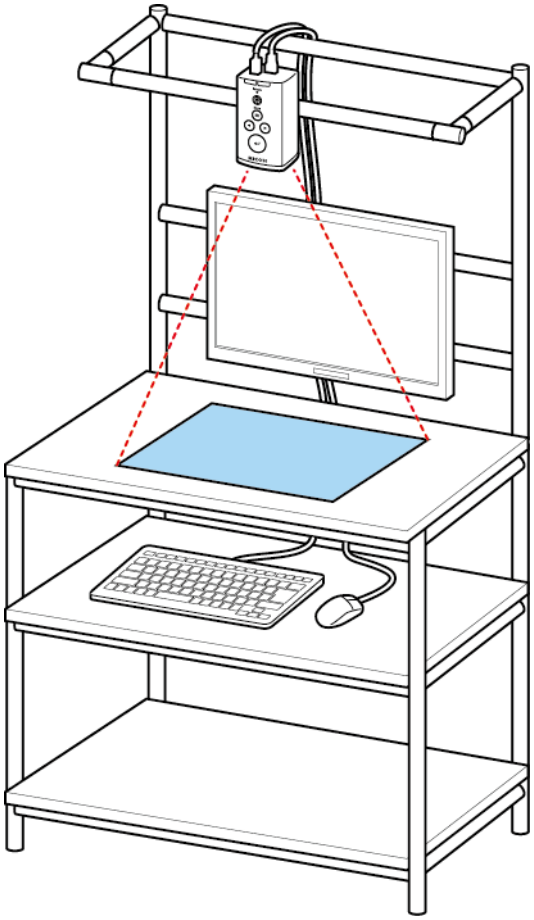
RICOH

INSPECTION CAMERA SYSTEM

RICOH SC-10 SERIES

Socket Mode Function Operating Instructions



RICOH Industrial Solutions Inc.

How to Read This Manual

About Symbols

The symbols used in this manual have the following meanings.

Important

Indicates an explanation containing points to pay attention to when operating the device, restrictions, or other information. Be sure to read the explanation.

Note

Indicates an explanation containing information that is useful to know, a supplementary operating procedure, or other information.

Reference /(→P. ##)

Indicates reference information.

[ ]

Indicates a screen item or button name.

Contents

1. Overview

The inspection camera system (SC-10A series) can be connected with an external device using the TCP/IP socket mode function.
This manual describes the connection procedure for socket mode and the data formats to set for socket mode.

Applicable Devices and Connection Configuration

Applicable models

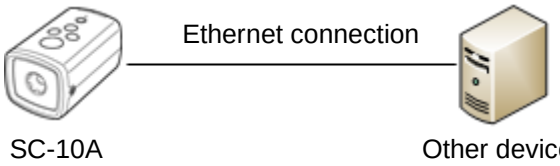
The following devices support socket mode.

- Inspection camera system: SC-10A (Ver. 4.1.0 or later)
- Inspection camera system: SC-10A (H) (Ver. 4.1.0 or later)

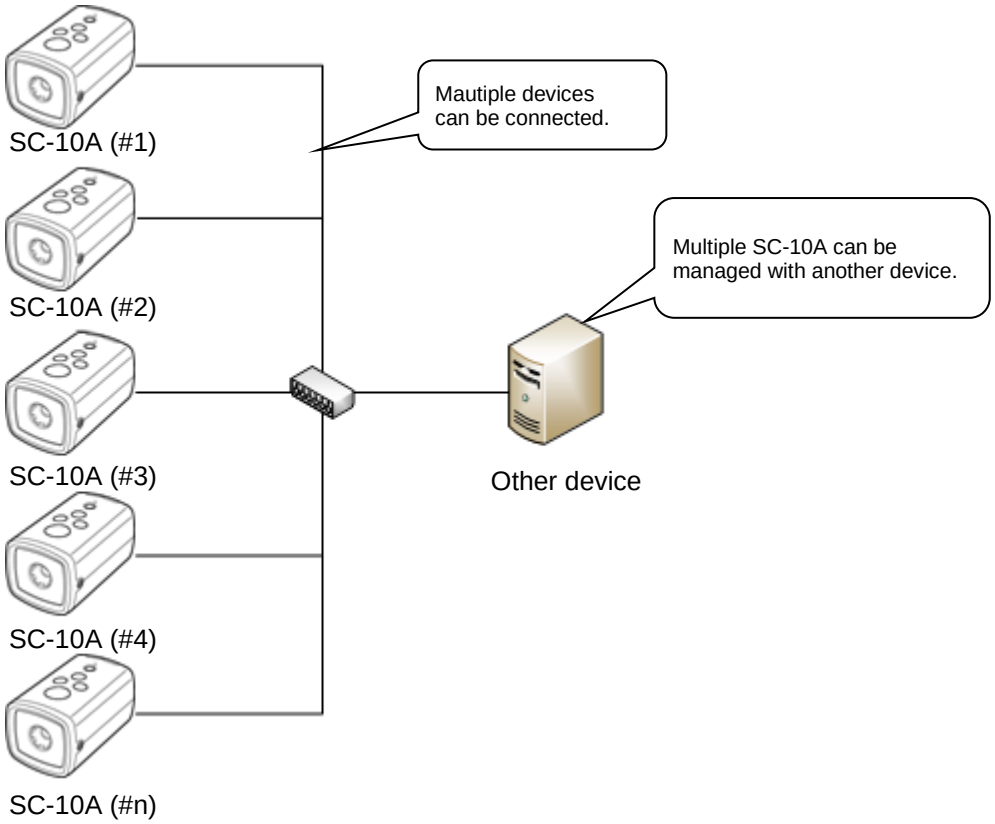
Connection configuration

If Ethernet connections are used, multiple inspection camera systems can be connected.

Example 1：



Example 2：



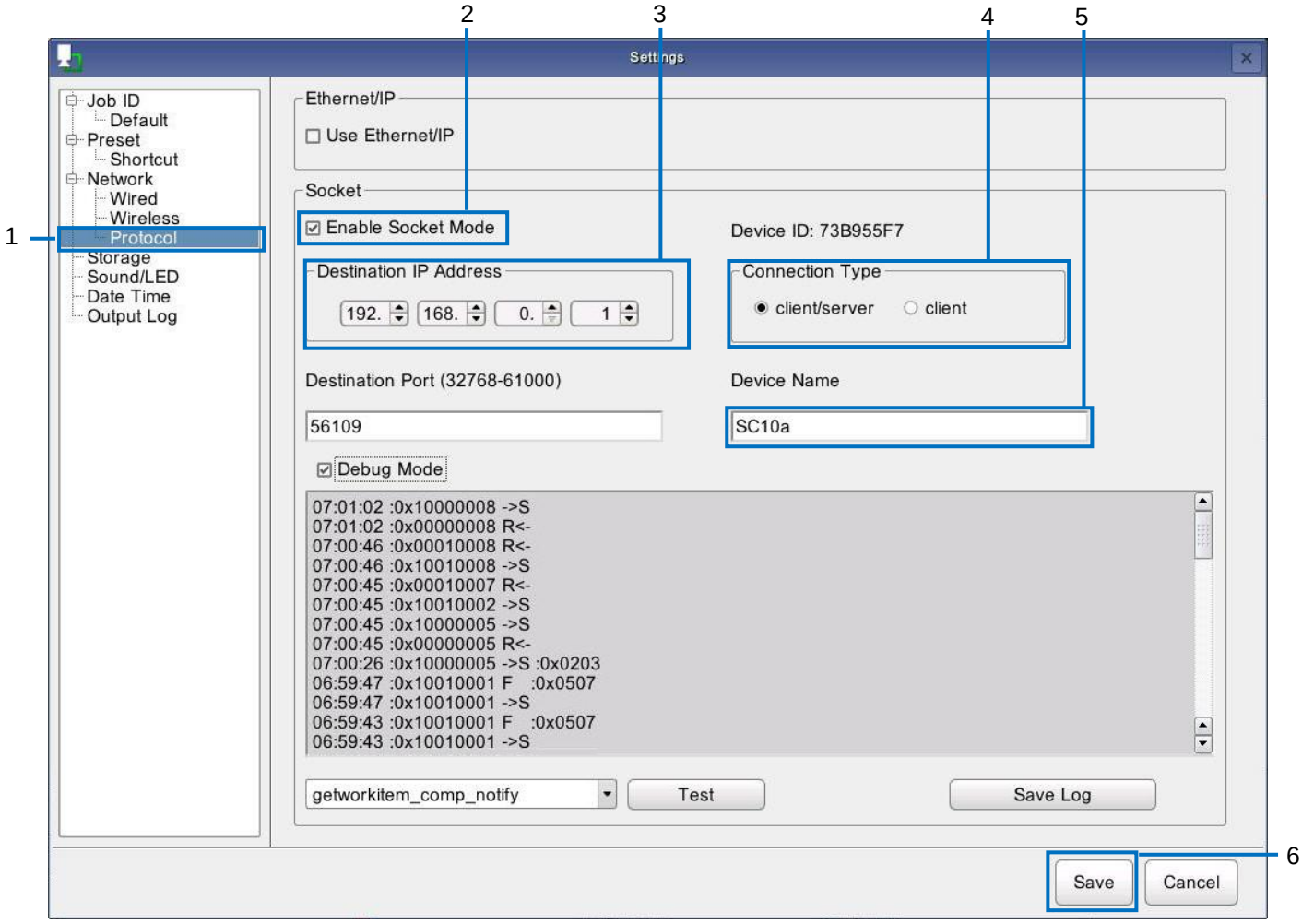
2. Socket Mode

Enabling the Socket Mode Control Function

Set the socket mode control function of the SC-10A in the [Settings] screen of the SC-10A.
Log in to the SC-10A in the administrator mode and then select [Job Settings...] in the [Job] menu to display the [Settings] screen.

Reference

- For details on operation of the SC-10A, refer to the operating instructions of the SC-10 series.



1. **Select [Socket Mode].**
2. **Select the [Enable Socket Mode] check box.**
3. **Set the IP address of the other device (other party with which to perform socket mode) in [Destination IP Address].**
4. **Select one of the following communication methods: [client / server] or [client].**
5. **Enter the name of the device in [Device Name].**
   - Enter any name from 1 to 50 alphanumeric characters long.
6. **Click [Save].**
   The settings are saved.

Note

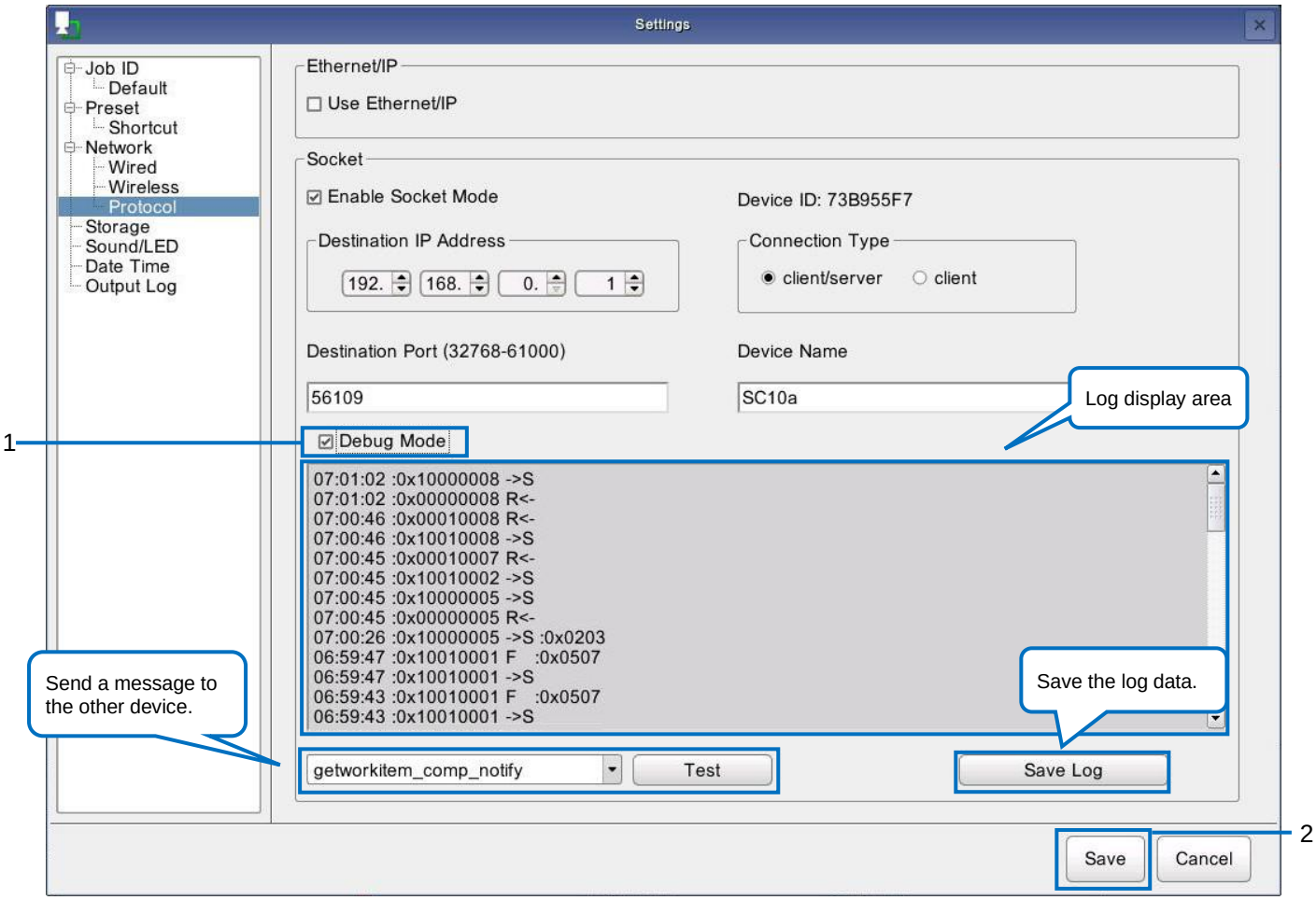
- [Device ID] is set automatically by the system.

Setting the Debug Mode

The debug mode can be set. When developing an application for the other device, you can use the debug mode to check communication and verify operation.

Note

- To set debug mode, you need to enable the socket mode function in advance (→P.5).

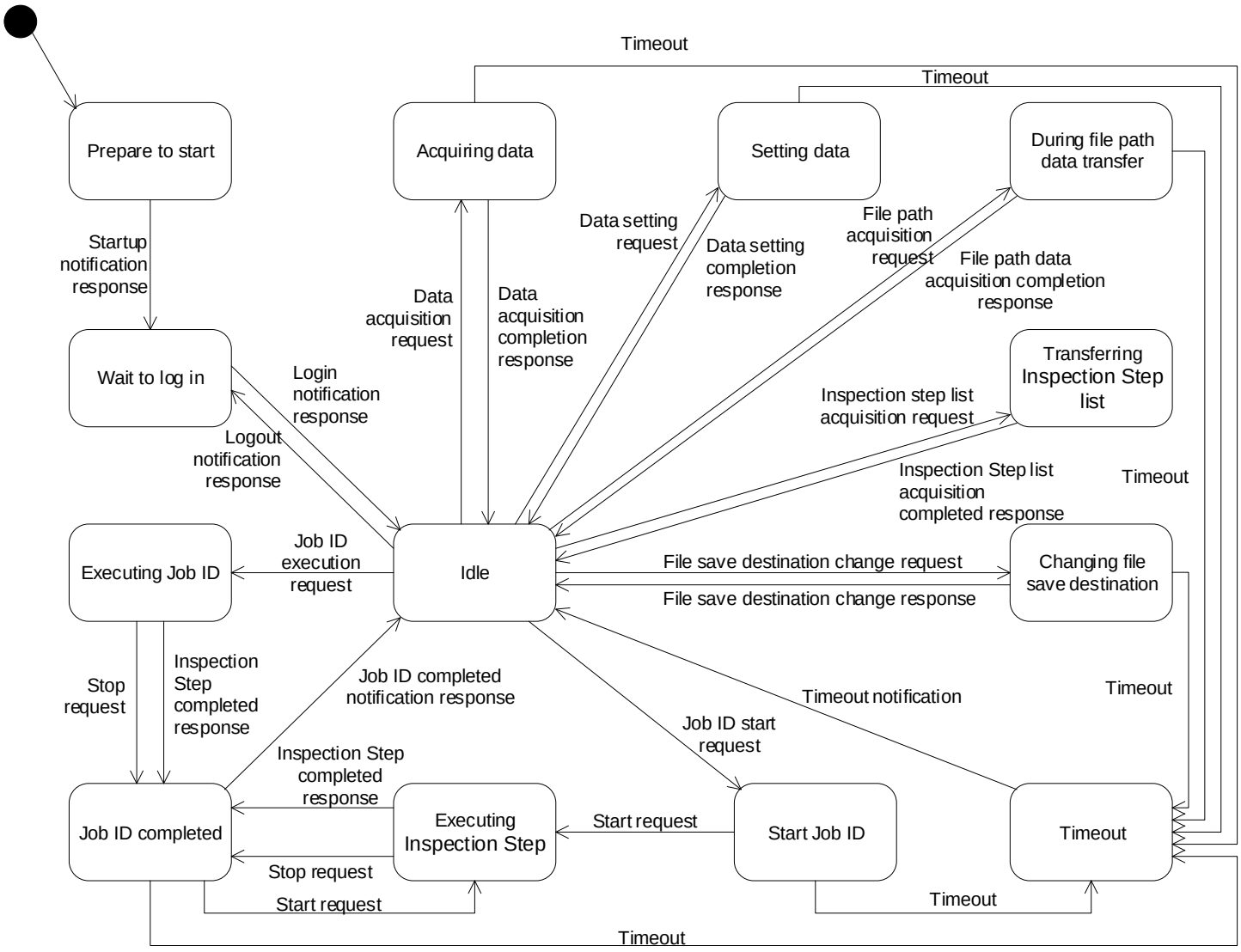


1. **Select [Debug Mode] in the socket mode settings screen.**
2. **Click [Save].**

Note

- When the debug mode is enabled, the logs of sent and received messages (date and time sent/received, message ID, sent/received information, and error code) are displayed in the log display area. If you click [Save Log], you can save the logs to media.
- If you select a message to send to the other device from the pull-down menu and then click the [Test] button, the message is sent.

Status Transition Diagram



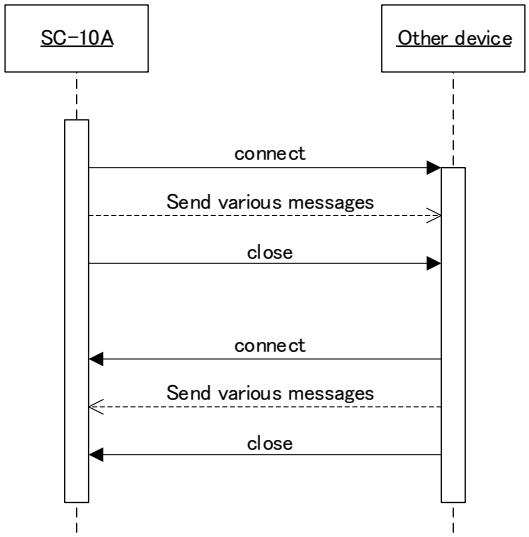
Sequences

This section describes the sequences supposed to be used with the work instruction network control function.

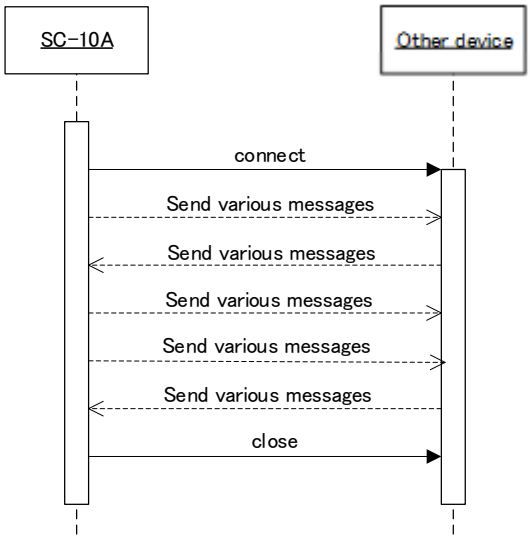
Connection method

You can set the connection method of [client / server] or [client] in the socket communication settings.

[Client / server] is a method in which the sending side executes connect and closes after sending the message.



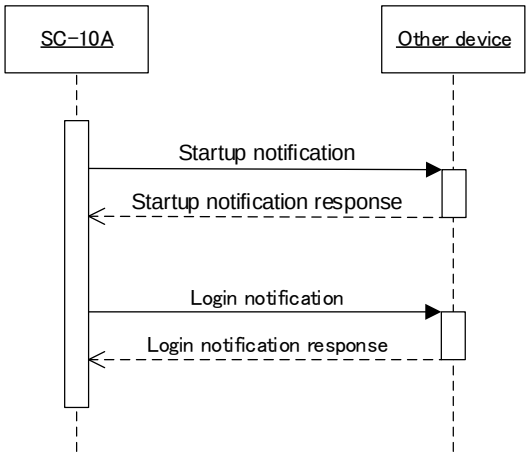
[Client] is a connection method in which the SC-10A performs a connect and keeps a session until the system stops.



Processing at startup

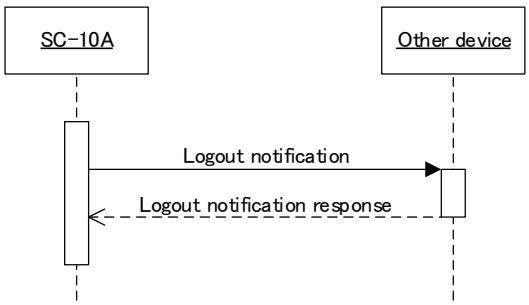
The SC-10A sends a startup notification to the other device after startup. The application of the other device sends a startup notification response after receiving the startup notification.
The SC-10A sends the login information in a login notification after receiving the startup notification response. The other device sends a login notification response and the sequence ends.

Startup notification (when successful):



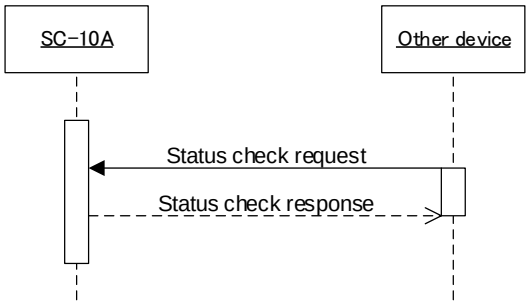
Logout

When the logout operation is performed, the SC-10A sends a logout notification.
The other device sends a logout notification response and the sequence ends.



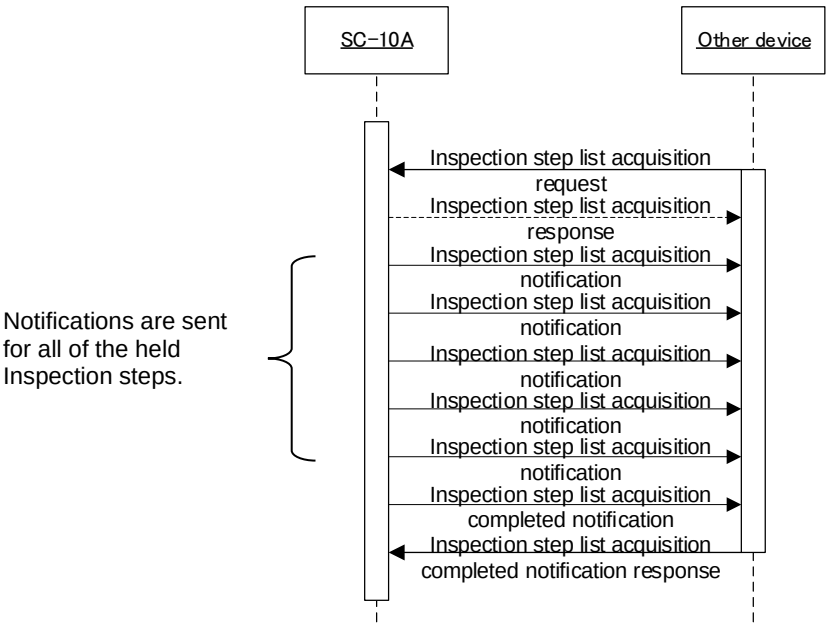
Status check

When the status of the SC-10A is checked from the other device, a status check request is sent from the other device. The status of the camera is sent as a status check response at arbitrary timing.



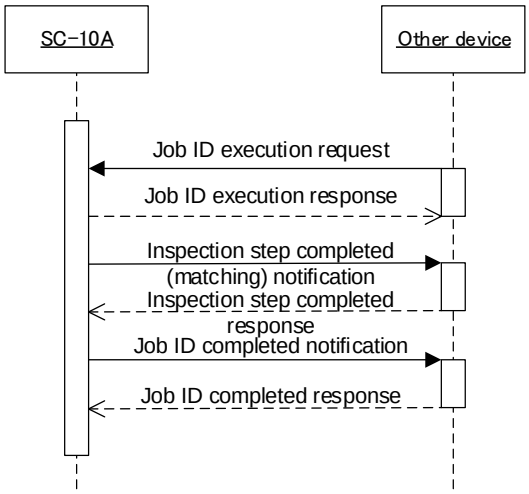
Inspection step list acquisition

When an Inspection step registered on the SC-10A is acquired, an Inspection step list acquisition request is sent from the other device. The SC-10A sends an Inspection step list response and then sends Inspection step list data notifications. One Inspection step list data notification is sent per Inspection step registered on the SC-10A. When sending of the Inspection step list data notifications for all of the Inspection steps is complete, the Inspection step list acquisition completed notification is sent. The other device sends an Inspection step list acquisition completed response and the sequence ends.



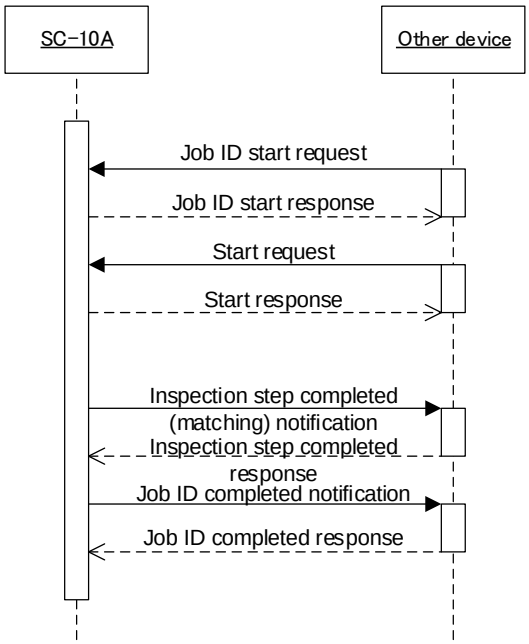
Job ID execution processing

When the Job ID of the SC-10A is switched from the other device to execute the sequence starting with the first Inspection step registered to the Job ID, a Job ID execution request is sent from the other device. The Inspection steps are executed sequentially from the first one registered to the Job ID. The execution result is sent in an Inspection step completed notification from the SC-10A.
When execution of all Inspection steps registered to the Job ID is completed, the SC-10A sends a Job ID completed notification. The other device sends a Job ID completed response to the SC-10A and the sequence ends.



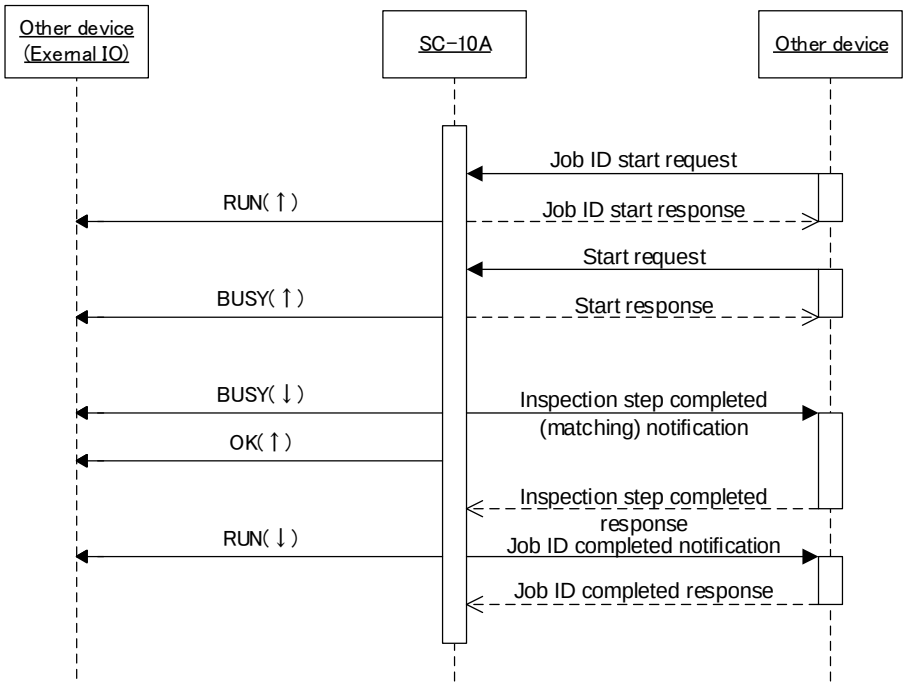
Job ID switching and start processing

When the Job ID switching and start processing is executed from the other device, a Job ID start request is sent from the other device. The SC-10A sends a Job ID start response. If there is no problem with the response result, the other device sends a start request. If there is no problem with the start response from the SC-10A, the other device waits for an Inspection step completed notification sent from the SC-10A after the Inspection step execution completes. When the Inspection step completed notification is received, an Inspection step completed response is sent from the other device. When all Inspection steps of the Job ID are completed, the SC-10A sends a Job ID completed notification. The other device sends a Job ID completed response and the sequence ends.



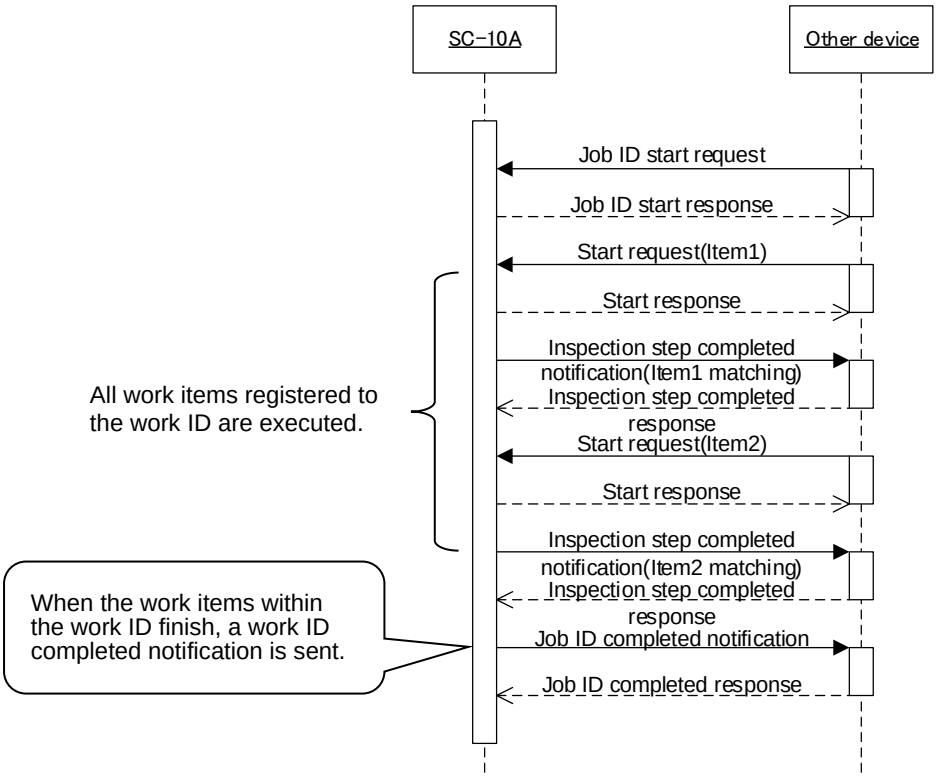
External IO (OUT) link

When an external IO (OUT) is set, the sequence is as shown below when the Job ID is started/ended by socket mode.



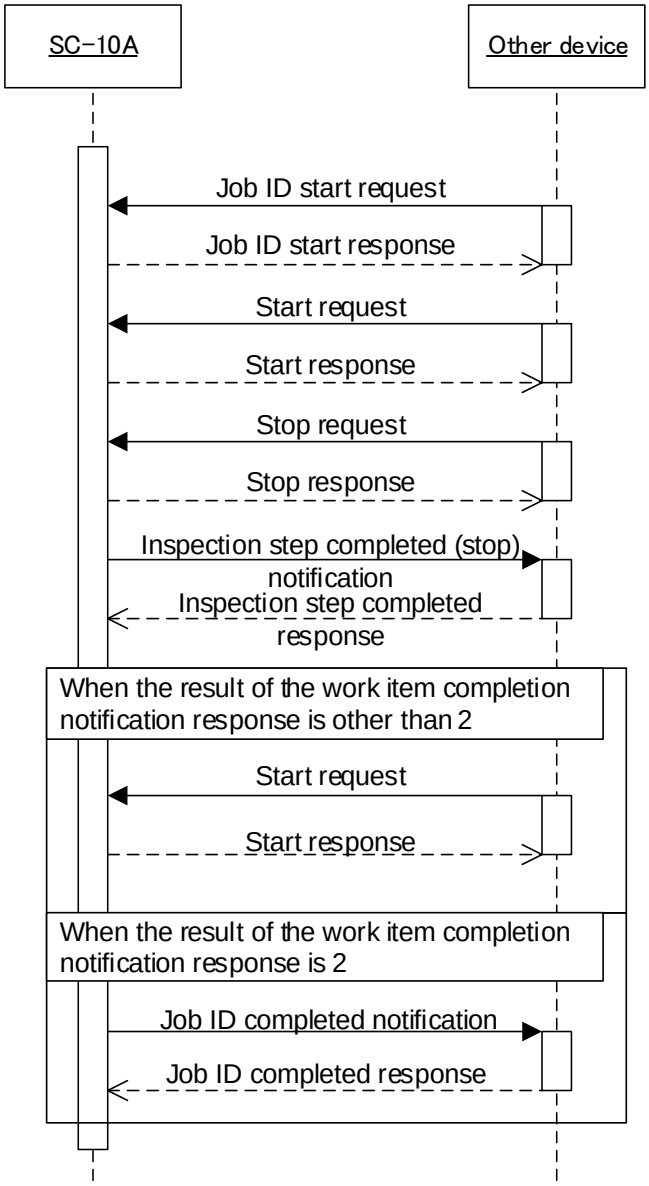
Matching of multiple Inspection steps of one Job ID

When multiple Inspection steps are registered to one Job ID, multiple start requests/responses and Inspection step completed notifications/responses are repeated for one Job ID start request/response.
The execution order does not matter as long as the Inspection steps are within one Job ID.



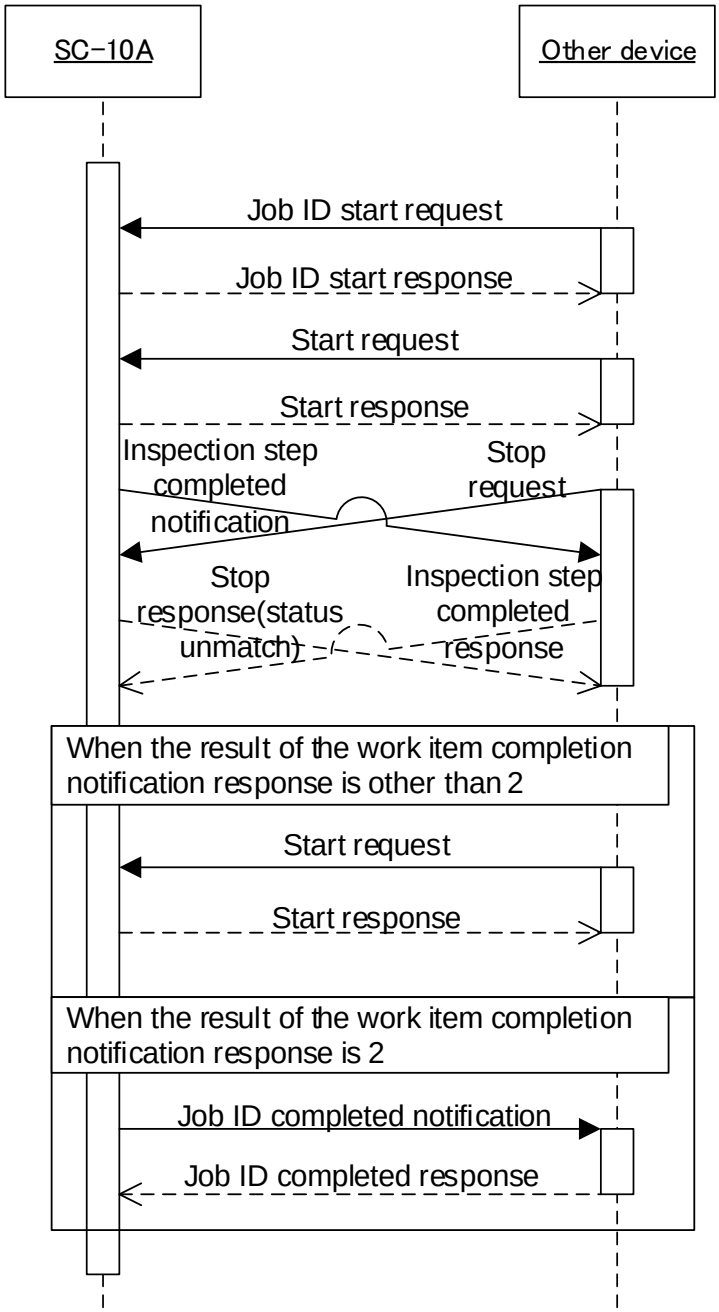
Stopping Inspection step (TCP/IP)

When the processing during the period from the start request and Inspection step completed notification is stopped, the work stops when the stop request is sent to the SC-10.



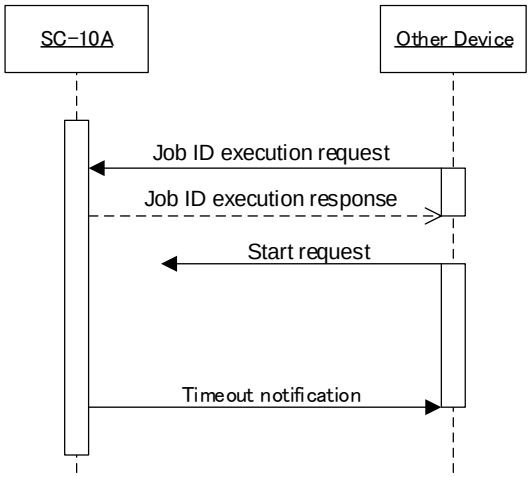
Message crossing (stop request)

If the Inspection step completed notification and the stop request are sent at almost the same time, priority is given to processing the message that arrived in the received thread of the SC-10A first.
The following shows the sequence when the Inspection step completed notification is received before the stop request. The Inspection step completed notification that was received first is processed and then the stop request is discarded.



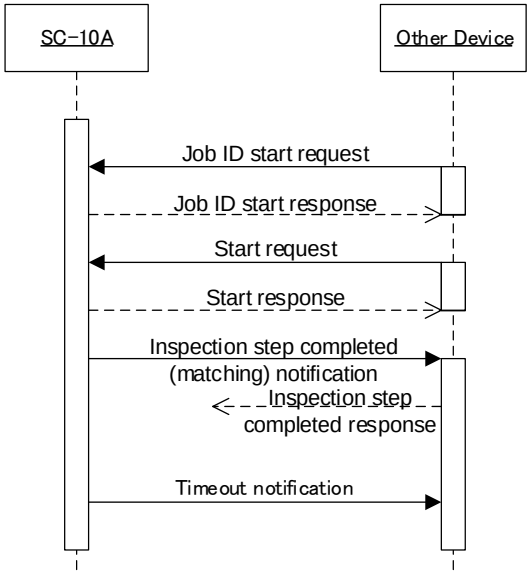
Start request timeout

If the start request from the other device did not arrive at the SC-10A for some reason, a timeout notification is sent internally in the system after the timer set inside the SC-10A expires in order to perform the timeout process. Check the network status and take a measure from the other device.



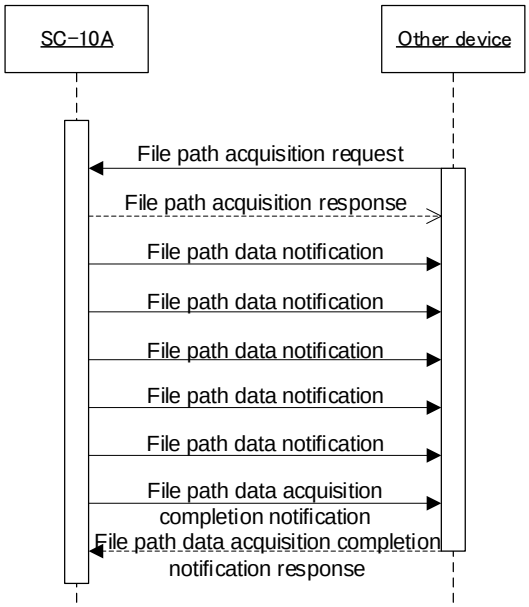
Inspection step completed notification response timeout

If the Inspection step completed notification response from the other device did not arrive at the SC-10A for some reason, a timeout notification is sent internally in the system after the timer set inside the SC-10A expires in order to perform the timeout process. Check the network status and take a measure from the other device.



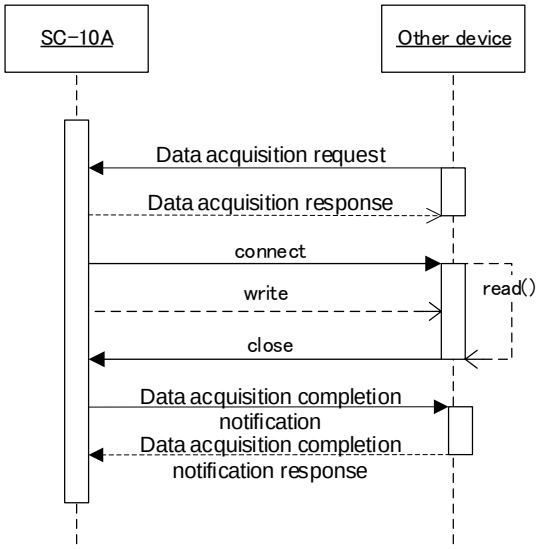
Camera internal data file path information acquisition

If you want to obtain information on various file storage destinations defined inside the SC-10A, you can obtain the path information of the storage destination by sending a "file path acquisition request" from the partner device.
It is recommended that this operation be performed before sending a "data acquisition request", "data setting request", or "file path change request" request.



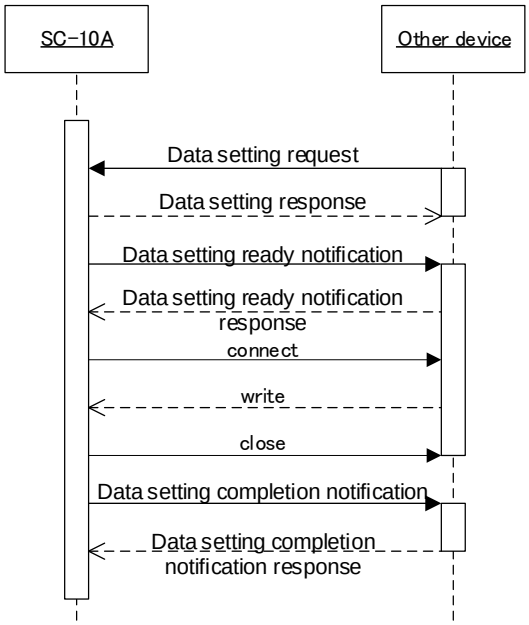
Camera internal data acquisition

If you want to acquire specific data inside the camera, send a "data acquisition request" from the other device. After transmitting the "Data Acquisition Response" from the camera, connect the SC-10A to the port number of "Destination port number + 1". After receiving the data of the file size received in the "Data Acquisition Response", perform the Close process on the port number of "Destination port number + 1". After receiving the “Data Acquisition Complete Notification” from the SC-10A, transmit a “Data Acquisition Complete Response” and the sequence ends. In addition, since this sequence is data transfer for only one file, if you want to acquire the data of multiple files, execute this sequence for the file that you want to receive.



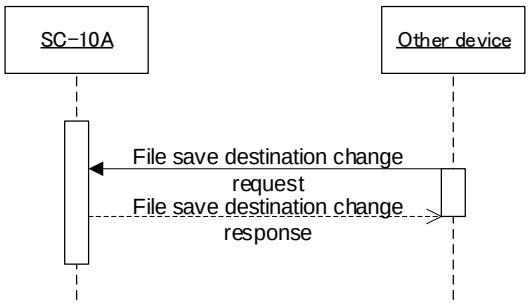
Camera internal data setting

If you want to acquire specific data inside the camera, send a "data acquisition request" from the other device. After transmitting the "Data Acquisition Response" from the camera, connect the SC-10A to the port number of "Destination port number + 1". After receiving the data of the file size received in the "Data Acquisition Response", perform the Close process on the port number of "Destination port number + 1". After receiving the “Data Acquisition Complete Notification” from the SC-10A, transmit a “Data Acquisition Complete Response” and the sequence ends. In addition, since this sequence is data transfer for only one file, if you want to acquire the data of multiple files, execute this sequence for the file that you want to receive.



Change the save destination of various files

If you want to change the file path for specific data inside the camera, send a "File Save Location Change Request" from the other device. If the "file save destination change response" ends normally, the change has been completed. If parameter.xml is specified for the type, SC-10A will be restarted after the change is completed.



3. Message IDs

This section describes the message IDs to use in socket mode.

Socket Mode Message IDs

Message name	Message ID	
	Other Device → SC-10A	SC-10A → Other Device
	Request	Response
Job ID start	0x00000001	0x10000001
Start	0x00000002	0x10000002
Stop	0x00000003	0x10000003
Inspection step list acquisition	0x00000004	0x10000004
Job ID execution	0x00000005	0x10000005
Job ID change	0x00000006	0x10000006
External IO input	0x00000007	0x10000007
Status check	0x00000008	0x10000008
Shutdown execution	0x00000009	0x10000009
Reboot execution	0x0000000A	0x1000000A
File save destination change	0x0002000B	0x1002000B
Data acquisition	0x0002000C	0x1002000C
Data setting	0x0002000D	0x1002000D
File path acquisition	0x0002000E	0x1002000E

Message name	Message ID	
	SC-10A→Other Device	Other Device→ SC-10A
	Notifications	Notification responce
Startup	0x10010001	0x00010001
Inspection step completed (matching)	0x10010002	0x00010007
Inspection step completed (serial numbet)	0x10010003	0x00010007
Inspection step completed (check mode)	0x10010004	0x00010007
Inspection step completed (stop)	0x10010005	0x00010007
Job ID completed	0x10010008	0x00010008
Inspection step list acquisition	0x10010009	
Inspection step list acquisition completed	0x1001000B	0x0001000B
Login	0x1001000C	0x0001000C
Logout	0x1001000D	0x0001000D
System stop	0x1001000E	
Timeout	0x1001000F	
Data acquisition completion	0x10030010	0x00030010
Data setting ready	0x10030011	0x00030011
Data setting completion	0x10030012	0x00030012
File path data	0x10030013	
File path data acquisition completion	0x10030014	0x00030014

Message Headers

The following shows the structure of the common message header to set in the data area of socket mode.
Use the data in the startup notification sent when the SC-10A starts up for the device ID and device name.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device Name	Up to 50 harf-width alphanumeric characters long

Message ID (Request Message）

Job ID start request

Message ID	Message name	Description
0x00000001	Job ID start request	Message to send from the other device to the SC-10A when starting a Job ID. When "RUN" is set for OUT0 of the external IO, the state transitions to the ON state. Note • The rise and fall times are defined by the user.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Job ID			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048 - 0x0087	64 Byte	char	Job ID	Up to 50 alphanumeric characters long

Job ID start response

Message ID	Message name	Description
0x10000001	Job ID start response	Message sent from the other device as a response to the Job ID start request. The result and error code are entered in the response message. If the result is failed, a code indicating the cause is added to the error code.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	
0x0054	Job ID			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).
0x0054 – 0x0093	64 Byte	char	Job ID	Up to 50 alphanumeric characters long

Start request

Message ID	Message name	Description
0x00000002	Start request	If there is no problem with the Job ID start request and response result, a start request is sent from the other device to the SC-10A. Set the Job ID, Instruction Step, and Inspection Step registered at the send destination in accordance with the message format when sending. Note • Be sure to set the message data after clearing to zero.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Job ID			
0x0088	Job instruction Step			
0x00c8	Job inspection			
0x0108	User ID			
0x0148	Reference ID			
0x0188	reserve		Checksum value	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048 - 0x0087	64 Byte	char	Job ID	Up to 50 alphanumeric characters long
0x0088 - 0x00c7	64 Byte	char	Job instruction Step	Up to 50 alphanumeric characters long
0x00c8 - 0x0107	64 Byte	char	Job inspection	Up to 50 alphanumeric characters long
0x0108 - 0x0147	64 Byte	char	User ID	Up to 50 alphanumeric characters long
0x0148 - 0x0187	64 Byte	char	Reference ID	Up to 50 alphanumeric characters long
0x0188	2 Byte	uint16	ChecksumValue	Set the lower 2 bytes in the sum value from 0x0000 to 0x0187.
0x018a	2 Byte	uint16	reserve	Disuse

Start response

Message ID	Message name	Description
0x10000002	Start response	Message sent from the other device as a response to the start request. The result and error code are entered in the response message. If the result is failed, a code indicating the cause is added to the error code.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Stop request

Message ID	Message name	Description
0x00000003	Stop request	If there is no problem with the start request/response, the state becomes the state of executing the specified item. If the stop request is sent before the Inspection step completed notification, the process of recognizing is stopped. If the Inspection step completed notification is received before the stop request due to the timing, the stop request is discarded on the SC-10A receive task side. The stop response is not returned.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Stop response

Message ID	Message name	Description
0x10000003	Stop response	Message sent from the other device as a response to the stop request. The result and error code are entered in the response message. If the result is failed, a code indicating the cause is added to the error code.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Inspection step list acquisition request

Message ID	Message name	Description
0x00000004	Inspection step list acquisition request	Acquires a list of the Inspection steps registered on the SC-10A.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Job item list acquisition response

Message ID	Message name	Description
0x10000004	Inspection step list acquisition response	Message sent from the other device as a response to the Inspection step list acquisition request. The number of Inspection steps registered on the SC-10A is inserted in the result (maximum of 32,767). When failed, -1 is returned and a code indicating the cause is added to the error code.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	1-32767: Total number of items -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Job ID execution request

Message ID	Message name	Description
0x00000005	Job ID execution request	Start Job ID execution from the other device. When "RUN" is set for OUT0 of the external IO, the state transitions to the ON state. Note • The rise and fall times are defined by the user.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Job ID			
0x0088	Job instruction Step			
0x00c8	Job inspection			
0x0108	User ID			
0x0148	Reference ID			
0x0188	reserve		Checksum value	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048 - 0x0087	64 Byte	char	Job ID	Up to 50 alphanumeric characters long
0x0088 - 0x00c7	64 Byte	char	Job instruction Step	Up to 50 alphanumeric characters long
0x00c8 - 0x0107	64 Byte	char	Job inspection	Up to 50 alphanumeric characters long
0x0108 - 0x0147	64 Byte	char	User ID	Up to 50 alphanumeric characters long
0x0148 - 0x0187	64 Byte	char	Reference ID	Up to 50 alphanumeric characters long
0x0188	2 Byte	uint16	ChecksumValue	Set the lower 2 bytes in the sum value from 0x0000 to 0x0187.
0x018a	2 Byte	uint16	reserve	Disuse

Job ID execution response

Message ID	Message name	Description
0x10000005	Job ID execution response	Message sent from the other device as a response to the Job ID execution request. The result and error code are entered in the response message. If the result is failed, a code indicating the cause is added to the error code.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Job ID change request

Message ID	Message name	Description
0x00000006	Job ID change request	Change the Job ID on the SC-10A from the other device. Perform an operation equivalent to CHG JOB ID of the external IO.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Job ID			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Use the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048 - 0x0087	64 Byte	char	Job ID	Up to 50 alphanumeric characters long

Job ID change response

Message ID	Message name	Description
0x10000006	Job ID change response	Message sent from the other device as a response to the Job ID change request. The result and error code are entered in the response message. If the result is failed, a code indicating the cause is added to the error code.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	
0x0054	Job ID			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).
0x0054 - 0x0093	64 Byte	char	Job ID	Up to 50 alphanumeric characters long

External IO input request

Message ID	Message name	Description
0x00000007	External IO input request	Message to send to the SC-10A when the Inspection step is waiting in check mode. Perform an operation equivalent to EXTIN of the external IO.

Message format

Address	bit															
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0x0000	Message ID																															
0x0004	Device ID																															
0x0008	Device name																															
0x0048	Job ID																															
0x0088	reserve																													EXTIN3	EXTIN2	EXTIN1

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Use the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048 - 0x0087	64 Byte	char	Job ID	Up to 50 alphanumeric characters long
0x0088	4 Byte	uint32	External IO	If you want to turn on the external IO input, set "1" in the corresponding bit field. [0]EXTIN1： 1:EXTIN1 ON [1]EXTIN2： 1:EXTIN2 ON [2]EXTIN3： 1:EXTIN3 ON [3-31]：reserve

External IO input response

Message ID	Message name	Description
0x10000007	External IO input Response	Response message to "External IO input request". The result and error code are entered in the response message.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Status check request

Message ID	Message name	Description
0x00000008	Status check request	Change the Job ID on the SC-10A from the other device.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Use the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Status check response

Message ID	Message name	Description
0x10000008	Status check response	Response message for the status check request. The result and error code are entered in the response message. If the result is failed, a code indicating the cause is added to the error code.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	**Result**	The statuses of Status Transition (→P.7) are indicated by the following numbers. 0: Preparing to start 1: Waiting to log in 2: Idle 3, 4: Transferring Inspection step 5, 6: Starting Job ID 7, 13: Executing Inspection step 8,9,14: Executing Job ID 10,11,12: Job ID completed 15: Timeout 6,17: Data is being set 18,19: Data is being acquired 20,21: File path data is being transferred -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Shutdown execution request

Message ID	Message name	Description
0x00000009	Shutdown execution request	This message is used to shut down the SC-10A.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

アドレス	サイズ	属性	フィールド名称	説明
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Shutdown execution response

Message ID	Message name	Description
0x10000009	Shutdown execution response	Response message to "Shutdown execution request". The result and error code are entered in the response message.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Reboot execution request

Message ID	Message name	Description
0x0000000A	Reboot execution request	Message used when you want to restart the SC-10A.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Reboot execution response

Message ID	Message name	Description
0x1000000A	Reboot execution response	Response message to "restart execution request". The result and error code are entered in the response message.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

File save destination change request

Message ID	Message name	Description
0x0002000B	File save destination change request	Message used when you want to change the save destination of the seed file.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	reserve		Type	
0x004c	Path Name			
0x024c	File Name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Type	1: NULL * 1 2: parameter.xml * 2 3: Work plan preset * 3 4: Alias * 3 5: Log save destination 6: Image save destination
0x004a	2 Byte	uint16	reserve	Disuse
0x004c - 0x024b	512Byte	char	Path Name	Absolute path. Up to 500 single-byte alphanumeric characters and some symbols
0x024c - 0x044b	512Byte	char	File Name	Up to 500 alphanumeric characters long * Set the file name only when the type is work plan preset alias.

* 1: Do not set.
* 2: If the type is set in "2: parameter.xml", the system will be restarted after normal termination.
* 3: If you select a work plan preset or alias, also set the file name.

File save destination change response

Message ID	Message name	Description
0x1002000B	File save destination change response	Response message to "File save location change request". The result and error code are entered in the response message.

Message Format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Data acquisition request

Message ID	Message name	Description
0x0002000C	Data acquisition request	Message used to acquire files managed by SC-10A. Specify the file type to be acquired and set the path name and file name. For the file name and path name, use the data acquired by "File path acquisition request".

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	reserve		Type	
0x004c	Path name			
0x024c	File name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Type	1: Job ID 2: parameter.xml 3: Work plan preset 4: Alias
0x004a	2 Byte	uint16	reserve	Disuse
0x004c - 0x024b	512Byte	char	Path name	Absolute path. Up to 500 single-byte alphanumeric characters and some symbols
0x024c - 0x044b	512Byte	char	File name	Up to 500 alphanumeric characters long

Data acquisition response

Message ID	Message name	Description
0x1002000C	Data acquisition response	Response message to "data acquisition request". The result and error code are entered in the response message. If the result is OK, the file size to be sent and the hash value obtained by sha1sum are set.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	
0x0054	File size			
0x0058	Hash value			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).
0x0054	4 Byte	uint32	File size	Enter the file size in bytes
0x0058	20 Byte	char	Hash value	The hash value acquired by “sha1sum” is set.

Data setting request

Message ID	Message name	Description
0x0002000D	Data setting request	Message used to apply specified data to files managed by SC-10A. Specify the file type to be reflected and set the file name and path name. For the path name and file name, use the data acquired by "File path acquisition request". This message sets one file for one request.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	reserve		Type	
0x004c	Path name			
0x024c	File name			
0x044c	File size			
0x0450	Hash value			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Type	1: Job ID 2: parameter.xml 3: Work plan preset 4: Alias
0x004a	2 Byte	uint16	reserve	Disuse
0x004c - 0x024b	512Byte	char	Path name	Absolute path. Up to 500 single-byte alphanumeric characters and some symbols
0x024c - 0x044b	512Byte	char	File name	Up to 500 alphanumeric characters long
0x044c	4 Byte	uint32	File size	Enter the file size to set in Byte。
0x0450 – 0x0463	20 Byte	char	Hash value	The hash value acquired by “sha1sum” is set.

Data setting response

Message ID	Message name	Description
0x1002000D	Data setting response	Response message to "Data setting request". The result and error code are entered in the response message.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

File path acquisition request

Message ID	Message name	Description
0x0002000E	File path acquisition request	A message requesting information on the path where the file specified by type is stored.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Sub Type		Type	
0x004c	Job ID			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Type	1: Job ID * 1 2: parameter.xml 3: Work plan preset 4: Alias 5: Log save destination 6: Image save destination
0x004a	2 Byte	uint16	Sub Type	1: Work instruction file 2: Working Item master image file 3: Complete matching data file * 1: If the Job ID is specified, set the following information in the file path data notification.
0x004c - 0x008b	64 Byte	char	Job ID	Up to 50 alphanumeric characters long Error when NULL is specified * Valid only for Job ID by type

File path acquisition response

Message ID	Message name	Description
0x1002000E	File path acquisition response	Response message to "File path acquisition request". The result and error code are entered in the response message.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Set the lower 4 bytes of the MAC address of the SC-10A.
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Message ID (Notification message)

Start up notification

Message ID	Message name	Description
0x10010001	Start up notification	If the socket communication function is enabled when the SC-10A application starts, it sends a "start notification" to the destination of the specified IP address.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse

Startup notification response

Message ID	Message name	Description
0x00010001	Startup notification response	Message sent from the SC-10A as a response to the startup notification.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Inspection step completed notification (matching)

Message ID	Message name	Description
0x10010002	Inspection step completed notification (matching)	Message to send to the other device when the matching process ends. Data input is performed according to the number of the "Number of check points" setting for the data following "Check point ID_X."

Message format

アドレス	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Job ID			
0x0090	Instruction Step			
0x00d0	Inspection Step			
0x0110	User ID			
0x01d8	Reference ID			
0x02a0	Standard Time		Inspection Step last result	
0x02a4	Anchor point degree of similarity			
0x02ac	Number of check points		Anchor point rotation angle	
0x02b0	reserve	Judgment result	Mode (matching)	Check point ID_1
0x02b4	Matching time [msec]		Rotation angle	
0x02b8	Similarity			
0x02c0	reserve	Judgment result	Mode (matching)	Check point ID_2
0x02c4	Matching time [msec]		Rotation angle	
0x02c8	Similarity			
⇕	:			
0x0330	reserve	Judgment result	Mode (matching)	Check point ID_9
0x0334	Matching time [msec]		Rotation angle	
0x0338	Similarity			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050 - 0x008f	64 Byte	char	Job ID	Up to 50 alphanumeric characters long
0x0090 - 0x00cf	64 Byte	char	Instruction Step	Up to 50 alphanumeric characters long
0x00d0 - 0x010f	64 Byte	char	Inspection Step	Up to 50 alphanumeric characters long
0x0110 - 0x01d7	200 Byte	char	User ID	Up to 198 alphanumeric characters long (null is possible)
0x01d8 - 0x029f	200 Byte	char	Reference ID	Up to 198 alphanumeric characters long (null is possible)
0x02a0	2 Byte	int16	Inspection Step last result	0: OK -1: Failed -2: Anchor point NG
0x02a2	2 Byte	uint16	Standard Time (seconds)	Set the work Standard Time in seconds.
0x02a4	8 Byte	double	Anchor point degree of similarity	Set from 0.00000 to 1.00000.
0x02ac	2 Byte	int16	Anchor point rotation angle	Set from 180 to -180.
0x02ae	2 Byte	uint16	Number of check points	Set from 0 to 9 for the number of check points.
0x02b0	1 Byte	uchar	Check point ID_1	Set from 1 to 9 for the check point ID.
0x02b1	1 Byte	uchar	Mode	0: Matching 1: Color recognition 2: Texture
0x02b2	1 Byte	char	Judgment result	0: OK 1: N/A -1: Failed
0x02b3	1 Byte	uchar	reserve	Unused area
0x02b4	2 Byte	int16	Rotation angle	Set from 180 to -180.
0x02b6	2 Byte	uint16	Matching time [msec]	Set from 0 to 999.
0x02b8	8 Byte	double	Similarity	Set from 0.00000 to 1.00000.

Inspection Step completed notification (serial number)

Message ID	Message name	Description
0x10010003	Inspection Step completed notification (matching)	Message to send to the other device when serial number input ends.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Job ID			
0x0090	Instruction Step			
0x00d0	Inspection Step			
0x0110	User ID			
0x01d8	Reference ID			
0x02a0	Standard Time		Inspection step last result	
0x02a4	Part number (set number)			
0x0324	Part serial number (value entered by user)			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050 - 0x008f	64 Byte	char	Job ID	Up to 50 alphanumeric characters long
0x0090 - 0x00cf	64 Byte	char	Instruction Step	Up to 50 alphanumeric characters long
0x00d0 - 0x010f	64 Byte	char	Inspection Step	Up to 50 alphanumeric characters long
0x0110 - 0x01d7	200 Byte	char	User ID	Up to 198 alphanumeric characters long (null is possible)
0x01d8 - 0x029f	200 Byte	char	Reference ID	Up to 198 alphanumeric characters long (null is possible)

Address	Size	Attribute	Field name	Description
0x02a0	2 Byte	int16	Inspection step last result	0: OK -1: Failed
0x02a2	2 Byte	uint16	Standard Time (seconds)	Set the Standard Time in seconds.
0x02a4 - 0x0323	128 Byte	char	Part number	Up to 99 alphanumeric characters long
0x0324 - 0x0523	512 Byte	char	Part serial number	Up to 500 alphanumeric characters long

Inspection step completed notification (check mode)

Message ID	Message name	Description
0x10010004	Inspection step completed notification (check mode)	Message to send to the other device when the check mode ends.

Message format

アドレス	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Job ID			
0x0090	Instruction Step			
0x00d0	Inspection Step			
0x0110	User ID			
0x01d8	Reference ID			
0x02a0	Standard Time		Inspection step last result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050 - 0x008f	64 Byte	char	Job ID	Up to 50 alphanumeric characters long
0x0090 - 0x00cf	64 Byte	char	Instruction Step	Up to 50 alphanumeric characters long
0x00d0 - 0x010f	64 Byte	char	Inspection Step	Up to 50 alphanumeric characters long
0x0110 - 0x01d7	200 Byte	char	User ID	Up to 198 alphanumeric characters long (null is possible)
0x01d8 - 0x029f	200 Byte	char	Reference ID	Up to 198 alphanumeric characters long (null is possible)
0x02a0	2 Byte	int16	Inspection step last result	0: OK -1: Failed
0x02a2	2 Byte	uint16	Standard Time (seconds)	Set the Standard Time in seconds.

Inspection step completed notification (stop)

Message ID	Message name	Description
0x10010005	Inspection step completed notification (stop)	Message to send from the SC-10A after stop execution from the UI or external IO.

Message format

アドレス	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Job ID			
0x0090	Instruction Step			
0x00d0	Inspection Step			
0x0110	Standard Time (seconds)		Cause of stop	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050 - 0x008f	64 Byte	char	Job ID	Up to 50 alphanumeric characters long
0x0090 - 0x00cf	64 Byte	char	Instruction Step	Up to 50 alphanumeric characters long
0x00d0 - 0x010f	64 Byte	char	Inspection Step	Up to 50 alphanumeric characters long
0x0110	2 Byte	int16	Cause of stop	0: Stopped from UI 1: Stopped from external IO 2: Stop from socket communication
0x0102	2 Byte	uint16	Standard Time (seconds)	Set the work Standard Time in seconds.

Inspection step completed notification response

Message ID	Message name	Description
0x00010007	Inspection step completed notification response	Message sent from the SC-10A as a response to the Inspection step completed notification. The value to set in the "Result" field needs to be changed depending on the sequence to be executed next. 0: Normal operation (in accordance with the sequence of SC-10A) 1: Repeat within same Job ID (after execution of the last item within the Job ID, do not send the Job ID completed notification but instead execute the Inspection steps of the same Job ID again). Enable this when you do not want the level of the RUN signal of the external IO to decrease. 2: Complete Job ID forcibly (when stopping the process at a stage before all items within the Job ID are completed to execute another Job ID in the next operation)

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	reserve		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	int16	Result	0: Normal operation 1: Re-execute 2: Complete Job ID forcibly
0x004a	2 Byte	uint16	reserve	Disuse

Job ID completed notification

Message ID	Message name	Description
0x10010008	Job ID completed notification	Message to send from the SC-10A after execution of all the Inspection steps managed with the Job ID has completed. The Job ID completed notification is sent even when "2" is set in the "Result" field of the Inspection step completed notification.

Message format

アドレス	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Job ID			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050 - 0x008f	64 Byte	char	Job ID	Up to 50 alphanumeric characters long

Job ID completed notification response

Message ID	Message name	Description
0x00010008	Job ID completed notification response	Message sent from the SC-10A as a response to the Job ID completed notification. The series of operations is completed upon receiving the Job ID completed notification response.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Inspection step list data notification

Message ID	Message name	Description
0x10010009	Inspection step list data notification	Message to notify the item information in response to the Inspection step list acquisition request.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Job ID			
0x0090	Instruction Step			
0x00d0	Inspection Step			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050 - 0x008f	64 Byte	char	Job ID	Up to 50 alphanumeric characters long
0x0090 - 0x00cf	64 Byte	char	Instruction Step	Up to 50 alphanumeric characters long
0x00d0 - 0x010f	64 Byte	char	Inspection Step	Up to 50 alphanumeric characters long

Inspection step list acquisition completed notification

Message ID	Message name	Description
0x1001000B	Inspection step list acquisition completed notification	Message to send to the other device after sending of all Inspection step list data notifications is completed. Enter the number of sent items in the number of transfers field.

Message format

アドレス	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error code		Number of transfers	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Number of transfers	1-32767: Total number of items -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Inspection step list acquisition completed notification response

Message ID	Message name	Description
0x0001000B	Inspection step list acquisition completed notification response	Message sent from the SC-10A as a response to the Inspection step list acquisition completed notification. The series of operations is completed upon receiving the Inspection step list acquisition completed notification response.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Login notification

Message ID	Message name	Description
0x1001000C	Login notification	Message to send after logged in to the SC-10A. Set "Administrator mode" or "User mode" in the login mode field.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Login mode			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	4 Byte	uint32	Login mode	0: Administrator mode 1: User mode

Login notification response

Message ID	Message name	Description
0x0001000C	Login notification response	Message sent from the SC-10A as a response to the login notification.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Logout notification

Message ID	Message name	Description
0x1001000D	Logout notification	Message sent after logged out from the SC-10A. Set "Administrator mode" or "User mode" in the login mode field.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Login mode			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	4 Byte	uint32	Login mode	0: Administrator mode 1: User mode

Logout notification response

Message ID	Message name	Description
0x0001000D	Logout notification response	Message sent from the SC-10A as a response to the logout notification.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

System stop notification

Message ID	Message name	Description
0x1001000E	System stop notification	Message to send to the other device after the SC-10A shuts down or restarts. There is no response to this message.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Stop mode			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	4 Byte	uint32	Stop mode	0: Shutdown 1: Restart

Timeout notification

Message ID	Message name	Description
0x1001000F	Timeout notification	This message is sent to the other device when the message cannot be processed for some reason inside the SC-10A. There is no response to this message.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Data acquisition completion notification

Message ID	Message name	Description
0x10030010	Data acquisition completion notification	A message notifying that the specified data transfer has been completed in response to the "data acquisition request". If the acquisition is completed normally, the hash value acquired by sha1sum is set.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	reserve
0x0050	Error Code		Result	
0x0054	Hash value			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).
0x0054	20 Byte	uint32	Hash value	The hash value acquired by “sha1sum” is set.

Data acquisition completion notification response

Message ID	Message name	Description
0x00030010	Data acquisition completion notification response	Response message to “Data Acquisition Complete Notification” sent from SC-10A.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Data setting ready notification

Message ID	Message name	Description
0x10030011	Data setting ready notification	Message notified when the SC-10A side is ready to accept a "data setting request". If the preparation for acceptance cannot be completed due to some problem, the result is set to -1.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Data setting ready notification response

Message ID	Message name	Description
0x00030011	Data setting ready notification response	Response message to “Data setting preparation completion notification” transmitted from SC-10A.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

Data setting completion notification

Message ID	Message name	Description
0x10030012	Data setting completion notification	A message that notifies the "data setting request" that the specified data setting has been completed.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

Data setting completion notification response

Message ID	Message name	Description
0x00030012	Data setting completion notification response	Response message to "Data setting completion notification" sent from SC-10A.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

File path data notification

Message ID	Message name	Description
0x10030013	File path data notification	Message notifying that data acquisition has been completed in response to "file path acquisition request". The path name and file name are set in the data.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Path name			
0x0250	File name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050 – 0x024f	512 Byte	char	Path name	Up to 500 alphanumeric characters long
0x0250 - 0x044f	512 Byte	char	File name	Up to 500 alphanumeric characters long

File path data acquisition completion notification

Message ID	Message name	Description
0x10030014	File path data acquisition completion notification	A message notifying that the data transfer of the information specified in response to the "file path acquisition request" has been completed.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			
0x0048	Day	Month	Year	
0x004c	reserve	Second	Minute	Hour
0x0050	Error Code		Result	

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long
0x0048	2 Byte	uint16	Year	Set the time of the SC-10A.
0x004a	1 Byte	uchar	Month	Set 1 to 12 for the time of the SC-10A.
0x004b	1 Byte	uchar	Day	Set 1 to 31 for the time of the SC-10A.
0x004c	1 Byte	uchar	Hour	Set 0 to 23 for the time of the SC-10A.
0x004d	1 Byte	uchar	Minute	Set 0 to 59 for the time of the SC-10A.
0x004e	1 Byte	uchar	Second	Set 0 to 59 for the time of the SC-10A.
0x004f	1 Byte	uchar	reserve	Disuse
0x0050	2 Byte	int16	Result	0: OK -1: Failed
0x0052	2 Byte	uint16	Error code	Refer to 4.Error Code (P.78).

File path data acquisition completion notification response

Message ID	Message name	Description
0x00030014	File path data acquisition completion notification response	Response message to “File path data acquisition completion notification” sent from SC-10A.

Message format

Address	bit			
	31	16	15	0
0x0000	Message ID			
0x0004	Device ID			
0x0008	Device name			

Address	Size	Attribute	Field name	Description
0x0000	4 Byte	uint32	Message ID	Message unique ID
0x0004	4 Byte	uint32	Device ID	Equipment unique ID
0x0008 - 0x0047	64 Byte	char	Device name	Up to 50 alphanumeric characters long

4. Error Code

Error code	Error name	Cause	Applicable messages	Solution
0x0001	Unknown device ID	The device ID sent to the SC-10A and the set device ID do not match.	Request messages in general	Check whether the device ID and device name in the sent message match with those on the SC-10A. Check whether or not a mistake has been made with regards to uppercase and lowercase for the device name.
0x0002	Unknown device name	The device name sent to the SC-10A and the set device name do not match.	Request messages in general	
0x0003	Checksum error	The checksum of the start request does not match.	Start request	Communication may be unstable. Check the communication signal strength. Also, check the generation method. The lower 2 bytes of the sum value of the message array is set as the checksum on the SC-10A.
0x0004		The checksum of the Job ID execution request does not match.	Job ID execution request	
0x0005	Unknown IP address	The checksum of the Job ID execution request does not match.	Job ID execution request	
0x0101	Status transition failure	A Job ID start request was received in other than the waiting state.	Job ID start request	A Job ID start request and Job ID execution request are accepted only after logging in or after Job ID completion. The request may have been sent during matching or before the Job ID completion response.
0x0102		A Job ID execution request was received in other than the waiting state.	Job ID execution request	
0x0103	Status transition failure	A start request was received in other than the preparation state.	Start request	A start request is accepted only after a Job ID start request or after an Inspection step completion response. It is not accepted during Job ID execution.
0x0104	Status transition failure	A stop request was received in other than the execution state.	Stop request	A stop request is accepted only during matching. This error code is also displayed if matching completed before the stop request.
0x0105	Status transition failure	An item acquisition request was received in other than the waiting state.	Item acquisition request	An item acquisition request is accepted only after logging in or after Job ID completion. The request may have been sent during matching or before the Job ID completion response.
0x0106	Status transition failure	An item acquisition request was received in user mode.	Item acquisition request	An item acquisition request can be requested only in administrator mode. Log in to the system in administrator mode.

Error code	Error name	Cause	Applicable messages	Solution
0x0107	Status transition failure	A Job ID change request was received in other than the waiting state.	Job ID change request	An item acquisition request is accepted only after logging in or after Job ID completion. The request may have been sent during matching or before the Job ID completion response.
0x0108	EXTIN input	An EXTIN input request was received other than during matching.	EXTIN input request	An EXTIN input request is accepted only during matching.
0x0201	Job ID name mismatch	The specified Job ID does not exist.	Start request Job ID execution request	The Job ID, instruction list, and item input in the request did not match. Check that the work name has not been changed on the SC-10A. Check that an unnecessary space, etc. is not input at the beginning or end.
0x0202	Instruction Step name mismatch	The specified Instruction Step does not exist.	Start request Job ID execution request	
0x0203	Inspection step name mismatch	The specified Inspection step does not exist.	Start request Job ID execution request	
0x0204	Job ID name blank	A Job ID name has not been specified.	Start request Job ID execution request	Enter the Job ID name in the specified format.
0x0205	Dialog operation in progress	User is operating another dialog.	Start request Job ID execution request	Send the request while the main screen is displayed.
0x0206	Invalid folder name	The specified folder does not exist or is invalid.	File save destination change request	Specify the save folder in the correct format.
0x0207	Busy	Camera failed and failed to start.	Job ID change request	Request again after a while.
0x0208	Busy	Camera failed and change failed.	Job ID change request	Request again after a while.
0x0209	Busy	Camera times out for consecutive requests.	Job ID change request / Job ID execution request	Request again after a while.
0x020A	Extin Input	Input IO is invalid or matching is stopped.	External IO input request	Enter a value within the normal range on the matching screen.
0x020B	Request in worker mode	Send request in worker mode state.	File path acquisition request	Please perform acquisition in administrator mode.
0x020C	Blank path	Request unset path.	File path acquisition request	Set the path or check the requested type.
0x020D	Directory does not exist	A directory that does not exist was referenced.	File path acquisition request	Check if a file with the matching Job ID name and matching mode has been generated.
0x020E	Invalid type	The type and sub-type entered were out of range.	File path acquisition request / File save destination change request	Check the types that can be entered. Some types cannot be used depending on the request.
0x020F	Non-existent Job ID	he input Job ID was not found.	File path acquisition request	Enter the Job ID set inside the camera.

Error code	Error name	Cause	Applicable messages	Solution
0x0210	Missing folder or file	The input folder and file name could not be found.	File path acquisition request / File save destination change request	Set a folder or file that exists on the camera.
0x0211	Using relative paths	The input file path was a relative path.	File save destination change request	Use an absolute path starting with "/".
0x0212	Blank folder name or file name	The path entered was blank.	File save destination change request	Please enter a valid path.
0x0213	Extension mismatch	The extension of the input file name was invalid.	File save destination change request	Please enter a valid file name (.csv, .xml, etc.).
0x0214	Unavailable folder	The entered folder name cannot be used.	File save destination change request	Please enter an available folder. (/ Sc-10 / app, / media / xxx / etc.)
0x0301	Matching result generation failure	Generation of the matching result failed.	Inspection step completed notification	This is displayed when generation of the matching data failed.
0x0401	Timeout	A response was not received for a notification.	Timeout notification	This is displayed when a response is not received within 3 seconds after the sending of a Job ID start response, Inspection step completed notification, or Job ID completed notification.
0x0500	Connection error ConnectionRefusedError	The connection was refused by the communication partner (or a timeout occurred).	Startup notification	The connection was refused. Check the settings of the firewall, etc. Set the communication of the application to be allowed in the OS of the connection destination.
0x0501	Connection error RemoteHostClosedError	The remote host closed the connection.	Startup notification	The communication partner disconnected the connection.
0x0502	Connection error HostNotFoundError	The host address could not be found.	Startup notification	Check the address of the send destination. Restart after setting.
0x0504	Connection error SocketResourceError	The application has used up the resources.	Startup notification	Restart the system.
0x0505	Connection error SocketTimeoutError	The socket operation timed out.	Startup notification	The communication environment may be unstable.
0x0507	Connection error NetworkError	An error occurred with the network (network cable was accidentally disconnected, etc.).	Startup notification	Check the network cable connections.

Error code	Error name	Cause	Applicable messages	Solution
0x0508	Connection error AddressInUseError	The specified address is already in use and is set exclusively.	Startup notification	Check whether or not the same IP address is being used within the network.
0x0509	Connection error SocketAddressNotAvailableError	The specified address does not belong to a host.	Startup notification	Binding to the IP address of the sender is not possible. Check the communication settings of the sender.
0x050A	Connection error UnsupportedSocketOperationError	The requested socket operation is not supported by the local operating system (support for IPv6 is lacking, etc.).	Startup notification	May be using an invalid IP address or may be sending to another network. Use the same network.
0x0513	Connection error OperationError	The operation was attempted while the socket was not permitted.	Startup notification	This is displayed when, for example, the connection was disconnected from the sender during data sending. Check the receive method.
0x0516	Connection error TemporaryError	A temporary error occurred.	Startup notification	The socket receive method may be inappropriate.
0x0550	Connection error UnknownSocketError	An error for which the cause is unknown occurred.	Startup notification	An error for which the cause is unknown is occurring.
0x05FF	Connection error UnsupportedSocketOperationError	The requested socket operation is not supported by the local operating system (support for IPv6 is lacking, etc.).	Startup notification	May be using an invalid IP address or may be sending to another network. Use the same network.
0x0601	Status transition failed	Data acquisition request received other than in standby state.	Data acquisition request	Data acquisition requests are accepted only after login or after completing the Job ID. It may have been sent during matching or data acquisition.
0x0602	Status transition failed	Process data acquisition requests when not in the ready state.	Data acquisition request	An invalid operation or request may have been sent after the data acquisition request. If you log out and log in again, the problem may be solved.
0x0603	Status transition failed	Receive data setting request other than in standby state.	Data setting request	Data setting requests are accepted only after login or after completing the Job ID. It may have been sent during matching or data setting.
0x0604	Status transition failed	Process the data setting request except in the ready state.	Data setting request	An invalid operation or request may have been sent after the data setting request. If you log out and log in again, the problem may be solved.

Error code	Error name	Cause	Applicable messages	Solution
0x0605	Status transition failed	Processes data acquisition when not in data transmission state.	Data acquisition completion notification	An invalid operation or request may have been sent during data acquisition. If you log out and log in again, the problem may be solved.
0x0606	Status transition failed	Processes data settings other than data reception status.	Data setting completion notification	You may have sent an invalid operation or request during data configuration. If you log out and log in again, the problem may be solved.
0x0607	Status transition failed	Processes data settings other than in the data reception preparation state.	Data setting ready notification	You may have sent an illegal operation or request while preparing to set up the data. If you log out and log in again, the problem may be solved.
0x0608	Status transition failed	Process file path acquisition except in file path transmission preparation state.	File path data acquisition completion notification	An invalid operation or request may have been sent while preparing to send the file path. If you log out and log in again, the problem may be solved.
0x0609	Status transition failed	File path acquisition request received when not in standby state.	File path acquisition request	File path acquisition request is accepted only after login or after completing Job ID. It may have been sent during matching or data acquisition.
0x060A	Status transition failed	Process file path transmission when not in file path transmission preparation state.	File path acquisition request	An invalid operation or request may have been sent while preparing to send the file path. If you log out and log in again, the problem may be solved.
0x060B	File transfer preparation failure	Creating a socket for sending and receiving files failed.	File messages in general	You may be sending a request while sending or receiving a file, or not sending a response to the notification.
0x060C	Status transition failed	Process file path transmission when not in file path transmission state.	File path data acquisition completion notification	An invalid operation or request may have been sent while sending the file path. If you log out and log in again, the problem may be solved.
0x0610	Blank name	The file name or path name to be used is blank.	File messages in general	Check the message format and enter the name at the specified address.
0x0611	Missing file	The specified file could not be found.	Data acquisition request	The requested file does not exist. Make sure the file is on the camera and the path is correct.
0x0612	File open error	The specified file cannot be read.	Data acquisition request	The requested file could not be extracted. The file permissions may be incorrect.
0x0613	File read error	The specified file cannot be read.	Data acquisition request	The requested file could not be extracted. The file permissions may be incorrect or the file may be empty.

Error code	Error name	Cause	Applicable messages	Solution
0x0614	Invalid file size	Receive an empty file.	Data setting request	The specified file size is invalid. Please enter the correct file size.
0x0615	Invalid file size	Insufficient data was received.	Data setting completion notification	The specified file size is invalid. Please enter the correct file size.
0x0616	Socket connection timeout	Socket connection timed out.	Data setting completion notification	Socket connection timed out. Check that the server side port number is correct and in the listen state.
0x0617	Hash value mismatch	The hash of the received data did not match.	Data setting completion notification	Check that you have entered the correct file and hash value. The hash uses SHA1.
0x0618	File generation failed	File creation with the received data failed.	Data setting completion notification	Check that the set file path and file name are correct. Also check that the memory capacity is not 0.
0x061F	Unknown failure (file)	An unidentified error has occurred.	File messages in general	Another unidentifiable error has occurred.

5. Sample Code

C Language

Send program

Start the sample code by calling the exe with a command.
Arguments can be specified. Specify the arguments in the order of "Message ID (hexadecimal notation)," "Device ID," "Device name," "IP address," and "Port number."

sample.exe -messageID -deviceID -devicename -IPaddr(xxx.xxx.xxx.xx) -portnum

If arguments are not specified, "00000001," "73b95610," "SC10a," "192.168.183.51," and "56109" are entered.

```
#define _CRT_SECURE_NO_WARNINGS
#include <stdio.h>

#include <winsock2.h>//if  linux comment out this
#ifdef WIN32
#pragma comment(lib, "ws2_32.lib")
#include <ws2tcpip.h>
#endif

#ifdef WIN32
#define HERROR                          WSAGetLastError()
#define SAFE_SOCK_CLOSE(sock)           if((sock) != INVALID_SOCKET){ closesocket((sock)); (sock)=INVALID_SOCKET; }
#define SOCK_TYPE                       SOCKET
#define SET_SOCKADDR_IPV4(addr, value)  InetPton((addr)->sin_family, (PCSTR)(value), &(addr)-
>sin_addr.S_un.S_addr);//(addr).sin_addr.S_un.S_addr = (value)
#endif
#define MAX_MSGSIZE 1024
#define BUFSIZE (MAX_MSGSIZE+1)

SOCK_TYPE MakeSocket(struct sockaddr_in *dest, char* destination, int port);
void createData(struct dataformat* data, char *buff);
void setdata(struct dataformat *data, int argc, char *argv[]);
int checkdef(int argc, char *str[]);
void num2buff(u_int num, int size, int start, char *buff);
struct dataformat
{
          u_int messageID;
          u_int DeviceID;
          char DeviceName[64];
};
```

```
int main(int argc, char* argv[])
{
if (checkdef(argc, argv) != 0) return -1;
          char buffer[BUFSIZE] = { 0 };
          struct dataformat mdata;
          setdata(&mdata,argc,argv);//Create send data
          createData(&mdata, buffer);//Create send array

          char destination[15],dstr[15];


          if(argc > 4) memcpy(dstr, argv[4],strlen(argv[4]));
          else memcpy(dstr ,"192.168.183.51",15);//Determine IP address
          sprintf(destination, "%s", dstr);
          int port = (argc <= 5) ? 56109:atoi(argv[5]);//Determine port number
#ifdef WIN32
          //Prepare for socket mode
          WSADATA data;
          WSAStartup(MAKEWORD(2, 0), &data);
#endif // WIN32
          struct sockaddr_in dest; //Information of server to which will connect
          memset(&dest, 0, sizeof(dest));//Zero clear
          SOCK_TYPE s = MakeSocket(&dest, destination, port); //Generation of socket

          //Connect to server
          if (connect(s, (struct sockaddr *) &dest, sizeof(dest)))
          {
                    printf("Could not connect to %s¥n", destination);
                    printf("type something and press Enter¥n");
                    scanf("%s",buffer);
                    return -1;
          }
          else printf("Connect to %s¥n", destination);
          send(s, buffer, sizeof(buffer), 0);//Send data to server

          SAFE_SOCK_CLOSE(s);// End socket
#ifdef WIN32
          WSACleanup();
#endif
          return 0;

}
void createData(struct dataformat* data, char *buff)
{
          int charlength[] = { 4,4,64 };
          const int NAMESIZE = 50;
          num2buff(data->messageID, charlength[0], 0, buff);
          num2buff(data->DeviceID, charlength[1], charlength[0], buff);
          size_t dlen = (strlen(data->DeviceName) > NAMESIZE) ? NAMESIZE : strlen(data->DeviceName);
          memcpy(buff + charlength[1]+charlength[0], data->DeviceName, dlen);
}
```

```
//Set address information of connection destination (server)
SOCK_TYPE MakeSocket(struct sockaddr_in *dest, char* destination, int port)
{

	dest->sin_port = htons(port);//Specify port number
	dest->sin_family = AF_INET;//IPv4
	SET_SOCKADDR_IPV4(dest, destination);
	return socket(AF_INET, SOCK_STREAM, 0);
}

//
void setdata(struct dataformat *data, int argc, char *argv[])
{
	if (argc <= 1) data->messageID = 0x00000001;
	else data->messageID = strtol(argv[1],NULL,16);
	if (argc <= 2) data->DeviceID = 0x73b95610;
	else data->DeviceID = strtol(argv[2], NULL, 16);
	char* dname;
	if (argc <= 3) dname = "SC10a";
	else dname = argv[3];
	sprintf(data->DeviceName, "%s", dname);
	printf("0x%08X,0x%08X,%s¥n", data->messageID, data->DeviceID, data->DeviceName);
}
int checkdef(int argc, char *str[])
{
	if (argc == 2 && strcmp(str[1], "-h") == 0 )
	{
		char str1;
		printf("sample.exe -¥"messageID¥" -¥"deviceID¥" -¥"devicename¥" -¥"IPaddr(xxx.xxx.xxx.xx)¥" -
¥"portnum¥"¥n");
		printf("press Enter¥n");
		scanf("%s", &str1);
		return-1;
	}
	if (argc < 4)
	{
		char def[2];
		printf("are you sure to use default param? y/n ¥n show help ¥"-h¥"¥n");
		scanf("%s", def);
		if (def[0] != 'y')
		{
			printf("sample.exe -¥"messageID¥" -¥"deviceID¥" -¥"devicename¥" -
¥"IPaddr(xxx.xxx.xxx.xx)¥" -¥"portnum¥"¥n");
			printf("press Enter¥n");
			scanf("%s", def);
			return -1;
		}
	}
	return 0;
}
void num2buff(u_int num, int size, int start, char *buff)
{
	for (int i = 0;i < size;i++) buff[start + i] = num >> i * 8;
}
```

Receive program

```
SOCK_TYPE MakeServerSocket(struct sockaddr_in *dest, int port);
int main(int argc, char* argv[])
{
	SOCKET s, s1;		//Socket
	int result;		//Return value
	struct sockaddr_in source;
	u_char buffer[BUFSIZE];  //Buffer area of received data
	char ret;
	int port = 56109;//Determine port number
	memset(&buffer, 0, sizeof(buffer));
	//Register device information of send source
	memset(&source, 0, sizeof(source));

	//Prepare to start socket mode
#ifdef WIN32
	WSADATA data;
	result = WSAStartup(MAKEWORD(2, 0), &data);
#endif

	if (result < 0) {
		printf("%d¥n", HERROR);
		printf("Socket mode preparation error¥n");
		printf("Press any key¥n");
		scanf("%c", &ret);
		return -1;
	}

	//Generation of socket		s = MakeServerSocket(&source, port);
	if (s < 0) {
		printf("%d¥n", HERROR);
		printf("Socket generation error¥n");
		printf("Press any key¥n");
		scanf("%c", &ret);
		return -1;
	}

	// Bind socket to address
	result = bind(s, (struct sockaddr *)&source, sizeof(source));
	if (result < 0) {
		printf("%d¥n", HERROR);
		printf("Bind error¥n");
		printf("Press any key¥n");
		scanf("%c", &ret);
		return -1;
	}
	// Connection wait start
	result = listen(s, 1);
	if (result < 0)
	{
		printf("Connection permission error¥n");
		printf("Press any key¥n");
		scanf("%c", &ret);
		return -1;
	}
	printf("Start connection¥n");
```

```
		s1 = accept(s, NULL, NULL);//Wait until communication from client and acquire client socket
		if (s1 < 0) {
			printf("Wait error¥n");
			printf("Press any key¥n");
			scanf("%c", &ret);
			return -1;
		}

		// End acquisition of data received from client socket
		result = recv(s1, buffer, BUFSIZE, 0);
		if (result < 0) {
			printf("Receive error¥n");
			printf("Press any key¥n");
			scanf("%c", &ret);
			return -1;
		}
		// Display received string
		for (int i = 0;i < MAX_MSGSIZE;i++)
		{
			printf("%02X", buffer[i]);
		}
		printf("Received");

		printf("Connection end¥n");
		SAFE_SOCK_CLOSE(s1)// End socket

#ifdef WIN32
			WSACleanup();
#endif
		printf("Press any key¥n");
		scanf("%c", &ret);
		return 0;
}
SOCK_TYPE MakeServerSocket(struct sockaddr_in *dest, int port)
{
		dest->sin_port = htons(port);//Specify port number
		dest->sin_family = AF_INET;//IPv4
		dest->sin_addr.s_addr = htonl(INADDR_ANY);
		return socket(AF_INET, SOCK_STREAM, IPPROTO_TCP);
}
```

C#

Send program

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Net;
using System.Net.Sockets;
using System.Text;
using System.Threading;
static class Program
    {
        static void Main()
        {
            byte[] sendbytes = CreateData();//Create byte array
            IPAddress sendip = IPAddress.Parse("192.168.183.51");//Determine IP address
            int port = 56109;//Determine port number
            SC10TCPcliant sc10c = new SC10TCPcliant(sendip, port);
            sc10c.Connect();
            sc10c.Send(sendbytes);
              Console.WriteLine( “Sending complete” );
            Console.ReadKey();


        }
        static byte[] CreateData()
        {
            byte[] buf;
            byte[] sendbytes = BitConverter.GetBytes(0x00000005); //messageID

            buf = BitConverter.GetBytes(0x73b95610);//deviceID
            sendbytes = resize(sendbytes, buf, 4);
            buf = Encoding.UTF8.GetBytes("SC10a");//devicename
            sendbytes = resize(sendbytes, buf, 64);
            buf = Encoding.UTF8.GetBytes("Default");//Job ID
            sendbytes = resize(sendbytes, buf, 64);
            buf = Encoding.UTF8.GetBytes("Work_1");//work
            sendbytes = resize(sendbytes, buf, 64);
            buf = Encoding.UTF8.GetBytes("Item_1");//item
            sendbytes = resize(sendbytes, buf, 64);
            buf = Encoding.UTF8.GetBytes("worker1");//worker
            sendbytes = resize(sendbytes, buf, 64);
            buf = Encoding.UTF8.GetBytes("product1");//worknum
            sendbytes = resize(sendbytes, buf, 64);
            long checksum = 0;
            foreach (byte onebyte in sendbytes) checksum += onebyte;
            buf = BitConverter.GetBytes(checksum);//checksum
            sendbytes = resize(sendbytes, buf, 2);
            buf = BitConverter.GetBytes(0);//reserve
            sendbytes = resize(sendbytes, buf,2);

            return sendbytes;
        }
```

```
        static byte[] resize(byte[]bytes,byte[] buf,int size)
        {
            if (buf.Length != size) Array.Resize(ref buf, size);
            return bytes.Concat(buf).ToArray();
        }

        class SC10TCPcliant
        {
            private IPEndPoint ServerIPEndPoint { get; set; }
            private Socket { get; set; }
            public SC10TCPcliant(IPAddress ip, int port)
            {
                this.ServerIPEndPoint = new IPEndPoint(ip, port);
            }
            // Socket mode connection
            public void Connect()
            {
                this.Socket = new Socket(AddressFamily.InterNetwork, SocketType.Stream, ProtocolType.Tcp);
                try
                {
                    this.Socket.Connect(this.ServerIPEndPoint);
                }
                catch (Exception e)
                {
                    Console.WriteLine("Connection failed.¥ n" + e);
                }
            }
            // Send message (synchronization process)
            public void Send(byte[] sendBytes)
            {
                if (sendBytes == null) return;
                if (Socket.LocalEndPoint != null) this.Socket.Send(sendBytes);
                else Console.WriteLine("Sending failed.") ;
            }
        }
    }
```

The time and message are added to TCPDebugLog of the SC-10A when sending completes.

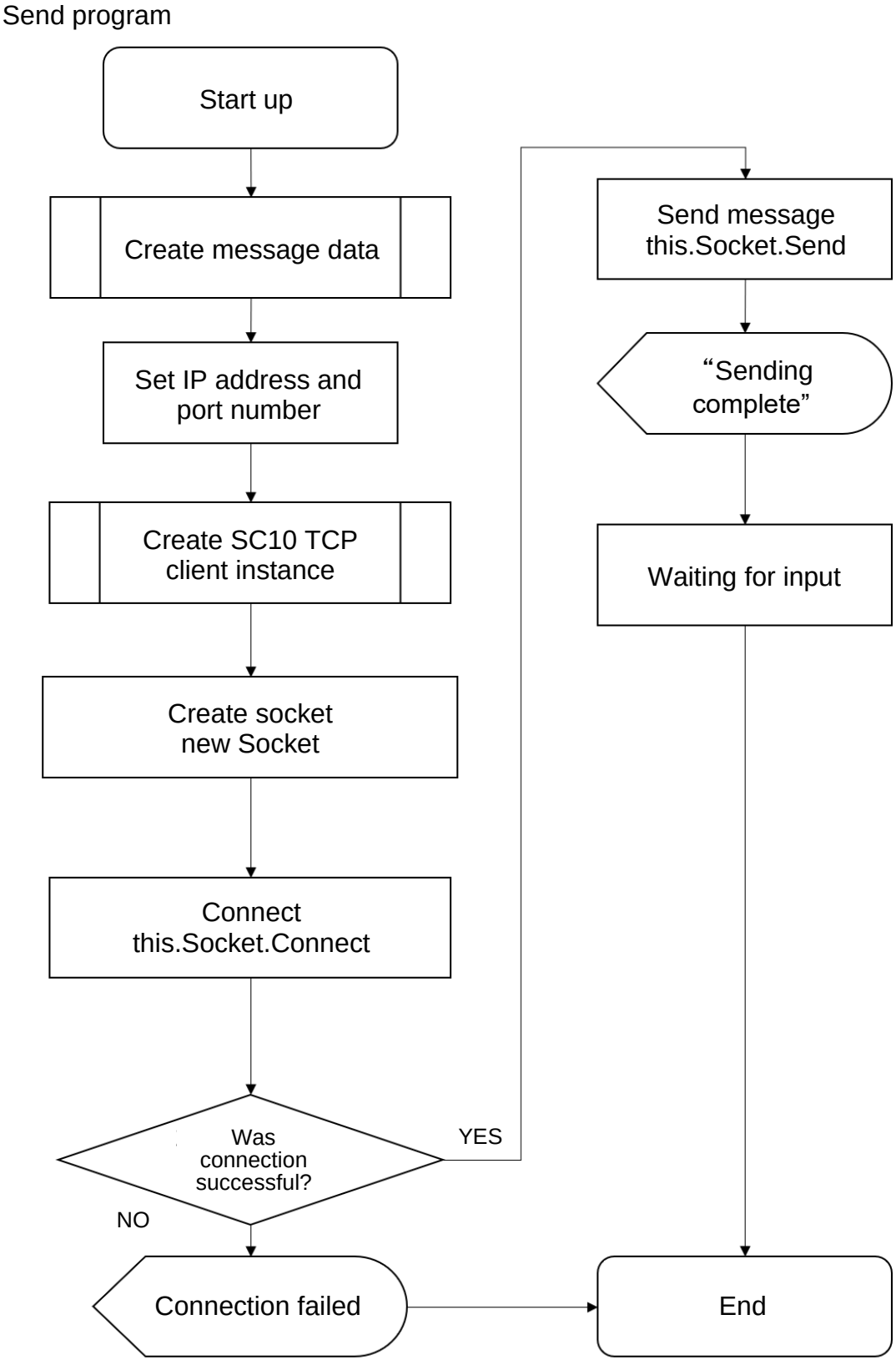
Receive program

```
  static void Main()
        {

            IPAddress thisip = IPAddress.Parse("192.168.183.50");
              int port = 56109;
            var myserver = new Server(thisip, port);
            myserver.Run();//Synchronous operation
          }
    public class Server
    {
        private class StateObject
        {
            public Socket ClientSocket { get; set; }
            public const int BufferSize = 1536;
            public byte[] Buffer { get; } = new byte[BufferSize];

        }

        // For waiting for thread
        private ManualResetEvent AllDone = new ManualResetEvent(false);
        // End point of server
        private IPEndPoint { get; }
        // Client to which connected (thread safe collection)
        private SynchronizedCollection<Socket> ClientSockets { get; } = new SynchronizedCollection<Socket>();

        public Server(IPAddress myip, int port)
        {
            this.IPEndPoint = new IPEndPoint(myip, port);
        }

        // Start up server
        public void Run()
        {
            using (var listenerSocket = new Socket(AddressFamily.InterNetwork, SocketType.Stream, ProtocolType.Tcp))
            {
                try
                {
                    // Bind socket to address
                    listenerSocket.SetSocketOption(SocketOptionLevel.Socket, SocketOptionName.ReuseAddress, true);
                    listenerSocket.Bind(this.IPEndPoint);
                    // Connection wait start
                    listenerSocket.Listen(10);
                     Console.WriteLine("Server started up.¥ nIP address:Port number¥n" +
listenerSocket.LocalEndPoint);
                    // Connection wait loop
                    while (true)
                    {
                        AllDone.Reset();
                        listenerSocket.BeginAccept(new AsyncCallback(AcceptCallback), listenerSocket);
                        AllDone.WaitOne();
                    }
                }
                catch (Exception e)
                {
                    Console.WriteLine("Communication port connection failed. Check the setting and then restart.¥ n" +
e);
                    return;
                }
            }
```

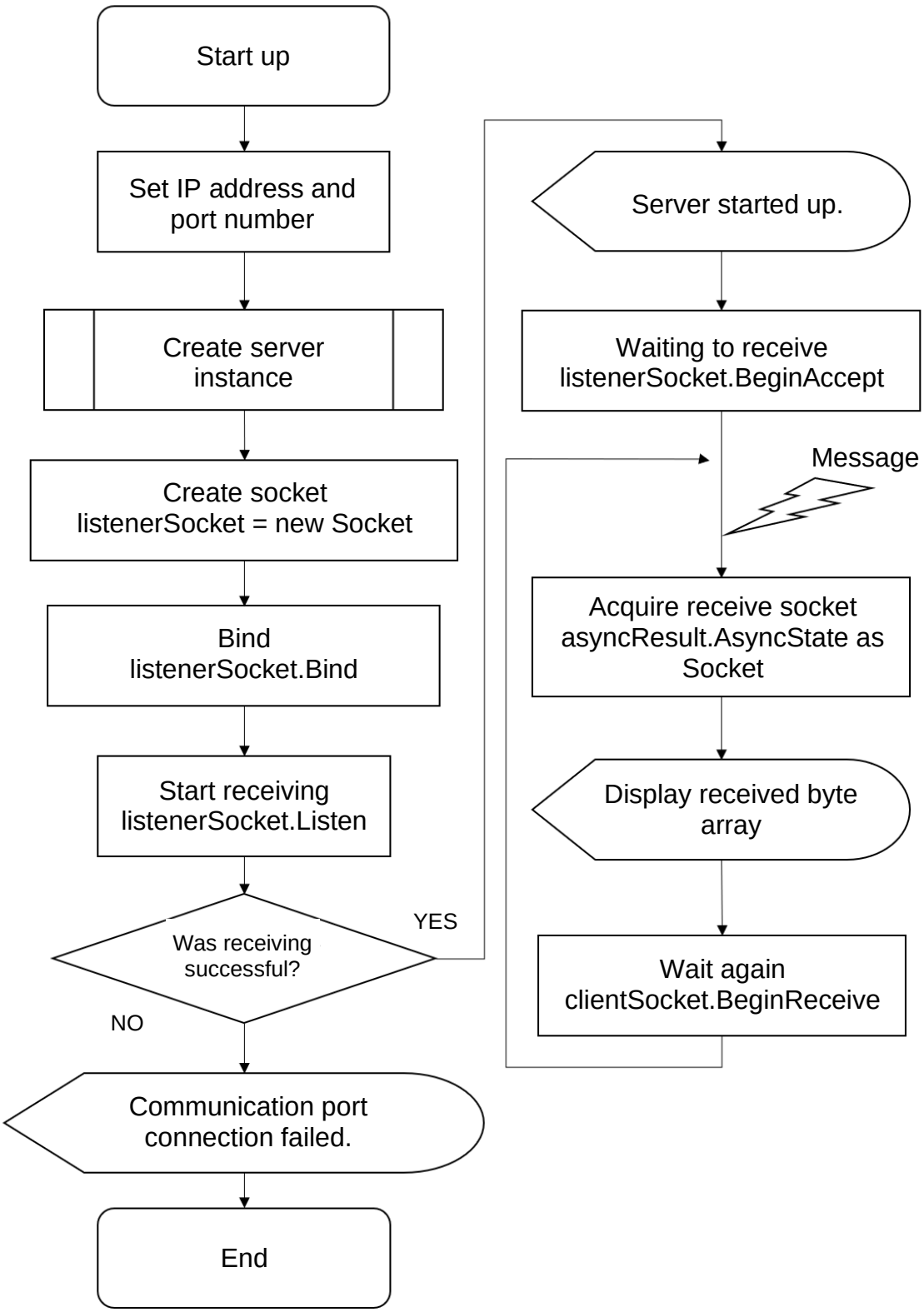
```
        // Callback process when connection accepted
        private void AcceptCallback(IAsyncResult asyncResult)
        {
            // Set signal so that wait thread progresses
            AllDone.Set();
            // Acquire socket
            var listenerSocket = asyncResult.AsyncState as Socket;
            var clientSocket = listenerSocket.EndAccept(asyncResult);
            // Add client during connection
            ClientSockets.Add(clientSocket);
            Console.WriteLine($"Connection: {clientSocket.RemoteEndPoint}");
            // Create StateObject
            var state = new StateObject();
            state.ClientSocket = clientSocket;
            // Set callback process for when receive
            clientSocket.BeginReceive(state.Buffer, 0, StateObject.BufferSize, 0, new AsyncCallback(ReceiveCallback),
state);
        }

        private void ReceiveCallback(IAsyncResult asyncResult)
        {
            // Acquire StateObject and client socket
            var state = asyncResult.AsyncState as StateObject;
            var clientSocket = state.ClientSocket;
            // End acquisition of data received from client socket
            int bytes = clientSocket.EndReceive(asyncResult);
            if (bytes > 0)
            {
                // Display received string
                foreach (var byint in state.Buffer) Console.Write(byint+" ");
                // Set callback process again for when receive
                clientSocket.BeginReceive(state.Buffer, 0, StateObject.BufferSize, 0, new
AsyncCallback(ReceiveCallback), state);
                Console.WriteLine("¥nReceiving complete¥n");
            }
            else
            {
                // Determine to be disconnected when receive 0 byte of data
                clientSocket.Close();
                this.ClientSockets.Remove(clientSocket);
            }
        }
    }
```

6. Flow Charts

Send program



Receive program



Revision History

Rev.	Date	Changes	Note
1.0.0	2019/01/31	New issue	
2.0.0	2020/03/13	Changes to the following items due to additional functions 2.Socket Mode • Addition: Communication system description • Modification: State Transition Diagram • Addition: Sequence Diagram – Connection method – Camera internal data file path information acquisition – Camera internal data acquisition – Camera internal data setting – Change the save destination of various files 3.Message IDs • Modification: Socket Mode Message IDs • Addition: Message ID description – Shutdown execution request/response – Reboot execution request/response – File save destination change reques/response – Data acquisition request/response – Data setting request/response – File path acquisition request/response – Timeout notification – Data acquisition completion notification/notification response – Data setting ready notification/notification response – Data setting completion notification/notification response – File path data notification – File path data acquisition completion notification/notification response 4.Error Code • Addition: File transfer error code	

RICOH Industrial Solutions Inc.