels

Communication channels range from 1CH to 10CH and are to be set using the rotary switch.

(To set 10CH, the rotary switch should be set to "0".)

The set conditions of the rotary switch are loaded when an input is initiated. While the CPU is active, they are not loaded even when they are changed in any way. They are loaded by means of an input initiated after the following sequence: The input is gone, the time of a transmission has elapsed, and after that the CPU has gone standby.

The relations between channel Nos. and communication frequencies are shown in the table below.

Channel No.	Frequency (MHz)
1	426.0250
2	426.0375
3	426.0500
4	426.0625
5	426.0750
6	426.0875
7	426.1000
8	426.1125
9	426.1250
10	426.1375

2-3 Transmission modes

There are six modes of transmission: as AN426TII modes, “normal transmission” and “event transmission”; plus as AN426T modes (earlier modes), “normal transmission with a set No.,” “special transmission with a set No.,” “normal transmission without a set No.,” and “special transmission without a set No.” (for a mode without a set No., set the set number to “0”).

The system of transmission codes for AN426T modes (earlier modes) is identical to that for the AN426T. However, the allowed time for retransmission lasts five seconds or shorter, followed by the time of a transmission pause lasting two seconds or shorter. Only after this sequence, does the CPU go standby.

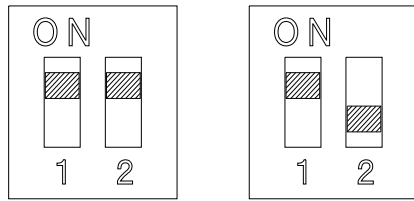
Likewise, the CPU stays standby for two seconds after power-on, during which time transmission operation is disabled.

Note) According to the conditions of key inputs and terminal inputs, a code from [key1] to [key4] or from [terminal1] to [terminal4] or a combination of any of these codes are transmitted together with channel No., set No., unit No., equipment No., transmission method, etc. A group of these data is called a frame, and the length of one frame is about 131.1 ms. (The length of a frame without a set No. is about 114.7 ms.).

MODE 1	MODE 2	SET	Transmission mode	
ON	ON	0-9	AN426TII mode	Normal transmission
ON	OFF	0-9	AN426TII mode	Event transmission
OFF	ON	1-8	AN426T mode (earlier mode)	Normal transmission with a set No.
OFF	OFF	1-8	AN426T mode (earlier mode)	Special transmission with a set No.
OFF	ON	0	AN426T mode (earlier mode)	Normal transmission without a set No.
OFF	OFF	0	AN426T mode (earlier mode)	Special transmission without a set No.

2-4 AN426TII modes

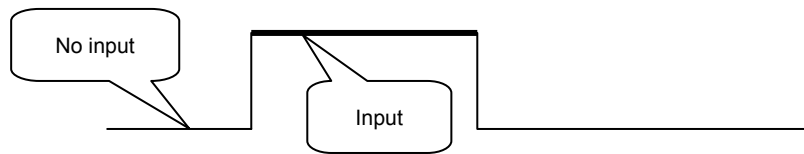
These are the transmission modes originally designed for this transmitter.



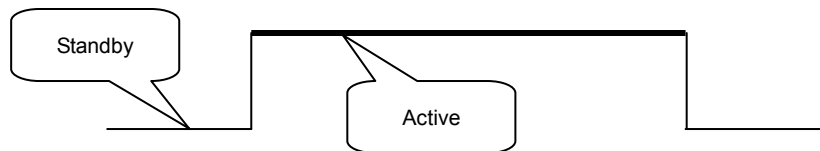
Normal transmission Event transmission

Timing chart representation

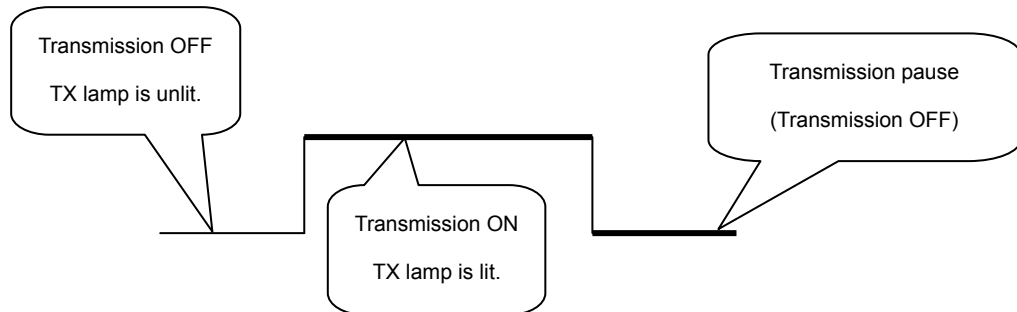
<Key or terminal input>



<CPU>



<Transmission status>



2-4-1 Transmission in the normal transmission mode

- If the transmission mode is set to normal transmission, the pattern of transmission operation is the same between a key input and a terminal input.
- If there is any input initiated while the CPU is in standby, a transmission operation is performed reflecting individual setting conditions. The minimum number of transmission frames is one.
- Even if there are any changes in individual settings during a sequence of transmission operation (including the time of a transmission pause), they are not loaded during that transmission sequence.
- In the normal transmission mode, a sequence of a frame transmission (lasting 5 seconds or shorter) and a transmission pause (lasting 2 seconds or more) is repeated while there is any input going on.
- Only within five consecutive seconds after the start of a transmission operation, can another transmission be executed without a 2-second transmission pause intervened. (Allowed time for retransmission)
- The allowed time for retransmission is followed by the time of a transmission pause, during which time no inputs are loaded. Only after the pause time is over, will the presence of inputs be checked.
If every input is gone and the 2-second transmission pause has elapsed, then the CPU goes standby.

Single input (minimum transmission)

<Key or terminal input>



<CPU>



<Transmission status>



Multiple inputs

<Key or terminal input>

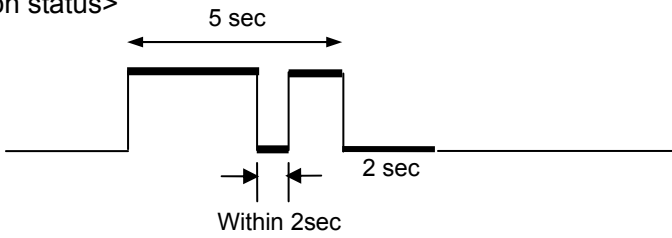
None of the inputs initiated during a pause after 5-sec transmission are transmitted.



<CPU>



<Transmission status>



When a pause is less than 2 seconds, in order to continue, When a pause is less than 2 seconds, in order to continue, it serves as a transmitting pause for 2 seconds compulsorily a total of 5 seconds.

Continuous input

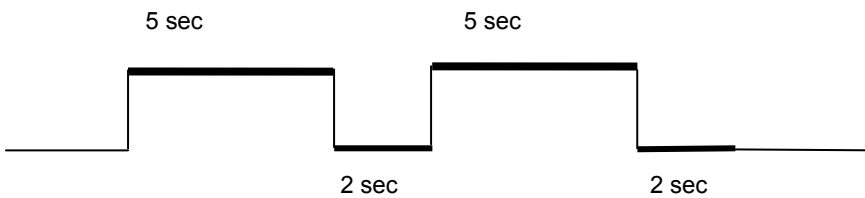
<Key or terminal input>



<CPU>



<Transmission status >

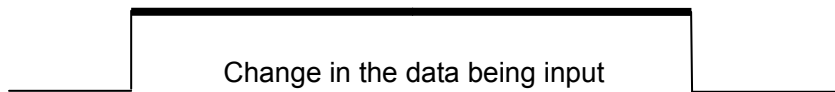


2-4-2 Transmission in the event transmission mode

- If the transmission mode is set to event transmission, the pattern of transmission operation is the same between a key input and a terminal input.
- If there is any input initiated while the CPU is in standby, a transmission operation is performed reflecting individual setting conditions.
- Even if there are any changes in individual settings during a sequence of transmission operation (including the time of a transmission pause), they are not loaded during that transmission sequence.
- In the event transmission mode, one round of transmission (3 frames) is executed when an input is initiated, but after that, no transmission is performed under the same input conditions. If there is any change in input conditions (including a case where every input is gone), a transmission (3 frames) is executed.
- No inputs are loaded during a transmission (3 frames). The presence of inputs is checked when the time of a transmission pause has started. If any input is going on even after the end of a transmission pause, then the CPU remains active monitoring input conditions.
- Only within five consecutive seconds after the start of a transmission, can another transmission be executed without a 2-sec transmission pause intervened.
(Allowed time for retransmission)
- The allowed time for retransmission is followed by the time of a transmission pause, during which time no inputs are loaded. Only after the pause time is over, will the presence of inputs be checked.
- If every input is gone and the 2-second transmission pause has elapsed, then the CPU goes standby.

Continuous input

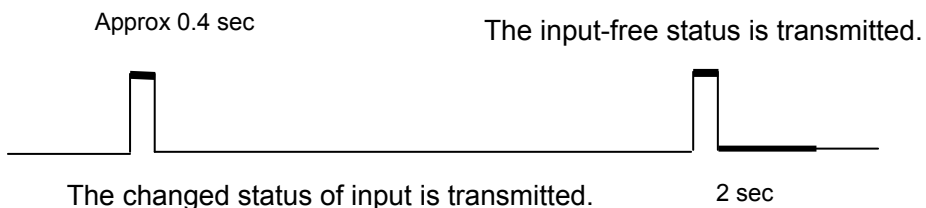
<Key or terminal input>



<CPU>



<Transmission status>



2-5 Voltage checking function

While dry batteries are in service for power, the BA lamp lights (in red) during transmission when the power voltage has dropped to 3.3 V or lower.

If the lamp flashes (in red) , the battery voltage has more dropped. It is the situation not to transmit. Please change a new battery.

2-6 Earlier modes (AN426T)

This transmitter (AN426TII) is designed for a successor to the AN426T and can transmit the [CALL], [STOP], and [CLR] codes in an AN426T mode (referred to as earlier mode).

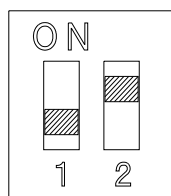
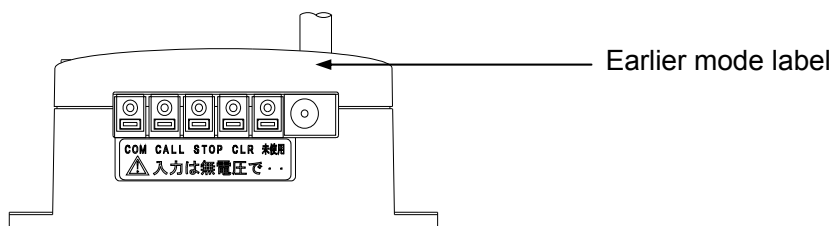
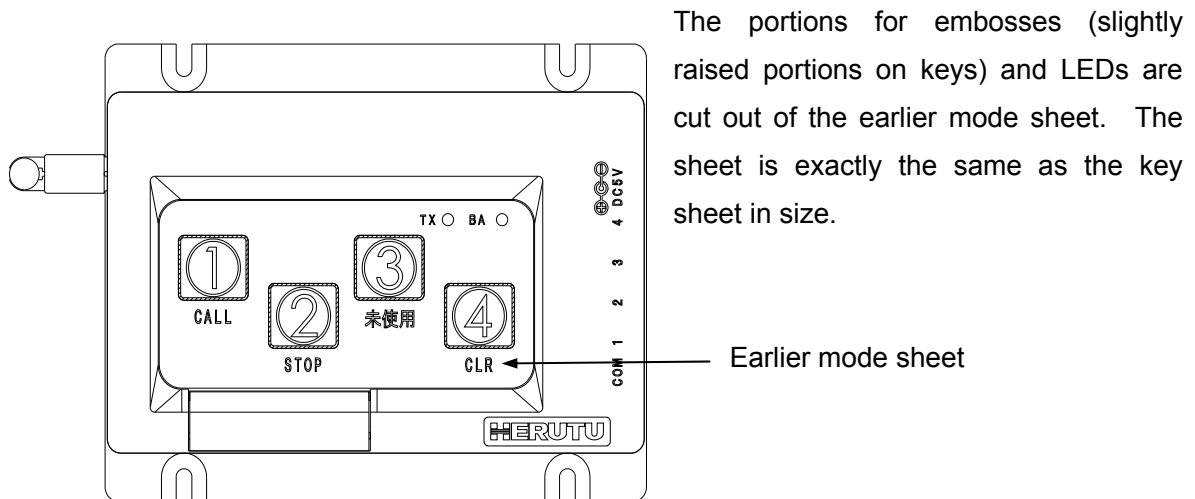
However, there is a difference in timing of operation due to a difference in circuits, an update to comply with the revisions to the technical standards, etc.

Because an earlier mode involves three points of key inputs and the same number of terminal inputs, it is required that the transmitter, when used in an earlier mode, bear an earlier mode sheet and an earlier mode label. (The product will be shipped with an earlier mode sheet and an earlier mode label affixed if so requested when placing an order with us.)

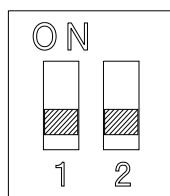
If the transmitter is used in a mode without a set No., it should be used with the SET switch set to "0".

For a unit No. and an equipment No., the numbers "0" and "9" may not be used.

2-6-1. The positions to affix earlier mode sheet and label & DIP switch settings



Normal transmission



Special transmission

Set 1 to ON for AN426TII mode.

Set 1 to OFF for AN426T mode.

Set 2 to ON for normal transmission mode.

Set 2 to OFF for special transmission mode.

2-6-2 Normal transmission with a set No.

Set a set No. in a range from "1" to "8".

Set a unit No. and an equipment No. each in a range from "1" to "8".

The earlier normal transmission mode involves one less code for key input and terminal input each. This is why the earlier mode codes (CALL, STOP, and CLR) are allocated to one less number of keys in a manner like this: CALL:1 / STOP: 2 / CLR: 4. (This applies to both key inputs and terminal inputs).

If the transmission mode is set to earlier normal transmission, the pattern of transmission operation is the same between a key input and a terminal input.

If there is any input initiated while the CPU is in standby, transmission operation is performed reflecting individual setting conditions.

Even if there are any changes in individual settings during a sequence of transmission operation (including the time of a transmission pause), they are not loaded during that transmission sequence.

In the earlier normal transmission mode, a sequence of a frame transmission (lasting 5 seconds or shorter) and a transmission pause (lasting 2 seconds or longer) is repeated while there is any input going on. Only within five consecutive seconds after the start of a transmission, can another transmission be executed without a 2-sec transmission pause intervened. (Allowed time for retransmission) The allowed time for retransmission is followed by the time of a transmission pause, during which time no inputs are loaded. Only after the pause time is over, will the presence of inputs be checked.

If every input is gone and the 2-sec transmission pause has elapsed, then the CPU goes standby.

2-6-3 Special transmission with a set No.

Set a set No. in a range from "1" to "8".

Set a unit No. and an equipment No. each in a range from "1" to "8".

The earlier normal transmission mode involves one less code for key input and terminal input each, as compared to the normal transmission mode. This is why the earlier mode codes (CALL, STOP, and CLR) are allocated to one less number of keys in a manner like this: CALL: 1 / STOP: 2 / CLR: 4. (This applies to both key inputs and terminal inputs).

If the transmission mode is set to earlier special transmission, the pattern of transmission operation differs between a key input and a terminal input.

If there is any input initiated while the CPU is in standby, transmission is performed reflecting individual setting conditions.

Even if there are any changes in individual settings during a sequence of transmission (including the time of a transmission pause), they are not loaded during that transmission sequence.

For a terminal input in the earlier special transmission mode, one round of transmission (5 frames) is executed when an input is produced, but after that, no transmission is performed under the same input conditions, although the CPU stays active. If there is any change in terminal input conditions, a transmission (5 frames) is executed. If every terminal input is gone, the CLR: 3 (terminal) code is transmitted (5 frames).

For a key input, the pattern of operation is the same as the one in the earlier normal transmission mode.

No inputs are loaded during transmission. The presence of inputs is checked when the time of a transmission pause has started. If there is any input going on even after the end of a transmission pause, the CPU remains active monitoring input conditions.

Only within five consecutive seconds after the start of a transmission, can another transmission be executed without a 2-sec transmission pause intervened. (Allowed time for retransmission) The allowed time for retransmission is followed by the time of a transmission pause, during which time no inputs are loaded. Only after the pause time is over, will the presence of inputs be checked.

If every input is gone and the 2-sec transmission pause has elapsed, then the CPU goes standby.

2-6-4 Normal transmission without a set No.

Set a set No. to "0".

Set a unit No. and an equipment No. each in a range from "1" to "8".

The resulting pattern of transmission operation is the same as the one in "7-2 Normal transmission with a set No."

The data frame does not contain any channel data and set number data.

At the receiver side, arrangements should be made to comply with the specifications for transmission without a set No.

2-6-5 Special transmission without a set No.

Set a set No. to "0".

Set a unit No. and an equipment No. each in a range from "1" to "8".

The resulting pattern of transmission operation is the same as the one in "7-3 Special transmission with a set No."

The data frame does not contain any channel data and set number data.

At the receiver side, arrangements should be made to comply with the specifications for transmission without a set No.

Chapter 3 Handling Instructions

3-1 Using batteries

This equipment accepts dry batteries as a power source.

If you are going to use dry batteries, read the following instructions carefully to ensure the proper use of dry batteries.

3-1-1 Dry battery replacement

For dry batteries, alkaline dry batteries are recommended for use with this equipment.

Follow the steps below to replace the batteries.

- (1) Remove the lid of the plastic dry battery compartment which is located on the bottom surface of the main unit.
- (2) Set size AA dry batteries in the inner battery case.
At this time, take care not to get the polarity of battery wrong.
- (3) Attach the lid to the battery compartment.

3-1-2 Notes for using dry batteries

- (1) Remove the dry batteries when leaving the transmitter out of service for a long time or when storing it.
- (2) When using the AC adapter for power, remove the batteries in the interest of safety.
- (3) If the BA lamp (battery alarm lamp) on the transmitter stays lit during transportation in response to a key input or a terminal input, then replace the batteries with new ones as it is a sign of battery exhaustion. If the lamp flashes, the battery voltage has more dropped. It is the situation not to transmit. Please exchange a new battery.
- (4) For all of the three replacement dry batteries, be sure to use new ones of the same kind.
Using exhausted dry batteries or a mixture of different dry batteries will not only shorten their lives, but it could also be a cause of failure.

3-2 Troubleshooting

Symptom	Possible causes & Remedy
The BA lamp (power alarm lamp) lights and flashes during transmission operation in response to a key or terminal input.	If you are using dry batteries, they are exhausted.
	→ Replace them with new ones.
The TX lamp (transmission lamp) fails to light in response to a key or terminal input.	If you are using the AC adapter, check it for connection.
	→ If a defect is suspected about the AC adapter, make sure whether or not dry batteries can be used instead.
	If you are already using dry batteries for power, then
	<ul style="list-style-type: none"> • Make sure if dry batteries are set properly. • Make sure if dry batteries are exhausted.
	During a 2-sec transmission pause?
	→ The TX lamp should be unlit during a 2-sec transmission pause.
	In the special transmission mode?
	→ If there is no change in input conditions, the TX lamp should remain unlit because no transmission is executed even after the 2-sec transmission pause.
Unable to receive radio waves at the receiver side.	Proper installation?
	→ Referring to “1-8 Installation,” install it properly as instructed.
	Different communication frequency between transmitter and receiver?
	→ Retune the communication frequency at the transmitter (using a rotary switch) or at the receiver.
	Different equipment No., unit No., or set No. between transmitter and receiver?
	→ Reset the numbers at the transmitter (using a rotary switch) or at the receiver.

3-3 When something is wrong:

In case you find anything erroneous with the equipment when using it under normal conditions, see “3-2 Troubleshooting.”

If the problem persists even after a remedy action is taken or if it is unclear which remedy action should be taken, then contact the dealer where the product was purchased or our Sales Department with the following information ready:

Product name / serial No. / service environment,
 External equipment connected,
 Operating sequence to error initiation, and
 Specific description of error, etc.

The user is prohibited by law from disassembling or making modification to the unit or otherwise may be subject to punishment.

3-4 Warranty

■ Provisions of warranty

The provisions of warranty are set forth by us for warranty of the product after shipment so that the product can be used with a sense of security after purchased. In case our product is out of order, we will provide repair or replacement under the provisions of warranty.

■ Warranty period

Besides, as long as there is not providing, the warranty period shall be 13 months after shipping the products. During the warranty period, we will provide free-of-charge repair subject to the provisions of warranty set forth in the warranty certificate.

If you have anything unclear about the repair or follow-up service during the warranty period, please contact the outlet store through which you purchased the product or our Sales Office.

■ Scope of warranty

If the product should get out of order under the normal conditions of use by the customer, we will repair the failed section(s) free of charge or exchange the new one free of charge subject to the provisions of warranty. Please contact the outlet store through which you purchased the product or our Sales Office.

Also, the warranty period shall be 13 months after shipping the product or shall be 6 months after shipping substituting goods. The warranty periods will be applied the period visited later.

Note, however, that free-of-charge repair under this warranty is limited to the hardware components of the product. Even during the warranty period, the customer shall be responsible for repair cost if any of the following applies:

1. Troubles or damages occurring due to improper handling by the customer, such as a fall, a shock, etc. during transportation or movement of the product by the customer.
2. Troubles caused by overhaul or remodeling of the main body by the customer.
3. Troubles or damages caused by fire, earthquake, flood damage, or other natural disasters, as well as by abnormal voltage.
4. Troubles resulting from any trouble of devices connected to the product, which devices are other than those designated by us.
5. Troubles with the accessories (AC adapter, antenna, connection cables, or the like) except the main body.
6. Repairing, adjustment, modification by except our company
7. Replacement of consumables and limited-life items (including batteries).
Consumables and limited-life items include, but not limited to:
 - (1) Switches (limit switches, pushbutton switches, or the like)
 - (2) Battery cells or batteries (dry batteries, button batteries, or the like)
 - (3) Other items subject to consumption or limitation of life caused by use.
8. Troubles occurring due to handling against the use instructions or precautions specified in this operation manual.

■ Initial defects

The period within 30 days from the date of shipping the product is defined as the initial defect period for the product. The product will be replaced with a new one or repaired free of charge provided that it is returned to the outlet store through which you purchased the product or our Sales Office, checked, and recognized as having initial defects. For initial defects, we shall be responsible for the shipping cost.

But it is in Japan only. In case of purchasing the products out of Japan, it will be decided after conference about shipping cost for returning back, insurance cost, custom duty.

■ Disclaimer

We will assume no liability for any damages or monetary losses, direct or indirect, arising out of troubles, failures, or use of the product.

■ Repair service period

Only if we have the stock of parts for repairing, even if after finishing the warranty period, we will repair the product within 5 years after end of production for a fee.

However, we reserve the right to use substitute parts or devices for repairing purposes if there are unavoidable reasons such as unavailability of service parts.

■ Others

- Independent of the warranty period, the product to be repaired shall in principle be brought into our site because of the necessity of using measuring instruments or the like for adjustments etc., and the shipping cost etc. incurred in bringing the product into our site shall be borne by the customer.
- In such cases where you request a trip to your place for repair or need substitute devices during the warranty period, please contact the outlet store through which you purchased the product or our Sales Office. We will correspond for a fee.
- We reserve the right to refuse replacement or repair if we are unable to reproduce the concerned failure at our engineering department after receipt of a request for repair. In addition, an additional charge may be made to the customer for the technical examination cost incurred in reproducing the failure.
- The information in this manual, our website, catalog we supply, is subject to change without prior notice. Please be forewarned.



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