Document History

Ver. No.	Date	Revision History	Author(s)
V1.0	2021/09/22	Release the document.	Marco Yang
V1.1	2021/11/12	修正command 0x01,0x03文字敘述	James

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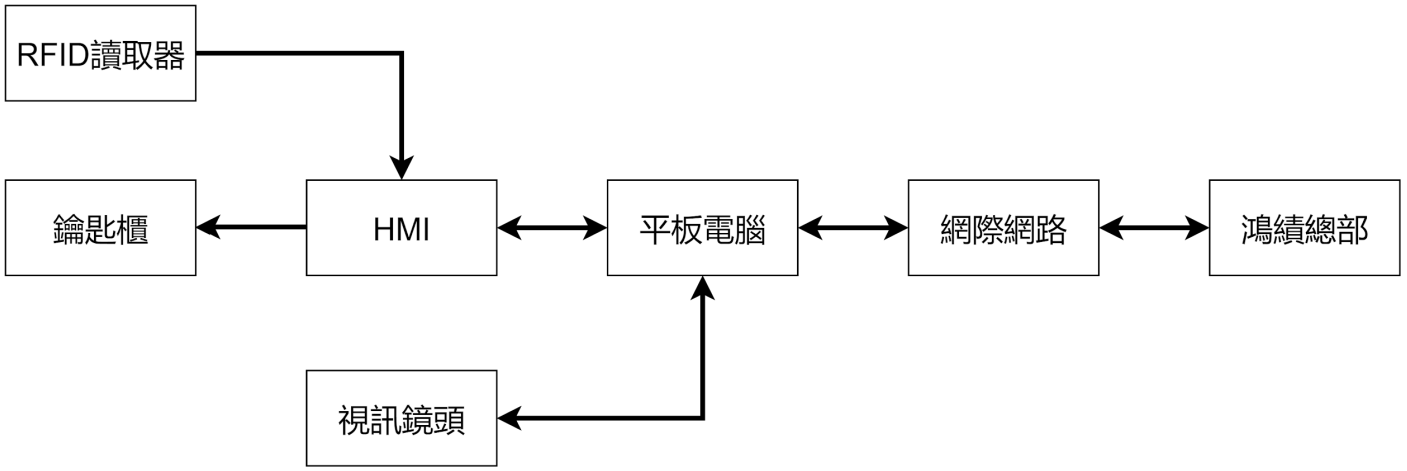
1 Scop

This document describes the command of HMI to support IO control and RFID reader to meet locker requirements.

2 Abbreviation

UART	Universal Asynchronous Receiver/Transmitter
HMI	Human Machine Interface

3 Architecture



4 Command Format

1. Request command: (Control side UART -> HMI UART)

Tag ID [1]	Length [1]	Cmd ID [1]	Data [n]	CRC [1]

2. Response command: (HMI UART -> Control side UART)

Tag ID [1]	Length [1]	Cmd ID [1]	Data[n]	CRC [1]

3. Indication command: (HMI UART -> Control side UART)

Tag ID [1]	Length [1]	Cmd ID [1]	Data[n]	CRC [1]

4. Indication ack command: (Control side UART -> HMI UART)

Tag ID [1]	Length [1]	Cmd ID [1]	CRC [1]

CRC = 0 – Tag ID – Length – Cmd ID
Ex: Ping Request
CRC = 0x00 – 0xFC – 0x05 – 0x00 = 0xFF

5 Command description

5.1 0x00 Ping Request

Control side UART -> HMI UART
Used to test the communication is workable.

Tag ID [1]	Length [1]	Cmd ID [1]	CRC [1]

Tag ID	1 byte. Command UART Tag = 0xFC
Length	1 byte. Total message length = 4
Cmd ID	1 byte. Command Ping Request = 0x00
CRC	1 byte. CRC code

5.2 0x00 Ping Response

HMI UART -> Control side UART
Used to respond to the request command

Tag ID [1]	Length [1]	Cmd ID [1]	CRC [1]

Tag ID	1 byte. Command UART Tag = 0xFD
Length	1 byte. Total message length = 4
Cmd ID	1 byte. Command Ping Response = 0x00
CRC	1 byte. CRC code

Command-List

5.3 0x01 Set Digital Output Request

Control side UART -> HMI UART
Used to set the digital output to the HMI.

Tag ID [1]	Length [1]	Cmd ID [1]	Data [n]	CRC [1]

Tag ID	1 byte. Command UART Tag = 0xFC
Length	1 byte. Total message length = 4 + n
Cmd ID	1 byte. Command Set Digital Output Request = 0x01
Data	n bytes. Value of the bitmap.
CRC	1 byte. CRC code

5.4 0x01 Set Digital Output Response

HMI UART -> Control side UART
Used to respond to the request command

Tag ID [1]	Length [1]	Cmd ID [1]	Result [1]	CRC [1]

Tag ID	1 byte. Command UART Tag = 0xFD
Length	1 byte. Total message length = 4 + 1
Cmd ID	1 byte. Command Set Digital Output Response = 0x01
Result	1 byte. 0 = Success. 1 = Fail.
CRC	1 byte. CRC code

Command-List

5.5 0x02 Get IO state Request

Control side UART -> HMI UART
Used to get an IO state of HMI.

Tag ID [1]	Length [1]	Cmd ID [1]	Data[1]	CRC [1]

Tag ID	1 byte. Command UART Tag = 0xFC
Length	1 byte. Total message length = 4 + 1
Cmd ID	1 byte. Get IO status Request = 0x02
Data	1 byte. 0 = DI port. 1 = DO port.
CRC	1 byte. CRC code

5.6 0x02 Get IO state Response

HMI UART -> Control side UART
Used to respond to the request command

Tag ID [1]	Length [1]	Cmd ID [1]	IO [1]	Data [n]	CRC [1]

Tag ID	1 byte. Command UART Tag = 0xFD
Length	1 byte. Total message length = 4 + 1 + n
Cmd ID	1 byte. Get IO status Response = 0x02
IO	1 byte. 0 = input. 1= output.
Data	n bytes. IO Status data.
CRC	1 byte. CRC code

Command-List

5.7 0x03 Get RFID Data Request

Control side UART -> HMI UART
Used to get the RFID Data.

Tag ID [1]	Length [1]	Cmd ID [1]	Timeout [1]	CRC [1]

Tag ID	1 byte. Command UART Tag = 0xFC
Length	1 byte. Total message length = 4 + 1
Cmd ID	1 byte. Command Get RFID Data Request = 0x03
Timeout	1 byte. Unit of a second.
CRC	1 byte. CRC code

5.8 0x03 Get RFID Data Response

HMI UART -> Control side UART
Used to respond to the request command

Tag ID [1]	Length [1]	Cmd ID [1]	Result [1]	Data [n]	CRC [1]

Tag ID	1 byte. Command UART Tag = 0xFD
Length	1 byte. Total message length = 4 + 1 + n
Cmd ID	1 byte. Command Get RFID Data Response = 0x03
Result	1 byte. Result data. 0 = Pass. 1 = Fail.
Data	n bytes. RFID Content of the key or ID.
CRC	1 byte. CRC code

Command-List

