## 3. Electrical Specification

| | | |
|---|---|---|
| Input Supply Voltage | 24Vdc +/- 15% | Power Requirement | 120mA max. all I/Ps On |
| Input Type | Voltage free Contact/Open Collector NPN transistor switch to 0V for input ON. | | |
| Input High Voltage | >5Vdc | | |
| Input Low Voltage | <1Vdc | Input Wetting | 7.5mA max @ 24Vdc |
| Input Isolation | None – shares 0V common with 24Vdc supply | | |
| Serial Port Isolation | 1500Vac between serial port and 24Vdc system. | | |
| Memory Storage | Any configuration parameters stored in non-volatile EEPROM | | |

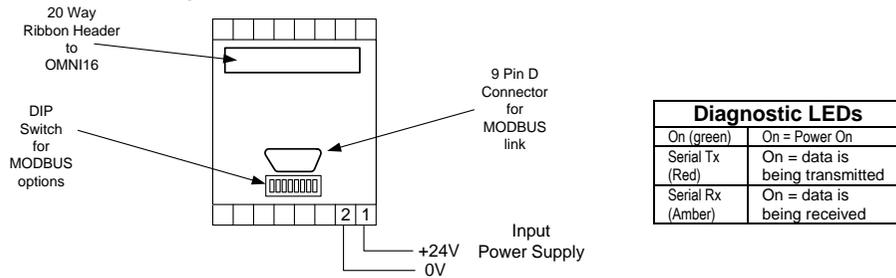## 4. Terminal Layout



20 Way Ribbon Header to OMNI16

DIP Switch for MODBUS options

9 Pin D Connector for MODBUS link

2  1

+24V
0V
Input Power Supply

### Diagnostic LEDs

| On (green) | On = Power On |
|---|---|
| Serial Tx (Red) | On = data is being transmitted |
| Serial Rx (Amber) | On = data is being received |

*Figure 2: Module Layout C2302*



I/O 15 I/O 14 I/O 13 I/O 12 I/O 11 I/O 10 I/O 9 I/O 8 I/O 7 I/O 6 I/O 5 I/O 4 I/O 3 I/O 2 I/O 1

30 29 28 27 26 25 24 23 22 21 20 19 18 17 16

Inputs energised with contact closure to 0V common.

9 Pin D Connector for MODBUS link

DIP Switch for MODBUS options

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

I/O 16
0V

+24V
0V
Power Supply
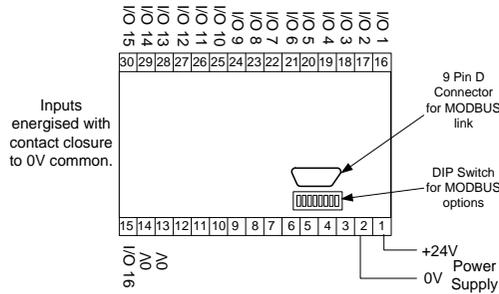
*Figure 3: Module Layout C2303*

### DIP SWITCH SETTINGS



1 2 3 4 5 6 7 8

11111111 = 255
Modbus Master Mode

OFF(0)
On(1)

Mode: : 1 = ASCII : 0 = RTU

**RS485 Modbus Address**

10000 = 1
01000 = 2
10100 = 3
etc.

**Transmission Parameters**

| RTU Mode | | | ASCII Mode | | |
|---|---|---|---|---|---|
| 0 | 0 | 9600,n,8,1 | 0 | 0 | 9600,n,7,2 |
| 1 | 0 | 4800,n,8,1 | 1 | 0 | 4800,n,7,2 |
| 0 | 1 | 2400,n,8,1 | 0 | 1 | 2400,n,7,2 |
| 1 | 1 | 1200,n,8,1 | 1 | 1 | 1200,n,7,2 |
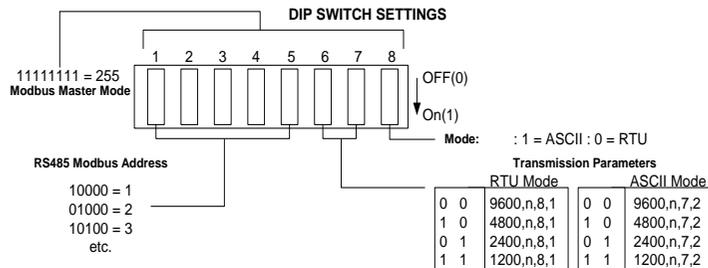
*Figure 4: DIP Switch Settings*

*Note that '1' is ON, while '0' is OFF*

## 5. Serial Port Connections

| Pin Number | Mode selected | |
|---|---|---|
| | **RS232** | **RS485** |
| 1 | No connection | Rx Data+ |
| 2 | Rx Data | Rx Data- |
| 3 | Tx Data | No connection |
| 4 | No connection | Tx Data + |
| 5 | Ground | Ground |
| 6 | | No connection |
| 7 | RTS | No connection |
| 8 | CTS | No connection |
| 9 | No connection | Tx Data - |
| *No Connection = Do not connect this pin when using the device in this mode* | | |

**GENERAL INSTRUCTION**

## 1. General Description

The C2302, C2303, Omni16/Modbus Interface Modules are DIN rail mount devices powered from 24Vdc. Their function is to acquire input from the existing Omniflex Omni16 alarm annunciators or auxiliary I/O for computer or SCADA systems via RS232/RS485 serial communications using the Modbus protocol.

The C2302 is equipped with a 20 way ribbon header suitable to connect directly to any existing Omni8 or Omni16 Annunciator input or lamp repeat socket. The C2303 is equipped with screw terminals for connecting up to 16 hard-wired general purpose inputs. Either RS232 or RS485 is selectable via choice of pinout on the DB9.

Each module can act as a Modbus master or Modbus slave device in either ASCII or RTU mode. Up to 32 Modbus master queries can be configured, i.e. when acting as Modbus Master, the C2302/3 can communicate to 32 slave devices using RS485. Refer to User Manual for detailed Modbus Master Operation. Each unit is equipped with a single 8 way DIP switch on which the parameters for the Modbus serial port are selected. Using the modules in RS485 mode, up to 32 of these units may be daisy-chained from a single Modbus Master. In this configuration, up to 512 I/O (i.e. up to 32 Omni16's) may be monitored from a single Modbus Master.
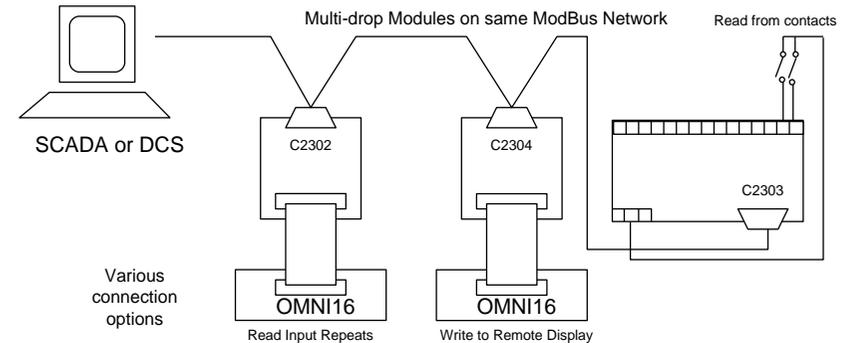


Multi-drop Modules on same ModBus Network

Read from contacts

SCADA or DCS

C2302          C2304          C2303

Various connection options

OMNI16          OMNI16

Read Input Repeats          Write to Remote Display

*Figure 1: Typical Application*

### Modbus Register Functions

| Function 2 | Read input status from address 1 to 16 (I/P 1-16) | Bit Read up to16 inputs |
|---|---|---|
| Function 3 | Read 1 holding register from address 101 where I/P1=LSB | |
| Function 4 | Read 1 input register from address 101 where I/P1=LSB | |

## 2. Specifications

| DESCRIPTION | C2302 | C2303 |
|---|---|---|
| MODULE WIDTH (along DIN Rail) | 55mm | 100mm |
| MODULE HEIGHT (above DIN Rail) | 115mm | |
| MODULE LENGTH | 75mm | |
| MOUNTING | 35mm x 7.5mm DIN Rail(EN50 022)or wall-mounting. | |
| TERMINAL WIRE CROSS SECTION | 2.5mm² maximum | |
| HOUSING MATERIAL | Polycarbonate UL 94 V-1 | |
| TERMINAL MATERIAL | Polycarbonate UL 94 V-2 | |
| COLOUR | Light Grey | |
| OPERATING TEMPERATURE | 0 to +60 °C (-13 to 140 °F) | |
| STORAGE TEMPERATURE | -40 to +70 °C (-40 to +158 °F) | |
| HUMIDITY | 5% to 95% at 40 °C (104°F) (non-condensing) | |
| MASS EXCLUDING PACKAGING | C2302: 205g (7.23oz);, C2303: 315g (11.11oz.) | |