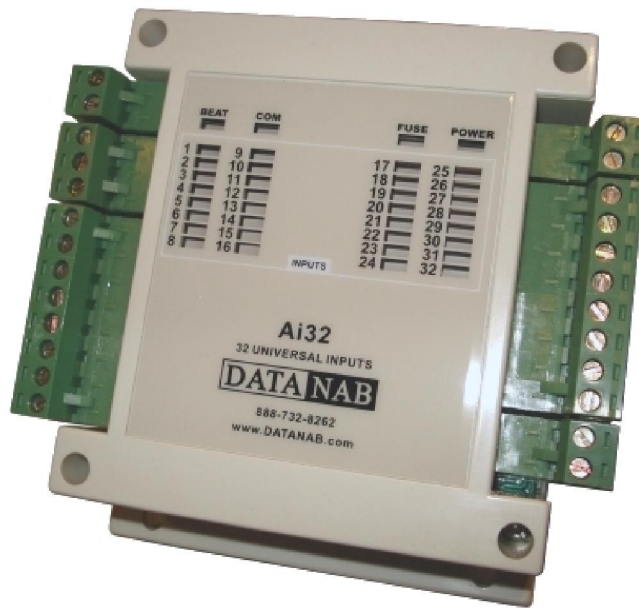


DataNab Ai32: Modbus 32 Channel Analog Input Module - Configuration Manual

Each input of the Ai32 Module can be used in 1 of 3 ways: (Jumpers available on current hardware revisions)

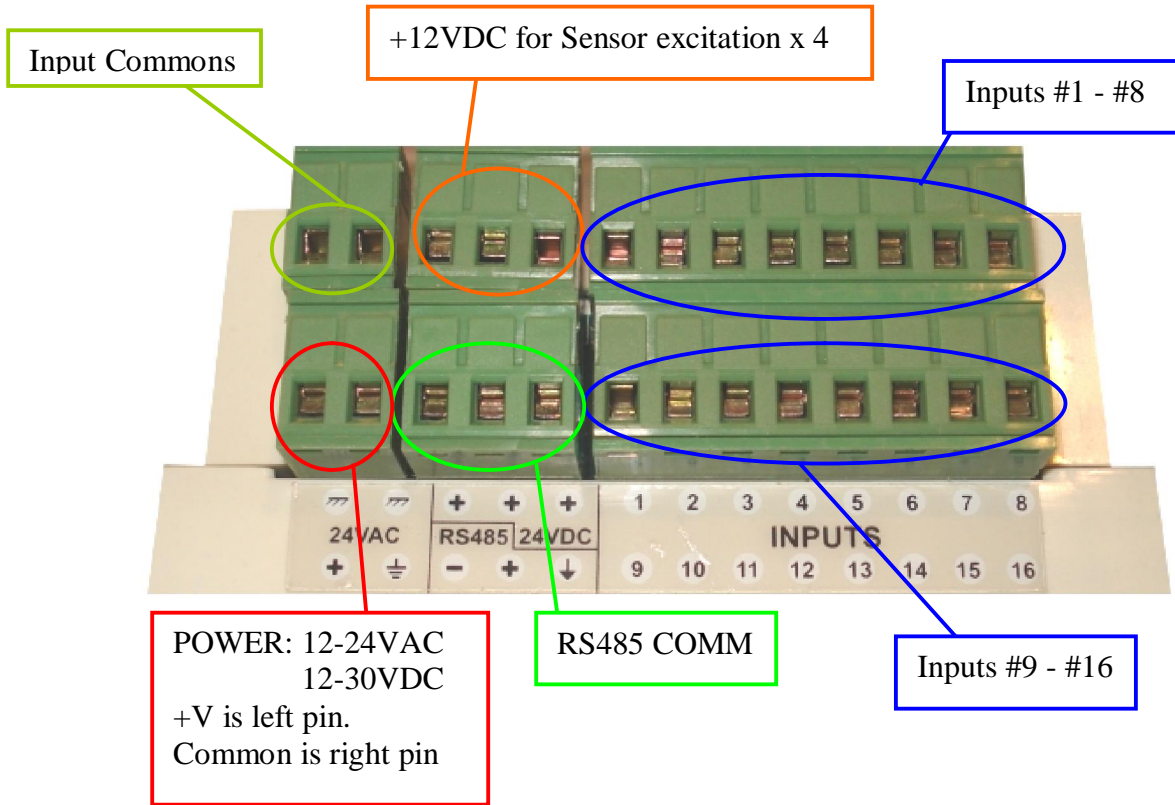
- 0-5V signal
- 0-20mA signal
- Dry contact / thermistor

The value of each input is stored as a 10-bit number in the respective modbus register.
The registers addresses for the inputs are 100 – 131.

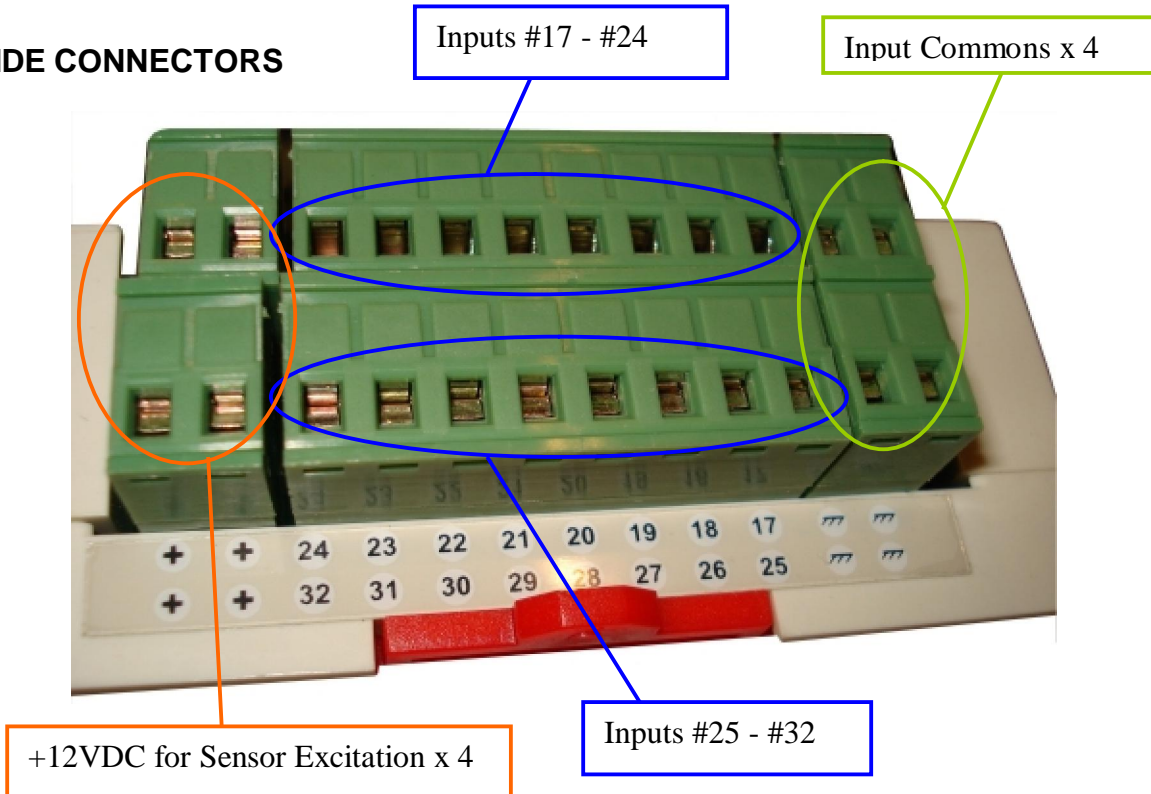
A 0V or 0mA signal will give an A/D reading of 0.
A 5V or 20mA signal will give an A/D reading of 1024.

Each input has a corresponding LED which will light up if the equivalent 10-bit value of the input is greater than 512.

LEFT SIDE CONNECTORS



RIGHT SIDE CONNECTORS



RS485 Communication Parameters:

Baudrate:

The Ai32 baudrate can be set by in MODBUS register 15. The default baudrate is 19.2kbps
 Value 1 will set the baud to 19200 bps.
 Value 0 will set the baud to 9600 bps.

Other:

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

Accessing Ai32 Registers Via Serial Communications

The Ai32 has a built-in serial interface for communication over an RS485 network. Communication is implemented using the Modbus RTU Protocol.

Modbus registers in the Ai32

| 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) |
| 15 | 1 | Baudrate: 0 will set 9600bps, 1 will set 19200bps |
| 100 | 2 | Input 1 Register |
| 101 | 2 | Input 2 Register |
| 102 | 2 | Input 3 Register |
| | 2 | |
| | 2 | |
| | 2 | |
| 131 | 2 | Input 32 Register |
| 228 | 1 | Input 1 Config: 0=raw 10-bit value, 1=DecC, 2=DecF, 3=0-100%, 4=On/Off, 5=Off/On |
| 229 | 1 | Input 2 Config: 0=raw 10-bit value, 1=DecC, 2=DecF, 3=0-100%, 4=On/Off, 5=Off/On |
| 230 | 1 | Input 3 Config: 0=raw 10-bit value, 1=DecC, 2=DecF, 3=0-100%, 4=On/Off, 5=Off/On |
| | 1 | |
| | 1 | |
| | 1 | |
| 258 | 1 | Input 31 Config: 0=raw 10-bit value, 1=DecC, 2=DecF, 3=0-100%, 4=On/Off, 5=Off/On |
| 259 | 1 | Input 32 Config: 0=raw 10-bit value, 1=DecC, 2=DecF, 3=0-100%, 4=On/Off, 5=Off/On |

Modbus Poll examples:

If we would like to read the 2nd input register from an Ai32 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 | 101 | 0 | 1 | xx | Xx |

Or we read all 32 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 | 100 | 0 | 32 | xx | xx |