MIKRODEV®

Innovation in Automation

MP211

HARDWARE MANUAL

- MP211

  PLC Series

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v1.8

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FIGURES LIST

Preface

Mikrodev MP211 PLC series are programmable control devices that are used in a wide range of applications from process automation to building automation, from machine automation to telemetry applications.

In this document, you can find information about the hardware specifications of Mikrodev MP211 series PLCs.

Please follow our website www.mikrodev.com for the up to date version of the document.

About Mikrodev

Since 2006, MIKRODEV has been developing and manufacturing industrial control and communication products. MIKRODEV serves the system integrators in the public and private sector, OEM and end users.

Our products are manufactured complying with the quality standards required by the industrial automation industry and the quality of our products are proved on the field for many years

MIKRODEV is one of the few companies in the world that has its own designed IEC 61131-3 compliant library for its programmable logic control devices. In addition, the open, flexible, programmable SCADA solution developed by MIKRODEV is also available to customers.

MIKRODEV products' performance and wide range of applications make them possible for customers to achieve faster, simplified and cost-effective results.

WARNING!

- ✓ Please take care of the following issues when using Mikrodev devices.
- ✓ Since the unit operates with 24 VDC (12-36 VDC) voltage, you should take care of the voltage level that the unit is connected to. If a voltage above this voltage level is applied, the device may be damaged and may be out of warranty.
- ✓ Make sure that the energy connection of your device is connected to the ground or to a properly grounded terminal.
- ✓ Make sure that the environment in which your device is being used is free of moisture, electric shock, vibration and dust.
- ✓ Pay attention to the supply voltage and the connections of the product. Mikrodev is not responsible for any issues due to power failure since there is no auxiliary supply (UPS) on the device.
- ✓ The fuse to be used must be a FF super fast type and current limit value 1A.
- ✓ Do not use the device under conditions other than the environmental conditions specified in the "Electrical Specifications" section (humidity, dust, liquid and temperature, etc.)
- ✓ Removing the warranty label on the product or removing the protective case will void the warranty.
- ✓ Products that are damaged, boxes have been changed and other brand labels are affixed are not covered by the warranty.
- ✓ The appliance must not be cleaned with solvents (thinner, benzine, acid etc.) or with abrasive cleaning agents.
- ✓ Only dry cloth should be used when cleaning the appliance.
- ✓ Do not open the device by removing the case of the appliance, do not interfere with the electronic components and circuits. There is no user-replaceable part inside the device.
- ✓ If there is a problem or malfunction on your device, it should only be repaired by an authorized service. Installation and electrical connections must be made by technical personnel in accordance with the instructions in the operating manual.

Failure to comply with these rules may result in death, serious injury or property damage

1 MP211 GENERAL INFORMATION

1.1 GA0 Board Type Physical Interfaces

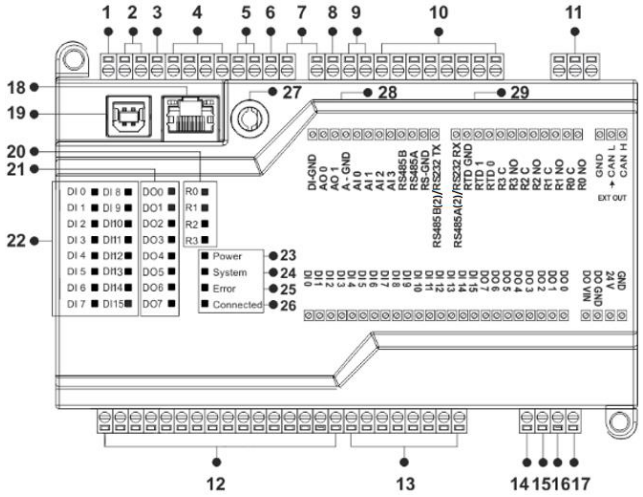

Figure 1 GA0 Board Type Connector and Physical Interfaces

1	Digital Input GND Connection	**16**	Device Power (V+) Connection
2	Analog Output Connections	**17**	Device Power (V-) Connection
3	Analog GND Connection	**18**	Ethernet Port
4	Analog Input Connection	**19**	USB Port
5	RS485 Connections	**20**	Relay Status Information LED
6	RS-232 GND Connections	**21**	Digital Output Status Information LED
7	Rs232 TX-RX Connections	**22**	Digital Input Status Information LED
8	RTD GND Connections	**23**	System Power LED
9	RTD Input Connection	**24**	System Running LED
10	Relay Connections	**25**	Error LED
11	CANBUS Connection	**26**	Protocol Data Transfer LED
12	Digital Input Connections	**27**	Antenna Connection
13	Digital Output Connections	**28**	SIM Card Slot
14	Digital Output Supply(Vin) Connection	**29**	SD Card Slot
15	Digital Output GND Connection		

1.2 GA1 Board Type Physical Interfaces

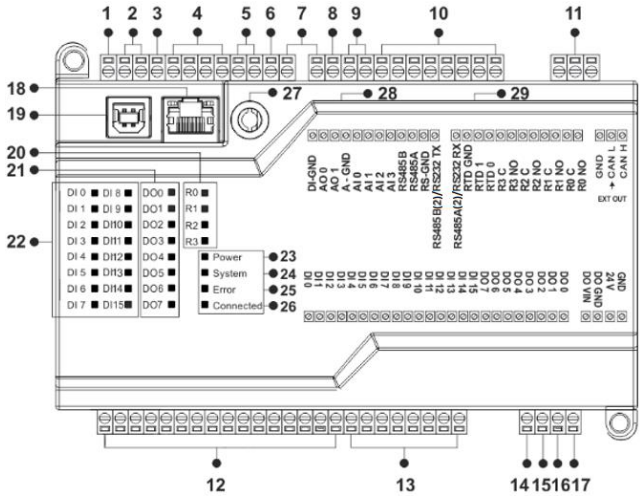

Figure 2 GA1 Board Type Connector and Physical Interfaces

1	Digital Input GND Connection	**16**	Device Power (V+) Connection
2	Analog Output Connections	**17**	Device Power (V-) Connection
3	Analog GND Connection	**18**	Ethernet Port
4	Analog Input Connection	**19**	USB Port
5	RS485 Connections	**20**	Relay Status Information LED
6	RS-232 GND Connections	**21**	Digital Output Status Information LED
7	Rs232 TX-RX Connections	**22**	Digital Input Status Information LED
8	N/A	**23**	System Power LED
9	N/A	**24**	System Running LED
10	Relay Connections	**25**	Error LED
11	CANBUS Connection	**26**	Protocol Data Transfer LED
12	Digital Input Connections	**27**	Antenna Connection
13	Digital Output Connections	**28**	SIM Card Slot
14	Digital Output Supply(Vin) Connection	**29**	SD Card Slot
15	Digital Output GND Connection		

1.3 GA3 Board Type Physical Interfaces

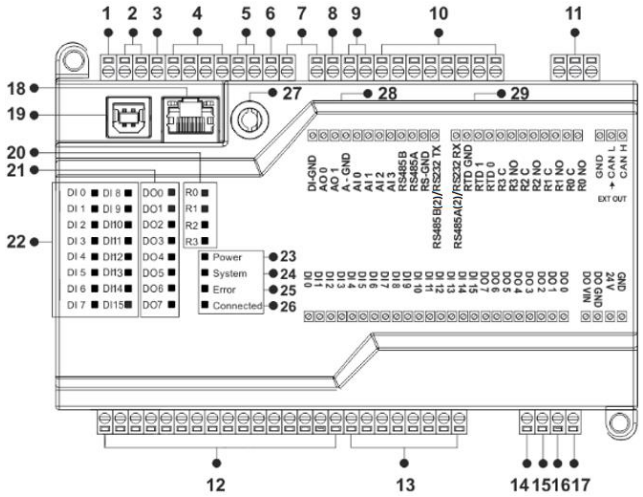

Figure 3 GA3 Board Type Connector and Physical Interfaces

1	Digital Input GND Connection	**16**	Device Power (V+) Connection
2	Analog Output Connections	**17**	Device Power (V-) Connection
3	Analog GND Connection	**18**	Ethernet Port
4	Analog Input Connection	**19**	USB Port
5	RS485 Connections	**20**	Relay Status Information LED
6	N/A	**21**	Digital Output Status Information LED
7	RS485(2) Connections	**22**	Digital Input Status Information LED
8	RTD GND Connections	**23**	System Power LED
9	RTD Input Connection	**24**	System Running LED
10	Relay Connections	**25**	Error LED
11	CANBUS Connection	**26**	Protocol Data Transfer LED
12	Digital Input Connections	**27**	Antenna Connection
13	Digital Output Connections	**28**	SIM Card Slot
14	Digital Output Supply(Vin) Connection	**29**	SD Card Slot
15	Digital Output GND Connection		

1.4 GA4 Board Type Physical Interfaces

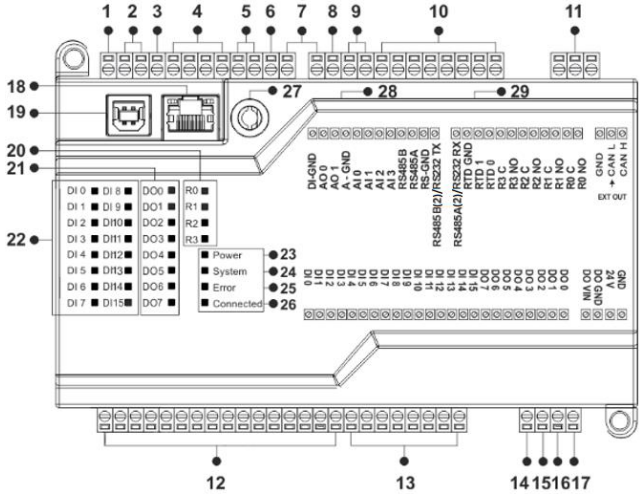

Figure 4 GA4 Board Type Connector and Physical Interfaces

1	Digital Input GND Connection	**16**	Device Power (V+) Connection
2	Analog Output Connections	**17**	Device Power (V-) Connection
3	Analog GND Connection	**18**	Ethernet Port
4	Analog Input Connection	**19**	USB Port
5	RS485 Connections	**20**	Relay Status Information LED
6	N/A	**21**	Digital Output Status Information LED
7	RS485(2) Connections	**22**	Digital Input Status Information LED
8	N/A	**23**	System Power LED
9	N/A	**24**	System Running LED
10	Relay Connections	**25**	Error LED
11	CANBUS Connection	**26**	Protocol Data Transfer LED
12	Digital Input Connections	**27**	Antenna Connection
13	Digital Output Connections	**28**	SIM Card Slot
14	Digital Output Supply(Vin) Connection	**29**	SD Card Slot
15	Digital Output GND Connection		

1.5 General Device Specifications

SPECIFICATION	ITEM	DESCRIPTION	
Processor	Processor Architecture	ARM Cortex M4	
	Adressing Architecture	Little Endian Addressing	
Electrical	Supply	24 VDC (12-36VDC)	
	Power	<13W @ 24V DC	
	Real Time Clock	Integrated	
Input / Output	Board Type	GA0, GA3	GA1, GA4
	Digital Input	16 Channel, PNP	16 Channel, PNP
	Digital Output*	8 Channel, Max. 0.5A@24VDC per Channel, PNP	8 Channel, Max. 0.5A@24VDC per Channel, PNP
	Analog Input	4 Channel, 0-20 mA, 4-20 mA	4 Channel, 0-20 mA, 4-20 mA
	Analog Output	2 Channel, 0-20 mA, 4-20 mA	2 Channel, 0-20 mA, 4-20 mA
	Relay Output	4 Channel, Max. 3A@30VDC - 5A@250VAC per Channel	4 Channel, Max. 3A@30VDC - 5A@250VAC per Channel
	RTD Input	2 Channel, PT1000	
Enviromental Conditions	Operating Temperature	-20…+60 C	
	Storage Temperature	-25…+70 C	
	Humidity	5…95 RH	
Memory	SD Card Support**	Micro SD	
	Retentive Memory	4 KB, 128 Block/Register	
	Program Memory	4 MBit	
Communication Ports	Board Type	GA0, GA1	GA3, GA4
	Ethernet Port	10/100 Mbps	10/100 Mbps
	RS485	1 Port, 3 kV ESD Protection	2 Port, 3 kV ESD Protection
	RS232	1 Port	
Wireless Communication	GSM / GPRS or GSM / LTE*	Quad-Band 850/900/1800/1900 MHz or LTE	
	Wi-Fi**	IEEE 802.11 b/g/n	
Expansion Capacity	DIN Rail Type-CANBUS Expansion	Up to 1024 I/O Points	

**The digital outputs are 125 mA per channel in production prior to serial number 761800.*
***Optional Selection*

2 INSTALLATION INFORMATION

2.1 Rail Installation

DIN Rail Mountage

First, the upper part of the device is mounted on the DIN rail. Then, with the help of the springs behind the device, when a lightly force is applied to the lower part, the device locates into the DIN rail easily and the montage is completed. (See Figure 2)

DIN Rail Demountage

To demount the device, firstly it is pulled from the bottom using flexibility of the spring, the device is removed from the DIN Rail and the demounting is completed.

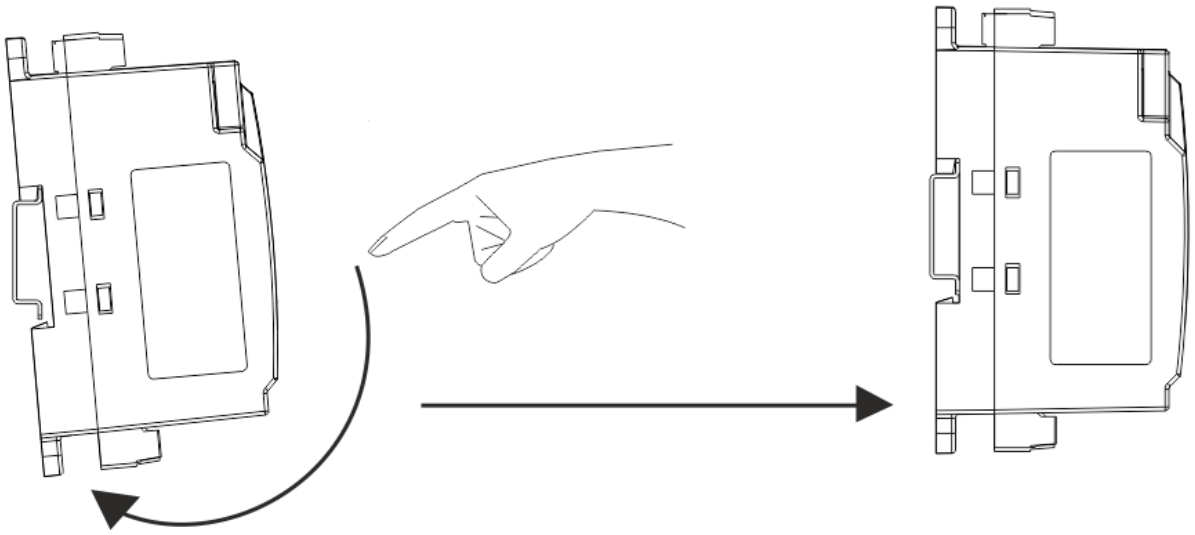

Figure 5 Mounting

2.2 Expansion Installation

The MP211 product and its extensions are mounted by sliding over the rail in such a way that the connectors correponds.

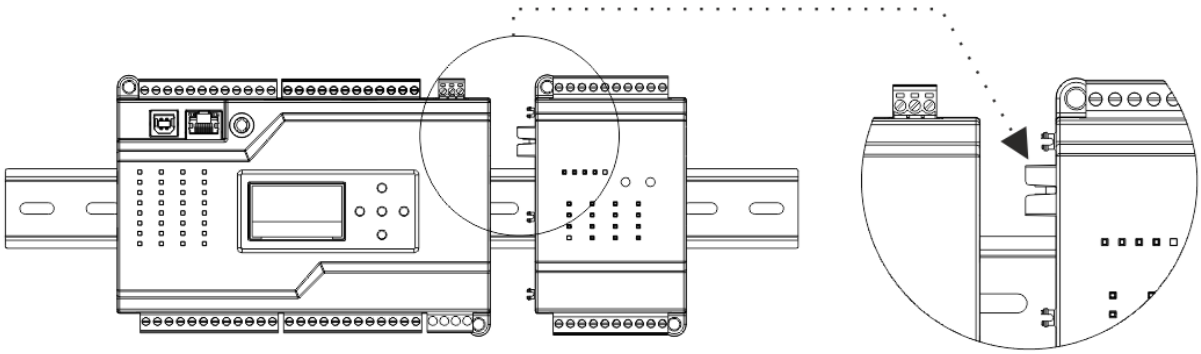

Figure 6 Expansion Installation

3 CONNECTION DIAGRAMS

3.1 Supply Connection

Board Type:	GA0, GA1, GA3, GA4
Supply:	12-36 VDC, Protected
Power:	<13 W

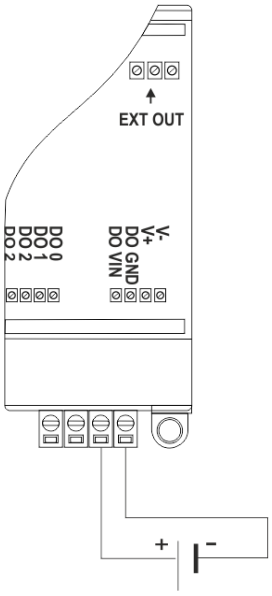

Figure 7 Power Connection Diagram

3.2 Digital Inputs

Board Type:	GA0, GA1, GA3, GA4
Module Input:	16 Channel, PNP
Voltage Range:	0-36V DC
ON Voltage Level:	12-36V DC
OFF Voltage Level:	0-10V DC
Input Impedance:	>2M
Isolation:	Optical
OFF to ON Response:	20 us
ON to OFF Response:	90 us
Fast Counter Inputs:	DI12, DI13, DI14, DI15
Fast Counter Inputs Max. Frekans	200 kHz

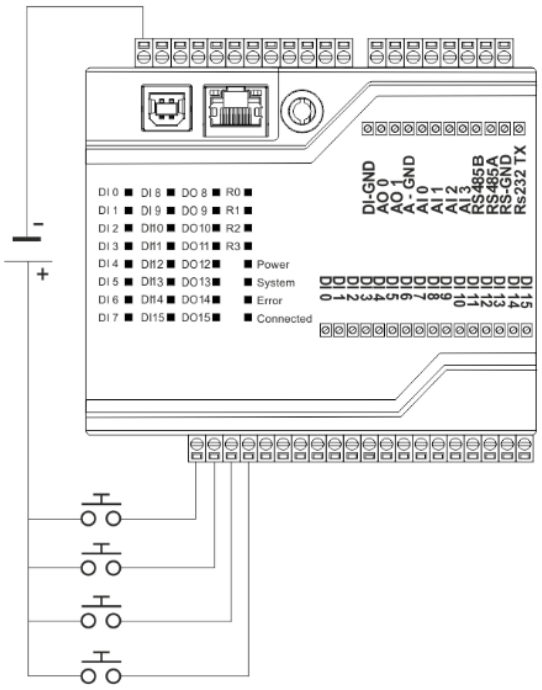

Figure 8 Digital Input Connection Diagram

Note: DI12, DI13, DI14, and DI15 can be used as Fast Counter inputs.

3.3 Digital Outputs

Board Type:	GA0, GA1, GA3, GA4
Module Output:	8 Channel, Mosfet Output, PNP
Voltage Range:	12-36V DC
Max. Output Current:	0.5A@24VDC per Channel
Isolation:	Optical
Pulse Width Modulation Output and Pulse Train Output:	DO0, DO1, DO2, DO3
Pulse Train Output Max. Frequency(PTO):	50 kHz
Pulse Width Modulation Output Max. Frequency(PWM):	65 kHz

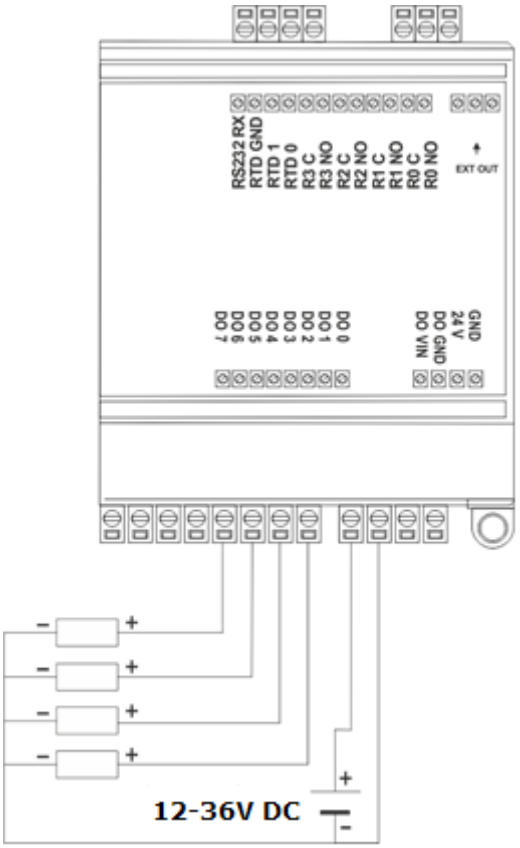

Figure 9 Digital Output Connection Diagram

Note: DQ0, DQ1, DQ2, and DQ3 outputs can be used as PWM and PTO outputs.

3.4 Relay Outputs

Board Type:	GA0, GA1, GA3, GA4
Module Output:	4 Channel
Relay Contact Outputs:	NO(Normally Open) Contact
Contact Max. Current:	3A@30VDC – 5A@250VAC per Channel
Isolation	Dry Contact

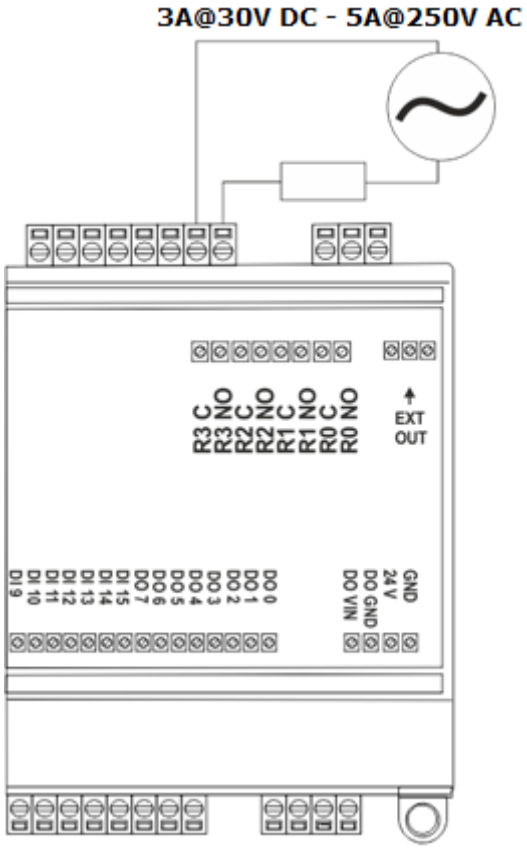

Figure 10 Relay Connection Diagram

3.5 Analog Inputs

Board Type:	GA0, GA1, GA3, GA4
Module Input:	4 Channel
Analog Input Type:	0-20 mA, 4-20 mA
Analog Input Resolution:	16 Bit
Analog Input Precision:	%1 Precision
Common Input GND:	1 GND (4 Point / Common)

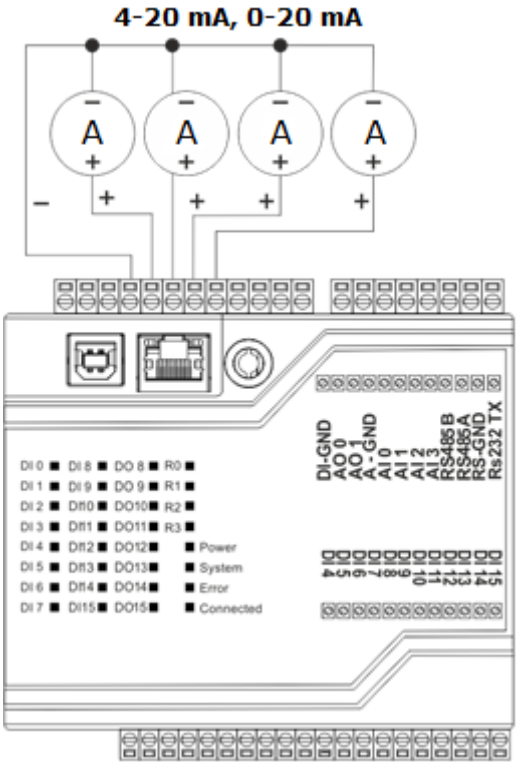

Figure 11 Analog Input Connection Diagram

3.6 Analog Outputs

Board Type:	GA0, GA1, GA3, GA4
Module Output:	2 Channel
Analog Output Type:	0-20 mA, 4-20 mA
Analog Output Resolution:	12 Bit
Current Output Precision:	%1 Precision
Common Output GND:	1 GND (2 Point / Common)

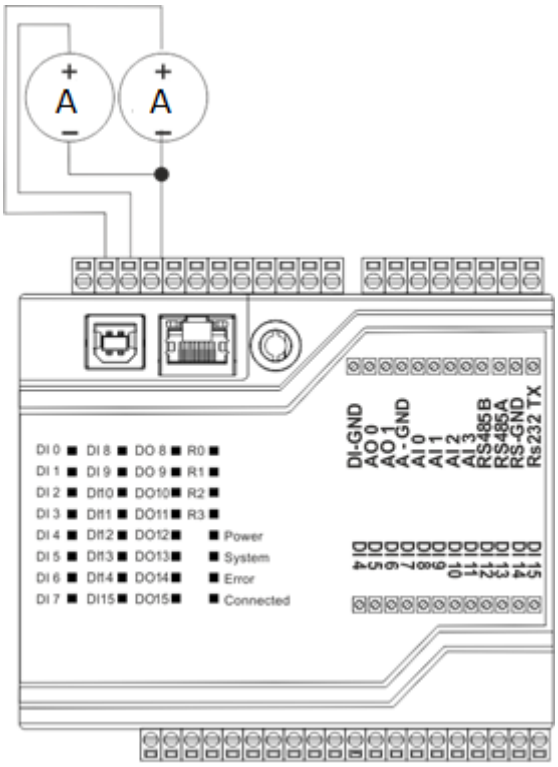

Figure 12 Analog Output Connection Diagram

3.7 RTD Inputs

Board Type:	GA0, GA3
RTD Input:	2 Channel
RTD Input Type:	PT1000
RTD Input Resolution:	12 Bit
RTD Giriş Precision:	%1 precision
Input GND Connectiom:	1 GND (2 Point / Common)

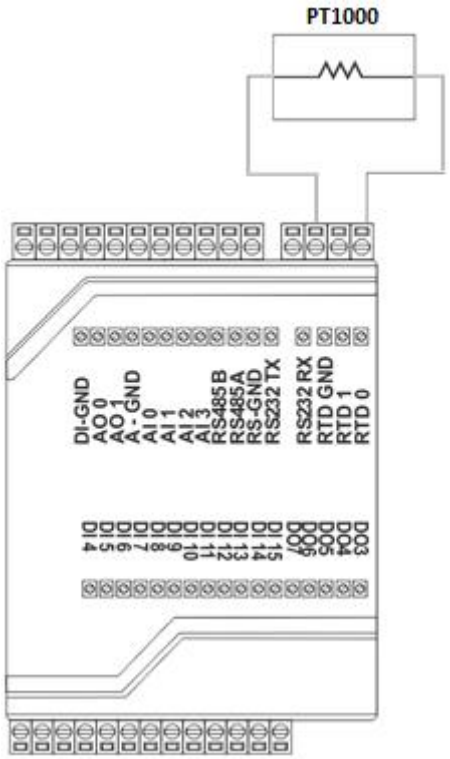

Figure 13 RTD Input Connection Diagram

3.8 RS485 Serial Port

Board Type:	GA0, GA1	GA3, GA4
RS485 Port Count:	1 Port	2 Port
Maximum Slave Count	Limited to Hardware	
Isolation:	ESD Protection, 8 KV Direct, 25 kV Air Discharge	
Communication Distance:	1000 m	
Data Bits:	7-8	
Stop Bits:	1-2	
Parity:	None-Even-Odd	
Baudrate:	300 bps to 200 kbps	

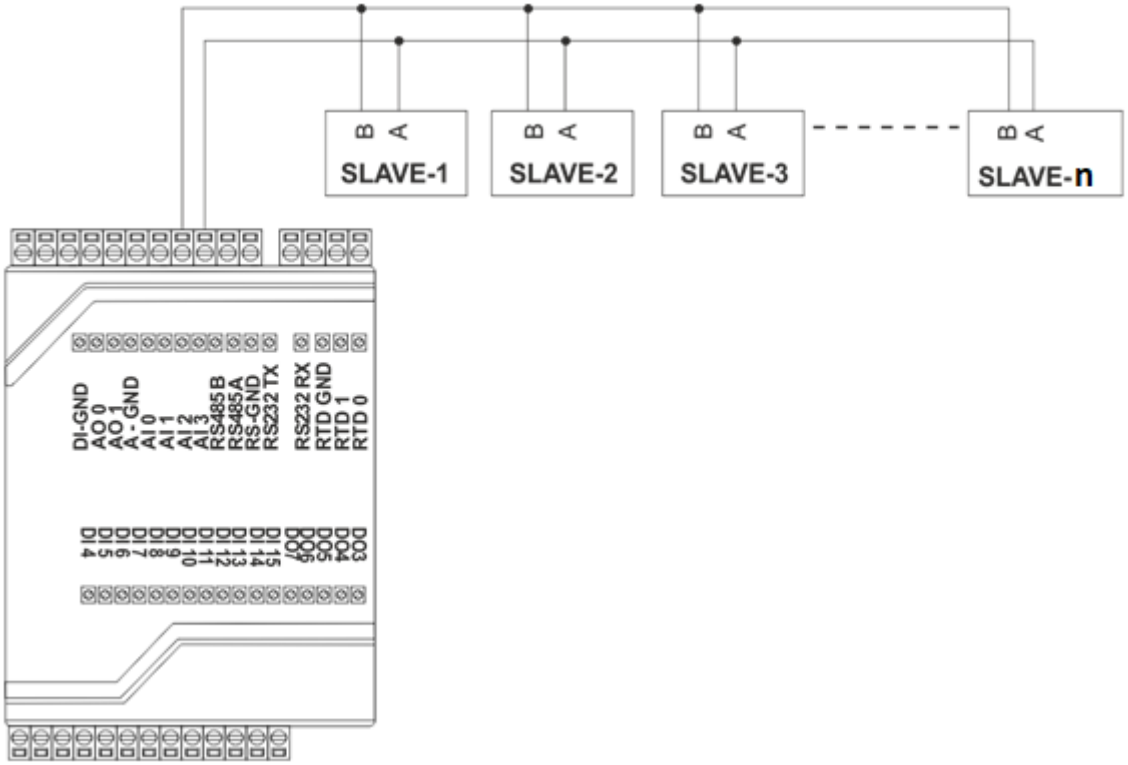

Figure 14 RS485 Serial Port Connection Diagram

3.9 RS232 Serial Port

Board Type	GA0, GA1
RS232 Port Count:	1 Port
Communication Distance:	10 m
Data Bits:	7-8
Stop Bits:	1-2
Parity:	None-Even-Odd
Baudrate:	300 bps to 200 kbps

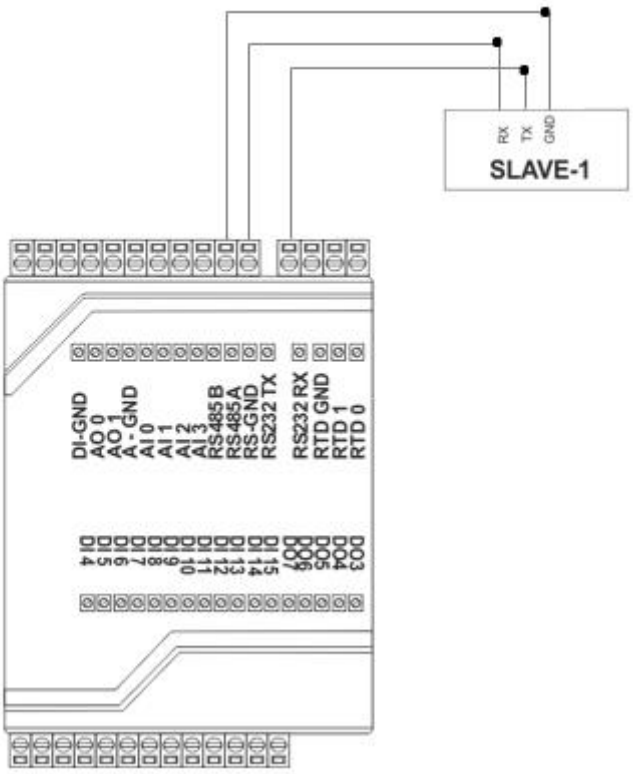

Figure 15 RS232 Serial Port Connection Diagram