# LS Industrial Systems Co., Ltd. XCode RFID HF Reader Series XCode RFID

Supported version TOP D

TOP Design Studio



# CONTENTS

We would like to thank our customers for using M2I's "Touch Operation Panel (M2I TOP) Series". Read this manual and familiarize yourself with the connection method and procedures of the "TOP and external device".

# 1. System configuration Page 2

Describes the devices required for connection, the setting of each device, cables, and configurable systems.

## 2. External device selection Page 3

Select a TOP model and an external device.

### **3.** TOP communication setting Page 4

Describes how to set the TOP communication.

### 4. External device setting Page 11

Describes how to set up communication for external devices.

# 5. Cable table

### Page 12

Describes the cable specifications required for connection.



# 1. System configuration

The system configuration of TOP and "LS Industrial Systems – XCode RFID" is as follows:

Series	СРИ	Link I/F	Communication method	System setting	Cable
VC a da	VC	RS 232 Port	RS-232C	3. TOP communication	
XCode Series	XCode – 1307 XCode – 1306	Terminal Block 4 Pin	RS-422	<u>setting</u> <u>4. External device</u>	5.1. Cable table
		Terminal Block 4 Pin	RS-485	setting	

#### ■ Connection configuration

• 1:1 (one TOP and one external device) connection – configuration which is possible in RS232C/422/485 communication.





#### Driver Action Properties

If the driver option's trigger address (bit) is "on", it receives data from the <u>XCode RFID HF Reader Series</u> and forwards it to an external device connected to the COM1 / Ethernet channel.





# 2. External device selection

■ Select a TOP model and a port, and then select an external device.

PLC select [COI	M1]					
Filter : [All]			$\sim$	Searc	h :	
		<b>M</b> - 1 - 1			Mode	i Uvendor
M2I Corporation	^		XGL/XGR/XEC Series			
MITSUBISHI Electric Corpo	ration					
OMRON Industrial Automa	tion		XGK/XBM/XBC Serie	5		
S Industrial Systems			GLOFA-GM Series			
			MASTER-K(80S/120	s/200s/300s,	/1000S) Serie	is .
			STARVERT Series			
		80	XCODE RFID HF Re	ader Series IH	H-1306/1307	
E Fanue Automation		8	MASTER-K(500H/10	00H) Series		
			MASTER-K 10S, 10S	1 Series		
ASKAWA Electric Correct	tion		,			
	ration					
TOKOGAWA Electric Corpo	ration					
Schneider Electric Industri	es					
(DT Systems						
RS Automation						
lect Device			<b>B</b> a	ck d	Next	X Cance
lect Device PLC Setting[ XCODE	RFID HF R	leader S	eries IH-1306/1	ck 1	Next	X Cance
lect Device <b>*LC Setting[ XCODE</b> Alias Name : [ Interface :	RFID HF R	eader S	eries IH-1306/1	307 ]	Next	X Cance
lect Device PLC Setting[ XCODE Alias Name : [ Interface : Protocol : []	RFID HF R PLC1 Serial	eader Se	eries IH-1306/1	307 ]	Next	X Cance
lect Device PLC Setting[ XCODE Alias Name : [ Interface : Protocol : [	RFID HF R PLC1 Serial ISO tag Cont	eader Se	eries IH-1306/1	307 ]	Next	X Cance
lect Device PLC Setting[ XCODE Alias Name : Interface : Protocol :	RFID HF R PLC1 Serial ISO tag Cont	teader Si	eries IH-1306/1	307 ]	Next	X Cance
Hect Device PLC Setting[ XCODE Alias Name : Interface : Protocol : Use Redundancy perate Conditor : AND	RFID HF R PLC1 Serial (SO tag Cont	rol Protocol	eries IH-1306/1	307 ]	Next	X Cance
lect Device Alias Name : Interface : Protocol : Use Redundancy Operate Condition : ANC Change Condition : Interface : Interfac	RFID HF R PLC1 Serial ISO tag Cont	rol Protocol	eries IH-1306/1	307 ]	Next Co	X Cance
lect Device PLC Setting[ XCODE Alas Name : Interface : Protocol : Ouse Redundancy Operate Condition : AND Change Condition : Change Condition : C	RFID HF R PLC1 Serial (SO tag Cont imeOut ondition	rol Protocol	eries IH-1306/1	307 ]	Co	mm Manual
Iect Device PLC Setting[ XCODE Alas Name : [ Interface : [ Protocol : [ USE Redundancy perate Conditon : ANC Change Conditon : T Change Conditon : C Primary Option	RFID HF R Serial SSC tag Cont imeOut imeOut	rol Protocol	eries IH-1306/1	307 ]	Co	mm Manual
lect Device PLC Setting[ XCODE Alias Name : Interface : Protocol : USee Redundancy Derate Condition : Change Condition : Change Condition : Change Condition : Change Condition : Timeout	RFID HF R PLC1 Serial SSO tag Cont imeOut imeOut 300	rol Protocol	eries IH-1306/1	307 ]	Co	Manual
lect Device PLC Setting[ XCODE Alias Name : Interface : Protocol : OUSE Redundancy Deprate Condition : AND Change Condition : T Change Condition : T Change Condition : Change Condition	RFID HF R PLC1 Serial SSO tag Cont imeOut ondition	rol Protocol	eries IH-1306/1	307 ]	Co	mm Manual
elect Device PLC Setting[ XCODE Alias Name : Interface : Protocol : Use Redundancy Derate Condition : AND Change Condition : Timeout Send Wait Retry	RFID HF R PLC1 Serial iso tag Cont imeOut iondition 300 🖨	Iteader Se rol Protocol	eries IH-1306/1	307 ]	Co	mm Manual
Hect Device PLC Setting[ XCODE Alias Name : Interface : Protocol : Device Use Redundancy Derate Condition : Change Condition : Timeout Change Condition Timeout End Wait Retry Controller(Station) No.	RFID HF R PLC1 Serial (SO tag Cont imeOut ondition 300 \$ 5 \$ 0 \$	rol Protocol	eries IH-1306/1	307 ]	Co	mm Manual
Hect Device PLC Setting[ XCODE Alas Name : Interface : Protocol : Use Redundancy perate Conditon : ANC Change Conditon : Timeout Send Wait Controller(Station) No. Trigger	RFID HF R PLC1 Serial ISO tag Cont imeOut ondition 300 \$ 5 \$ 0 \$ 5 \$	rol Protocol	eries IH-1306/1	307 ]	Co	mm Manual
Hect Device PLC Setting[ XCODE Alias Name : [ Interface :  Protocol :  Use Redundancy perate Conditon : ANC Change Conditon : T Change Conditon : T Change Conditon : T Change Conditon : T Controller(Station) No. [ Trigger CK	RFID HF R PLC1 Serial ISO tag Cont imeOut ondition 300 ♀ 5 ♀ 0 ♀ \$75 \$75	teader Si rol Protocol	eries IH-1306/1	307 ]	Co	mm Manual
PLC Setting[ XCODE Alias Name :  Interface : Protocol : Use Redundancy Derate Condition : AND Change Condition : AND Change Condition : Primary Option Timeout Send Wait Retry Controller (Station) No. Trigger OK NG	RFID HF R PLC1 Serial SO tag Cont imeOut imeOut ondition 300 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$	teader Se rol Protocol 5 3 msec 3 msec 4 0000 • 0000 • 0000 • 0000	eries IH-1306/1	307 ]	Co	mm Manual
Hect Device PLC Setting[ XCODE Alias Name : Interface : Protocol : Use Redundancy Deprate Condition : AND Change Condition : Timeout Send Wait Retry Controller(Station) No. Trigger OK NG Data	RFID HF R PLC1 Serial SO tag Cont imeOut ondition 300 ↓ 5 ↓ 5 ↓ 5 ↓ 5 × 5 1 × 5 5 × 5	teader S rol Protocol 5 3 msec 3 - 0000 - - - - - - - - - - - - -	eries IH-1306/1	307 ]	Vext	mm Manual

Sett	ings		Contents		
TOP	Model	Check the display and process	eck the display and process of TOP to select the touch model.		
External device	Vendor	Select the vendor of the exter Please select "LS Industrial Sys	Р.		
	PLC	Select an external device to co	onnect to TOP.		
		Model	Interface	Protocol	
		XCODE RFID HF Reader Series IH-1306/1307	Serial	ISO tag Control Protocol	
		Please check the system con connect is a model whose sys	figuration in Chapter 1 to see if tem can be configured.	the external device you want to	



# 3. TOP communication setting

The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

### 3.1 Communication setting in TOP Design Studio

#### (1) Communication interface setting

- [Project > Project Property > TOP Setting] → [Project Option > "Use HMI Setup" Check > Edit > Serial]
  - Set the TOP communication interface in TOP Design Studio.



Items	ТОР	External device	Remarks
Signal Level (port)	RS-232C/RS422/RS485	RS-232C/RS422/RS485	
Baud Rate	9600		
Data Bit	8		
Stop Bit	1		
Parity Bit	Nor	ne	

\* The above settings are examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.



#### (2) Communication option setting

- [Project > Project Property > Device Setting > COM > "XCODE RFID"]
  - Set the options of the communication driver in TOP Design Studio.

Project Option			×
Change HMI[H] Add	PLC [A] TTTT Change PLC[C] X Delete PLC[D]		
TOP Setting     SYS : RD1520X	PLC Setting[ XCODE RFID HF Reader Series IH-1306/1307 ]		
FieldBus (0)			
RFID (0)	Protocol : ISO tao Control Protocol	6	mm Manual
✓ <sup>™</sup> COM1 (1)			
PLC1 : XCODE RFID HF Re			
тора Сомз (0)	Use Redundancy		
	Operate Condition : AND		
USBDevice (0)	Change Condition : TimeOut 5 (Second)		
	Primary Option		
	Timeout 300 💭 msec		^
	Send Wait 0 msec		
	Retry 5		
	Controller(Station) No.		
	OK SYS V 00000.01		
	NG SYS V 00000.02		
	Data SYS V 00100 C Words		
	No Tag Message		
	☑ Message Input by Direct		
	- Message No Tag.		
	- Destination Data Address		
	Massage Toput by Address		
	- Messare		
< >>	Pressage SYS ∨ 00200 🔽 🔂 🗮		×
		Apply	Close

Items	Settings	Remarks
Interface	Configure the communication interface between the TOP and an external device.	Refer to "2. External
Protocol	Configure the communication protocol between the TOP and an external device.	device selection".
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and	
	sending the next command request.	



PLC Setting[ XCO	DE RFID HF Reader Series IH-1306/1307 ]	
Alias Name	: PLC1	
Interface	: Serial V	
Protocol	: ISO tag Control Protocol	Comm Manual
🗌 Use Redundan	cy	
Operate Condition : /	AND V	
Change Condition :	TimeOut 5 Cecond)	
Primary Option		
Timeout	300 e msec	Ŷ
Send Wait	0 msec	
Retry	5	
Controller (Station) No.	0	
Trigger	II SYS V 00000.00	
ок	SYS V 00000.01	
NG	SYS V 00000.02	
Data	SYS V 00100	
No Tag Message		
📝 Message Input by I	Direct	
- Message	No Tag.	
- Destination	Data Address	
Message Input by	Address	
- Message		
- Destination		
- Size		
	10 Words	
• Tag Read Error Mess	sage	
V Message Input by I	Direct	
- Message	Read Error.	
- Destination	Data Address	
Massace Toput hu	Address	
<ul> <li>Message Input by /</li> <li>Message</li> </ul>		
Dealing	SYS V 00400	
- Destination	SYS V 00500	
- Size	10 😴 Words	~

Items	Settings	Remarks
Read Command Set	Set the prefix of XCODE RFID.	
Trigger	Configures the Bit address for executing Tag recognition.	
ОК	Configures the enabled Bit address upon successful Tag recognition.	
NG	Configures the enabled Bit address upon failed Tag recognition.	
Data	Configures the address and word length for entering Tag data.	Other PLC address use
		function



#### . X No Tag Message

Enter designated message for "No tag" error			
Message Input by Direct	Configure to enable or disable.		
Message	Message		
Destination	Enter to data storage address.		
Enter reference message for "No tag"	error		
Message Input by Address	Configure to enable or disable.		
Message	Message reference address	*Note 1)	
Destination	Message input address		
Size	Configures the buffer size of the message reference/input address	Word	

#### **※ Tag Read Error Message**

Enter designated message for "Tag read" error			
Message Input by Direct	Configure to enable or disable.		
Message	Message		
Destination	Enter to data storage address.		
Enter reference message for "Tag read	" error		
Message Input by Address	Configure to enable or disable.		
Message	Message reference address	*Note 1)	
Destination	Message input address		
Size	Configures the buffer size of the message reference/input address	Word	

#### \*Note 1) Only internal system buffer addresses can be used

\* Caution: The first word in the saved address is the address that stores the error code. It is marked 0x8000 without tag, 0x4000 with BCC error, 0x2000 with communication error, and 0x0001 with normal operation. The actual data storage address is saved from the following word.



#### 3.2. Communication setting in TOP

\* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

■ Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.



#### (1) Communication interface setting

■ [Main Screen > Control Panel > Serial]



Items	ТОР	External device	Remarks
Signal Level (port)	RS-232C/RS422/RS485	RS-232C/RS422/RS485	
Baud Rate	9600		
Data Bit	8		
Stop Bit	1		
Parity Bit	Nor	ne	

\* The above settings are setting examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.



### (2) Communication option setting

■ [Main Screen > Control Panel > PLC]

	$\frown$					
		ŵ	1001	PLC	×	
		🔯 Syste	Driver(COM1)	PLC1(XCODE RFID HF Reader Series IH-	·1306/1 🗸	
	Run		Interface	Serial 🔹		
			Protocol	ISO tag Control Prc -		
	VNC	PLC	Timeout	300 🖨 msec		
	VNC		Send Wait	0 🔷 msec		
	Viewer		Retry	5		
		L	Controlle	0		
	0.	Lineinei	Trigger	SYS:00000.00:1:16:DEC:R		
	Seroop		0K	SYS:00000.01:1:1:DEC:W		
	shot	inti <sup>~~</sup>	NG	SYS:00000.02:1:1:DEC:W		
		Diagnostic	Data	SYS: 00100: 16: 16: DEC: RW	Words 🗸	
			•			
		[System]	Cancel			
ems		Settings			Remarks	
terface		Configure the communication interface between the TOP and an external device. Refer to "2. External				

Interface	Configure the communication interface between the TOP and an external device.	Refer to "2. External
Protocol	Configure the communication protocol between the TOP and an external device.	device selection".
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and	
	sending the next command request.	



#### **3.3 Communication diagnostics**

■ Check the interface setting status between the TOP and an external device.

- Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.
- Check if the COM port settings you want to use in [Control Panel > Serial] are the same as those of the external device.
- Diagnosis of whether the port communication is normal or not
- Touch "Communication diagnostics" in [Control Panel > PLC].
- The Diagnostics dialog box pops up on the screen and determines the diagnostic status.

ОК	Communication setting normal
Time Out Error	Communication setting abnormal
	- Check the cable, TOP, and external device setting status. (Reference: Communication diagnostics sheet)

#### Communication diagnostics sheet

- If there is a problem with the communication connection with an external terminal, please check the settings in the sheet below.

Items	Contents		Check		Remarks	
System	How to connect the system		OK	NG	1 Cretem configuration	
configuration	Connection cable name	2	ОК	NG	<u>1. system configuration</u>	
TOP	Version information	Version information		NG		
	Port in use		OK	NG		
	Driver name		OK	NG		
	Other detailed settings		ОК	NG		
	Relative prefix	Project setting	OK	NG		
		Communication		NC	2. External device selection	
		diagnostics	ŬK	NG	3. Communication setting	
	Serial Parameter	Transmission	OK	NC		
		Speed	ОК	NG		
		Data Bit	OK	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
External device	CPU name	OK	NG			
	Communication port n	ОК	NG			
	Protocol (mode)	OK	NG			
	Setup Prefix	OK	NG			
	Other detailed settings	OK	NG	4 External device setting		
	Serial Parameter	Transmission Speed	ОК	NG	4. External device setting	
		Data Bit	ОК	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
	Check address range				6. Supported addresses	
			OK	NG	(For details, please refer to the PLC	
					vendor's manual.)	



# 4. External device setting

Configure the RFID switch communication settings as follows. For more detailed setting methods than described in this example, please refer to the

PLC user manual.

LS XCode communication settings can be modified by altering the parameters.

For a more detailed setting method than described in this example, refer to the user manual of the external device.

#### - Default Setting -

Baudrate	9600 [Bps]
Data Bit	8 [Bit]
Stop Bit	1 [Bit]
Parity	None
Data type	ASCII

#### - RS 232C / 422 / 485 Select DIP Switch -





# 5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.

(The cable diagram described in this section may differ from the recommendations of "XCODE RFID")

#### RS232C

TOP COM				"XCode RFID			
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin	
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)	
1 5						1 5	
$(\circ \circ)$	RD	2		2	SD	$(\circ \circ)$	
	SD	3		3	RD		
6 9						6 9	
Based on						Based on	
communication	SG	5		5	SG	communication	
cable connector						cable connector	
front,						front,	
D-SUB 9 Pin male						D-SUB 9 Pin male	
(male, convex)						(male, convex)	

\*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

#### RS-422

TOP COM					"XCode RFID"	
Pin	Signal	Pin	Cable connection	Signal	Din arrangemental ( 4)	
arrangement*Note 1)	name	number		name	Pin arrangement*Note 1)	
15	RDA	1		TXD+		
$\left( \circ \circ \right)$	RDB	4		TXD-	PDA PDP SDA SDP	
	SDA	6		RXD+	لمّاهّاهم. الم	
6 9 Pased on	SDB	9		RXD-		
					Based on communication	
communication					cable connector	
cable connector					front	
front,					Tanai al Black A Dia	
D-SUB 9 Pin male					ierminal Block 4 Pin	
(male, convex)						

\*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.

RS-485

TOP COM				"XCode RFID"		
Pin	Signal	Pin	Cable connection	Signal	Din arrangementuur ()	
arrangement*Note 1)	name	number		name		
1 5	RDA	1 ·	• •	TXD+		
$\left( \circ \circ \right)$		2	<del> </del>	TXD-		
		3		RXD+	MAMA	
6 9 Based on	RDB	4		RXD-		
communication		5			Based on communication	
cable connector	SDA	6			cable connector	
front		7			front	
D-SUB 9 Pin male		8			Terminal Block 4 Pin	
(male, convex)	SDB	9	}€			

\*Note 1) The pin arrangement is as seen from the connecting side of the cable connection connector.