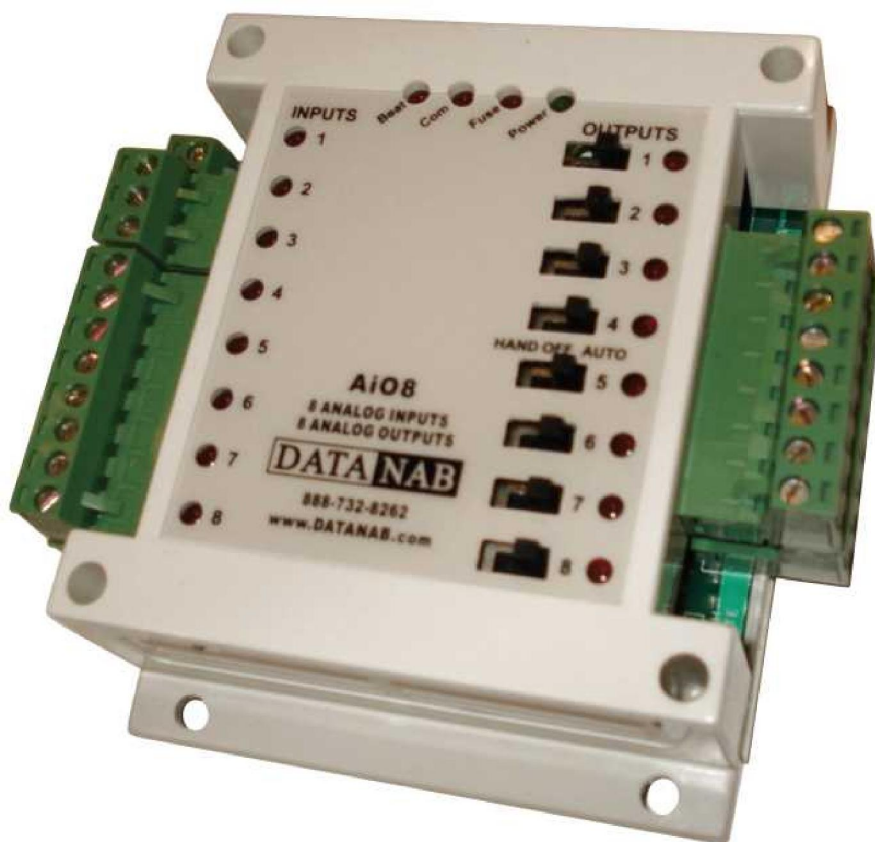


DataNab AiO8: Modbus 8Ch Analog In & 8 Ch Analog Out Module: Configuration Manual**Inputs**

Each input of the AiO8 Module can be jumper-configured in 1 of 3 ways:

- 0-5V signal
- 0-20mA signal
- Dry contact / thermistor

The value of each input is stored as a 10-bit number in the respective modbus register. The register addresses for the inputs are 108 – 115.

A 5V or 20mA signal will give a reading of 1024. Each input has a corresponding LED which will light up if the value of the input is greater than 512.

Outputs

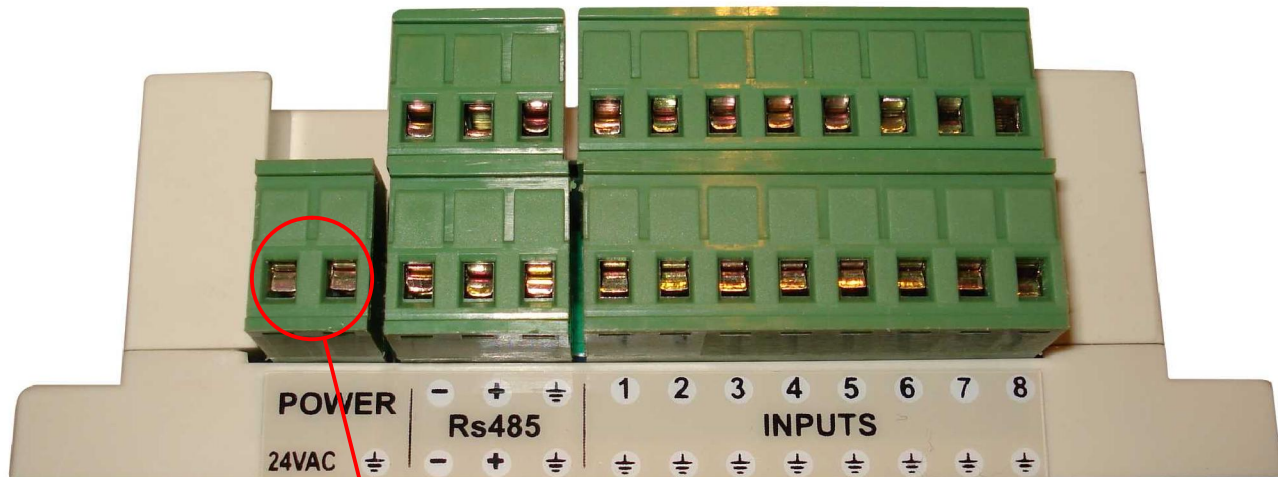
The state of each output is determined by its corresponding switch position. The switches have 3 states – 'hand', 'off', and 'auto'. When switched to 'hand', the corresponding output will be set to 10V. When switched to 'off', the output will be set to 0V. When switched to 'auto', the outputs will be set to the level stored in the corresponding MODBUS output registers. The register addresses for the outputs are 100 – 107.

These registers can be changed using the RS485 serial interface. For the outputs, a 0 corresponds to 0V. Likewise, a 1000 corresponds to 10V. The output registers are stored in RAM, thus the contents of each register will be lost upon power-off. Each output has a corresponding LED which will light up if the value of the output is greater than 500 (5V).

Analog Output Calibration

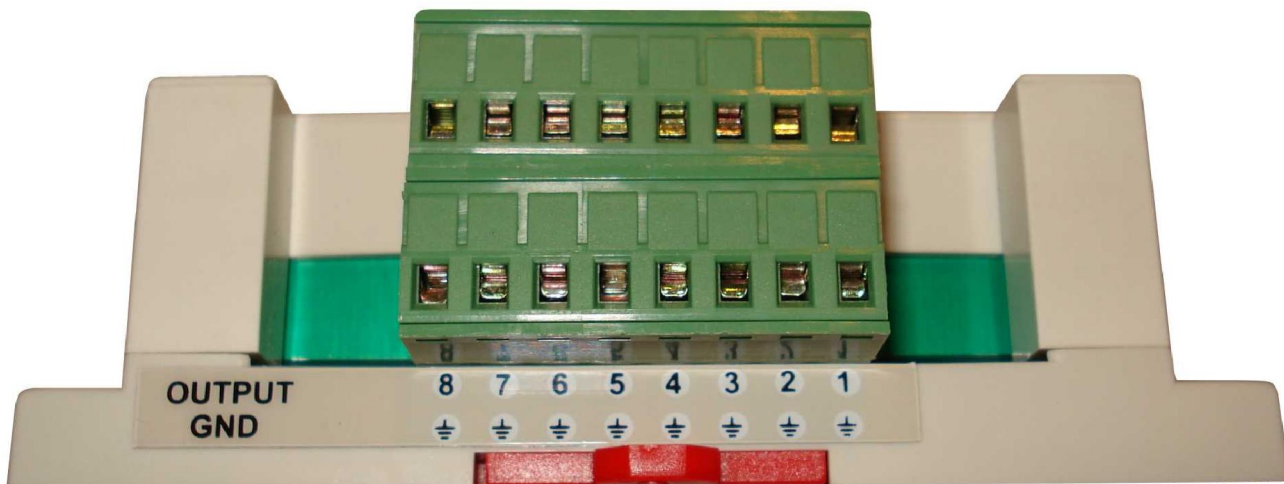
The AiO8 has an output calibration feature that allows for an adjustment of +/- 1.28V. Calibration is controlled via the calibration register located at register address 13. (See next page for details.) By default this is 128, which corresponds to 0V calibration. A value of 0 would give a -1.28V offset. A value of 255 would give a +1.28V offset. *It is recommended that the calibration be determined while the output is set to 5V.* The calibration value is located in flash memory and will be restored upon power-up.

LEFT SIDE CONNECTORS (Power, RS485, Inputs)



POWER: 12-24VAC
 12-30VDC
 +V is left pin.
 Common is right pin

RIGHT SIDE CONNECTORS (Analog Outputs)



RS485 Communication Parameters:

Baudrate:

The AiO8 baudrate can be set by in MODBUS register 15. The default baudrate is 19.2kbps
 A value of 1 will set the baud to 19200bps. A value of 0 will set the baud to 9600bps.

Other:

Default RS485 Address: 254
 8 Data Bits, No Parity, 1 Stop Bit

Accessing AiO8 Registers Via Serial Communications

The AiO8 has a built-in serial interface for communication over an RS485 network. Communication is implemented using the Modbus RTU Protocol.

Modbus registers in the AiO8

Address	Bytes	Register and Description
0 to 5	6	RESERVED
6	1	ADDRESS. Modbus device address
7	1	Product Model: (20=Ai8 R13, 21=AiO8, 22=Ai32)
13	2	Calibration register – used to calibrate the outputs.
15	2	Baudrate: 0 will set 9600bps, 1 will set 19200bps
17-21	5	User writeable registers.
100	2	Output 1 Register
101	2	Output 2 Register
102	2	Output 3 Register
103	2	Output 4 Register
104	2	Output 5 Register
105	2	Output 6 Register
106	2	Output 7 Register
107	2	Output 8 Register
108	2	Input 1 Register
109	2	Input 2 Register
110	2	Input 3 Register
111	2	Input 4 Register
112	2	Input 5 Register
113	2	Input 6 Register
114	2	Input 7 Register
115	2	Input 8 Register
116	2	Switch Bank Register for outputs 1-8. (Hand/Off/Auto switch Position) 00=off, 01=hand, 10=auto

Modbus Poll examples:

If we would like to read the 2nd input register from an AiO8 module that has a node address of 1:

Slave Address	Function	Starting Address Hi	Starting Address Lo	No. of Points Hi	No. of Points Lo	CRC Hi Byte	CRC Lo Byte
1	3	0	109	0	1	xx	Xx

Or we read all 8 input values from module # 1:

Slave Address	Function	Starting Address Hi	Starting Address Lo	No. of Points Hi	No. of Points Lo	CRC Hi Byte	CRC Hi Byte
1	3	0	108	0	8	xx	xx

Or we write 500 (5V) to output 4 in module 1:

Slave Address	Function	Starting Address Hi	Starting Address Lo	Data Hi Byte	Data Lo Byte	CRC Hi Byte	CRC Lo Byte
1	6	0	103	1	244	xx	xx