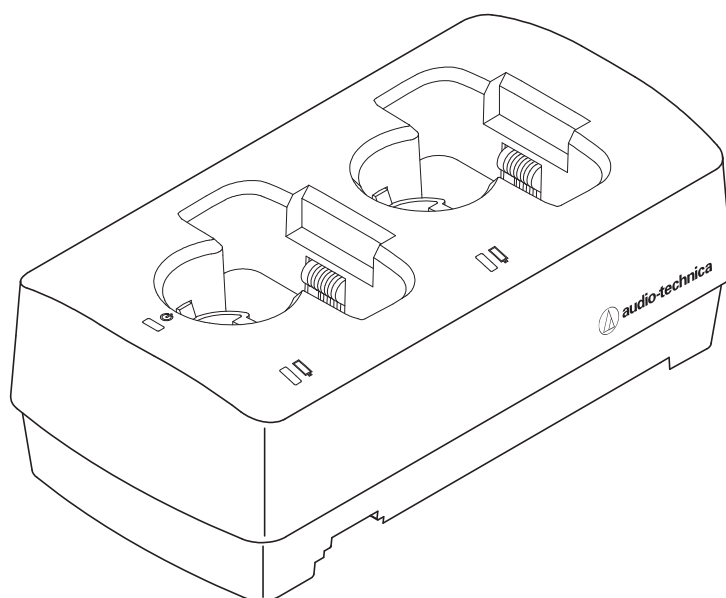




ATW-CHG3N

IP Control Protocol Specifications TWO-BAY CHARGING STATION



Revision history

Date	Version	Description of change
2018/11/05	1.0.1	First version

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1 Preface

1.1 Purpose of This Document

This document describes the command specifications to control the Wireless System charger developed in Audio-Technica.

1.2 Definition of Terms and Numeric Representation

The following table shows the definition of terms used in this document.

Term	Description
Host	A device that issues control commands. It refers to application software or a control device.
Device	A device to be controlled.
AT device	An Audio-Technica product device.
Message	A character string transmitted per communication in data format.
Command	A command statement to control a device. It is included in a message.
Parameter	Used in combination with a command. It is a setting value that specifies a command behavior.

The numeric representation is defined as follows:

Binary number: Specify a value followed by b. Example: 1010 0110b

Hexadecimal number: Specify a value preceded by 0x. Example: 0xA6

2 Basic Specifications

The update function updates the Wireless System via TCP protocol.

2.1 Communication Interfaces

Table 2-1 Communication Interfaces

No	Item	Content	Remarks
1.	Communication system	Full duplex	
2.	Transmission speed	10Mbps / 100Mbps	
3.	Port number	TCP (control): 17300 UDP (notification): 17000	Each port number is fixed and cannot be changed.
4.	Maximum data length	287 bytes (including line feed codes)	32 bytes for Ethernet communication header, 255 bytes for control commands
5.	Compatible connector	Device side: RJ45 connector (compatible with 10/100 Mbps) Cable: CAT5e or higher	

2.2 Command Formats

Transmitted commands are categorized as follows:

Table 2-2 Communication Interfaces

No	Command	Content	Remarks
1.	<u>Set Command</u>	Action command	Change the charger settings.
2.	<u>Get Command</u>	Action command	Obtain the charger settings and status.
3.	ACK	Acknowledge	Respond to a Set Command.
4.	NAK	Negative acknowledge	Respond to a Set Command.
5.	Answer	Setting change notification	Respond to a Get Command.
6.	Information	Status change notification	Report the charger settings and status change (not used for update).
7.	<u>Req Command</u>	Action request	Request an action to the host.

2.2.1 Command Common

- ① For delimiter, half-width space (_ :0x20) will be used.
- ② Commands use basically ASCII code. For specific commands UTF-8 is used (Example: Device naming etc.)
- ③ The termination of a command is CR(0x0d).

[Example].

sprch_S_0000_00_NC_1,,1,,1,471250000,01,01,0_↵

sprch_ACK_↵

sprch_NAK_01_↵

gprch_0000_00_NC_2, , 0, , , 1, 580925000, 03, 12, 1_␣

MD_nprch_0000_00_NC_1, 0, 0, 11, 0, 1234, 0, 808750000, 0, 0_␣

- ␣... means space
- ␣... means CR(0x0d)
- █... means command parameter

2.2.2 Set Command/Get Command/Request Command

The table below shows command protocol of the action commands.

Table 2-3 Command protocol of action commands

No.	Item	Content	Size	Remarks
1.	Command	Command string	5byte	Refer to “3.Table of commands”
2.	Handshake Select	Sequence execution system	1byte	H: Handshake method (Unused) O: One-Way method S: ACK/NAK format
3.	Model ID	Unused	4byte	Fixed 0000
4.	Unit No	Unused	2byte	Fixed 00
5.	Continue Select	Divided message system	2byte	NC: No divided message CS: Head of divided message CM: Divided message CE: End of divided message
6.	Parameter	Command parameter	0byte~	Refer to chapter 4
7.	End Character	Sign for end of message	1byte	CR (0x0D)

2.2.2.1 Abbreviation of Parameters

When a command is sent by the host, the following parameters can be abbreviated. This is done by using comma (,) punctuation for unspecified data.

Example. When a whole abbreviation of the parameter

sprch_S_0000_00_NC_ , , , , , , , , , , , _␣

However, depending on the command

- “Error” can occur when a whole abbreviation of the parameter
- “Unspecified” can occur when no abbreviation of the parameter

Cases above and parameters which cannot be abbreviated are described by each command from chapter 4.2 on.

2.2.3 ACK

Below, is the acknowledgment command format.

Table 2-4 Response to the acknowledgment command format

No	Item	Content	size	Remarks
1.	Command	Command string	5byte	Refer to “3.Table of commands”
2.	ACK	ACK	3byte	Fixed ACK
3.	End Character	Sign for end of message	1byte	CR (0x0D)

2.2.4 NAK

Below, is the negative acknowledgment command format.

Table 2-5 Response to negative acknowledgment command format

No	Item	Content	size	Remarks
1.	Command	Command string	5byte	Refer to “3.Table of commands”
2.	NAK	NAK	3byte	Fixed NAK
3.	Error Code	Error code	2byte	Refer to <u>Table 2-6</u>
4.	End Character	Sign for end of message	1byte	CR (0x0D)

2.2.4.1 Error code

Below, are the error codes.

Table 2-6 Error Code

Error code	Error content	Remarks
01	Grammar error	<ul style="list-style-type: none"> No mandatory request Failure in mandatory request command string Defined length of a command string is not appropriate Max. length of command string including line feed code is exceeded
02	Invalid command	<ul style="list-style-type: none"> Cannot find command (Refers to an unknown command or a command, which the device cannot use.)
03	Divided Transmission Error	<ul style="list-style-type: none"> Referred to “CM” or “CE” in a state, when “CS” Continue Select is not received.
04	Parameter error	<ul style="list-style-type: none"> Refers to an invalid RX Parameter is out of the defined range When trying to change a parameter, which cannot be changed (i.e. change “Priority” during talk,...)
05	Transmit timeout	Unused
90	Busy	Unable to process due to busy state
92	Busy (Safe Mode)	Unable to process due to p-Fail (power interruption)
93	Busy (Extension)	Unable to process due to Extension mode (CU link)
99	Other errors	Other errors than above

2.2.5 Answer

Below, is the setting status notification.

Table 2-7 Command format of setting status notification

No	Item	Content	size	Remarks
1.	Command	Command string	5byte	Refer to “3.Table of commands”
2.	Model ID	Unused	4byte	Fixed 0000
3.	Unit No	Unused	2byte	Fixed 00
4.	Continue Select	Divided message system	2byte	NC: No divided message CS: Head of divided message CM: Divided message CE: End of divided message
5.	Parameter	Command parameter	0byte~	Refer to chapter 4 and 5
6.	End Character	Sign for end of message	1byte	CR (0x0D)

2.2.6 Information

Below, is the changing status notification.

Table 2-8 Command format of changing status notification

No	Item	Content	size	Remarks
1.	Modify	MD	2byte	Fixed MD
2.	Command	Command string	5byte	Refer to "3.Table of commands"
3.	Model ID	Unused	4byte	Fixed 0000
4.	Unit No	Unused	2byte	Fixed 00
5.	Continue Select	Divided message system	2byte	NC: No divided message CS: Head of divided message CM: Divided message CE: End of divided message
6.	Parameter	Command parameter	0byte~	Refer to chapter 5
7.	End Character	Sign for end of message	1byte	CR (0x0D)

2.2.7 Request

Below, is the requesting status notification. (This command is not used for wireless system)

Table 2-9 Command format of c status notification

No	Item	Content	size	Remarks
1.	Request	RQ	2byte	Fixed RQ
2.	Command	Command string	5byte	Refer to "3.Table of commands"
3.	Model ID	Unused	4byte	Fixed 0000
4.	Unit No	Unused	2byte	Fixed 00
5.	Continue Select	Divided message system	2byte	NC: No divided message CS: Head of divided message CM: Divided message CE: End of divided message
6.	Parameter	Command parameter	0byte~	Refer to chapter 4
7.	End Character	Sign for end of message	1byte	CR (0x0D)

3 Command List

Table 2-10 Command List

No.	Category	Command	Command Name	Remarks	type			Ref.
					set	get	info	
1	Model Info	gprmi	Model parameter information acquisition request	Obtain the model parameter information.		○		
2		gveri	Version information acquisition request	Obtain the version information.		○		
3	System Setting	snmlb	Name label setting change request	Change the name label settings.	○			
4		gnmlb	Name label setting acquisition request	Obtain the name label settings.		○		
5	Network Setting	snetw	Network setting change request	Change the network parameter settings.	○			
6		gnetw	Network setting acquisition request	Obtain the network parameter settings.		○		
7		silog	Log setting change request	Change the log settings.	○			
8		gilog	Log setting acquisition request	Obtain the log settings.		○		
9	Status	gschg	Charge status acquisition request	Obtain the charge status.		○		
10		nschg	Charge status notification	Report a change in the charge status.			○	
11	Boot Mode	gmode	Mode acquisition request	Obtain the boot mode.		○		
12	request	rfrst	Reset request (to factory settings)	Reset to the factory settings.	○			
13		rdflp	Display flip and flash request (for identify)	Flip and flash the display.	○			
14		rrbot	Reboot request	Reboot the system.	○			

4 TCP Communications

To control the Wireless System charger from the host, TCP protocol is used for communications.

4.1 Communication Control

The graphic below illustrates the communication control flow of the IP control.

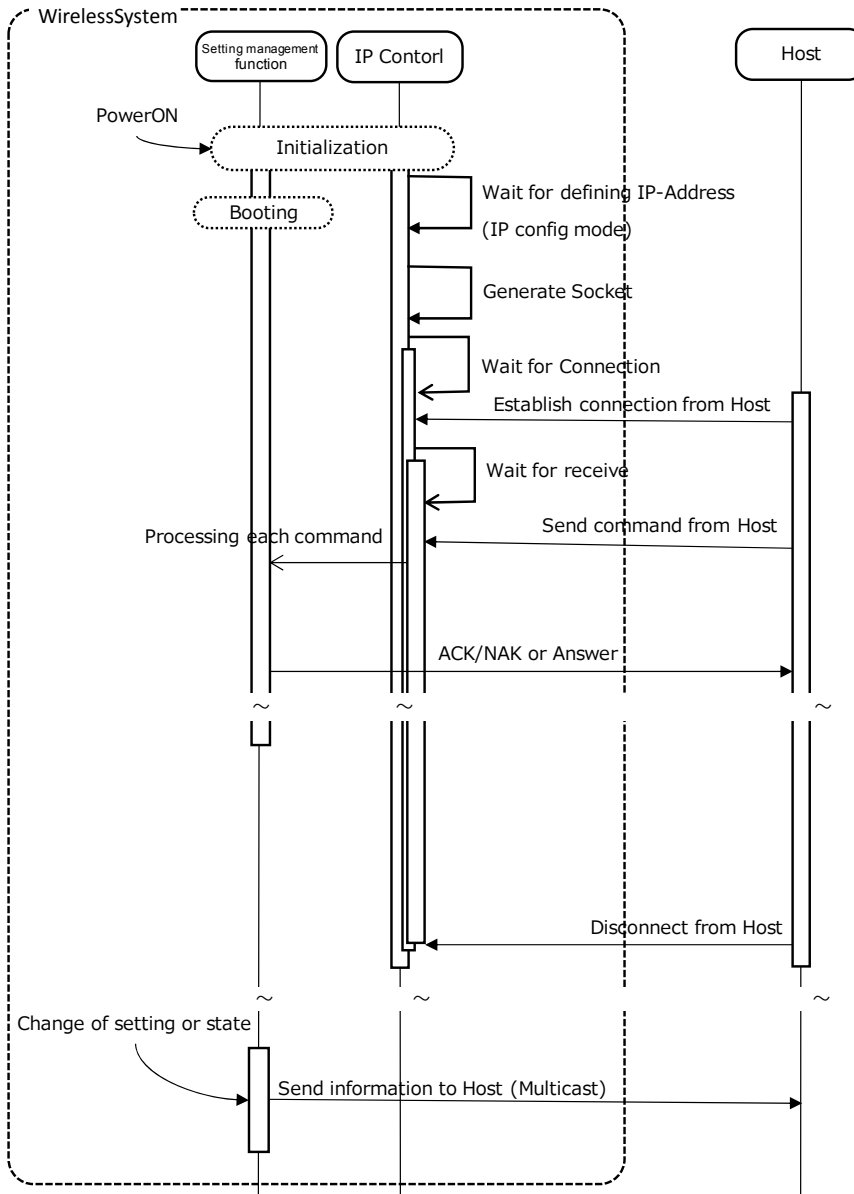


Fig. 4-1 Communication Control Flow

- After the system start, “Initializing” follows “Waiting for connection”
- After established host connection, on “Waiting for connection” follows “Waiting for transmission”
- The received command will be processed depending on the internal process task and a result (ACK/NAK) will be sent. But because this process is asynchronous, it is also possible to receive commands during processing (without waiting for ACK/NAK or Answer, the next command can be sent). Although based on the command, NAK(90:BUSY) can also occur.
- If the host will be disconnected, “Waiting for transmission” changes to “Waiting for connection”

4.1.1 Start of communication

The host establishes connections with the Wireless System.
 Multiple hosts cannot be connected. This is single connection.

Table 2-11 Communication Control Parameters

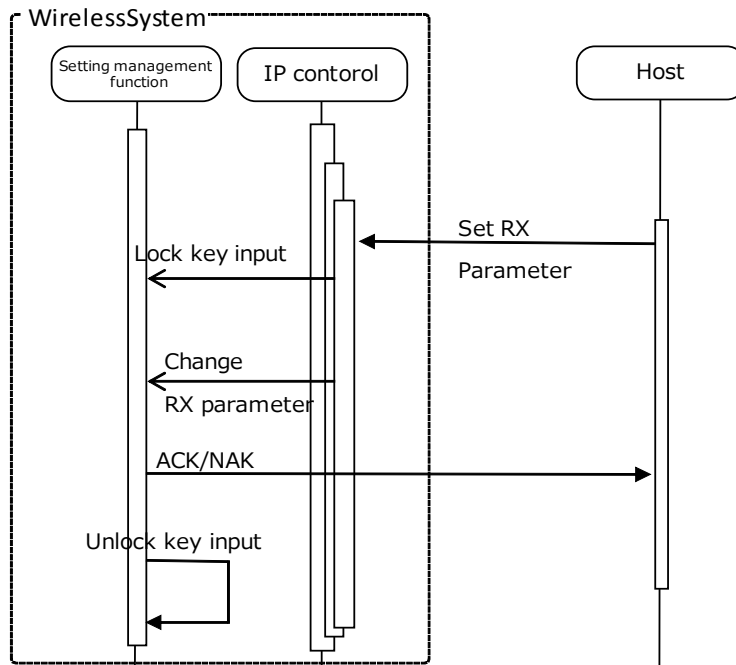
No	Name	Default Setting	Remarks
1.	IP Address	Auto	
2.	Port No	17300	

4.1.2 Control Sequence

4.1.2.1 Set Command

As "Set Command" response, the wireless system sends back ACK/NAK to the source.

<Example> Refer below for change request of RX parameter setting.



Graph 4-2 Set Command Processing Sequence

In terms of Set Command, when errors like grammar error, parameter failure etc. occur, the command NAK will sent to the source and run the key input unlock.

4.1.2.2 Get Command

As "Get Command" response, the wireless system sends back Answer to the source.

<Example> Refer below for Receive Parameter Setting Acquisition Request sequence.

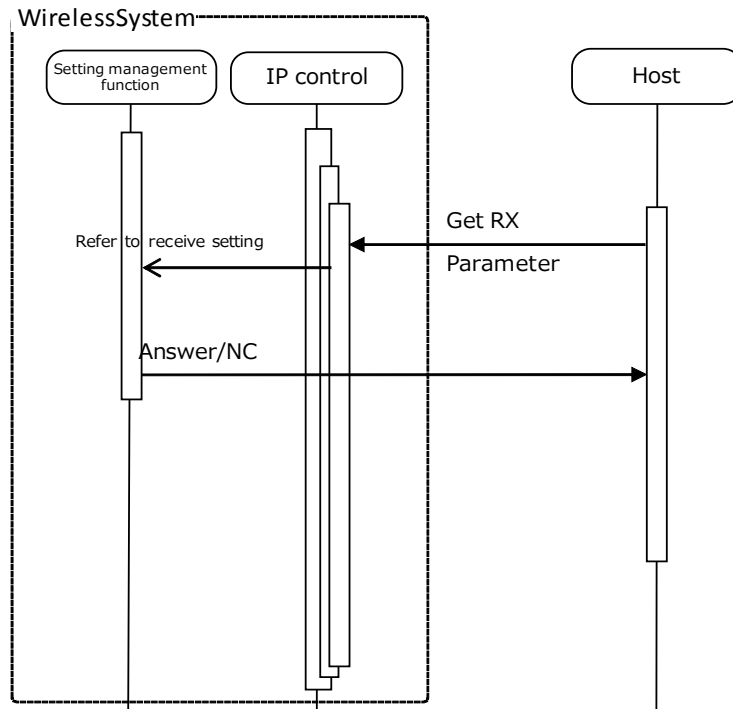


Fig. 4-3 Get Command Process Sequence

Also for Get Command, when errors like grammar error, parameter failure etc. occur, the command NAK will sent to the source.

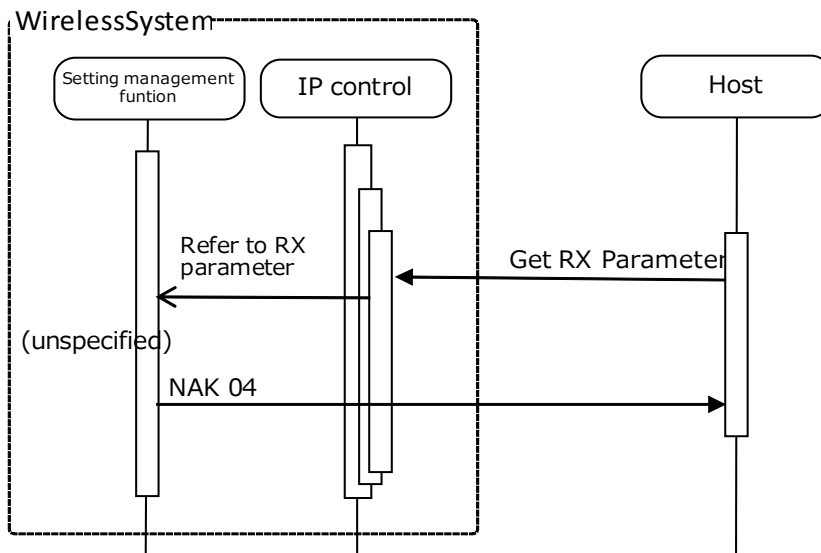


Fig. 4-4 Get Command Process Sequence (NAK)

4.1.2.3 Request Command

The request command sends whether the command was accepted or not to the sender via ACK/NAK and then performs the requested process if it was accepted (ACK response).

There is a subsequent command available to send the measurement result to the sender.

[1] Command involving reset

<Example> The sequence of reset request (to factory settings) is shown below.

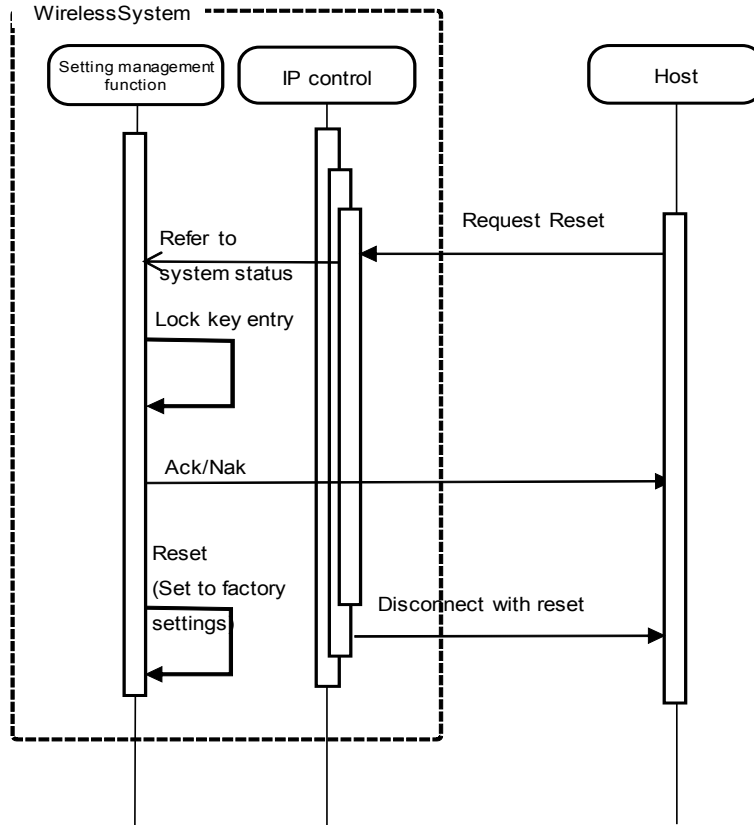


Fig. 2-5 Request Command Process Sequence (Command Involving Reset)

* For NAK responses (telegraphic error, system busy status, etc.), the system is not reset. Key entry is also unlocked.

4.1.3 Communication Error

4.1.3.1 Transmitting Error

Refer below, in case of ACK/NAK transmitting error sequence.

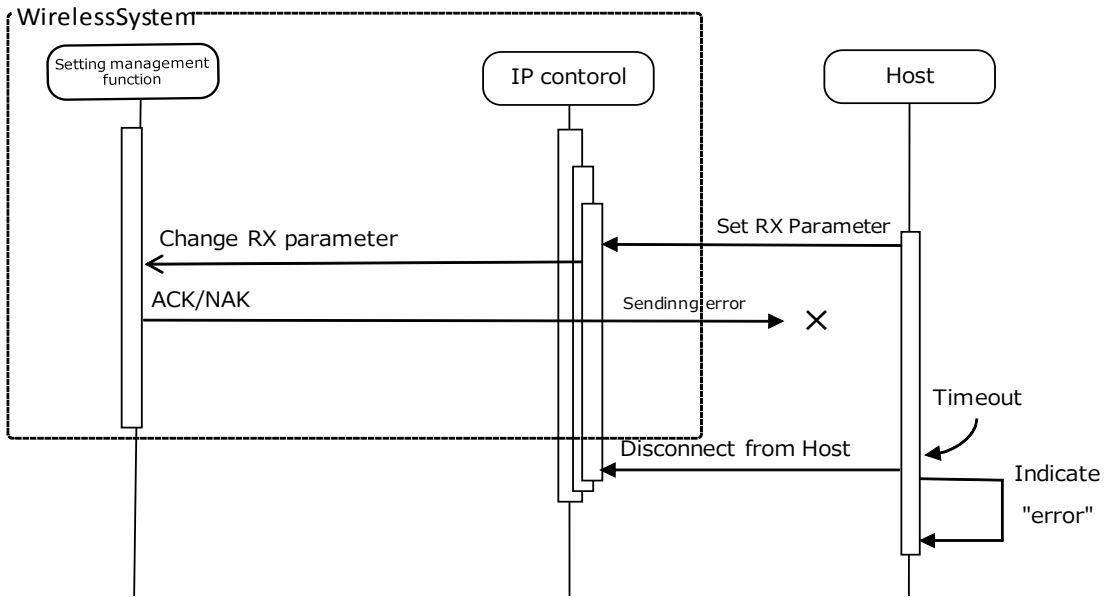


Fig. 2-6 Transmitting Error Sequence

4.1.3.2 Receiving Error

Refer below, in case of ACK/NAK receiving error sequence.

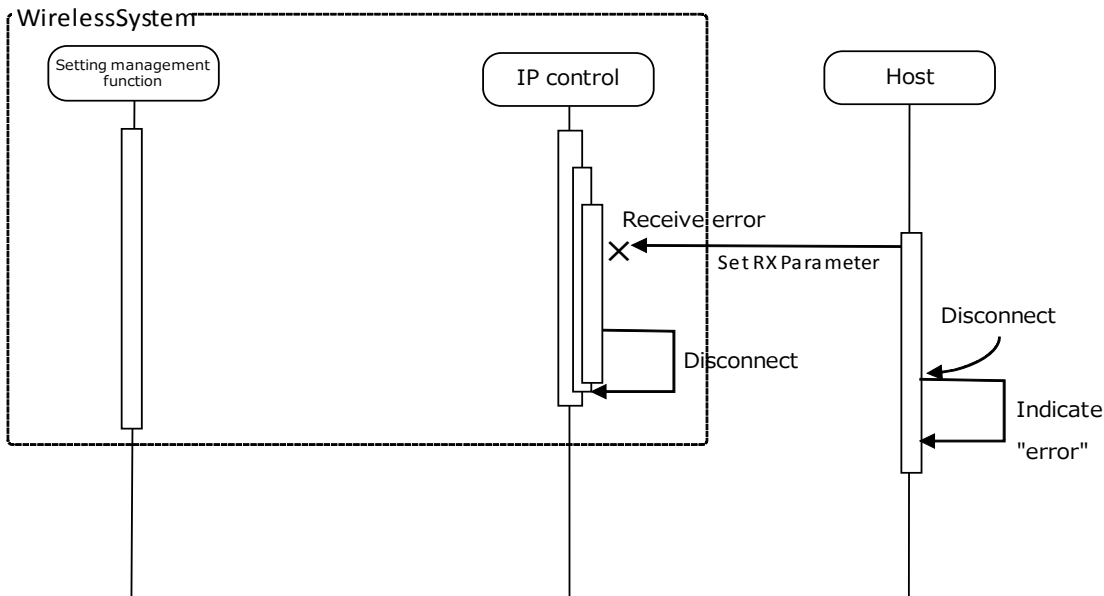


Fig. 2-7 Receiving Error Sequence

4.1.3.3 Divided Message Receiving Timeout

Divided Message is not used for IP control.

4.1.4 End of Communication

The host can disconnect at a random timing while ending the communication.

When a disconnection occurs, the Wireless System clears the status of the applied connection (eg. While sending a file, etc.) and transitions to "Waiting for connection". Further, the same process applies also in case of a disconnected cable etc.

In case of a repeated communication, the host establishes a connection.

4.2 Command Details

The following example represents the correspondence between a command to send and the command format table.

See the table and change the value to desired one in each parameter.

[Example] `snetw_S_0000_00_NC_1,192.168.0.30,255.255.255.0,192.168.0.1,0,1,1,0,225.0.0.100,17000,1,172.16.13.15,8000,+1300,1,07010000,09302330,101`

IP address acquisition method: Static
 IP address: 192.168.0.30
 Subnet mask: 255.255.255.0
 Gateway: 192.168.0.1

Automatic device detection setting: Off

Notification enable: On
 Notification by charge rate change: On
 Notification by charge time change: Off
 Multicast address: 225.0.0.100
 Multicast port number: 17000

NTP enable: On
 NTP server address: 172.16.13.15
 NTP server port number: 8000
 Timezone (time difference from UTC): +1300

DST enable: On
 Start time: 7/1 00:00
 End time: 9/30 23:30

Device ID: 101

No	item	Description	type	value	value Description
1	Command	Command string	string	w lf ts	
2	Handshake Select	Sequence execution method	string	S	
3	Model ID	Not used	string	0000	Not used
4	Unit No	Not used	string	00	Not used
5	Continue Select	Message split method	string	NC	No split
6	Parameter	Parameter			
	IP Setting	IP settings			
	IP Config mode	IP address acquisition method	string	0	Auto
				1	Static
	IP address	IP address	string	nnn.nnn.nnn.nnn	
	Subnet mask	Subnet mask	string	nnn.nnn.nnn.nnn	
	Gateway	Gateway	string	nnn.nnn.nnn.nnn	
	Allow Discovery	Automatic device detection setting	string	0	Off
				1	On
	IP Control Notification	IP control notification setting			
	Notification	Notification enable	string	0	Off
				1	On
	Charge Rate	Notification by charge rate change	string	0	Off
				1	On
	Charge Time	Notification by charge time change	string	0	Off
				1	On
	Multicast Address	Multicast address	string	nnn.nnn.nnn.nnn	
	Multicast Port No	Multicast port number	string	nnnnn	1 to 65535
	NTP Server	NTP server setting			
	NTP	NTP enable	string	0	Off
				1	On
	NTP Server Address	NTP server address	string	nnn.nnn.nnn.nnn	
	NTP Server Port No	NTP server port number	string	nnnnn	
	Time Zone	Timezone (time difference from UTC)	string	+HHmm	1-digit sign (+/-) + hour/minute string (HHmm)
	Daylight Saving Time	Daylight saving time setting			
	DST	DST enable	string	0	Off
				1	On
	Start DateTime	Start time	string	MMDDHHmm	
	End DateTime	End time	string	MMDDHHmm	
	Device ID	Device ID	string	nnn	0 to 255
7	End Character	Message end character	binary	J	CR(0x0d)

4.2.1 Model Parameter Information Acquisition Request

The charger that received the model parameter information acquisition request sends the model parameter information to the host via Answer.

[1] Get Command

The command format of the model parameter information acquisition request is shown below.

[Example] gprmi _0_0000_00_NC_↓

Table 2-12 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gprmi		
2	Handshake Select	Sequence execution method	string	O		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter		-	No parameter	
7	End Character	Message end character	binary	↓	CR(0x0d)	

[2] Answer

The Answer command format from the charger is shown below.

[Example] gprmi _0000_00_NC_ "ATW-CHG3N ", 5, " " ↓

Table 2-13 Answer Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gveri		
2	Model ID	Not used	string	0000	Not used	
3	Unit No	Not used	string	00	Not used	
4	Continue Select	Message split method	string	NC	No split	
5	Parameter	Parameter				
	Model Name	Model name	char	"		If this item contains less than 16 characters, a single-byte blank space is set at the end.
			string	ATW-CHG3N	12 single-byte characters	
			char	"		
	Receive CH Num	Maximum number of connections	string	nn	2-digit decimal number 1~	Including parent charger
	Destination Code	Destination code	char	"		If this item contains less than 6 characters, a single-byte blank space is set at the end.
			string	" "	6 single-byte characters	
			char	"		
6	End Character	Message end character	binary	↓	CR(0x0d)	

4.2.2 Version Information Acquisition Request

The charger that received the version information acquisition request sends the version information to the host via Answer.

[1] Get Command

The command format of the version information acquisition request is shown below.

[Example] gveri _0_0000_00_NC_↓

Table 2-14 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gveri		
2	Handshake Select	Sequence execution method	string	O		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter		-	No parameter	
7	End Character	Message end character	binary	↓	CR(0x0d)	

[2] Answer

The command format of Answer from the Wireless System is shown below.

[Example] gveri _0000_00_NC_ "001.002.000 ", "001.000.000 ", 2, 1, "001.000.001 ", 2, "000.000.012 " ↓

Table 2-15 Answer Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gveri		
2	Model ID	Not used	string	0000	Not used	
3	Unit No	Not used	string	00	Not used	
4	Continue Select	Message split method	string	NC	No split	
5	Parameter	Parameter				
	ZIP File Version	ZIP integrated file version	char	"		The version of the ZIP file name when written with the updater is stored.
			string	nnn.nnn.nnn	12 single-byte characters	
			char	"		
	Main Mcu Version	Main MCU F/W version	char	"		If this item contains less than 12 characters, a single-byte blank space is set at the end. * MCU for parent charger only
			string	nnn.nnn.nnn	12 single-byte characters	
			char	"		
	Charger Map	Charger map				
	Charger Num	Number of chargers	string	nn	1 or above	Number of chargers including parent charger
	Charger Data	Charger detailed information (The following information is repeated as many times as the number of self and connected chargers)				
	Charger No.	Charger number	string	nn	2-digit decimal number	1: Parent charger 2 or above: Child charger (depending on the DIP SW setting)
	Sub Mcu Version	Sub MCU F/W version (PIC)	char	"		If this item contains less than 12 characters, a single-byte blank space is set at the end.
			string	nnn.nnn.nnn	12 single-byte characters	
			char	"		
6	End Character	Message end character	binary	↓	CR(0x0d)	

4.2.3 Network Parameter Setting Change Request

The charger that received the network parameter setting change request sends the processing result to the host via ACK or NAK.

To apply the change, a reboot is required. This command does not automatically reboot the system.

[1] Set Command

The command format of the network parameter setting change request from the host is shown below.

[Example] snetw_s_0000_00_NC_1,192.168.0.30,255.255.255.0,192.168.0.1,0,1,1,0,225.0.0.100,17000,1,172.16.13.15,8000,+13:00,1,07010000,09302330,101_↓

Table 2-16 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	snetw		
2	Handshake Select	Sequence execution method	string	S		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter				
	IP Setting	IP settings				
	IP Config mode	IP address acquisition method	string	0	Auto	
				1	Static	
	IP address	IP address	string	nnn.nnn.nnn.nnn		Required when Static is selected
	Subnet mask	Subnet mask	string	nnn.nnn.nnn.nnn		Required when Static is selected
	Gateway	Gateway	string	nnn.nnn.nnn.nnn		
	Allow Discovery	Automatic device detection setting	string	0	Off	
				1	On	
	IP Control Notification	IP control notification setting				
	Notification	Notification enable	string	0	Off	
				1	On	
	Charge Rate	Notification by charge rate change	string	0	Off	
				1	On	
	Charge Time	Notification by charge time change	string	0	Off	
				1	On	
	Multicast Address	Multicast address	string	nnn.nnn.nnn.nnn		
	Multicast Port No	Multicast port number	string	n to nnnnn	1 to 65535	
	NTP Server	NTP server setting				
	NTP	NTP enable	string	0	Off	
				1	On	
	NTP Server Address	NTP server address	string	nnn.nnn.nnn.nnn		
	NTP Server Port No	NTP server port number	string	n to nnnnn		
	Time Zone	Timezone (time difference from UTC)	string	+HH:mm	1-digit sign (+/-) + hour/minute string (HH:mm)	Can be set between -12:00 and +14:00 in increments of 30 minutes
	Daylight Saving Time	Daylight saving time setting				
	DST	DST enable	string	0	Off	
				1	On	
	Start DateTime	Start time	string	MMDDHHmm		Can be set in increments of 1 hour
	End DateTime	End time	string	MMDDHHmm		Can be set in increments of 1 hour
	Device ID	Device ID	string	nnn	0 to 255	
7	End Character	Message end character	binary	↓	CR(0x0d)	

[2] ACK/NAK

[Example] snetw_ACK_↓

Table 2-17 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	sprch		The received command is set.
2	ACK	ACK	string	ACK		
3	End Character	Message end character	binary	↓	CR(0x0d)	

[Example] snetw_NAK_01_↓

Table 2-18 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	sprch		The received command is set.
2	NAK	NAK	string	NAK		
3	Error Code	Error code	string	00 to 99	Error code	Refer to Chapter 2.2.4.
4	End Character	Message end character	binary	↓	CR(0x0d)	

4.2.4 Network Parameter Setting Acquisition Request

The charger that received the network parameter setting acquisition request sends the network parameter settings to the host via Answer.

[1] Get Command

The command format of the network parameter setting acquisition request from the host is shown below.

[Example] gnetw_0_0000_00_NC_↓

Table 2-19 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gnetw		
2	Handshake Select	Sequence execution method	string	0		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter		-	No parameter	
7	End Character	Message end character	binary	↓	CR(0x0d)	

[2] Answer

The Answer command format from the charger is shown below.

[Example] gnetw_0000_00_NC_1, 192. 168. 0. 30, 255. 255. 255. 0, 192. 168. 0. 1, 00-0A-45-12-34-56, 0, 1, 1, 0, 225. 0. 0. 100, 17000, 1, 172. 16. 13. 15, 8000, +1300, 1, 07010000, 09302330, 101_↓

Table 2-20 Answer Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gnetw		
2	Model ID	Not used	string	0000	Not used	
3	Unit No	Not used	string	00	Not used	
4	Continue Select	Message split method	string	NC	No split	
5	Parameter	Parameter				
	IP Setting	IP settings				
	IP Config mode	IP address acquisition method	string	0 1	Auto Static	
	IP address	IP address	string	nnn.nnn.nnn.nnn		
	Subnet mask	Subnet mask	string	nnn.nnn.nnn.nnn		
	Gatew ay	Gatew ay	string	nnn.nnn.nnn.nnn		
	MAC Address	MAC address	string	xx-xx-xx-xx-xx-xx		
	Allow Discovery	Automatic detection setting	string	0 1	Off On	
	IP Control Notification	IP control notification setting				
	Notification	Notification enable	string	0 1	Off On	
	Charge Rate	Notification by charge rate change	string	0 1	Off On	
	Charge Time	Notification by charge time change	string	0 1	Off On	
	Multicast Address	Multicast address	string	nnn.nnn.nnn.nnn		
	Multicast Port No	Multicast port number	string	nnnnn	1 to 65535	
	NTP Server	NTP server setting				
	NTP	NTP enable	string	0 1	Off On	
	NTP Server Address	NTP server address	string	nnn.nnn.nnn.nnn		
	NTP Server Port No	NTP server port number	string	n to nnnnn		
	Time Zone	Timezone (time difference from UTC)	string	+HHmm	1-digit sign (+/-) + hour/minute string (HHmm)	
	Daylight Saving Time	Daylight saving time setting				
	DST	DST enable	string	0 1	Off On	
	Start DateTime	Start time	string	MMDDHHmm		
	End DateTime	End time	string	MMDDHHmm		
	Device ID	Device ID	string	nnn	0 to 255	
6	End Character	Message end character	binary	␣	CR(0x0d)	

4.2.5 Log Setting Change Request

The charger that received the log setting change request sends the processing result to the host via ACK or NAK.

[1] Set Command

The command format of the log setting change request from the host is shown below.

[Example] si log_S_0000_00_NC_0_␣

Table 2-21 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	silog		
2	Handshake Select	Sequence execution method	string	S		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter				
	Enable	Log settings	string	0 1	Off On	Required
7	End Character	Message end character	binary	␣	CR(0x0d)	

[2] ACK/NAK

Refer to [2] in Network Parameter Setting Change Request.

4.2.6 Log Setting Acquisition Request

The charger that received the log setting acquisition request sends the log settings to the host via Answer.

[1] Get Command

The command format of the log setting acquisition request from the host is shown below.

[Example] gi log_0_0000_00_NC_␣

Table 2-22 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gilog		
2	Handshake Select	Sequence execution method	string	O		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter		-	No parameter	
7	End Character	Message end character	binary	␣	CR(0x0d)	

[2] Answer

The Answer command format from the charger is shown below.

[Example] gilog_0000_00_NC_0_␣

Table 2-23 Answer Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gilog		
2	Model ID	Not used	string	0000	Not used	
3	Unit No	Not used	string	00	Not used	
4	Continue Select	Message split method	string	NC	No split	
5	Parameter	Parameter				
	Enable	Log settings	string	0	Off	
				1	On	
6	End Character	Message end character	binary	␣	CR(0x0d)	

4.2.7 Charge Status Acquisition Request

The charger that received the receive parameter setting acquisition request sends the receive parameter settings to the host via Answer.

[1] Get Command

The command format of the receive parameter setting acquisition request from the host is shown below.

[Example] Child charger 1 port 2 gschg_0_0000_00_NC_2_2_␣

[Example] Parent charger all ports gschg_0_0000_00_NC_1_0_␣

[Example] All chargers all ports gschg_0_0000_00_NC_0_0_␣

[Example] Child charger 2 port 1 gschg_0_0000_00_NC_3_1_␣

Table 2-24 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gschg		
2	Handshake Select	Sequence execution method	string	O		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter				
	Charger Num	Charger number to obtain	string	nn	2-digit decimal number 0~	0: All connected chargers 1: Parent charger 2 or above: Connected child charger ID
	Port Number	Charging port number to obtain	string	n	1-digit decimal number 0~	0: All charger ports 1 or above: CHG3 has 2 charging ports, and the one with the power LED is port 1. * The charging port can be specified only when the charger number is set to other than 0.
7	End Character	Message end character	binary	␣	CR(0x0d)	

[2] Answer

The Answer command format from the charger is shown below.

[Example] Child charger 1 port 2 gschg_0000_00_NC_1_2_2_1_0_0_0_36_␣

[Example] Parent charger all ports gschg_0000_00_NC_1_1_1_0_2_1_0_0_0_0_0_2_1_0_0_0_18_␣

[Example] All chargers all ports gschg_0000_00_NC_4_1_1_0_2_1_0_0_0_0_0_2_1_0_0_0_18_2_1_0_2_1_1_0_0_0_102_2_1_0_0_0_36_4_1_0_2_1_1_0_1_0_93_2_0_0_0_0_0_5_1_0_2_1_1_0_0_0_99_2_1_0_1_0_150_␣

[Example] Child charger 2 port 1 gschg_0000_00_NC_1_3_0_0_0_␣

* The status of each charger shown in the examples above is as follows:

Parent charger	Connected/Port 1: Microphone not installed/Port 2: Microphone installed, Charging, 18 minutes
Child charger 1	Connected/Port 1: Microphone installed, Charging, 102 minutes/Port 2: Microphone installed, Charging, 36 minutes
Child charger 2	Not connected/Port 1: None/Port 2: None
Child charger 3	Connected/Port 1: Microphone installed, Charged, 93 minutes/Port 2: Microphone not installed
Child charger 4	Connected/Port 1: Microphone installed, Charging, 99 minutes/Port 2: Microphone installed, Charged, 150 minutes

Table 2-25 Answer Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gSchg		
2	Model ID	Not used	string	0000	Not used	
3	Unit No	Not used	string	00	Not used	
4	Continue Select	Message split method	string	NC	No split	
5	Parameter	Parameter				
	Charger Map	Charger map				
	Charger Num	Number of chargers	string	nn	2-digit decimal number 1~	Number of chargers to report
	Charger Data	Charger detailed information (The following information is repeated as many times as the number of self and connected chargers)				
	Charger No.	Charger number	string	nn	2-digit decimal number 1~	1: Parent charger 2 or above: Connected child charger ID in ascending order
	Charger Status	Charger status	string	0	Not connected	If not connected, ignore the following parameters.
				1	Connected	
	Er Status	Error status	string	0	None	The error type can be added in the future.
				1	Communication error	
	Port Num	Number of charging ports	string	n	1-digit decimal number 0/1	Number of charging ports for the charger to report If not connected, this is set to 0, omitting Port Data for the target charger.
	Port Data	Each charging port detailed information (The following information is repeated as many times as the number of channel data or less.) CHG3no				
	Port Number	Charging port number	string	n	1-digit decimal number 1~	CHG3 has 2 charging ports, and the one with the power LED is port 1.
	Port Status	Charging port status	string	0	Microphone not installed	If microphone is not installed, ignore the parameters other than the error status.
				1	Microphone installed	
	Err Status	Error status	string	0	None	The error type can be added in the future.
				1	Charge error	
	Charge Status	Charge status	string	0	Charging	
				1	Charged	
	Charge Rate	Charge rate	string	nnn	3-digit decimal number	For future use For Li-Ion, the charge rate is sent with 0 to 100% or a gradation value (0: 0 to 20%/1: 21 to 40%/2: 21 to 40%, etc.).
	Charge Time	Charge time	string	nnn	3-digit decimal number	Up to 765 minutes in increments of 3 minutes
6	End Character	Message end character	binary	␣	CR(0x0d)	

4.2.8 Name Label Setting Change Request

The charger that received the name label setting change request sends the processing result to the host via ACK or NAK.

[1] Set Command

The command format of the name label setting change request from the host is shown below.

[Example] snmlb_S_0000_00_NC_“CHG CLASSROOM001”␣

Table 2-26 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	snmlb		
2	Handshake Select	Sequence execution method	string	S		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter				
	Name Label	Name label	char	"		If this item contains less than 16 characters, a single-byte blank space is set at the end.
			string	NameLabel-nnn	16 single-byte characters	
			char	"		
7	End Character	Message end character	binary	␣	CR(0x0d)	

[2] ACK/NAK

Refer to [2] in Network Parameter Setting Change Request.

4.2.9 Name Label Setting Acquisition Request

The charger that received the name label setting acquisition request sends the name label settings to the host via Answer.

[1] Get Command

The command format of the name label setting acquisition request from the host is shown below.

[Example] gnmIb_0_0000_00_NC_␣

Table 2-27 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gnmlb		
2	Handshake Select	Sequence execution method	string	O		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter		-	No parameter	
7	End Character	Message end character	binary	␣	CR(0x0d)	

[2] Answer

The command format of Answer from the Wireless System is shown below.

[Example] gnmlb_0000_00_NC_ "ATW-CHG3N 123456" ␣

Table 2-28 Answer Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gnmlb		
2	Model ID	Not used	string	0000	Not used	
3	Unit No	Not used	string	00	Not used	
4	Continue Select	Message split method	string	NC	No split	
5	Parameter	Parameter				
	Name Label	Name label	char	"		The default value is set with model name + single-byte space + lower 3 bytes of MAC address.
			string	ATW-CHG3N nnnnnn	16 single-byte characters	
			char	"		
6	End Character	Message end character	binary	␣	CR(0x0d)	

4.2.10 Mode Acquisition Request

The charger that received the mode acquisition request sends the boot mode to the host via Answer.

[1] Get Command

The command format of the mode acquisition request from the host is shown below.

[Example] gmode_0_0000_00_NC_␣

Table 2-29 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gmode		
2	Handshake Select	Sequence execution method	string	O		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter		-	No parameter	
7	End Character	Message end character	binary	␣	CR(0x0d)	

[2] Answer

The Answer command format from the charger is shown below.

[Example] gmode_0000_00_NC_0, "ATW-CHG3N ", "001.000.000 " ␣

Table 2-30 Answer Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	gmode		
2	Model ID	Not used	string	0000	Not used	
3	Unit No	Not used	string	00	Not used	
4	Continue Select	Message split method	string	NC	No split	
5	Parameter	Parameter				
	Mode	Boot mode	string	0	Normal mode	
				1	Adjustment mode	The specification is not yet determined as of December 2017.
				2	FW update mode	When the boot loader is running, this parameter is returned to the system.
				3	Service mode	The specification is not yet determined as of December 2017.
				4	TX update mode	
				5	Debug mode	DR3120 only
	Model Name	Model name	char	"		If this item contains less than 16 characters, a single-byte blank space is set at the end.
			string	xxxxxxxxxxxxxxxx	16 single-byte characters	
			char	"		
	Boot Loader Version	Version (Boot loader or firmware)	char	"		If this item contains less than 12 characters, a single-byte blank space is set at the end.
			string	nnn.nnn.nnn	12 single-byte characters	
			char	"		
6	End Character	Message end character	binary	␣	CR(0x0d)	

4.2.11 Reset Request (to Factory Settings)

The Wireless System that received the reset request (to factory settings) sends the processing result to the host via ACK or NAK.

[1] Set Command

The command format of the reset request (to factory settings) from the host is shown below.

[Example] rfrst_S_0000_00_NC↵

Table 2-31 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	rfrst		
2	Handshake Select	Sequence execution method	string	S		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter		-	No parameter	
7	End Character	Message end character	binary	↵	CR(0x0d)	

[2] ACK/NAK

Refer to [2] in Network Parameter Setting Change Request.

The system is reset after ACK is sent.

4.2.12 Display Flip and Flash Request (for Identify)

The Wireless System that received the display flip and flash request sends the processing result to the host via ACK or NAK.

[1] Set Command

The command format of the display flip and flash request from the host is shown below.

[Example] rdflp_S_0000_00_NC_2, 1, 1, 3, 3_↵

Table 2-32 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	rdflp		
2	Handshake Select	Sequence execution method	string	S		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter				
	Charger Map	Target charger map				
	Charger Num	Number of target chargers	string	nn		
	Charger Data	Target charger data (The following information is repeated as many times as the number of chargers)				
	Charger No.	Charger number	string	nn	2-digit decimal number	1: Parent charger
	OPERATION	Operation	string	0	OFF	
				1	Flash	Only the power LED flashes.
				2	Flip	Spare specification (not currently used)
				3	All flash	Even the charge status LED flashes.
7	End Character	Message end character	binary	↵	CR(0x0d)	

[2] ACK/NAK

Refer to [2] in Network Parameter Setting Change Request.

When Start is selected, the display is flipped and flipped back repeatedly at one second intervals for 10 seconds after ACK is sent.

4.2.13 Reboot Request

The Wireless System that received the reboot request sends the processing result to the host via ACK or NAK.

[1] Set Command

The command format of the auto squelch start request from the host is shown below.

[Example] rrbot_S_0000_00_NC_↵

Table 2-33 Command Format

No	item	Description	type	value	value Description	remarks
1	Command	Command string	string	rrbot		
2	Handshake Select	Sequence execution method	string	S		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter		-	No parameter	
7	End Character	Message end character	binary	↵	CR(0x0d)	

[2] ACK/NAK

Refer to [2] in Network Parameter Setting Change Request.

5 UDP Communications

The information (status change notification) from the charger is sent via UDP protocol.

5.1 Communication Control

The communication control flow is the same as in 4.1 Communication Control in the Wireless System IP Control Protocol Specification.

5.1.1 Start of Communication

The host registers groups to the multicast address.

Table 5-1 Communication Control Parameters

No	Name	Default Setting	Remarks
1.	IP Address	225.000.000.100	Multicast address
2.	Port No	17000	

5.1.2 Control Sequence

5.1.2.1 Information

If the state of the wireless system changes, the below State Change Notification will be executed.

<Example> Refer below for a RX parameter setting change notification sequence.

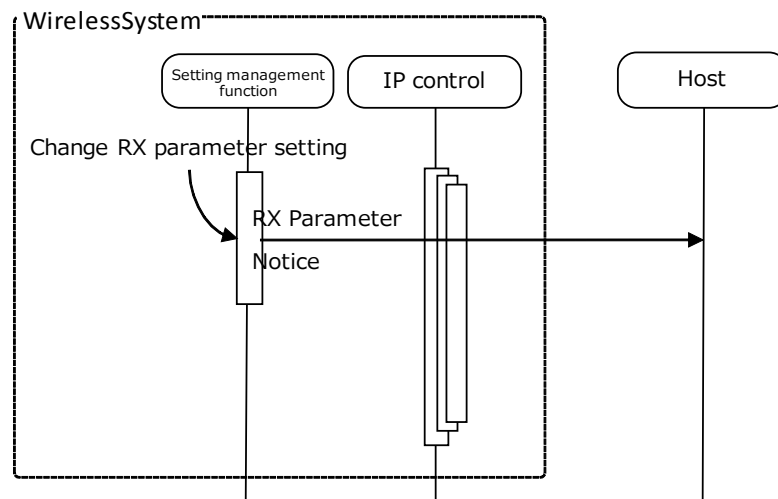


Fig. 5-1 Information Command Process Sequence

5.1.3 Communication Errors

The details are the same as in 4.1.3 Communication Errors in the Wireless System IP Control Protocol Specification.

5.1.4 End of Communication

The host can unregister groups at any timing.

5.2 Command Details

5.2.1 Charge Status Notification

The charge status notification sends data to each port according to the following rules when notification enable is set to 1 (On) in the network parameter settings.

- The charger status or error status changes.
- The charging port status, error status, or charge status changes.
- The charge rate changes when notification by charge rate change is set to 1 (On) in the network parameter settings (for future use).
- The charge time changes when notification by charge time change is set to 1 (On) in the network parameter settings.

[Example] Child charger 3, port 2 MD_nschg_0000_00_NC_1,4,1,0,1,2,0,0,0,0,0_↓

[Example] Child charger 4, port 2 MD_nschg_0000_00_NC_1,5,1,0,1,2,1,0,1,0,150_↓

[Example] Child charger 2 MD_nschg_0000_00_NC_1,3,0,0,0_↓

* The status of each charger shown in the examples above is as follows:

Parent charger Connected/Port 1: Microphone not installed/Port 2: Microphone installed, Charging, 18 minutes

Child charger 1 Connected/Port 1: Microphone installed, Charging, 102 minutes/Port 2: Microphone installed, Charging, 36 minutes

Child charger 2 Not connected/Port 1: None/Port 2: None

Child charger 3 Connected/Port 1: Microphone installed, Charged, 93 minutes/Port 2: Microphone not installed

Child charger 4 Connected/Port 1: Microphone installed, Charging, 99 minutes/Port 2: Microphone installed, Charged, 150 minutes

Table 5-2 Command Format

No	item	Description	type	value	value Description	remarks
1	Modify	MD	string	MD		
2	Command	Command string	string	nschg		
3	Model ID	Not used	string	0000	Not used	
4	Unit No	Not used	string	00	Not used	
5	Continue Select	Message split method	string	NC	No split	
6	Parameter	Parameter				
	Charger Map	Charger map				
	Charger Num	Number of chargers	string	nn	2-digit decimal number 1~	Number of chargers to report (fixed to 1)
	Charger Data	Charger detailed information (The following information is repeated as many times as the number of self and connected chargers)				
	Charger No.	Charger number	string	nn	2-digit decimal number 1~	1: Parent charger 2 or above: Connected child charger ID in ascending order
	Charger Status	Charger status	string	0 1	Not connected Connected	If not connected, ignore the following parameters.
	Er Status	Error status	string	0 1	None Communication error	The error type can be added in the future.
	Port Num	Number of charging ports	string	n	1-digit decimal number 0/1	Number of charging ports for the charger to report If not connected, this is set to 0, omitting Port Data for the target charger.
	Port Data	Each charging port detailed information (The following information is repeated as many times as the number of channel data or less.)				
	Port Number	Charging port number	string	n	1-digit decimal number 1~	CHG3 has 2 charging ports, and the one with the power LED is port 1.
	Port Status	Charging port status	string	0 1	Microphone not installed Microphone installed	If microphone is not installed, ignore the parameters other than the error status.
	Err Status	Error status	string	0 1	None Charge error	The error type can be added in the future.
	Charge Status	Charge status	string	0 1	Charging Charged	
	Charge Rate	Charge rate	string	nnn	3-digit decimal number	For future use For Li-Ion, the charge rate is sent with 0 to 100% or a gradation value (0: 0 to 20%/1: 21 to 40%/2: 21 to 40%, etc.).
	Charge Time	Charge time	string	nnn	3-digit decimal number	Up to 765 minutes in increments of 3 minutes
7	End Character	Message end character	binary	↓	CR(0x0d)	