Obvius A8923-4 Installation Instructions

IO Module: Analog 4-20mA/0-10V and Pulse to Modbus

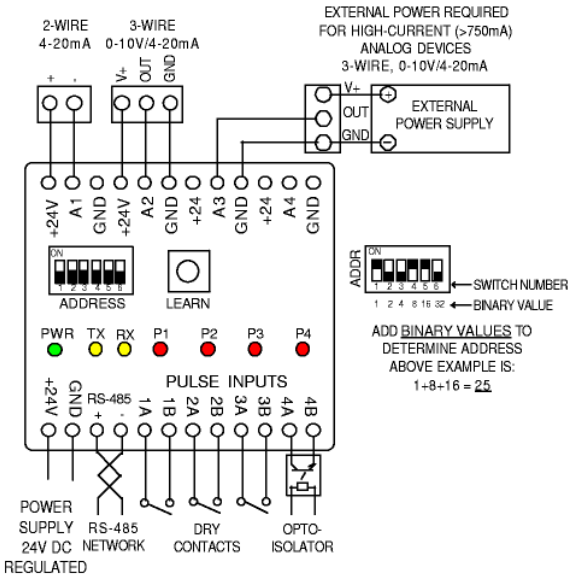
WARNING--REFER INSTALLATION AND SERVICING TO QUALIFIED PERSONNEL ONLY!

- Read instructions throughly prior to install
- This product is not intended for life or safety applications

Applications shown are suggested means of installing this product, but it is the responsibility of the installer to ensure that the installation is in compliance with all national and local codes. Installation should be attempted only by individuals familiar with proper installation techniques and with codes, standards, and proper safety procedures for control installations.

Installation, Wiring and Setup

1. Snap unit to existing DIN rail.
2. Connect power supply, network wiring, and sensor inputs as indicated in wiring diagram.
3. Select network address as indicated by the diagram. Each modbus device must have a unique address.
4. Auto-detect analog inputs: Make sure all analog devices are properly installed and powered. Press the "LEARN" button. Inputs will automatically be identified as 4-20mA or 0-10v.
5. Verify pulse inputs: Contact closure on pulse inputs will cause red pulse LEDs to blink. Verify each pulse input is functioning properly.



Modbus Point Map

Address	Function	Range
40001	Analog 1 Instantaneous reading.	0-4095
40002	Analog 2 Instantaneous reading.	0-4095
40003	Analog 3 Instantaneous reading.	0-4095
40004	Analog 4 Instantaneous reading.	0-4095
40005	Pulse 1 LSW	
40006	Pulse 1 MSW	
40007	Pulse 2 LSW	
40008	Pulse 2 MSW	
40009	Pulse 3 LSW	
40010	Pulse 3 MSW	
40011	Pulse 4 LSW	
40012	Pulse 4 MSW	
40013	Status Register	*See Note.
40014	Firmware Version (111 = 1.11)	
40015	Uptime Seconds LSW (seconds)	
40016	Uptime Seconds MSW (seconds)	

Address	Function	Range
40017	Pulse State Register	*See Note.
40018	Pulse 1 ontime LSW (seconds)	
40019	Pulse 1 ontime MSW (seconds)	
40020	Pulse 2 ontime LSW (seconds)	
40021	Pulse 2 ontime MSW (seconds)	
40022	Pulse 3 ontime LSW (seconds)	
40023	Pulse 3 ontime MSW (seconds)	
40024	Pulse 4 ontime LSW (seconds)	
40025	Pulse 4 ontime MSW (seconds)	
40026	Analog 1 min	0-4095
40027	Analog 1 average	0-4095
40028	Analog 1 max	0-4095
40029	Analog 2 min	0-4095
40030	Analog 2 average	0-4095
40031	Analog 2 max	0-4095
40032	Analog 3 min	0-4095
40033	Analog 3 average	0-4095
40034	Analog 3 max	0-4095
40035	Analog 4 min	0-4095
40036	Analog 4 average	0-4095
40037	Analog 4 max	0-4095

Supported Modbus commands:
0x03 Read Holding Registors
0x06 Preset Single Register
0x11 Report Slave ID
All other Modbus commands return "Illegal Function" . The Status Register is the only register that is read/write.
Device ID = 50
Device name = "Obvius 4A4P-M2"

*** Status Register (40013)**

Bits 0-3	Analog input type. bit 0 is Analog 1 0=4-20mA, 1=0-10V (read/write)
Bits 4-7	Analog overcurrent/voltage. bit 4 is Analog 1 0=Ok, 1=Alarm (read-only)
Bits 8-11	Analog broken 4-20mA wire. bit 8 is Analog 1 0=Ok, 1=Alarm (read-only)
Bit 12	Debounce feature slows down the pulse scan rate for mechanical relays 0=250Hz Max, 1=20Hz Max (read/write)
Bit 13	1 = resets min/max/average to current value (read/write)
Bit 14	bit is unused. Always 0
Bit 15	1 = set learn mode (read/write)

*** Pulse State Register (40017)**

Bit 0	Pulse 1 status 0 = contacts open, 1 = contacts closed
Bit 1	Pulse 2 status 0 = contacts open, 1 = contacts closed
Bit 2	Pulse 3 status 0 = contacts open, 1 = contacts closed
Bit 3	Pulse 4 status 0 = contacts open, 1 = contacts closed
bits 4-15	Unused

The Obvius A8923-4 ships from the Factory configured for 0-10V. Press the Learn button if 4-20mA products are used.

When changing a single bit in the status register: First read the register from the IO module, next, set or clear the bit as needed and then write the register value back to the IO module. Simply writing 0x20 to set the pulse input debounce feature will also force all analog inputs into 4-20mA mode.

Troubleshooting

Power LED is not on:	Ensure 24VDC is present and polarity is correct.
Data LEDs do not blink:	Check network wiring, address selection. Verify master Modbus controller is functioning.
Pulse LEDs do not blink:	Verify pulse inputs are dry contact or opto-isolator wired with correct polarity.
Analog values inaccurate:	Verify analog devices are wired correctly. Press LEARN button to re-configure. Verify Modbus master is configured to scale sensor outputs properly. Check sensor output range. Make sure Modbus master is configured with correct scaling.
No output from unit:	Check network wiring, address selection. Verify Modbus master device is configured to read correct points.

Specification

Inputs	
Power	24vdc, 50mA, + converter powered analog devices
Analog	4-20mA or 0-10v auto-detected (ranges and units set in master device) 0-10v Input impedance = 10k ohms 4-20mA Input Impedance = 250 ohms Scan Rate 250mS (1/4 second)
Pulse	Dry contact, 250Hz max. (user selectable to 20Hz max) input impedance 500 ohms max.
Accuracy	+/- 0.25% F.S. (Analog Input)
Output	
Hardware	RS-485, 2-wire , non-isolated
Protocol	Modbus RTU Protocol, 9600baud
Latency	5mS
Configuration	
Address	6-position DIP switch, 63 addresses
Analog Input	Auto-detecting 0-10v or 4-20mA (ranges and units set in master device)
General	
Dimensions	4-module, 70mm x 86mm x 58mm(h)
Material	Base part: Black Noryl UL94-V0; PCB material: FR-4
Mounting	Compatible with M36 DIN-RAIL (EN50022)
Operating Environment	0 to 50 degrees C, 0 to 95%RH non-condensing