Smart-Reader Module Specification

1. About the Smart-Reader

1.1. Equipment name and model name

Model Number : Smart-Reader

1.2. Module specifications

■ Specifications

<table>
<tr><th>Specifications</th><th>Item</th><th>Parameter</th></tr>
<tr><td>Applicable Standards</td><td>Japan Radio Law</td><td>ARIB STD-T82</td></tr>
<tr><td></td><td>RoHS</td><td>EU RoHS(2002/95/EC) Supports</td></tr>
<tr><td>Radio Frequency</td><td>Carrier frequency</td><td>13.56MHz ±50ppm(Ta=25℃) or less</td></tr>
<tr><td></td><td>Transmit power or power range</td><td>10～100mW ± 20%(Ta=25℃, VCC=5.0V)</td></tr>
<tr><td></td><td>Standards</td><td>ISO/IEC 15693、ISO/IEC18000-3(Mode1)</td></tr>
<tr><td></td><td>Tags</td><td>Tag-it HF-I, my-d, I･CODE SLI, MB89R118(※1)</td></tr>
<tr><td></td><td>Data rate</td><td>
<table>
<tr><th></th><th>Speed</th><th>Data rate</th></tr>
<tr><td rowspan="2">Reader/Writer⇒Tag</td><td>1/4</td><td>26.48kbps</td></tr>
<tr><td>1/256</td><td>1.65kbps</td></tr>
<tr><td>Tag⇒Reader/Writer</td><td colspan="2">26.69kbps</td></tr>
</table>
</td></tr>
<tr><td></td><td>Modulation</td><td>
<table>
<tr><th></th><th>Parameter</th></tr>
<tr><td>Reader/Writer⇒Tag</td><td>ASK 10%(※2) / ASK 100%</td></tr>
<tr><td>Tag⇒Reader/Writer</td><td>ASK, FSK</td></tr>
</table>
</td></tr>
<tr><td></td><td>Anti-collision</td><td>Support</td></tr>
</table>

※1 : Tag-it HF-I is a registered trademark of Texas Instruments Incorporated.
my-d is a registered trademark of Infineon Technologies AG.
I･CODE SLI is a registered trademark of NXP Semiconductors.
MB89R118 is a registered trademark of FUJITSU Japan.
※2 : initialization

<table>
<tr><th>Specifications</th><th>Item</th><th>Parameter</th></tr>
<tr><td>Controll</td><td>Command</td><td>Please refer to the TR3-Protocol-Manual.</td></tr>
<tr><td></td><td>Host Interface</td><td>UART(CMOS)
<table>
<tr><th>Item</th><th>Parameter</th></tr>
<tr><td>Speed</td><td>9600bps
19200bps(※2)
38400bps</td></tr>
<tr><td>Data bits</td><td>8</td></tr>
<tr><td>Parity</td><td>None</td></tr>
<tr><td>Stop bit</td><td>1</td></tr>
<tr><td>Flow control</td><td>None</td></tr>
</table>
</td></tr>
<tr><td></td><td>LED1</td><td>1pc (3 colors, red/green/orange)</td></tr>
<tr><td>Connector</td><td>CN1</td><td>Connector : JST S10B-PH-SM4-TB(LF)(SN)
Housing : JST PHR-10
Contact : JST SPH-002T-P0.5S

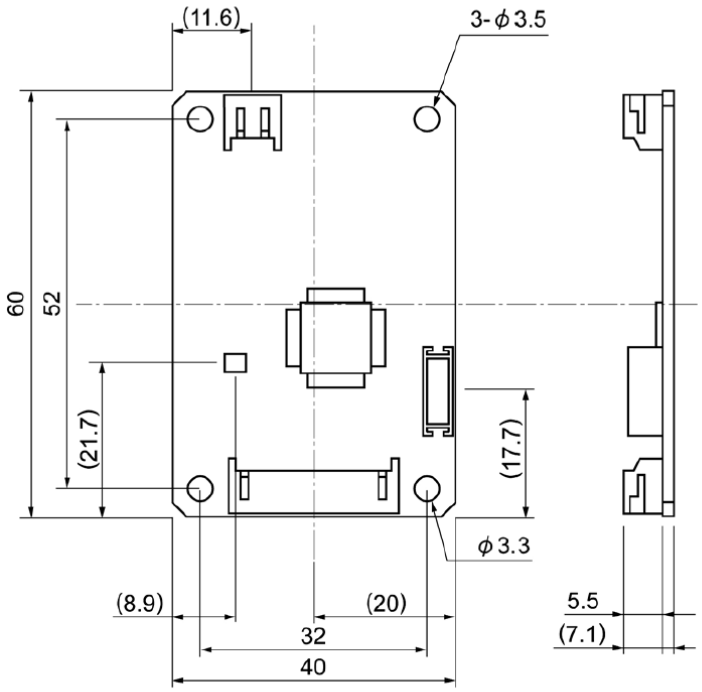
Pin assignment
<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Function</th></tr>
<tr><td>1</td><td>VCC</td><td>Power</td></tr>
<tr><td>2</td><td>VCC</td><td>Power</td></tr>
<tr><td>3</td><td>GND</td><td>GND</td></tr>
<tr><td>4</td><td>GND</td><td>GND</td></tr>
<tr><td>5</td><td>Rx</td><td>Received data signal</td></tr>
<tr><td>6</td><td>Tx</td><td>Transmitted data signal</td></tr>
<tr><td>7</td><td>VCC2</td><td>Power output</td></tr>
<tr><td>8</td><td>IO1</td><td>Input/Output or Detection signal output H : Detection</td></tr>
<tr><td>9</td><td>IO2</td><td>Input/Output or Trigger input
L : Trigger ON</td></tr>
<tr><td>10</td><td>IO3</td><td>Input/Output</td></tr>
</table>
</td></tr>
<tr><td></td><td>CN2</td><td>Connector : JST S2B-PH-SM4-TB(LF)(SN)
Housing : JST PHR-2
Contact : JST SPH-002T-P0.5S

Pin assignment
<table>
<tr><th>Pin No.</th><th>Symbol</th><th>Function</th></tr>
<tr><td>1</td><td>RF</td><td>Analog signal</td></tr>
<tr><td>2</td><td>GND</td><td>GND</td></tr>
</table>
</td></tr>
</table>

※2 : initialization

Specifications	Item	Parameter
Mechanical data	Dimensions (W x D x H)	40 x 60 x 7.1mm
	Weight	approx. 12g
	Installation	M3 Screw Screw is not included.
Electrical data	Power	Supply Voltage : DC+3.3V～+5.0V ±10% Current consumption : approx. 120mA (at 5V) Carrier off : approx. 20mA (at 5V) Power down mode : approx. 10mA (at 5V) Consumption : max 1.0W (at 5V)
Ambient Conditions	Temperature Operating range	0 to 55 degree
	Humidity Operating range	30 to 80%RH
	Temperature Storage range	0 to 55 degree
	Humidity Storage range	30 to 80%RH
Other	Accessories	None

■ Dimensions



Unit : mm
Tolerance : ±1mm
( )is Recommended Dimension
Screw hole depth : 3mm

■ Connections

Names	Model	Notes
Antenna	TR3-CA038	1ch
	TR3-CA038(16)	16ch
Cable	CB-2A26-***-PH-GH	*** puts the cable length. 9cm ~ 50cm cable are available.
	RFID Coaxial Cable	10cm ~ 2000cm cable are available.
Interface board	TR3-IF-U1A	USB interface

■ Electrical Characteristics(CN1)

VDD=5V

Item	Condition	MIN	TYP	MAX	Unit
H input voltage	RX,IO1,IO2,IO3	2.5		5.0	V
L input voltage	RX,IO1,IO2,IO3	0		1.0	V
H output voltage	IOH=-5mA,-20mA	3.0			V
L output voltage	IOL=5mA,20mA			2.0	V
Pull-up resistor		25.0	50.0	100.0	kΩ

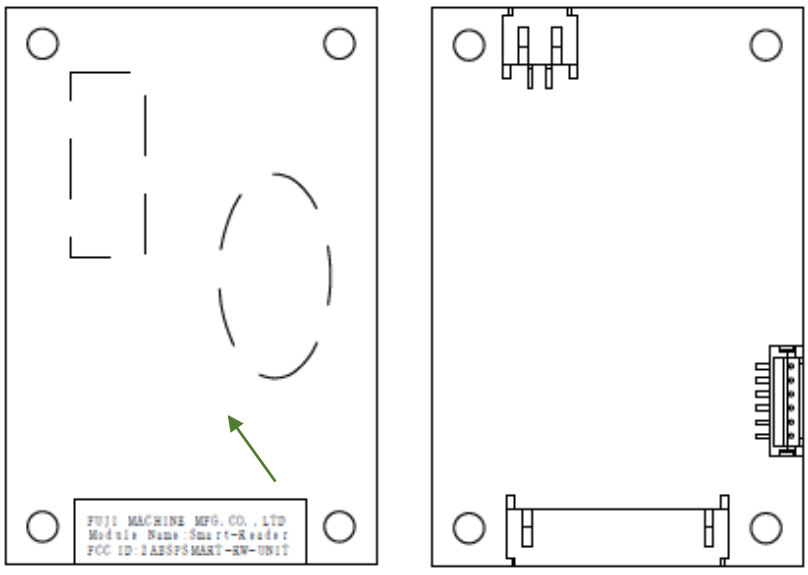
- TX, RX, IO1, IO2 and IO3 is, Pull-up resistor has been connected.
- TX, RX, IO1, IO2 and IO3 is, 100 ohm resistor has been connected.
  Output port, LED is not driven. If the LED drive, please use the digital transistors.

1.3. Label drawing & Label Location Diagram

Label drawing

FUJI MACHINE MFG. CO., LTD
Module Name:Smart-Reader
FCC ID:2ABSPSMART-RW-UNIT

Label Location Diagram



(Back Side) LABEL (Front Side)