H8923-4

Pulse/Analog to Modbus Converter

VERIS INDUSTRIES

INSTALLATION

!CAUTION !

- *Warning - Refer to installation and servicing to qualified personnel only! Read instructions thoroughly prior to install*

- *This product is not intended for life or safety applications*

- *Installing sensors in an energized motor control center or on any energized conductor can be hazardous.*

Applications shown are suggested means of installing sensors, 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 codes, standards, and proper safety procedures for high-voltage installations. Do not rely on status indications of device exclusively to determine if power is present in conductor.

1. Snap unit to existing DIN rail.
2. Connect power supply, network wiring, and sensor inputs as indicated in wiring diagram, below.
3. Set network address.
4. Press 'LEARN' button. (Power LED will blink fast in learn mode.)

WIRING AND SETUP
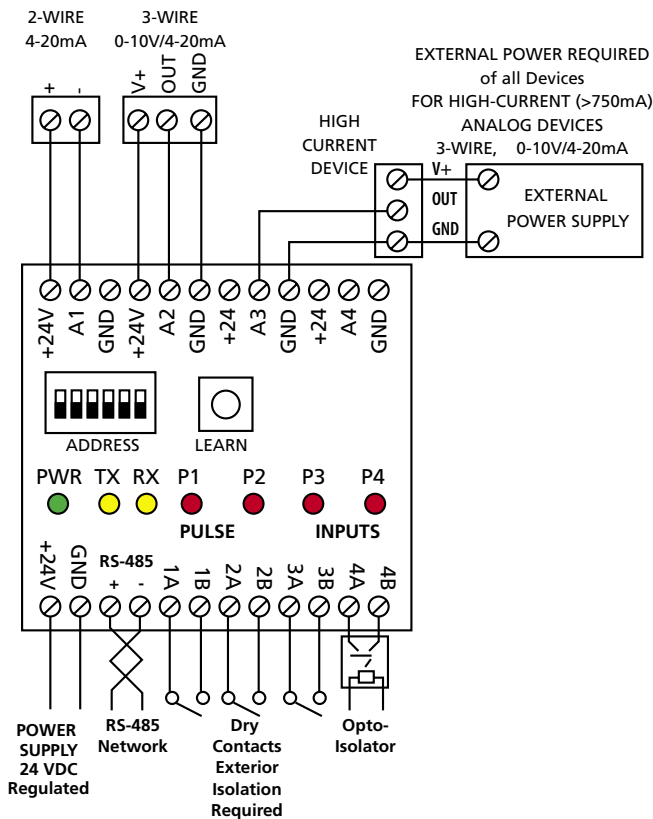
1. Select network address:
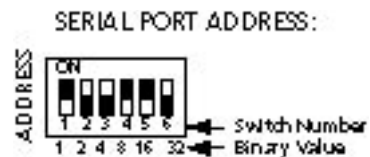
2. Auto-detect analog inputs:

   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.

3. Verify pulse inputs:

   Contact closure on pulse inputs will cause red pulse LEDs to blink. Verify each pulse input is functioning properly.

PN Z102701-0C

TROUBLESHOOTING

1. **Power LED is off:** Ensure 24 VDC is present and polarity is correct.

2. **Data LEDs do not blink:** Check network wiring, address selection. Verify master Modbus controller is functioning.

3. **Pulse LEDs do not blink:** Verify pulse inputs are dry contact or opto-isolator wired with correct polarity.

4. **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.

5. **No output from unit:** Check network wiring, address selection. Verify Modbus master device is configured to read correct points.

SPECIFICATIONS

Inputs
- Power .... 24vdc, 50mA + converter powered analog devices (750mA max. total thru device)
- 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
- Pulse .... Dry contact, 250Hz max.
- Accuracy .... +/- 0.25% F.S. (Analog Input)

Output
- Hardware .... RS-485, 2-wire , non-isolated
- Protocol .... Modbus RTU Protocol
- Latency 5ms

Configuration
- Address .... 6-pole DIP switch, 0-63 addresses
- Analog Input .... Auto-detecting 0-10v or 4-20mA (ranges and units set in master device)

General
- Dimensions .... 4A4P-M: 4-module, 70mm x 86mm x 58mm(h)
- Material .... Base part: Black Noryl UL94-V0; PCB material: FR-4
- Mounting .... M36 DIN-RAIL (EN50022)
- Operating Envir. .... 0 to 50ºC, 0 to 95%RH non-condensing

POINT MAP

Register	Offset	Description	
40001	0	Analog In 1	(Integer 0-4095) note 1
40002	1	Analog In 2	(Integer 0-4095) note 1
40003	2	Analog In 3	(Integer 0-4095) note 1
40004	3	Analog In 4	(Integer 0-4095) note 1
40005	4	Pulse 1 LSW	
40006	5	Pulse 1 MSW	
40007	6	Pulse 2 LSW	
40008	7	Pulse 2 MSW	
40009	8	Pulse 3 LSW	
40010	9	Pulse 3 MSW	
40011	10	Pulse 4 LSW	
40012	11	Pulse 4 MSW	
40013	12	Status register - note 2	
40014	13	100 x firmware version (110 = v1.10)	
40015	14	Uptime Seconds LSW	
40016	15	Uptime Seconds MSW	
40017	16	Pulse State Register - note 3	

Register	Offset	Description
40018	17	Pulse 1 ontime LSW (Seconds)
40019	18	Pulse 1 ontime MSW (Seconds)
40020	19	Pulse 2 ontime LSW (Seconds)
40021	20	Pulse 2 ontime MSW (Seconds)
40022	21	Pulse 3 ontime LSW (Seconds)
40023	22	Pulse 3 ontime MSW (Seconds)
40024	23	Pulse 4 ontime LSW (Seconds)
40025	24	Pulse 4 ontime MSW (Seconds)
40026	25	Analog 1 minimum value
40027	26	Analog 1 average value
40028	27	Analog 1 maximum value
40029	28	Analog 2 minimum value
40030	29	Analog 2 average value
40031	30	Analog 2 maximum value
40032	31	Analog 3 minimum value
40033	32	Analog 3 average value
40034	33	Analog 3 maximum value
40035	34	Analog 4 minimum value
40036	35	Analog 4 average value
40037	36	Analog 4 maximum value

Note 1: Calculating analog input values:

0 to 4095 = minimum span to maximum span

Example: Temperature sensor scaled -58 to 122 deg F: -58degF = 0; 122degF = 4095

Note 2: Status Register:

Bit	Description	Values	
0	Analog 1 type	1 = 0-10v, 0 = 4-20mA	(Writeable)
1	Analog 2 type	1 = 0-10v, 0 = 4-20mA	(Writeable)
2	Analog 3 type	1 = 0-10v, 0 = 4-20mA	(Writeable)
3	Analog 4 type	1 = 0-10v, 0 = 4-20mA	(Writeable)
4	Analog 1 High limit alarm	1 = Alarm, 0 = Normal	(Above 10v or 4-20mA)
5	Analog 2 High limit alarm	1 = Alarm, 0 = Normal	(Above 10v or 4-20mA)
6	Analog 3 High limit alarm	1 = Alarm, 0 = Normal	(Above 10v or 4-20mA)
7	Analog 4 High limit alarm	1 = Alarm, 0 = Normal	(Above 10v or 4-20mA)
8	Analog 1 Broken wire	1 = Alarm, 0 = Normal	(4-20mA mode only)
9	Analog 2 Broken wire	1 = Alarm, 0 = Normal	(4-20mA mode only)
10	Analog 3 Broken wire	1 = Alarm, 0 = Normal	(4-20mA mode only)
11	Analog 4 Broken wire	1 = Alarm, 0 = Normal	(4-20mA mode only)
12	Scan Rate	Set to slow down scan rate for mechanical pulse devices	
13	Analog Reset	Set to reset min/max/average	
14	Unused	-	
15	Mode Select	Set to learn analog input type (Writeable)	

Note 3: Pulse State Register:

Bit	Description	Values
0	Pulse 1 Status	1 = pulse in/contact closed, 0 = pulse out/contact open
1	Pulse 2 Status	1 = pulse in/contact closed, 0 = pulse out/contact open
2	Pulse 3 Status	1 = pulse in/contact closed, 0 = pulse out/contact open
3	Pulse 4 Status	1 = pulse in/contact closed, 0 = pulse out/contact open
4-15	Unused	-