FEX12TB
2.4GHz band module
Instruction Manual

Futaba®

FCC Warning

CAUTION:

To assure continued FCC compliance:

1. Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.
2. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
   i. When used in stationary receivers,
      This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
   ii. When used in remote control devices,
      This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Label Compliance Statement:

This device complies with Part 15 of the FCC Rules. 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.

This radio transmitter has been approved by the Federal Communications Commission (FCC) to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

No.	Parts Code	Model	Manufacturer	Type	Max. Gain
1	9M99Z15001	STDANTEMD-013	Sansei	1/2λ dipole type	+1.9dBi

FCC INTEGRATION INSTRUCTIONS

No.	Item	Details
1	List of applicable FCC rules	FCC Part15.247 (2400-2483.5MHz, Frequency hopping systems)
2	Summarize the specific operational use conditions	Only the antennas listed in the table on the previous page may be used.
3	Limited module procedures	Not applicable.
4	Trace antenna designs	Not applicable.
5	RF exposure considerations	・This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. i. When used in stationary receivers, This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. ii. When used in remote control devices, This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. ・Please include the above statement in the end user product manual.
6	Antennas	Only the antennas listed in the table on the previous page may be used.
7	Label and compliance information	The final end product must be labeled in a visible area with the following: “Contains FCC ID: AZP-FEX12T”. The grantee’s FCC ID can be used only when all FCC compliance requirements are met.
8	Information on test modes and additional testing requirements	Since documents related to test modes and test procedures contain our confidential information, please contact us at the address below. FUTABA Corporation of America Customer Service Desk service@futabaUSA.com
9	Additional testing, Part 15 Subpart B disclaimer	The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.6
10	Note EMI Considerations	Note that a host manufacture is recommended RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties.
11	How to make changes	If a permissive change, such as the addition of an antenna, is required, please contact us at the address below. FUTABA Corporation of America Customer Service Desk service@futabaUSA.com Please note that we may not be able to accommodate your request depending on the nature of the inquiry.

ISED Warning

This device contains licence-exempt transmitter(s)/receiver(s) that comply with 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 interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment.

i. When used in stationary receivers,
This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

ii. When used in remote control devices,
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

French:
Cet appareil radio est conforme au CNR-210 d'Industrie Canada. L'utilisation de ce dispositif est autorisée seulement aux deux conditions suivantes : (1) il ne doit pas produire de brouillage, et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.
Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé.

i. Lorsqu'il est utilisé dans des récepteurs fixes,
Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre la source de rayonnement et votre corps.

ii. Lorsqu'il est utilisé dans des dispositifs de télécommande,
Ce transmetteur ne doit pas être installé ou utilisé en association avec une autre antenne ou un autre transmetteur.

This radio transmitter [IC:2914D-FEX12T] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

No.	Parts Code	Model	Manufacturer	Type	Max. Gain
1	9M99Z15001	STDANTEMD-013	Sansei	1/2λ dipole type	+1.9dBi

The final end product must be labeled in a visible area with the following: "contains IC: 2914D-FEX12T". The grantee's IC ID can be used only when all ISED compliance requirements are met.

FCC Notice

This device complies with part 15 of the FCC rules. 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.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any unauthorized changes or modifications to this device not expressly approved by Futaba Corporation could void the user's authority to operate the device and possibly result in damage to the equipment and/or cause serious or fatal injuries to the operator or nearby personnel.

This device is intended to be installed and used in accordance with the instructions contained in this manual. Failure to comply with these instructions could void the user's authority to operate the device and possibly result in damage to the equipment and/or cause serious or fatal injuries to the operator or nearby personnel.

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1 Overview

(1) 2.4 GHz band FH (frequency hopping) type wireless module.
(2) This module has adopted a communication protocol that is intended to be used as a wireless controller.
(3) Using the UART, it is set by the command input, and performs input and output operational data.

Table 1 : FEX12TB Appearance photo

2 General Specification

2.1 High-frequency portion

- Technical standards : ARIB STD-T66 (Japan)
  FCC Part15.247 (U.S.A.)
  ISED RS-210 (Canada)
- Output power : 15.0±2dBm (FEX12TB)
- Communication method : Spread spectrum FH system
- Spread bandwidth : 60MHz
- Radio frequency band : 2407.5MHz～2467.5MHz
- Frequency control : frequency hopping (31 patterns, 31 waves)
- Data modulation rate : 128.143kbps
- Coverage area : outdoors 365m
  (according to an external antenna, sight distance, and our measurement method)
- Antenna terminal : U.FL connector
- Antenna : diversity (Tx/Rx)
- Error detection function : CRC-CCITT (16bits)

2.2 External interface

- Physical interface : JAM SYB10-15WH (15pin)
  Mating connector 51146-1400
- Interface : RS-232C (DCE-mode)
  input 3.3V CMOS-level (with hysteresis)
  output 3.3V CMOS-level
- Communication method : full duplex
- Synchronization method : start-stop synchronization method

・Baud rate : 9600/19200bps
・Flow control : none
・Data length : 7 bit/8 bit
・Stop bit : 1 bit/2 bit
・Parity : even/odd/none

2.3 Power supply

・Source voltage : DC 5V
・Consumption current : transmission 300mA or less
reception 35mA or less
average at communication 50 mA or less

2.4 Environmental specifications

・Temperature conditions : Operating temperature limits
ambient temperature ; -20 to +70℃
Storage temperature range
ambient temperature ; -30 to +70℃
・Operating humidity limits : 90%RH or less (no condensing)
・Storage humidity range : 90%RH or less (no condensing)
・Anti-vibration : 50m/s^2 (JIS-C-60068-2-6)
・Anti-shock : 500m/s^2 (JIS-C-60068-2-27)

2.5 Others

・External dimensions : 63(W)×35(D)×3(H) mm
・Weight : about 14g

2.6 External Terminal

Table 1 : Terminal function

No.	Terminal name	I/O	Function	Internal terminal processing
1	NC	—		
2	RxD	OUT	UART RxD (Response Output)	
3	TxD	IN	UART TxD (Command Input)	
4	NC	—		
5	GND	—	signal ground	
6	CLK	IN	reserved	Pull-down
7	STE	IN	reserved	Pull-down
8	SDA	IN	reserved	Pull-down
9	SCL	IN	Reserved	Pull-down
10	VCC	—	Power DC 5V	
11	RST	IN	CPU reset	
12	3.3V	OUT	Test	
13	Reserved	OUT	Reserved	Low
14	TEST	IN	Test	
15	None	-	-	

2.7 Reset terminal

Resetting with the Reset terminal provides the pulse below.

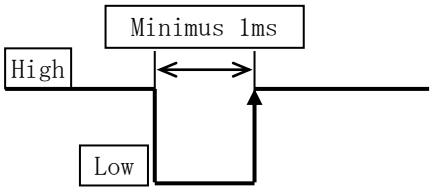

Figure 2 : Reset pulse

2.8 Initialization time

(1) The initialization time (after power up until accept command) is 90ms or less.
(2) The initialization time by the RST command input is 1200ms.

2.9 Appearance

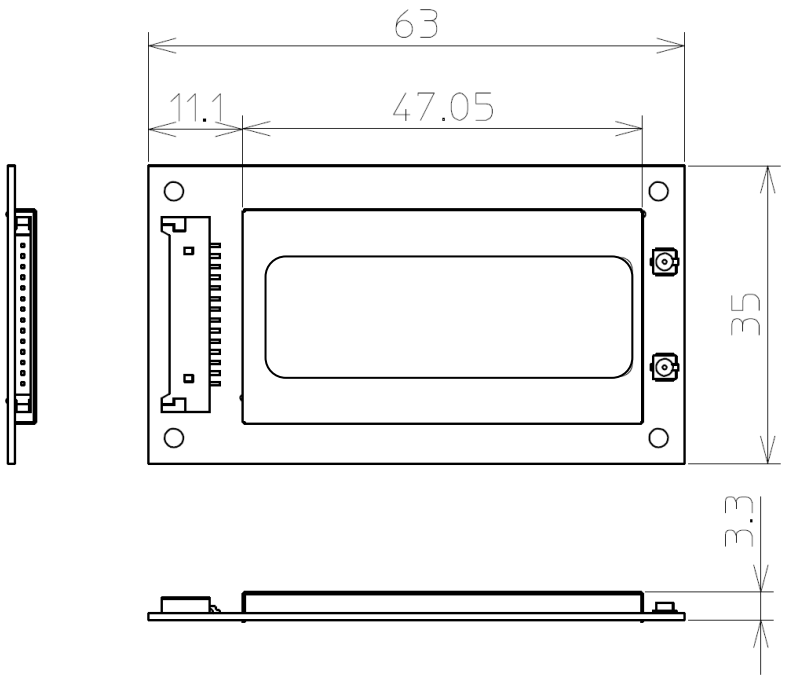

Figure 3 : FEX12TB External view

3 Communication Method

3.1 Frequency hopping

This wireless module employs an FH system as a diffusion method. In the FH system, diffusion signals with a wide bandwidth are produced by hopping the frequency according to a certain pattern. The pattern is called a frequency hopping pattern. This device has 31 types of frequency hopping patterns. The same hopping pattern is set for the wireless machines that are intended to mutually communicate.

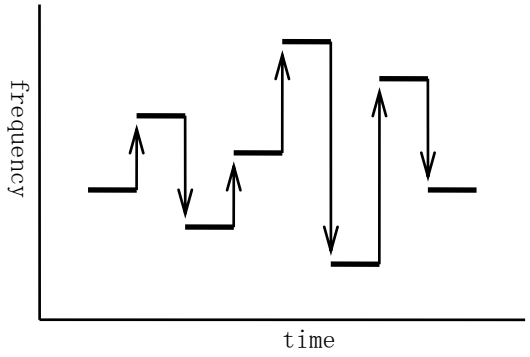

figure 4 : frequency hopping

Even when the hopping pattern is the same, mutual communication is impossible when a wireless module randomly hops the frequency. Therefore, in the frequency hopping system, one of the wireless machines works as a standard, while other wireless machines synchronize the frequency and hopping timing of each machine by receiving packets from the standard machine. This is called synchronization.

3.2 Synchronization

The slave switches frequency while waiting for a wireless packet from the master. When a wireless packet is received, it switches to the next frequency and waits for a wireless packet again. When received, it is judged that the synchronization with the master was successful. After that, the slave matches the timing and sends wireless packets to the master.

No timeout is set, even for cases when synchronization is unsuccessful due to a poor communication environment. It continues receiving until synchronization succeeds. In the case when synchronization fails during communication for some reason, a maximum of 1000ms is required to re-synchronize.

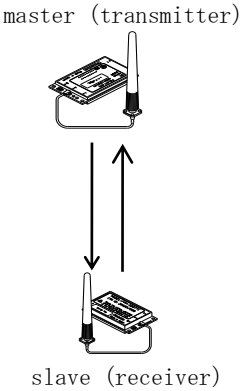

figure 5 : master and slave

4 Communication procedure

4.1 Overview

Communication is done in the following manner :

(1) Right after the power is turned on, the master and slave does not have wireless communication and is in an invalid state.

(2) For sending/receiving a wireless packet, start the FH operation by inputting the @FHS command (the master and the slave).
The master initiates RF transmission and reception.
The slave starts RF reception, wait for communication from the master.

(3) If FH synchronization acquisition, slave start also sent. After that, the slave will continue in automatic synchronization.

(4) By TLC command to set the data you want to send.

(5) In FH synchronization acquisition, it will receive the data periodically from the communication partner.
If the synchronization is out, it does not receive the data.

(6) To stop sending/receiving a wireless packet, type the @FHE command and quit the FH operation.

4.2 Send command

The command header is "@TLC", the terminator is CR+LF (0x0D 0x0A). There is no response to the command.
Please send data as a binary data of 14-byte fixed.

Radio transmission will be run every 24ms. By @TLC command, it will update the transmitted data. If @TLC command is not inputted, the previous data is wirelessly transmitted. If you also send command has not been entered once, the data of all 0 is wireless transmitted.

【Send (update) format】
@TLC[Binary data 14 bytes][CRLF]

4.3 Received data

The received data is appended "RLC" of 3 bytes as a header.
The Received data is binary data of 14-byte fixed.

Radio reception will be run every 24ms. In a state that can't be wireless communication, it will not be output to the wired.

【Reception format】Repeat
RXT[Binary data 14 bytes]

4.4 Master communication procedure

(1) After the power is turned on, the master does not perform the wireless communication.
(2) If you want to transmit and receive wireless packet, enter FHS command.
(3) As long as the FH synchronization acquisition, the data from the slave is output to the wired. The received data will be "RLC" header is added.
(4) If you send the data to the slave, enter the @TLC command. By sending @TLC command regularly, the transmitted data is updated.
(5) If you stop the wireless communication, enter the @ FHE command.

4.5 Slave communication procedure

(1) After the power is turned on, the slave does not perform the wireless communication.
(2) If you want to transmit and receive wireless packet, enter FHS command.
(3) As long as the FH synchronization acquisition, data from the master is output to the wired. The received data will be "RLC" header is added.
(4) If you send the data to the master, enter the @TLC command. By sending @TLC command regularly, the transmitted data is updated.
(5) If you stop the wireless communication, enter the @ FHE command.

4.6 Communication time

Interval of the frequency hopping (switching frequency) is 24ms. This 24ms is one frame. The master wirelessly transmits (1 packet transmission) at the beginning of the frame. Communication time is about 1.5ms. The slave that is synchronized with the master wirelessly receives the packet at the beginning of the frame.

The figure below shows the timing.

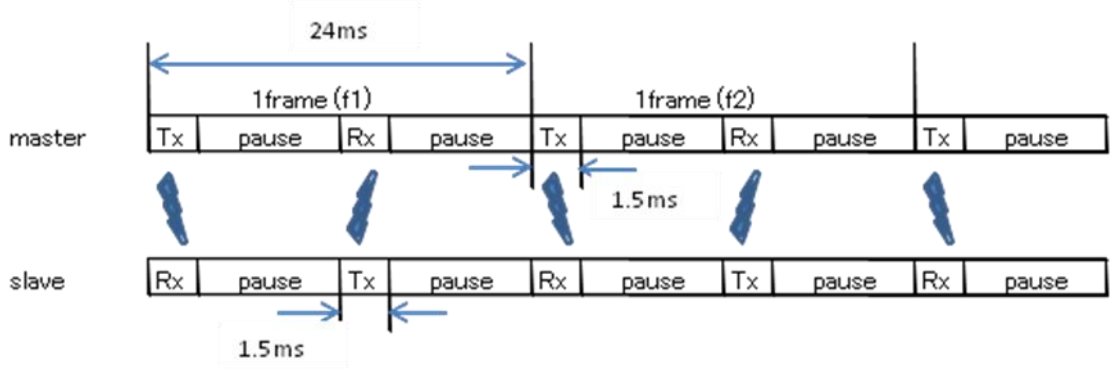

Figure 6 : FH communication timing

5 Other functions

5.1 ID Registration

In order to associate the master and the slave, an ID code is used. Each wireless module has a unique value.

For wireless communication, registration of the ID code of the communication partner is necessary. Wireless machines without ID code registration are unable to communicate. This prevents improper connections.

To make the pairing, in a state in which the closer to the master / slave, and then run the @IDS command to both the master / slave. In the case of slave, it is possible to register up to two. Please refer to the description of @IDS command for how the second unit of the specified.

If the pairing is successfully complete, "Pair" response is output, pairing ID code is written to the memory. In order to perform the normal communication, please do the once reset.

If the pairing is not completed, approximately becomes a time-out within 5 seconds, it is returned NO response.

The slave is possible to register the master up to two.

However, communication is carried out in a one-to-one, you will not be able to communicate from two masters. The slave keeps a connection with the master that initiated the first communication.

5.1.1

6 Commands

6.1 List of commands

Table 2 : List of commands

No.	Command name	Function
1	ARG	Display all register values
2	DBM	Reference a reception intensity of received packet
3	ERR	Reference error status
4	FHE	End FH operation
5	FHS	Start FH operation
6	ID1	Reference and set pairing ID1
7	ID2	Reference and set pairing ID2
8	IDS	Start ID registration
9	INI	Initialize register values
10	ODA	Disable output
11	OEN	Enable output
12	REG	Reference and set register values
13	RST	Reset
14	TLC	Set wireless data
15	VER	Display version

6.2 How to use commands

(1) When inputting a command to the wireless module, add 1 byte header for command recognition (command header) at the beginning of the command, in order to differentiate from regular data. The command header is “@” (40H).

(2) Command is case-sensitive.

(3) A 2-byte terminator is used to terminate a command. The terminator is [CRLF] (0DH: carriage return + 0AH: line feed).

(4) The wireless module executes a command process after recognizing a command. For a command with a response, it returns the response to external devices after the process is completed.

(5) Do not input subsequent commands or data before getting a response.

(6) Command example

@ARG[CRLF]

6.3 Command responses

6.3.1 Types of command responses

Command responses and their meanings are:

P0: normal termination

P1: running command

N0: command error

N6: memory register writing error

6.4 Details of the command functions

The symbols used in this section have the following meaning:

[ ] : Required input parameter/s
( ) : Optional input parameter/s

ＡＲＧ ：Display all register values

【Format】
ARG

【Response】
Setting list display
NO : command error

【Function】
・ Refers to all contents of memory register. Displays a two-digit hexadecimal number plus H at the end.

ＤＢＭ ： Reference the reception intensity of received packet

【Format】
DBM

【Response】
-XXXdBm : reception intensity
NO : command error

【Function】
・Reads the reception intensity of the most recent, correctly received packet, and displays it in decibels.
・When none has been received after resetting, “-134dBm” is displayed.
・The signal strength indication is not absolute. It can be used for accurate relative measurements but should not be considered an absolute value.

ＥＲＲ ：Reference error status

【Format】
ERR

【Response】
xxH : error status
NO : command error

【Function】
・This command display the error information of the internal this module. If 00H is no error.
・bit2＝1: memory (settings area) error
・bit1＝1: memory (user area) error
・bit0＝1: RF error

ＦＨＥ: End FH operation

【Format】

FHE

【Response】

P0 : normal termination
N0 : command error

【Function】

・End FH operation. At this status, wireless transmission does not occur.
・Master/Slave stops radio transmission and reception. If state that FH synchronization acquisition, and then release it.
・Even when there is received data from a paired module, wired output does not occur.

ＦＨＳ : Starts FH operation

【Format】

FHS

【Response】

P0 : normal termination
N0 : command error

【Function】

・Starts FH operation.
・Master/Slave starts radio transmission and reception.
・When there is received data from a paired master, wired output starts.
・If there is data received from pairing the communication partner, to start the output to the wired.

ＩＤ１ : Reference and set pairing ID1

【Format】

ID2(:pairing ID code 1)

pairing ID code 1 : xxxxxxxxx (9-digit)

【Response】

xxxxxxxxx : pairing ID code 1 (when when referencing)
P0 : normal termination (when setting)
N0 : command error

【Function】

・References and sets the pairing ID code 1.
・By inputting only the command, currently set values can be referenced.
・Specify the ID code (9-digit Serial Number) of the module that is the communication partner.
・Both master and slave are valid.
・The setting becomes effective after a reset.

ＩＤ２　: Reference and set pairing ID2

【Format】

ID2(:pairing ID code 2)

pairing ID code 2 : xxxxxxxxx (9-digit)

【Response】

xxxxxxxxx	: pairing ID code 2 (when when referencing)
P0	: normal termination (when setting)
N0	: command error

【Function】

・References and sets the pairing ID code 2.
・By inputting only the command, currently set values can be referenced.
・Specify the ID code (9-digit Serial Number) of the module that is the communication partner.
・Slave only is valid.
・The setting becomes effective after a reset.

ＩＤＳ　: Start ID registration

【Format】

IDS:[pairing area]

pairing area : x (1= pairing ID code 1, 2= pairing ID code 2)

【Response】

P0	: normal termination
Pair	: pairing is completed
N0	: command error, or pairing is not completed
N6	: memory register writing error

【Function】

・Starts pairing operation.
・In the case of master, please specify '1' to the pairing area.
・In the case of slave, please specify '1' or '2' to the pairing area.

ＩＮＩ　: Initialize register value

【Format】

INI

【Response】

P0	: normal termination
N0	: command error

【Function】

・Resumes all contents of the memory register in the wireless module to the status at factory shipment.

ＯＤＡ　：Disable output

【Format】

ODA

【Response】

P0	: normal termination
N0	: command error

【Function】

・Disable the radio transmission and wired output. Temporarily used when you want to stop FH communication. If this module already has FH synchronization acquisition, also it will continue to maintain FH synchronization after executing this command.
・Output in the initial state is enabled.
・Slave only.

ＯＥＮ　：Enable output

【Format】

OEN

【Response】

P0	: normal termination
N0	: command error

【Function】

・Enable the radio transmission and wired output.
・Output in the initial state is enabled.
・Slave only.

ＲＥＧ　：Reference and set register values

【Format】

REG[register number](:set value)

Register number	: 00～XX
Set value	: input a two-digit hexadecimal number with H at the end, or a three-digit decimal number without any suffix.

【Response】

XXX	: currently set value (when referencing)
P0	: normal termination (when setting)
N0	: command error
N6	: memory register writing error

【Function】

・References and sets the memory register.
・By inputting only a register number, currently set values can be referenced.
・The setting will be valid after reset.

ＲＳＴ　: Reset

【Format】
RST

【Response】
P0　　: normal termination
N0　　: command error

【Function】
・This module will be reset.

ＴＬＣ　: Set wireless data

【Format】
TLC[binary data]

Binary data　　: 14-bytes fixed

【Response】
None

【Function】
・It specifies the data you want to send to the communication partner. It is 14-bytes fixed in binary data.
・In order to avoid the mixing of the received data, there is no response to this command.
・Input of this command, please as a 50ms interval at the shortest.

ＶＥＲ　: Display version

【Format】
VER

【Response】
Program Version 1.000　　: display version
N0　　: command error

【Function】
・Reads a program version of the wireless module.
・Ｘ. ＸＸＸ
Improvements and bug fixes within a range of specifications
Minor specification change
Major specification change

7 Memory register

The memory register is a register that sets and memorizes operation modes and communication parameters for the wireless module. These values are read when the power is turned ON, and the module starts operating according to the setting.

7.1 Memory register list

Table 3 : Memory register list

Register number	Function	Default	Default function
REG00	Operation mode	00H	Master
REG01	Reserve	00H	
REG02	Frequency hopping pattern	00H	
REG03	Reserve	00H	
REG04	Wireless communication setting 1	08H	Antenna diversity
REG05	Wireless communication setting 2	00H	
REG06	Reserve	00H	
REG07	Reserve	00H	
REG08	Wired communication setting 1	01H	115200bps
REG09	Wired communication setting 2	00H	
REG10	FH synchronization determination setting 1	00H	
REG11	FH synchronization determination setting 2	00H	
REG12	Detailed setting	08H	
REG13	Reserve	00H	
REG14	Pairing ID code 1	00H	
REG15		00H	
REG16		00H	
REG17		00H	
REG18		00H	
REG19	Reserve	00H	
REG20	Pairing ID code 2	00H	
REG21		00H	
REG22		00H	
REG23		00H	
REG24		00H	
REG25	Reserve	00H	

7.2 Memory register function detail

ＲＥＧ００：Operation mode [default：００Ｈ]

＊Sets an operation mode (for the master or the slave).

Table 4：Operation mode

00H	Master (default)
01H	Slave

ＲＥＧ０１：Reserved [default：００Ｈ]

＊Not used in this wireless module. Leave default setting.

ＲＥＧ０２：Frequency hopping pattern [default：００Ｈ]

＊Sets the frequency hopping pattern. It can be set to 00～1E (0～30).
＊Master only settings are valid. Slave sets the frequency hopping pattern automatically based on the information of the master.
＊In the initial state, a specific frequency hopping pattern is set. Because it is set to 00H if you initialize, please set again.
＊When using multiple systems within the same area, the frequency may periodically match and interfere with each other even when the frequency hopping patterns are different.

ＲＥＧ０３：Reserved [default：００Ｈ]

＊Not used in this wireless module. Leave default setting.

ＲＥＧ０４：Wireless communication setting 1 [default：０８Ｈ]

Bit7～4：Reserved
＊ Not used in this machine. Make sure to set to 0.

Bit3：Antenna diversity

Table 5：Antenna diversity

0	Disable antenna diversity
1	Enable antenna diversity (default)

＊ Enables/disables antenna diversity.
＊ When used with two antennas, set to 1 in this bit.

Bit2：Antenna selection

Table 6：Antenna selection

0	Antenna is fixed to A (default)
1	Antenna is fixed to B

＊ At the non-diversity reception, decide the antenna terminal.

Bit1～0：Reserved
＊　Not used in this machine. Make sure to set to 0.

ＲＥＧ０５：Wireless communication setting 2　[default：００Ｈ]

＊Not used in this wireless module. Leave default setting.

ＲＥＧ０６：Reserved　[default：００Ｈ]

＊Not used in this wireless module. Leave default setting.

ＲＥＧ０７：Reserved　[default：００Ｈ]

＊Not used in this wireless module. Leave default setting.

ＲＥＧ０８：Wired communication setting 1　[default：０１Ｈ]

Bit 7: data length

Table 7: Data length

0	8 bit data　(default)
1	7 bit data

Bit 6: parity bit

Table 8: Parity bit

0	Without parity　(default)
1	With parity

Bit 5: Even/odd parity

Table 9: Parity

0	Even parity　(default)
1	Odd parity

＊Invalid when “without parity” is set in bit 6.

Bit4: Stop bit

Table 10: Stop bit

0	1 stop bit　(default)
1	2 stop bit

Bit3：Reserved
＊Not used in this machine. Make sure to set to 0.

Bit2～0：Baud rate setting

Table 11：Baud rate

Bit2	Bit1	Bit0	Baud rate
0	0	0	19200bps
0	0	1	115200bps (default)
0	1	0	Reserved
0	1	1	Reserved
1	0	0	Reserved
1	0	1	Reserved
1	1	0	Reserved
1	1	1	Reserved

ＲＥＧ０９：Wired communication setting 2 [default：００Ｈ]

Bit7～5：Reserved

＊Not used in this machine. Make sure to set to 0.

Bit4：Addition and deletion of CRLF

Table 12：Addition and deletion of CRLF

0	Do not add the CR+LF code to the receive data. (default)
1	Add the CR+LF code to the receive data.

＊Sets whether adding the CRLF code or not to the received data.

Bit3～0：Reserved

＊Not used in this machine. Make sure to set to 0.

ＲＥＧ１０～１１：Reserved [default：００Ｈ]

＊Not used in this wireless module. Leave default setting.

ＲＥＧ１２：Detailed setting [default：０８Ｈ]

Bit7：Startup message output

Table：Startup message output

0	Disable startup message output (default)
1	Enable startup message output

＊ When you want to output message at startup, set to 1 in this bit.
＊ At startup, “Input command” is output to the wired. By this message, you can recognize the activation timing.

Bit6～4：Reserved

＊ Not used in this machine. Make sure to set to 0.
＊ No function assignment.

Bit3 : Receive level control

Table : Receive level control

0	Disable receive level control
1	Enable receive level control (default)

* When used with “Receive level control”, set to 1 in this bit.
* “Receive level control” turns LNA Off and decreases the reception level when communication at the short distance.

Bit2～0 : Reserved
* Not used in this machine. Make sure to set to 0.
* No function assignment.

ＲＥＧ１３ : Reserved [default : ００Ｈ]

* Not used in this wireless module. Leave default setting.

ＲＥＧ１４～１８ : Pairing ID code 1 [default : ００Ｈ]

* Sets an ID code for a pairing machine.
* Both the master and slave use this.

ＲＥＧ１９ : Reserved [default : ００Ｈ]

* Not used in this wireless module. Leave default setting.

ＲＥＧ２０～２４ : Pairing ID code 2 [default : ００Ｈ]

* Sets an ID code for a pairing machine.
* Only the slave use this.

ＲＥＧ２５：Reserved [default：００Ｈ]

＊ Not used in this wireless module. Leave default setting.