

USER MANUAL

SI-W109

Multi-Functional I/O Module

SI-W109 M3

SI-W109

Multi-Functional I/O Module

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DISCLAIMER

This user's manual is meant to assist users in installing and setting up the system. The information contained in this document is subject to change without any notice.


CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

	<p>WARNING: Some internal parts of SI-W109 may have high electrical voltage. We strongly recommend that only qualified engineers are allowed to service and disassemble SI-W109. If any damages should occur on SI-W109 and are caused by unauthorized servicing, it will not be covered by the product warranty.</p>
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SI-W109 Assembly Exploded DiagramA-2

Revision History

The revision history of SI-W109 User Manual is described below:

Version No.	Revision History	Page No.	Date
M3	<ul style="list-style-type: none">Added Jumper Settings information.	3-5 to 3-10	2020/3/9
	<ul style="list-style-type: none">The contents of Section 4.3 Address Mapping have been updated.	4-18 to 4-22	
M2	<ul style="list-style-type: none">In Section 4.2.7 Functional 0x41 – Read Module Setting, the contents of Response-1 (The channel address is 0x0000.) table have been revised.	4-11	2020/02/11
	<ul style="list-style-type: none">In Section 4.3 Address Mapping, the firmware version has been revised to “00-20191126”.	4-13	
M1	Initial Release	-	2019/10/14

1 Introduction

This chapter provides the introduction for SI-W109 module, applications list as well as the framework of the user manual.

The following topics are included:

- SI-W109 Overview
- Applications
- User Manual Structure

1.1 SI-W109 Introduction

Thank you for purchasing our SI-W109 Industrial IoT (IIoT) Remote I/O Module. SI-W109 Series is a set of data acquisition and control modules that can be remotely controlled by using Modbus RTU protocol. The communication interface between the module and the host is RS-485 serial bus. The baud rate is software programmable and transmission speeds is up to 115.2 Kbps. SI-Wx09 Series provide Analog-to-Digital, Digital-to-Analog, Digital Input / Output, Counters and other functions. SI-W109 modules can communicate with all computers and terminals. SI-W109 Remote I/O Module has 4 channels of Analog Input, 2 channels of Analog Output, 4 channels of Digital Input and 4 channels of Analog Output. All digital input channels can be used as 32-bit counters.

The RS-485 network only requires two wires, DATA+ and DATA-. A maximum of 256 SI-W109 modules can be connected to an RS-485 network, and the transmission distance can reach up to 4000 feet. For the power requirements, the modules are designed for standard industrial unregulated 24 VDC Power input; however, they accept any power unit that supplies power within the range of +9 to +50 VDC.

1.2 Applications

- Building Automation
- Factory Automation
- Machine Automation
- Remote Maintenance
- Remote Diagnosis
- Testing Equipment

1.3 User Manual Structure

Chapter 1 Introduction

This chapter gives the brief introduction of SI-W109, applications list as well as the framework of this user manual.

Chapter 2 Getting Started

This chapter describes the system architecture and system and I/O specifications, illustrates the physical appearances, block diagrams, I/O module as well as quick installation guide. Read the safety reminders carefully on how to take care of SI-W109 properly.

Chapter 3 Hardware Configuration

This chapter describes the information of pin assignment, jumper settings, application wiring, mounting support as well as default settings. It also provides technical support information.

Chapter 4 MODBUS RTU Protocol

This chapter describes the command format, function list and address mappings information for MODBUS RTU protocol.

Appendix A Exploded Diagrams

This appendix provides the exploded diagrams and part numbers for SI-W109.

2 Getting Started

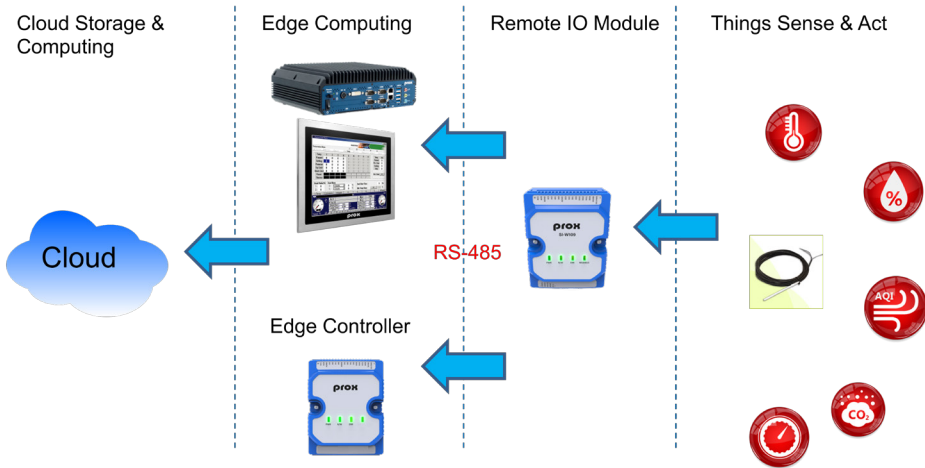
This chapter describes the system architecture and system and I/O specifications, illustrates the physical appearances, block diagrams, I/O modules as well as quick installation guide. Read the safety reminders carefully on how to take care of SI-W109 properly.

The following topics are included:

- System Architecture
- SI-W109 Overview
- System and I/O Specifications
- I/O Module
- Block Diagrams
- Quick Start
- Safety Precautions

2.1 System Architecture

The System Architecture diagram is illustrated as below:



Host Computer/ Edge Controller Gateway

Any computer, terminal or Edge controller Gateway can transfer data with Modbus RTU Protocol by using RS-232 or RS-485 serial interfaces. When only RS-232 is available, an RS-232 to RS-485 converter is required to convert the signals to the correct RS-485 data format. The Modbus protocol is easy to integrate Modbus compatible equipment into monitoring and control applications.

Remote I/O Module

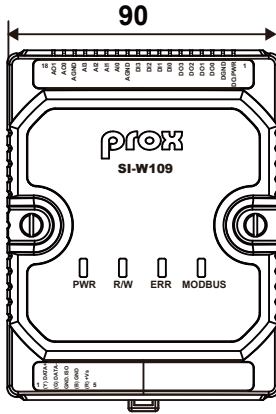
SI-W109 is the series of the Remote I/O Modules which are designed by Protech Systems. The bottom side I/O of module include RS-485 interface and power supply. The interface of communication is the RS-485 with 3-wire unregulated connector. The modules accept any power unit that supplies power within the range of +9 to +50 VDC. For the standard power unit, they are designed for standard industrial unregulated 24 VDC Power input.

The top side I/O of module is the I/O channels for monitoring and control. It provide Analog-to-Digital, Digital-to-Analog, Digital Input / Output, Relay output, Counters and other functions.

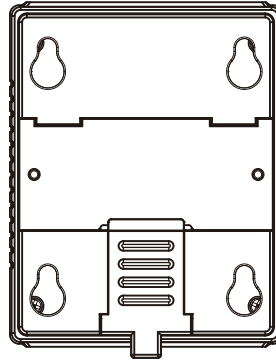
2.2 SI-W109 Overview

Unit: mm

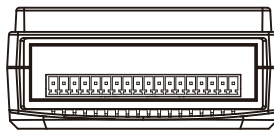
Front View



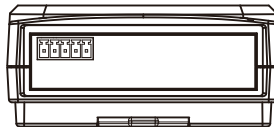
Rear View



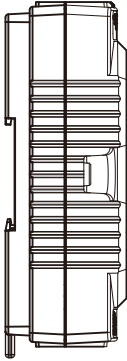
Top View



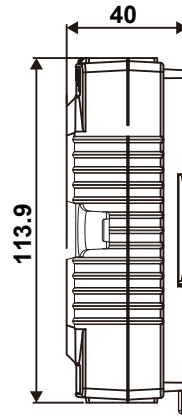
Bottom View



Left Side View



Right Side View



2.3 Specifications

2.3.1 SI-W109 Specifications

SI-W109 Specification	
Communication Interface	➤ RS-485
Baud Rate	➤ 9,600 bps ~ 115,200 bps (Max)
Communication Protocol	➤ Modbus /RTU
Intra-module Isolation	➤ 3000V
Installation	➤ DIN-Rail, Wall Mount
LED Indicator	<ul style="list-style-type: none"> ➤ Power LED, Green ➤ R/W LED, Orange ➤ Error LED, Red ➤ Modbus LED, Green
I2C Interface	➤ Temperature/ Humidity Sensor Module
Power Supply	➤ 9 ~ 50V DC In from terminal block
System Weight	➤ 220g
Dimensions (W x H x D)	➤ 113.9 x 90 x 40mm
Certificate	➤ FCC/CE
Environment	
Operating Temperature (with airflow)	➤ -25°C ~ 75 °C (-13 °F ~ 167°F)
Storage Temperature	➤ -40°C ~ 85°C (-40°F ~ 185°F)
Humidity	➤ 20% ~ 90%

2.3.2 I/O Specifications

Analog Input	
Channels	➤ 4
Type	➤ 0V ~ +5V, 0V ~ +10V, ±10V ➤ ±20 mA, 0~20 mA, 4~20 mA (jumper selectable)
Resolution	➤ 16-bit
Sample Rate	➤ Normal Mode: 10Hz / Fast Mode: 200Hz
Accuracy	➤ Normal Mode: ±0.1 % ➤ Fast Mode: ±0.5 %
Overvoltage Protection	➤ 120V DC
Analog Output	
Channels	➤ 2
Type	➤ 0V ~ +5V, 0V ~ +10V, ±10V ➤ 0 mA~+20 mA, +4 mA~+20 mA (jumper selectable)
Resolution	➤ 12-bit
Accuracy	➤ ±0.1%
Voltage Output Capability	➤ 10V @ 20mA
Current Load Resistance	➤ 500Ω
Digital Input / Counter	
Channels	➤ 4
Type	➤ Dry Contact, Source
On Voltage Level	➤ Dry Contact, Close to GND
Off Voltage Level	➤ Dry Contact, Open
Counters	➤ Channels : 4 ➤ Max. Count: 32-bits (0 ~ 4,294,967,285) ➤ Max. Input Frequency : 50 Hz ➤ Min. Pulse Width: 10 ms
Overvoltage Protection	➤ 60V DC
Digital Output	
Channels	➤ 4
Type	➤ Source
Max. Load Current	➤ 650 mA/ channel
Load Voltage	➤ 11V ~ 40V DC
Overvoltage Protection	➤ 47V DC
Overload Protection	➤ Yes
Short-circuit Protection	➤ Yes
Power-on Value	➤ Yes, Programmable

2.4 About SI-W109 I/O Module

1. Common Specification of SI-W109 Series

Communication Interface:

- RS-485 (3-wire) to Host
- Speed: 9600, 19200, 38400, 57600, 115200 bps
- Maximum Communication Distance: 4000 feet (1.2km)
- Power and communication LED Indicator
 - **PWR**: Power indicator with Green LED
 - **R/W**: Data Read/Write indicator with Orange LED
 - **ERR**: Error indicator with Red LED
 - **Modbus**: Modbus communication indicator with Green LED
- Up to 256 I/O modules per serial port

Power Requirement

- Unregulated +9 ~ +50V DC

Mechanical

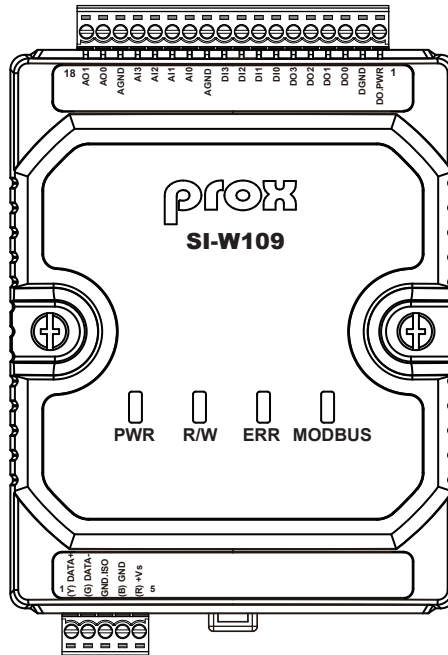
- Case: ABS+PC
- Plug-In Screw: Strip Length : 6~7mm
- Suitable Electric Wire: AWG 14~28

Environment:

- EMI: FCC Class A and CE
- Operation Temperature: -25°C ~ 75°C (-13°F ~ 167°F)
- Storage Temperature: -40°C ~ 80°C (-40°F ~ 185°F)
- Humidity: 20% ~ 90%

2. SI-W109 Multi-Function I/O Module

SI-W109 Module provides 4 channels Analog Input, 2 channels Analog Output, 4 channels Digital Input / Counter and 4 Channels Digital Output. For the Digital Input channels, the host computer can use digital input channels to determine the states of safety switch and remote digital signals or to be a counter. The Digital Output channels are source type and provide short-circuit and overvoltage protection and can be programmed for power-on values. SI-W109 series provide a programmable input range on all analog input channels and all analog output channels. The range of analog input is 16-bit at 0V~+5V, 0V ~ +10V, +/-10V, 4~20mA, 0~20mA, -20~+20mA. The range of analog output is 12-bit at 0V ~ +5V, 0V ~ +10V, +/-10V, 4~20mA, 0~20mA. Voltage and Current Input / Output are jumper selectable. This module is a cost-effective solution for industrial measurement, monitoring and control applications.



Channels:

- 4 Analog Input Channels
- 2 Analog Output Channels
- 4 Digital Input / Counter Channels
- 4 Digital Output Channels

Analog Input:

- **Type :** 0V ~ +5V, 0V ~ +10V, $\pm 10V$, ± 20 mA, 0 ~ 20 mA, 4 ~ 20 mA
- **Resolution:** 16-bit

Analog Output:

- **Type :** 0V ~ +5V, 0V ~ +10V, $\pm 10V$, 0 ~ 20 mA, 4 ~ 20 mA
- **Resolution:** 12-bit

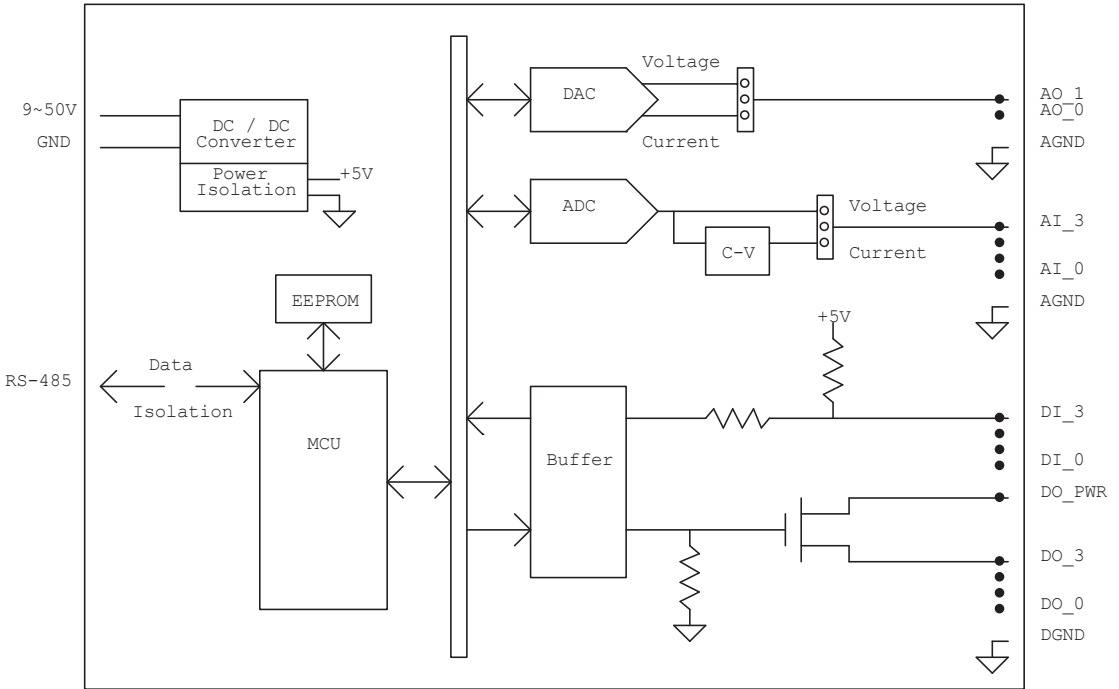
Digital Input:

- **Type :** Dry Contact: Source
- **On Voltage Level:** Close to GND
- **Off Voltage Level:** Open

Digital Output:

- **Type :** Source
- **Load Voltage:** 11V ~ 40VDC

2.5 Block Diagram



2.6 Quick Start

To install SI-W109 I/O module, follow the steps below:

1. Refer to **Section 3.1 PIN Assignment** for the pin assignment of terminal block and **Section 3.2 Application Wiring**.
2. Open the Modbus utility for the host control.
3. Connect the module to the RS-485 network using the DATA+ and DATA-(GND) terminals. If the host is only equipped with an RS-232 interface, an RS-232 to RS-485 converter will be required. See **Section 3.1 PIN Assignment** for terminal assignment.
4. Connect the pin 4 and pin 5 of the module (SI-W109) to the power supply using the GND and +Vs terminals. See **Section 3.1 PIN Assignment** for terminal assignment. Note that the voltage supplied to the module should be in the range of +9 to +50 VDC.
5. Use the Modbus RTU Protocol and configure the module by using the following commands:
 - Read the Baud Rate Setting from the Holding Register (0x0020) by sending "01 41 00 20" command to the module. Check the settings of the module and utility are the same.
 - To read data from Input channels by sending function code 02h to read data from input channels.

2.7 Safety Precautions

Before operating SI-W109, read the following information carefully to protect it from damages, and extend the life cycle of SI-W109.

1. Check the Line Voltage
 - The operating voltage for the power supply should be within the range of 9~50V DC; otherwise, SI-W109 may be damaged.
2. Environmental Conditions
 - Place your SI-W109 on a sturdy, level surface. Be sure to allow enough space around SI-W109 to have easy access needs.
 - Avoid installing your SI-W109 in extremely hot or cold places.
 - Avoid direct sunlight exposure for a long period of time (for example, in a closed car in summer time. Also keep SI-W109 from any heating device.). Or do not use SI-W109 when it has been left outdoors in a cold winter day.
 - Avoid moving SI-W109 rapidly from a hot place to a cold place, and vice versa, because condensation may occur inside SI-W109.
 - Do not place SI-W109 too close to any radio-active device. Radio-active device may cause signal interference.
3. Handling
 - Avoid placing heavy objects on the top of SI-W109.
 - Do not allow any objects to fall into this device.
 - If water or other liquid spills into the device, unplug the power cord immediately.
4. Good Care
 - When the outside case gets stained, remove the stains using neutral washing agent with a dry cloth.
 - Never use strong agents such as benzene and thinner to clean the surface of the case.
 - If heavy stains are present, moisten a cloth with diluted neutral washing agent or alcohol and then wipe thoroughly with a dry cloth.
 - If dust is accumulated on the case surface, remove it by using a special vacuum cleaner for computers.

3

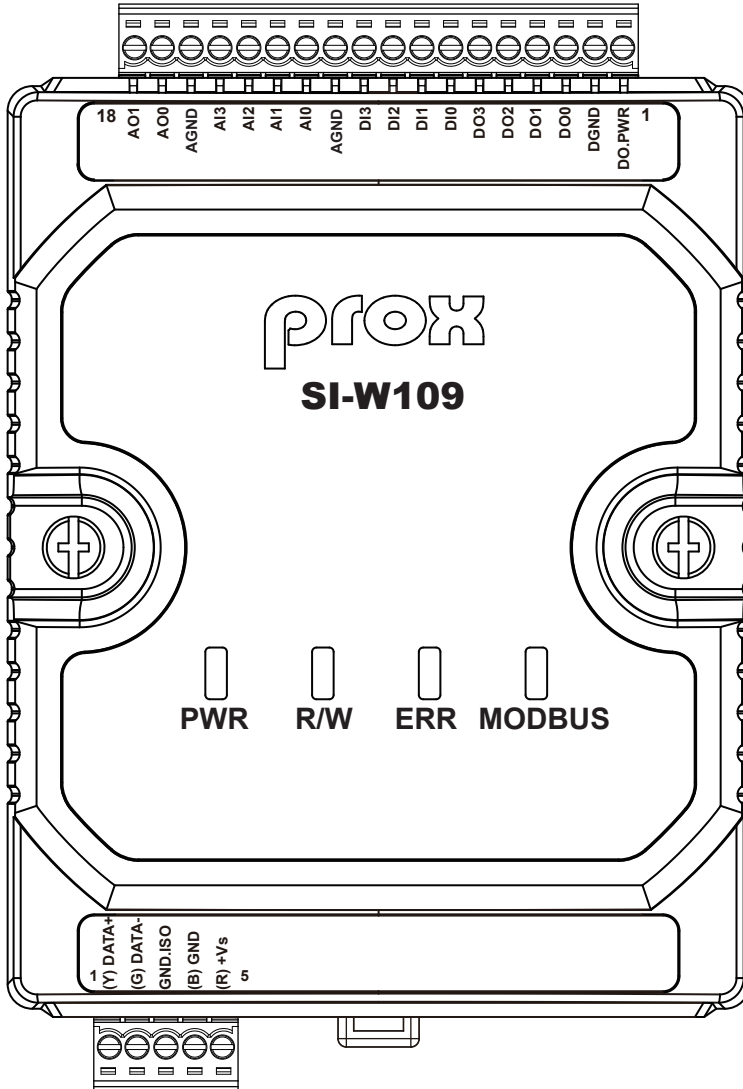
Hardware Configuration

This chapter describes the information of pin assignment, jumper settings, application wiring, mounting as well as default settings. It also provides technical support information.

The following topics are included:

- PIN Assignment
- Jumper Settings
- Application Wiring
- Mounting Support
- Default Settings
- Technical Support

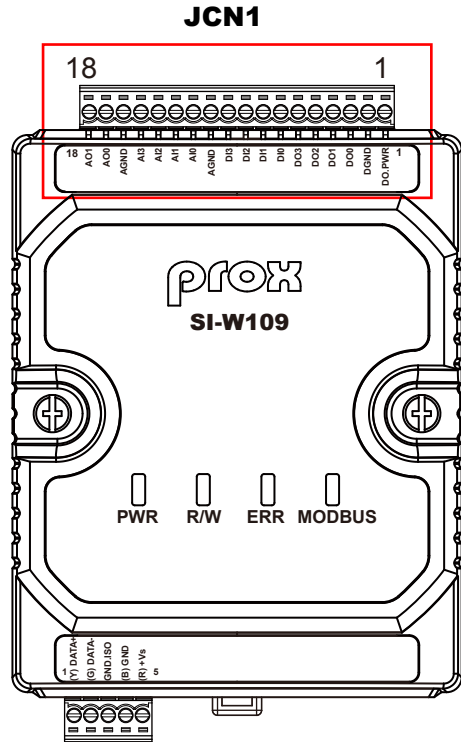
3.1 PIN Assignment



3.1.1 I/O Channel Connector (JCN1)

The JCN1 pin assignments are listed below:

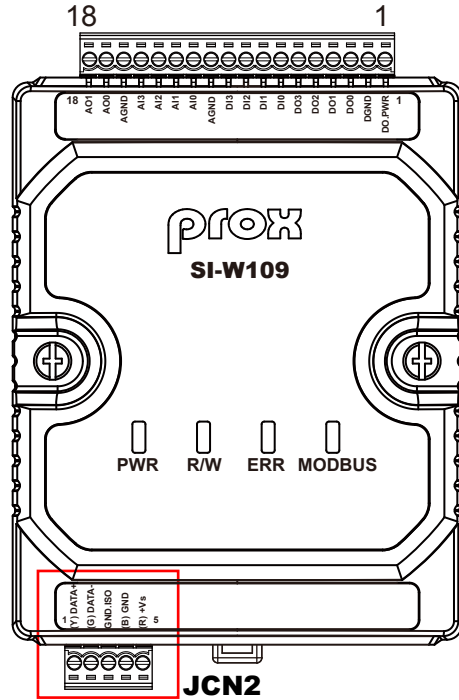
PIN	ASSIGNMENT
1	DO.PWR
2	DGND
3	DO0
4	DO1
5	DO2
6	DO3
7	DI0
8	DI1
9	DI2
10	DI3
11	AGND
12	AI0
13	AI1
14	AI2
15	AI3
16	AGND
17	AO0
18	AO1



3.1.2 RS-485 and Power Connector (JCN2)

The JCN2 pin assignments are listed below:

PIN	ASSIGNMENT
1	(Y)DATA+
2	(G)DATA-
3	GND.ISO
4	(B)GND
5	(R)+Vs


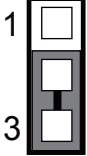


3.2 Analog Output Channel Jumper Settings

3.2.1 Channel AO0 Voltage or Current Type Selection (JP3)

Jumper Location: JP3

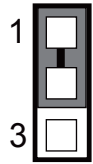
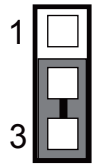
Description: Voltage or Current type selection for analog output channel AO0

CHANNEL	SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
AO0	Voltage	<i>1-2 (Default Setting)</i>	 <p>JP3</p>
	Current	2-3	 <p>JP3</p>

3.2.2 Channel AO1 Voltage or Current Type Selection (JP4)

Jumper Location: JP4

Description: Voltage or Current type selection for analog output channel AO1

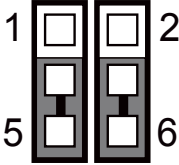
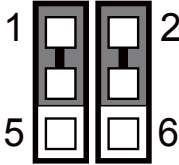
CHANNEL	SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
AO1	Voltage	1-2 <i>(Default Setting)</i>	 <p>JP4</p>
	Current	2-3	 <p>JP4</p>

3.3 Analog Input Channel Jumper Settings

3.3.1 Channel AI0 Voltage or Current Type Selection (JP8)

Jumper Location: JP8

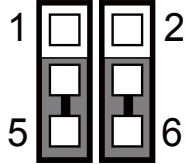
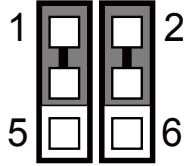
Description: Voltage or Current type selection for Analog input channel AI0

CHANNEL	SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
AI0	Voltage	3-5, 4-6 <i>(Default Setting)</i>	 <p>JP8</p>
	Current	1-3, 2-4	 <p>JP8</p>

3.3.2 Channel AI1 Voltage or Current Type Selection (JP7)

Jumper Location: JP7

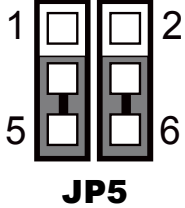
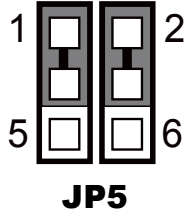
Description: Voltage or Current type selection for Analog input channel AI1

CHANNEL	SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
AI1	Voltage	3-5, 4-6 <i>(Default Setting)</i>	 <p style="text-align: center;">JP7</p>
	Current	1-3, 2-4	 <p style="text-align: center;">JP7</p>

3.3.3 Channel AI2 Voltage or Current Type Selection (JP5)

Jumper Location: JP5

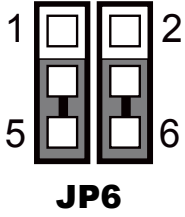
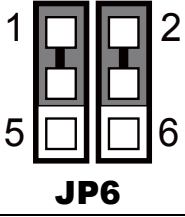
Description: Voltage or Current type selection for Analog input channel AI2

CHANNEL	SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
AI2	Voltage	3-5, 4-6 <i>(Default Setting)</i>	
	Current	1-3, 2-4	

3.3.4 Channel AI3 Voltage or Current Type Selection (JP6)

Jumper Location: JP6

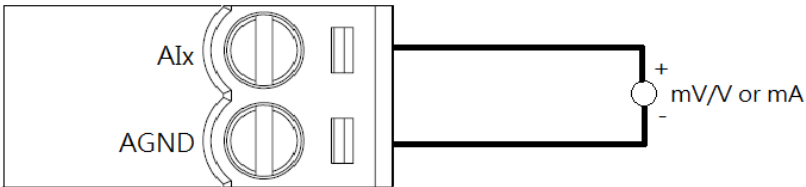
Description: Voltage or Current type selection for Analog input channel AI3

CHANNEL	SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
AI3	Voltage	<i>3-5, 4-6 (Default Setting)</i>	 <p style="text-align: center;">JP6</p>
	Current	1-3, 2-4	 <p style="text-align: center;">JP6</p>

3.4 Application Wiring

3.4.1 I/O Wire Connection

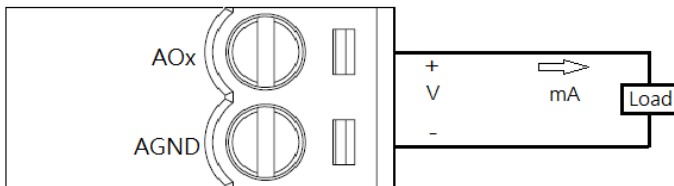
Analog Input Wire Connection



- **Voltage:** 0V ~ +5V, 0V ~ +10V, $\pm 10V$
- **Current:** ± 20 mA, 0 ~ 20 mA, 4 ~ 20 mA

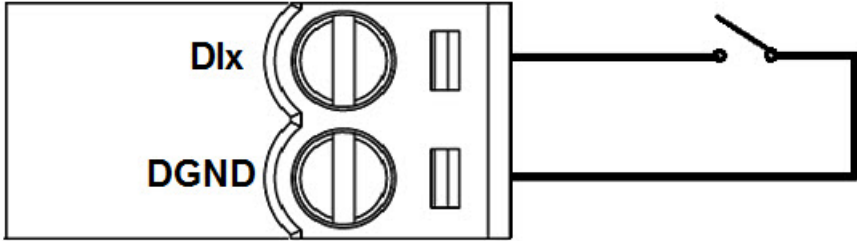
Analog Output Wire Connection

- **Voltage:** 0V ~ +5V, 0V ~ +10V, $\pm 10V$
- **Current:** 0 ~ 20 mA, 4 ~ 20 mA

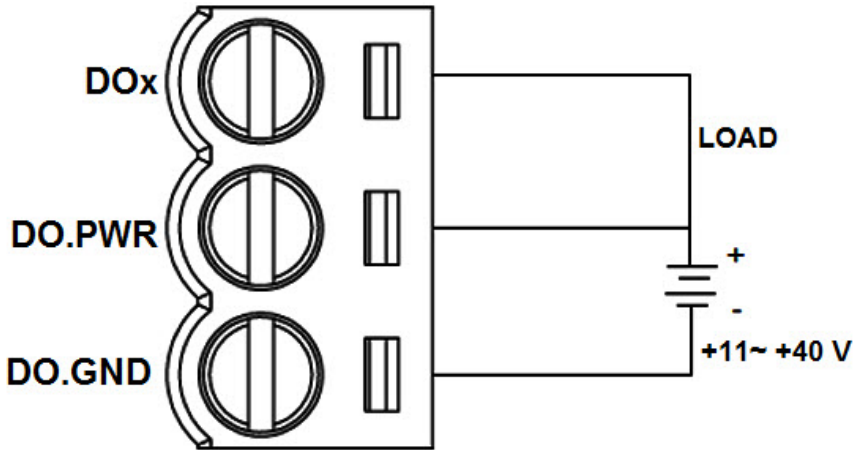


Digital Input Wire Connection

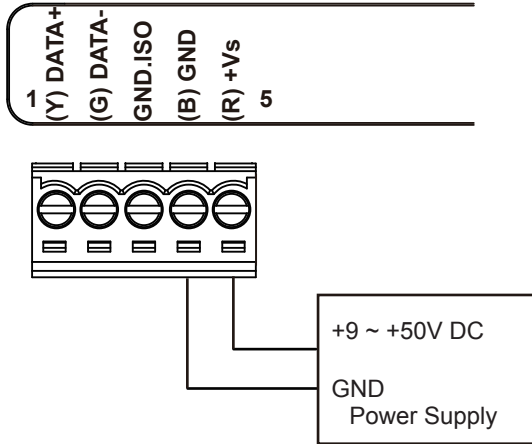
- **On Voltage Level:** Close to GND
- **Off Voltage Level:** Open



Digital Output Wire Connection



3.4.2 Power Supply Wire

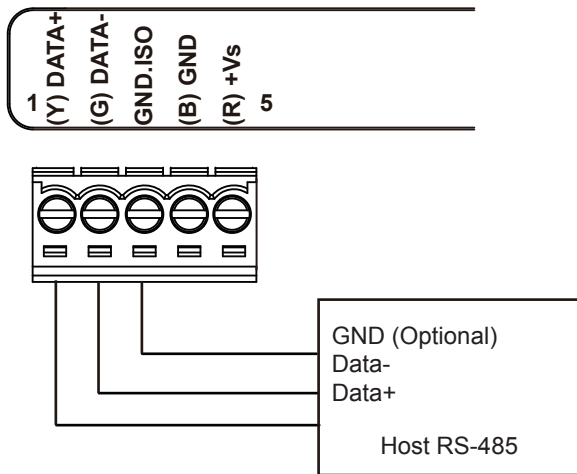


We suggest the following standard colors for each power line:

- (R)+Vs Red
- (B)GND Black

3.4.3 Communication Wiring

We recommend using shield-twisted-pair cable on SI-W109 I/O Module. And the cable has to comply with the EIA RS-485 standard. Only one set of twisted pair cable is required for transmitting data. For more stable power isolation, we recommend connecting **GND.ISO** pin to the **Ground** pin of the host.

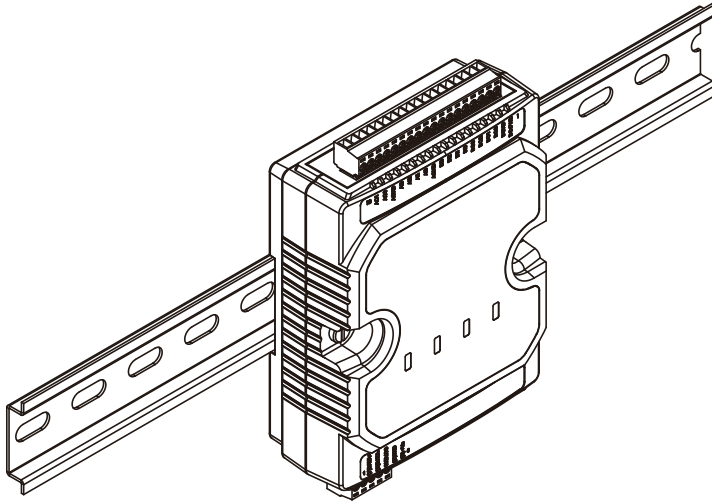


We suggest the following standard colors for each data line:

- | | |
|----------|------------------|
| (Y)DATA+ | Yellow |
| (G)DATA- | Green |
| GND.ISO | Black (Optional) |

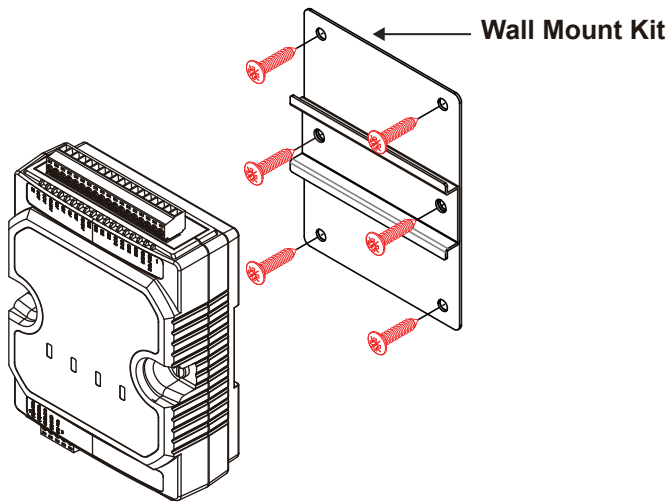
3.5 Mounting Support

3.5.1 Installing DIN-Rail Mount



3.5.2 Installing Wall Mount

- Step 1.** Prepare and fasten the 2 or 4 self-tapping T5 screws to tighten the wall mount kit onto the wall.
- Step 2.** Attach SI-Wx09 onto the wall mount kit installed on the wall to complete.



3.6 Default Settings

Before placing the I/O module in an RS-485 network, the module should be configured with factory default settings. It is recommended that you confirm the baud rate has been set correctly.

Default factory Settings of SI-W109 I/O Module are as below:

1. Device ID: 01h
2. Baud Rate: 115200 bps
3. Please refer to **Section 4.3 Address Mapping** for others.

3.7 Technical Support

If you have any technical question after you purchase our product, you can use the following form to contact our technical support staff.

https://www.protech.com.tw/Support/Technical_us.asp

When you request technical support, please provide the following information to our technical support staff.

1. **Module Name and Serial Number:** The serial number can be found printed on the barcode label attached on the rating label.
2. **Firmware Version:** Please refer to the **Chapter 4 MODBUS RTU Protocol** for the command to identify the firmware version of your I/O Module.
3. **Host Configuration** includes type and operating system
4. **How to reproduce the technical question you meet?** Please give full details to describe the procedures to reproduce the problem.
5. If the problem involves other hardware accessories or programs, please describe the details.
6. Any comments or suggestions related to the problem are welcome.

4 MODBUS RTU Protocol

This chapter contains helpful information about MODBUS RTU Protocol.

The following topics are included:

- Command Format
- Function List
- Address Mapping

The Modbus is a serial communication protocol which is published by Modicon Inc. Originally it is for use with Modicon programmable logic controllers. For more detailed information about Modbus, please visit <http://www.modbus.org/>.

SI-W109 Series I/O modules support the Modbus RTU protocol. The communication Baud Rates is up to 152000 bps. The communication interface is RS-485 with 2-wire (D+, D-) or 3-wire (D+, D-, ISO.GND). The maximum communication distance is 4000 feet (1.2 km). The command format is as below.

4.1 Command Format

4.1.1 READ Command Command Format

ID	CMD	Address	CRC
1 Byte	1 Byte	2Byte	2Byte

- **ID:** The Slave Device address is from 0 to 255.
- **CMD:** The Modbus commands are as 0x01, 0x02, 0x03...
- **Address:** The mapping address of register definition for SI-W109 Series.
- **CRC:** Cyclical Redundancy Check is produced by Modbus utility.

Response

ID	CMD	Length	Data	CRC
1 Byte	1 Byte	1 Byte	N-Byte	2 Bytes

- **ID:** The Slave Device address is from 0 to 255.
- **CMD:** The command code is the same as Read command.
- **Length:** The data length
- **Data:** The readback data for the CMD
- **CRC:** Cyclical Redundancy Check is produced by firmware.

Error Response

ID	CMD	Address	Data	CRC
1 Byte	1 Byte	2 Bytes	2 Bytes	2 Bytes

- **ID:** The Slave Device address is from 0 to 255.
- **CMD:** The command code is the same as Read command.
- **Address:** The address of register definition for SI-W109 Series.
- **Data:** Error Code
- **CRC:** Cyclical Redundancy Check is produced by firmware.

4.1.2 WRITE Command

Command Format

ID	CMD	Address	Data	CRC
1 Byte	1 Byte	2 Bytes	2 Bytes	2Bytes

- **ID:** The Slave Device address is from 0 to 255.
- **CMD:** The Modbus commands are as 0x05, 0x06, 0x42...
- **Address:** The mapping address of register definition for SI-W109 Series.
- **Data:** Data Packet
- **CRC:** Cyclical Redundancy Check is produced by Modbus utility.

Response

ID	CMD	Length	Data	CRC
1 Byte	1 Byte	1 Byte	N-Byte	2 Bytes

- **ID:** The Slave Device address is from 0 to 255.
- **CMD:** The command code is the same as Read command.
- **Length:** The data length
- **Data:** The responded data for the CMD
- **CRC:** Cyclical Redundancy Check is produced by firmware.

Error Response

ID	CMD	Address	Data	CRC
1 Byte	1 Byte	2 Bytes	2 Bytes	2 Bytes

- **ID:** The Slave Device address is from 0 to 255.
- **CMD:** The command code is the same as Read command.
- **Address:** The address of register definition for SI-W109 Series.
- **Data:** Error Code
- **CRC:** Cyclical Redundancy Check is produced by firmware.

*If a CRC is mismatched, the module will not respond.

4.2 Function List

Function Code	Description	Section
0x01	Request the ON/OFF Status of discrete coils (Digital Output Channel)	4.2.1
0x02	Request the ON/OFF Status of discrete coils (Digital Input Channel)	4.2.2
0x03	Request the Value from Analog Channel	4.2.3
0x04	Read the sensor data of Analog Input Register	4.2.4
0x05	Write the contents of discrete coil (Digital Output Channel)	4.2.5
0x06	Set the Value or Range to the Analog Channel	4.2.6
0x41	Read Function Settings	4.2.7
0x42	Write Function Settings	4.2.8

Example:

1. Read Firmware Version

Command Packet:

ID	CMD	Address	CRC
0x01	0x41	0x00, 0x00	0x51, 0xCC

Return Data Packet:

ID	CMD	Length	Data	CRC
0x01	0x41	0x0D	0x30 0x30 0x30 0x2D 0x30 0x31 0x2D 0x31 0x39 0x30 0x34 0x32 0x35	0xFD 0xF2

2. Write and Switch to High at the channel 1 of Digital Output mode

Command Packet:

ID	CMD	Address	Value	CRC
0x01	0x05	0x10, 0x00	0x00 0x01	0x08, 0xCA

Return Data Packet:

ID	CMD	Length	Data	CRC
0x01	0x05	0x01	0x01	0xD1 0x89

3. Slave ID Address

Command Packet:

ID	CMD	CRC
0x01	0x11	0xC0, 0x2C

Return Data Packet:

ID	CMD	Length	Data	CRC
0x01	0x11	0x01	0x01	0x91 0x8D

4.2.1 Function 0x01 – Read Discrete Coils

This function code is used to read the current value of Digital output Channel for SI-W109 module.

Request

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x01
02 ~ 03	Channel address	2 Bytes	<ul style="list-style-type: none"> • 0x1000~0x1003: Digital Output Channel mode Switch • 0x1040~0x1043: Power-on mode for Digital Output Channel • 0x1080~0x1086: High N millisecond in Clock mode setting for Digital Output Channel • 0x1100~0x1106: Low N millisecond in Clock mode setting for Digital Output Channel • 0x1180~0x1183: The Digital Input Channel mode • 0x11C0: Inverse mode of Relay output channel • 0x11C1: Inverse mode of Digital Input Channel
04 ~ 05	CRC	2 Bytes	Produced by utility.

Response-1

The channel address is 0x1000~0x1003, 0x1040~0x1043, 0x1180~0x1183, 0x11C0 and 0x11C1.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x01
02	Byte Count	1 Byte	1
03	Output channel Readback value	1 Bytes	Corresponding to Byte count
04 ~ 05	CRC	2 Bytes	Produced by firmware.

Response-2

The channel address is 0x1080~0x1086 and 0x1100~0x1106

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x01
02	Byte Count	1 Byte	2
03 ~ 4	Output channel Readback value	2 Bytes	Corresponding to Byte count
05 ~ 06	CRC	2 Bytes	Produced by firmware.

Error Response

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x81
02	Data	1 Byte	0xCD: No function
03 ~ 04	CRC	2 Bytes	Produced by firmware.

4.2.2 Function 0x02 – Read Discrete Inputs

This function code is used to read the current digital input value of SI-W109 module.

Request

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x02
02 ~ 03	Channel address	2 Bytes	<ul style="list-style-type: none"> • 0x2000~0x2003: Digital Input Channel Value • 0x2040~0x204C: Counter Value of Digital Input Channel • 0x2140~0x2143: Clear Counter Value of Digital Input Channel • 0x2180~0x2183: "high latch" status of Digital Input Channel • 0x21C0~0x21C3: "low latch" status of Digital Input Channel • 0x2200 ~0x2203: Clear latched status of Digital Input Channel
04 ~ 05	CRC	2 Bytes	Produced by utility.

Response-1

The channel address is 0x2000~0x2004, 0x2140~0x2144, 0x2180~0x2184, 0x21C0~0x21C4 and 0x2200 ~0x2204.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x02
02	Byte Count	1 Byte	1
03	Readback value	1 Bytes	The Value of Digital Input Channel
04 ~ 05	CRC	2 Bytes	Produced by firmware.

Response-2

For channel address is 0x2040~0x2050.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x02
02	Byte Count	1 Byte	4
03 ~ 06	Readback value	4 Bytes	The Value of Digital Input Channel
07~ 08	CRC	2 Bytes	Produced by firmware.

Error Response

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x82
02	Data	1 Byte	0xCD: No function
03 ~ 04	CRC	2 Bytes	Produced by firmware.

4.2.3 Function 0x03 – Read Analog Output Channel Value

This function code is used to read the value of Analog Output Channel for SI-W109 module.

Request

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x03
02 ~ 03	Channel address	2 Bytes	<ul style="list-style-type: none"> • 0x3000~0x3006: Analog Output Channel Value • 0x3080~0x3086: Analog Output Channel Power On Value • 0x3100~0x310C: Analog Output Channel float Value • 0x3200~0x3203: Analog Output Channel slew rate • 0x3240~0x3243: Analog Input Channel Range • 0x3280 ~0x3283: Analog Output Channel Range • 0x32C0: Analog Input sampling rate
04 ~ 05	CRC	2 Bytes	Produced by utility.

Response-1

The channel address is 0x3000~0x3006, 0x3080~0x3086.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x02
02	Byte Count	1 Byte	2
03 ~ 04	Readback value	2 Bytes	Analog Output Channel Value
05 ~ 06	CRC	2 Bytes	Produced by firmware.

Response-2

For channel address is 0x3100~0x310C.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x02
02	Byte Count	1 Byte	4
03 ~ 06	Readback value	4 Bytes	Analog Output Channel Float Value
07~ 08	CRC	2 Bytes	Produced by firmware.

Response-3

For channel address is 0x3200~0x3203, 0x3240~0x3243, 3280~0x3283, 0x32C0.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x02
02	Byte Count	1 Byte	1
03	Readback value	1 Bytes	Analog Chanel Range and Sample Rate
04~ 05	CRC	2 Bytes	Produced by firmware.

Error Response

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x83
02	Data	1 Byte	0xCD: No function
03 ~ 04	CRC	2 Bytes	Produced by firmware.

4.2.4 Function 0x04 – Read Analog Input Channel Value

This function code is used to read the Analog Input Channel value of SI-W109 I/O module.

Request

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x04
02 ~ 03	Channel address	2 Bytes	<ul style="list-style-type: none"> • 0x4000~0x400C: Analog Input Channel Value • 0x4100~0x410C: Analog Input Channel value by Engineering format • 0x4200~0x420C: Analog Input Channel maximum value • 0x4300~0x430C: Analog Input Channel maximum value by Engineering format • 0x4400~0x440C: Analog Input Channel minimum Value • 0x4500~0x450C: Analog Input Channel minimum Value by Engineering format • 0x4600~0x4603: Clear latched Analog Input channel Maximum and Minimum Value

Offset	Description	Counts	Data
			<ul style="list-style-type: none"> • 0x4640: Get Temperature Value • 0x4650: Get Humidity Value
04 ~ 05	CRC	2 Bytes	Produced by utility.

Response-1

The channel address is 0x4000~0x400C, 0x4100~0x410C, 0x4200~0x420C, 0x4300~0x430C, 0x4400~0x440C, 0x4500~0x450C.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x04
02	Byte Count	1 Byte	4
03 ~ 06	Readback value	4 Bytes	The Value of Analog Input Channel
07 ~ 08	CRC	2 Bytes	Produced by firmware.

Response-2

The channel address is 0x4600~0x4603.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x04
02	Byte Count	1 Byte	2
03 ~ 04	Readback value	2 Bytes	Clear Latched Analog Input Channel Value
05 ~ 06	CRC	2 Bytes	Produced by firmware.

Response-3

The channel address is 0x4640.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x04
02	Byte Count	1 Byte	2
03 ~ 04	Readback value	2 Bytes	<ul style="list-style-type: none"> • Temperature Value: 0xF060 ~0x30D4 (-40°C ~125°C)
05 ~ 06	CRC	2 Bytes	Produced by firmware.

Response-4

The channel address is 0x4650.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x04
02	Byte Count	1 Byte	1
03	Readback value	1 Bytes	<ul style="list-style-type: none"> • Humidity Value: 0x00~0x64 (0% ~ 100%)
04 ~ 05	CRC	2 Bytes	Produced by firmware.

Error Response

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x84
02	Data	1 Byte	0xCD: No Function
03 ~ 04	CRC	2 Bytes	Produced by firmware.

4.2.5 Function 0x05 – Force Coil

This function code is used to write the data to the discrete coils SI-W109 module setting.

Request

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x05
02 ~ 03	Address of Holding Register	2 Bytes	<ul style="list-style-type: none"> • 0x1000~0x1003: Digital Output Channel mode Switch • 0x1040~0x1043: Power-on mode • 0x1080~0x1086: High N millisecond in Clock mode setting • 0x1100~0x1106: Low N millisecond in Clock mode setting • 0x1180~0x1183: Digital Input Channel mode • 0x11C0: Inverse mode of Digital output channel • 0x11C1: Inverse mode of Digital Input Channel
04 ~ 05	Output Value	2 Bytes	Refer to Section 4.3 Address Mapping .
06 ~ 07	CRC	2 Bytes	Produced by utility.

Response-1

The channel address is 0x1000~0x1003, 0x1040~0x1043, 0x1180~0x1183, 0x11C0 and 0x11C1.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x05
02	Byte Count	1 Byte	1
03	Data	1 Bytes	Refer to Section 4.3 Address Mapping .
04 ~ 05	CRC	2 Bytes	Produced by firmware.

Response-2

The channel address is 0x1080~0x1086, 0x1100~0x1106.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x05
02	Byte Count	1 Byte	2
03 ~ 04	Data	2 Bytes	Refer to Section 4.3 Address Mapping .
05 ~ 06	CRC	2 Bytes	Produced by firmware.

Error Response

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x85
02	Data	1 Byte	0xCD: No Function
03 ~ 04	CRC	2 Bytes	Produced by firmware.

4.2.6 Function 0x06 – Write Analog Output Channel Value

This function code is used to set the value of Analog Output Channel for SI-W109 module.

Request

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x06
02 ~ 03	Channel address	2 Bytes	<ul style="list-style-type: none"> • 0x3000~0x3006: Analog Output Channel Value • 0x3080~0x3086: Analog Output Channel Power On Value • 0x3100~0x310C: Analog Output Channel float Value • 0x3200~0x3203: Analog Output Channel slew rate • 0x3240~0x3243: Analog Input Channel Range • 0x3280 ~0x3283: Analog Output Channel Range • 0x32C0: Analog Input sampling rate
04 ~ 05	Output Value	2 Bytes	Refer to Section 4.3 Address Mapping .
06 ~ 07	CRC	2 Bytes	Produced by utility.

Response-1

The channel address is 0x3000~0x3006, 0x3080~0x3086.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x06
02	Byte Count	1 Byte	2
03 ~ 04	Readback value	2 Bytes	Analog Output Channel Value
05 ~ 06	CRC	2 Bytes	Produced by firmware.

Response-2

For channel address is 0x3100~0x310C.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x06
02	Byte Count	1 Byte	4
03 ~ 06	Readback value	4 Bytes	Analog Output Channel Float Value
07~ 08	CRC	2 Bytes	Produced by firmware.

Response-3

For channel address is 0x3200~0x3203, 0x3240~0x3243, 3280~0x3283, 0x32C0.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x06
02	Byte Count	1 Byte	1
03	Readback value	1 Bytes	Analog Chanel Range and Sample Rate
04~ 05	CRC	2 Bytes	Produced by firmware.

Error Response

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x86
02	Data	1 Byte	0xCD: No function
03 ~ 04	CRC	2 Bytes	Produced by firmware.

4.2.7 Function 0x41 – Read Module Setting

This function code is used to read SI-W109 module setting.

Request

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x41
02 ~ 03	Address of Holding Register	2 Bytes	<ul style="list-style-type: none"> • 0x0000: Firmware Version • 0x0010: Module Name • 0x0020: Baud Rate Setting
04 ~ 05	CRC	2 Bytes	Produced by utility.

Response-1

The channel address is 0x0000.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x41
02	Byte Count	1 Byte	0x0B: Firmware Version
03 ~ 0D	Readback Data	13 Bytes	The responded data for the CMD
0E ~ 0F	CRC	2 Bytes	Produced by firmware.

Response-2

The channel address is 0x0010.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x41
02	Byte Count	1 Byte	0x04: Module Name
03 ~ 06	Readback Data	4 Bytes	The responded data for the CMD
07 ~ 08	CRC	2 Bytes	Produced by firmware.

Response-3

The channel address is 0x0020.

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x41
02	Byte Count	1 Byte	0x01: Baud Rate setting
03	Readback Data	1 Bytes	The responded data for the CMD
04 ~ 05	CRC	2 Bytes	Produced by firmware.

Error Response

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0xC1
02	Data	1 Byte	0xCD: No Function
03 ~ 04	CRC	2 Bytes	Produced by firmware.

4.2.8 Function 0x42 – Write Module Setting

This function code is used to write SI-W109 module setting.

Request

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x42
02 ~ 03	Address of Holding Register	2 Bytes	<ul style="list-style-type: none"> • 0x0020: Baud Rate Setting • 0x0030: Device ID
04 ~ 05	Data Packet	2 Bytes	Refer to Section 4.3 Address Mapping .
06 ~ 07	CRC	2 Bytes	Produced by utility.

Response

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0x42
02	Byte Count	1 Byte	0x01
03	Readback Data	1 Bytes	Refer to Section 4.3 Address Mapping .
04 ~ 05	CRC	2 Bytes	Produced by firmware

Error Response

Offset	Description	Counts	Data
00	Slave ID address	1 Byte	1 to 255
01	Function Code	1 Byte	0xC2
02	Data	1 Byte	0xCD: No Function
03 ~ 04	CRC	2 Bytes	Produced by firmware.

Address	Description	Attr.
1104	Set Digital Output Channel 2 Low N millisecond in clock mode 10~65535 (Default: 100)	R/W
1106	Set Digital Output Channel 3 Low N millisecond in clock mode 10~65535 (Default: 100)	R/W
1180	Set Digital Input Channel 0 mode 0 = Value / 1 = Falling edge / 2 = Rising edge (Default: 0)	R/W
1181	Set Digital Input Channel 1 mode 0 = Value / 1 = Falling edge / 2 = Rising edge (Default: 0)	R/W
1182	Set Digital Input Channel 2 mode 0 = Value / 1 = Falling edge / 2 = Rising edge (Default: 0)	R/W
1183	Set Digital Input Channel 3 mode 0 = Value / 1 = Falling edge / 2 = Rising edge (Default: 0)	R/W
11C0	Switch the inverse of Digital Output signal 0: OFF, 1: ON (Default: 1)	R/W
11C1	Switch the inverse of Digital Input signal 0: OFF, 1: ON (Default: 1)	R/W
2000	Read Digital Input Channel 0 value 0: OFF, 1: ON	R
2001	Read Digital Input Channel 1 value 0: OFF, 1: ON	R
2002	Read Digital Input Channel 2 value 0: OFF, 1: ON	R
2003	Read Digital Input Channel 3 value 0: OFF, 1: ON	R
2040	Read Digital Input Channel 0 counter value 0 ~ 4294967295	R
2044	Read Digital Input Channel 1 counter value 0 ~ 4294967295	R
2048	Read Digital Input Channel 2 counter value 0 ~ 4294967295	R
204C	Read Digital Input Channel 3 counter value 0 ~ 4294967295	R
2140	Clear the Digital Input Channel 0 counter value 1: Clear (Default: 0)	R
2141	Clear the Digital Input Channel 1 counter value 1: Clear (Default: 0)	R
2142	Clear the Digital Input Channel 2 counter value 1: Clear (Default: 0)	R
2143	Clear the Digital Input Channel 3 counter value 1: Clear (Default: 0)	R
2180	Read Digital Input Channel 0 high latch status 0: OFF, 1: ON	R
2181	Read Digital Input Channel 1 high latch status 0: OFF, 1: ON	R
2182	Read Digital Input Channel 2 high latch status 0: OFF, 1: ON	R

Address	Description	Attr.
2183	Read Digital Input Channel 3 high latch status 0: OFF, 1: ON	R
21C0	Read Digital Input Channel 0 low latch status 0: OFF, 1: ON	R
21C1	Read Digital Input Channel 1 low latch status 0: OFF, 1: ON	R
21C2	Read Digital Input Channel 2 low latch status 0: OFF, 1: ON	R
21C3	Read Digital Input Channel 3 low latch status 0: OFF, 1: ON	R
2200	Clear latched Digital Input 0 status Return Clear(0) (Default: 0)	R
2201	Clear latched Digital Input 1 status Return Clear(0) (Default: 0)	R
2202	Clear latched Digital Input 2 status Return Clear(0) (Default: 0)	R
2203	Clear latched Digital Input 3 status Return Clear(0) (Default: 0)	R
3000	Analog Output Channel 0 value 0x0 ~ 0xFFFF	R/W
3002	Analog Output Channel 1 value 0x0 ~ 0xFFFF	R/W
3080	Set Analog Output Channel 0 power on value 0x0 ~ 0xFFFF (Default: 0)	R/W
3082	Set Analog Output Channel 1 power on value 0x0 ~ 0xFFFF (Default: 0)	R/W
3100	Set Analog Output Channel 0 float value	R/W
3104	Set Analog Output Channel 1 float on value	R/W
3200	Set Analog Output Channel 0 slew rate 0 ~ 15 (Default: 0)	R/W
3201	Set Analog Output Channel 1 slew rate 0 ~ 15 (Default: 0)	R/W
3240	Set Analog Input Channel 0 range 0 ~ 5 (Default: 2)	R/W
3241	Set Analog Input Channel 1 range 0 ~ 5 (Default: 2)	R/W
3242	Set Analog Input Channel 2 range 0 ~ 5 (Default: 2)	R/W
3243	Set Analog Input Channel 3 range 0 ~ 5 (Default: 2)	R/W
3280	Set Analog Output Channel 0 range 0 ~ 4 (Default: 2)	R/W
3281	Set Analog Output Channel 1 range 0 ~ 4 (Default: 2)	R/W
32C0	Set Analog Input Sampling Rate 10 ~ 200 Hz	R/W
4000	Analog Input Channel 0 value Note 1	R

Address	Description	Attr.
4004	Analog Input Channel 1 value Note 1	R
4008	Analog Input Channel 2 value Note 1	R
400C	Analog Input Channel 3 value Note 1	R
4100	Analog Input Channel 0 value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
4104	Analog Input Channel 1 value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
4108	Analog Input Channel 2 value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
410C	Analog Input Channel 3 value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
4200	Analog Input Channel 0 maximum value Note 1	R
4204	Analog Input Channel 1 maximum value Note 1	R
4208	Analog Input Channel 2 maximum value Note 1	R
420C	Analog Input Channel 3 maximum value Note 1	R
4300	Analog Input Channel 0 maximum value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
4304	Analog Input Channel 1 maximum value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
4308	Analog Input Channel 2 maximum value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
430C	Analog Input Channel 3 maximum value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
4400	Analog Input Channel 0 minimum value Note 1	R
4404	Analog Input Channel 1 minimum value Note 1	R
4408	Analog Input Channel 2 minimum value Note 1	R
440C	Analog Input Channel 3 minimum value Note 1	R
4500	Analog Input Channel 0 minimum value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R

Address	Description	Attr.
4504	Analog Input Channel 1 minimum value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
4508	Analog Input Channel 2 minimum value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
450C	Analog Input Channel 3 minimum value by Engineering format $\pm 1.18 \times 10^{-38} \sim \pm 3.4 \times 10^{38}$	R
4600	Clear latched Analog Input Channel 0 Maximum and Minimum Value Return Clear (0)	R
4601	Clear latched Analog Input Channel 1 Maximum and Minimum Value Return Clear (0)	R
4602	Clear latched Analog Input Channel 2 Maximum and Minimum Value Return Clear (0)	R
4603	Clear latched Analog Input Channel 3 Maximum and Minimum Value Return Clear (0)	R
4640	Get Temperature Value F060 ~ 30D4(-40°C ~ 125°C)	R
4650	Get Humid Value 0 ~ 64h (0%~100%)	R

Note 1:

Positive: (00000000 ~ 0000FFFF) 0 ~ 65535

Negative: (FFFF8000 ~ 00007FFF) -32768 ~ 32767

Note 2:

Analog Input Range:

0: 0~5V, 1: 0 ~ 10V, 2: $\pm 10V$, 3: 4~20mA, 4: 0~20mA, 5: -20~+20mA

Analog Output Range:

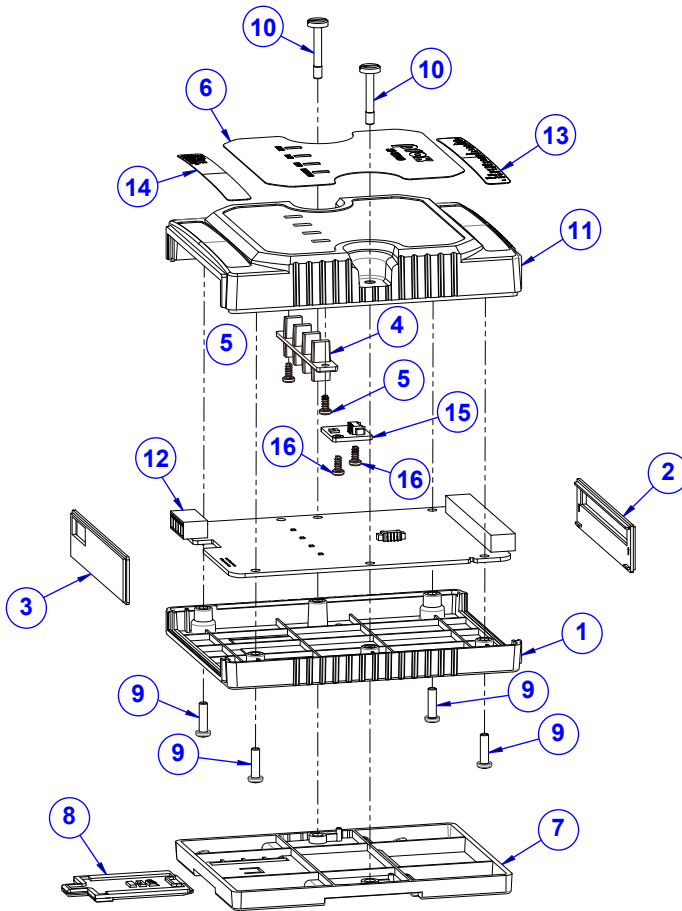
0: 0~5V, 1: 0 ~ 10V, 2: $\pm 10V$, 3: 4~20mA, 4: 0~20mA

Appendix A Exploded Diagrams

This appendix includes SI-W109 assembly exploded diagram and the parts list as well as SI-W109 part numbers.

- SI-W109 Assembly Exploded Diagram

SI-W109 Assembly Exploded Diagram



The list for the parts above is described on the next page.

No.	Component Name	P/N No.	Q'ty
1	SI-W109 Remote IO Rear Case (Blue)	30-001-12110468	1
2	SI-W109 Remote IO Top Plate (Blue)	30-009-12210468	1
3	SI-W109 Remote BTM IO Plate (Blue)	30-009-12110468	1
4	SI-W109 Light Pipe Short (Translucent)	30-021-02130468	1
5	Round Head Screw #1 / T2.6x6mm	22-135-26006011	2
6	SI-W109 Name Plate	94-017-01601468	1
7	SI-W109 Mount Bracket (Cool Gray 11C)	30-059-12110468	1
8	SI-W109 Mount Buckle (Cool Gray 11C)	30-059-12210468	1
9	Pan Head Screw M3x0.5Px12mm	22-222-30012811	4
10	M3xL22 Screw	22-272-30022021	2
11	SI-W109 Front Cover (Blue)	30-002-12110468	1
12	SR-W109 IO BD	SR-W109	1
13	SI-WX09 Name Plate	94-017-01601468	1
14	SI-WX09 Name Plate	94-017-01601468	1
15	Temperature and Humidity sensor	SR-W000RA-D0N	1
16	Round Head Screw #0 / T2.0x6mm	22-135-20006011	2