



Features

- Two Channel 4 ~ 20mA 16 bit Resolution ADC
- Two Relay output with configurable alarm or Master Control
- Two 24V Digital Input
- Modbus RS-485 Protocol Interface.
- Individual Channel offset calibration
- Resolution at 0.001 mA
- Convenient address selection rotatory switch from 1 – 99 Address
- Complete range of baud rate settings supported
- Sensor open indication
- Suitable for both Din Rail and Wall Mountable

Supported Modbus Function Codes

- 01 - Read Coils
- 02 – Read Discrete Inputs
- 05 – Write Single Coil
- 15 – Write Multiple Coils
- 03 – Read Holding Registers
- 04 – Read Input Registers
- 06 – Write Single Register
- 16 – Write Multiple Registers

Coils (Read / Write)

0x1.1 (1.1)

- Relay 1 Status and Control.
Setting this bit to 1 will Switch ON Relay 1 and 0 will switch OFF

0x1.2 (1.2)

- Relay 2 Status and Control.
Setting this bit to 1 will Switch ON Relay 2 and 0 will switch OFF

Discrete Inputs (Read Only)

0x1.1 (1.1)

- Input 1 Status.
1 indicates Input 1 is High and 0 indicates Low

0x1.2 (1.2)

- Input 2 Status.
1 indicates Input 2 is High and 0 indicates Low

0x1.3 (1.3)

- Channel 1 Sensor Status.
1 indicates Sensor Open 0 indicates Working

0x1.4 (1.4)

- Channel 2 Sensor Status.
1 indicates Sensor Open 0 indicates Working

0x1.5 (1.5)

- Channel 1 low value alarm status.
1 indicates alarm is on due to low value / 0 indicates value is with in normal range

0x1.6 (1.6)

- Channel 1 high value alarm status.
1 indicates alarm is on due to high value / 0 indicates value is with in normal range

0x1.7 (1.7)

- Channel 2 low value alarm status.
1 indicates alarm is on due to low value / 0 indicates value is with in normal range

0x1.8 (1.8)

- Channel 2 high value alarm status.
1 indicates alarm is on due to high value / 0 indicates value is with in normal range

Input Registers (Read Only)

- 0x1 (1)
 - Channel 1 milli-Ampere in 16bit signed decimal values at resolution 0.001
- 0x2 (2)
 - Channel 2 milli-Ampere in 16bit signed decimal values at resolution 0.001

Holding Registers (Read/Write)

- 0x1 (1)
 - CH1 milli-Ampere Offset Calibration Register
-10000 to +10000 in 0.001 milli-Ampere accuracy
- 0x2 (2)
 - CH2 milli-Ampere Offset Calibration Register
-10000 to +10000 in 0.001 milli-Ampere accuracy
- 0x3 (3)
- 0x4 (4)
 - Not Used
- 0x5 (5)
 - Relay 1 Trigger mode register
0 – Not enabled. Optionally Relay can be driven from Master directly
1 – Either CH1 Minimum Value OR CH1 Maximum Value Triggers Alarm Relay
2 – CH1 Maximum Value Triggers Alarm Relay
3 – CH1 Minimum Triggers Alarm Relay
- 0x6 (6)
 - Relay 1 will Trigger to ON State if the CH1 milli-Ampere is below the set Minimum signed integer -32000 to 32000
- 0x7 (7)
 - Relay 1 will Trigger to ON State if the CH1 milli-Ampere is above the set Maximum signed integer -32000 to 32000
- 0x8 (8)
- 0x9 (9)
 - Not Used
- 0xA (10)
 - Relay 2 Trigger mode register
0 – Not enabled. Optionally Relay can be driven from Master directly
1 – Either CH2 Minimum Value or CH2 Maximum Value Triggers Alarm Relay
2 – CH2 Maximum Value Triggers Alarm Relay
3 – CH2 Minimum Value Triggers Alarm Relay
- 0xB (11)
 - Relay 2 will Trigger to ON State if the CH2 milli-Ampere is below the set Minimum signed integer -32000 to 32000
- 0xC (12)
 - Relay 2 will Trigger to ON State if the CH2 milli-Ampere is above the set Maximum signed integer -32000 to 32000

0x65 (101)

- Device Address as per the address switch – (Read Only for Devices with Address switch)

0x66 (102)

- Baud Rate
- | | |
|----------|---------------------------|
| 0 – 300 | 7 – 9600 |
| 1 – 600 | 8 – 14400 |
| 2 – 1200 | 9 – 19200 |
| 3 – 1800 | 10 – 38400 |
| 4 – 2400 | 11 – 57600 |
| 5 – 4800 | 12 – 62500 |
| 6 – 7200 | 13 – 115200 |
| | Default. 9 – 19200 |

0x67 (103)

- Parity, Stop Bit
- | |
|---------------------------|
| 0 – 8 N 1 |
| 1 – 8 E 1 |
| 2 – 8 O 1 |
| 3 – 8 N 2 |
| 4 – 8 E 2 |
| 5 – 8 O 2 |
| Default. 0 – 8 N 1 |

Default Mode Switch

Default mode is handy when the serial communication setting are forgotten.

Setting the Address switch to 00 will put the device in default mode

- Address Set to 00 - Default mode ON
 - Slave Address – 1, Baud 19200, 8N1
- Address Set to non 00 - Default mode OFF
 - As per the saved configuration values.

Note:

No parameter selection is changed just by entering the default mode. All the parameters remains same including the communication settings unless changed by the master or if there is a corruption in data error indicated in normal mode the device will try to recover to Factory settings.

This mode can be used to read the present settings and/or change the settings

Sensor Open indication

If Channel 1 or 2 Sensor is not connected value is read as 0.0 mA and corresponding Discrete Input bit is set.

Diagnostics

- Tx LED - Quick Blink Indicates Tx Data in Normal operation
- Rx LED - Quick Blink Indicates Rx Data in Normal operation
- Power LED - Power Supply Status
- X1 LED - Input X1 is read high
- X2 LED - Input X2 is read high
- RL1 LED - Relay 1 is ON
- RL2 LED - Relay 2 is ON

Electrical Details

Power Supply: 12V to 24 V DC

Relay Output : 230AC ~ 1Amp / 30VDC ~ 2Amp Max

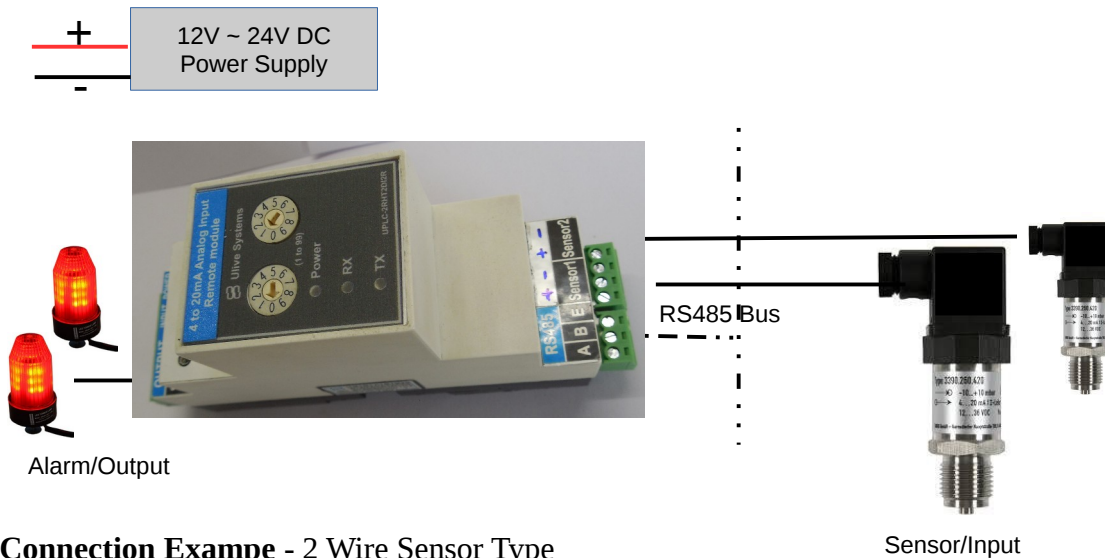
Digital Input : 12 to 24V DC

Top Connector Relay Output Power and IO

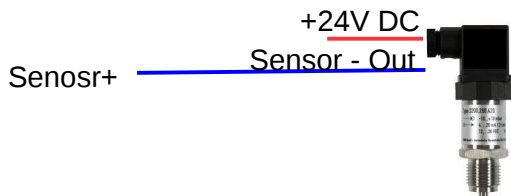
NO2	COM2	NO1	COM1
1	2	3	4

Bottom Connector

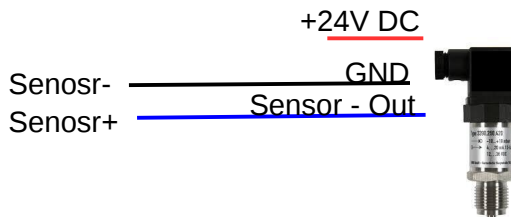
Power		Sensor Connector						RS485		
24V	GND	Digital IN		Channel 1		Channel 2		E	A+	B-
1	2	X1	X2	CH1+	CH1-	CH2+	CH2-	9	10	11
		3	4	5	6	7	8			



Connection Exampe - 2 Wire Sensor Type



Connection Exampe - 3 Wire Sensor Type



4 to 20mA Remote IO Module wiring connection diagram

