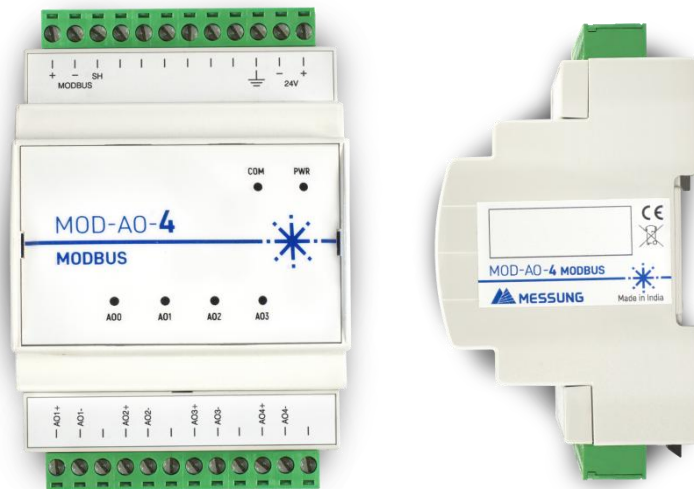


4 CH Analog Output Module-Modbus RTU

Technical Documentation

MOD-AO-4



Features:

- 4 Channel Analog Output – (12bit-0-10v/4-20mA/0-20mA)
- LED indication for each Output status, error, communication port and powerON
- Din rail mount assembly
- DIP switch for Modbus RTU slave configuration
- No configuration software needed
- CE Mark

General Product Specifications: MOD-AO-4

Application	Industrial Automation	
Supply	Voltage (Typical)	24VDC
	Voltage Range	18-30VDC
	Connection Type	Pluggable Connector
Communication Interface & Protocol	RS 485 & Modbus RTU	
No. of Analog Output Channels	4	
Analog Output Type	Voltage & Current	
Signals per Output	0V – 10V	
	4 – 20mA	
Analog Output Field Connection	2-Wire	
Configuration	Individual Output Configuration	
Resolution	12 bit	
Accuracy	0.1% of Full scale @25°C	
Temperature Coefficient	0.0005% of full scale rating per °C	
Calibration	Factory and Field	
External Supply	18V to 30VDC	
Current	Max 150mA	
IP Level	IP20	
Temperature Range	0-60°C operating	
Humidity	5 – 95%, non-condensing	
Isolation	Output to Digital	
Diagnostics	Communication error	
Operation Indication	LED (Red) for DC power ON, Flickering Yellow LED to indicate communication	
Certification	CE	
Dimension	71 (L) X 90.5 (H) X 62 (D) mm [4DIN Units]	

Messung Systems Pvt. Ltd.

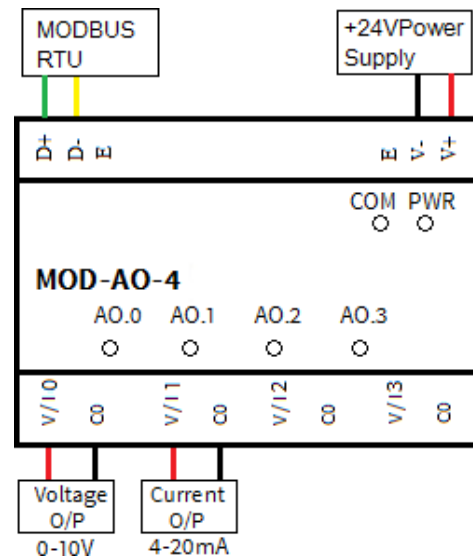
501 Lunkad Sky Vista, Viman Nagar, Pune 411 014, India.

T: +91 20 6649 2800 | e: info@messung.com | w: www.messung.com

MOD-AO-4 – Voltage Mode	
Output Range	0 – 10V
Scanning Time	1mSec
Settling Time	100µs for Voltage
Load	> 1 kohm
Max Output	10.5V
MOD-AO-4 – Current Mode	
Output Range	0 – 20mA, 4 – 20mA
Scanning Time	1mSec
Settling Time	10µs
Load	<600 ohms
Max Output	21mA

WIRING DIAGRAM

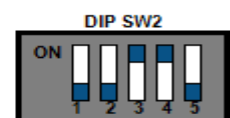
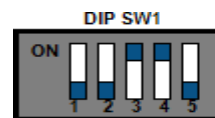
Modbus Communication Specifications	
Protocol	Slave Modbus RTU
Baud Rate	9600,19200,57600,115200
Slave Address	1-31
Data Bit	8
Stop Bit	1
Parity	None, Odd, Even
Response Time	<100ms
Termination Resistance	120ohm (External)
Control Registers	Holding Register& Input Register
Distance	Up to 1200m



Modbus Configuration DIP Switch Access

Steps:

1. Open the upper fascia plate of the module.
2. DIP switch S1 for address and DIP switch S2 for baud rate parity.
3. Adjust the DIP switch according to requirements. Refer below image.



DIP Switch 2		
Baud Rate Configuration		
Baud Rate	Pin 4	Pin 5
9600	OFF	OFF
19200	OFF	ON
57600	ON	OFF
115200	ON	ON
Parity Configuration		
Parity	Pin 3	Pin 2
NONE	OFF	OFF
EVEN	OFF	ON
ODD	ON	OFF
	Pin 1	
	OFF	

DIP Switch 1					
Slave ID Configuration					
Slave ID	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
1	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	ON	ON
4	OFF	OFF	ON	OFF	OFF
5	OFF	OFF	ON	OFF	ON
6	OFF	OFF	ON	ON	OFF
...
...
...
31	ON	ON	ON	ON	ON

Modbus Address Mapping

Mode	Modbus Register	Description
CH1 – Mode Selection	Holding Register – 40000	0 – Disable (Default) 1 – Voltage (0-10V) 2 – Current (0-20mA) 3 – Current (4-20mA)
CH2 – Mode Selection	Holding Register – 40001	
CH3 – Mode Selection	Holding Register – 40002	
CH4 – Mode Selection	Holding Register – 40003	
AO – CH1	Holding Register – 40004	Channel 1 – Analog Output Count
AO – CH2	Holding Register – 40005	Channel 2 – Analog Output Count
AO – CH3	Holding Register – 40006	Channel 3 – Analog Output Count
AO – CH4	Holding Register – 40007	Channel 4 – Analog Output Count
CH1 – Multiplier	Holding Register – 40011	Factory Setting*
CH2 – Multiplier	Holding Register – 40012	Factory Setting*
CH3 – Multiplier	Holding Register – 40013	Factory Setting*
CH4 – Multiplier	Holding Register – 40014	Factory Setting*

*Do not change the settings, there are the factory calibration settings. No need to calibrate.

SAFETY INSTRUCTIONS

- Installation should only be performed by qualified professionals according to the laws and regulations.
- Do not connect the mains voltage nor any other external voltage to any point of the Modbus connector; it would represent a risk for the entire system. The facility must have enough insulation between the mains (or auxiliary) voltage and the Modbus or the wires of other accessories, in case of being installed.
- Keep the device away from water and do not cover it with clothes, paper or any other material while in use.



Messung Systems Pvt. Ltd.

501 Lunkad Sky Vista, Viman Nagar, Pune 411 014, India.

T: +91 20 6649 2800 | e: info@messung.com | w: www.messung.com