



## DATASHEET

- Interface Digital Plant signals using Modbus
- Operates as Modbus Master or Slave for telemetry applications
- Supports ASCII and RTU modes
- Isolated RS232/485 interface for industrial applications where noise is a concern.
- Software configurable by the user
- Output overload detection
- 24Vdc powered



### Features

- Implement Low cost flexible Remote I/O using Modbus with these off the shelf modules.
- 1500Vac Isolation of the Modbus Port allows more reliable communications in noisy environments while avoiding ground loops.
- DIN Rail or surface mountable to suit each application.
- Use an OMNITERM Modbus Interface module as a Modbus Master to move data between any two or more Modbus Slaves.
- Simple configuration makes system installation easy and trouble-free.
- Modbus Master Mode option allows two or modules to be interconnected to form a standalone system.
- Ribbon Cable Input/Output termination options allows quick easy interconnect with other OMNIFLEX products such the Omni16 Alarm Annunciator.

### Overview

The **OMNITERM Range of Modbus Interface Modules** are DIN rail mounted devices used for interfacing a small number of Input and Outputs to a Modbus network.

These modules are simple and easy to use. As Modbus Slaves, configuration is purely done by 8 way DIP switch. Configuration as Modbus Master is done using the simple PC based configuration utility, Omniset.

Four modules in the range provide options for input and output, with ribbon header or screw terminal terminations.

Available as 16 channel modules, up to 32 of these modules can be connected to the same Modbus network to provide up to 512 Digital Inputs and Outputs.

#### Modbus Remote I/O

Up to 32 Modbus interface modules configured as Modbus Slaves can be connected as remote I/O to a SCADA, PLC or DCS system equipped with a Modbus Master communications port. A combination of input and output modules can be used to suit the application.

#### Modbus Based Telemetry

An OMNITERM Modbus Interface module configured as a Master can communicate with 1 or more Modbus Slaves to provide a standalone telemetry system. Move up to 256 Signals over a single pair of wires from any point to another.

#### Modbus Slave to Slave Communications

An OMNITERM Modbus Interface module set as a Modbus Master and configured to move data from any Modbus Slave device to another. For example, a single OMNITERM Modbus interface module can be used to repeat alarms from one Omni16C Alarm Annunciator equipped with a Modbus Slave serial port to another similar Omni16C in a remote location into the circuit to convert the output into 1-5V within the module

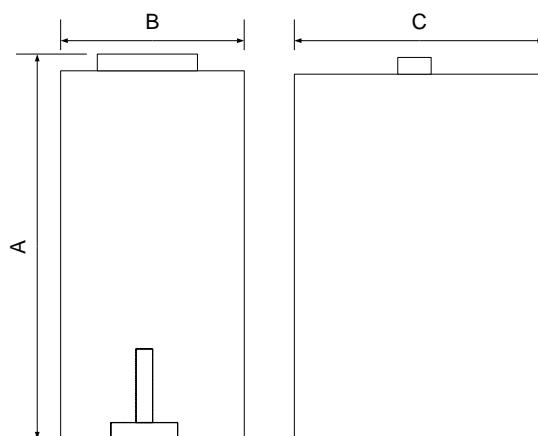
#### Typical Applications

- Isolate instruments in the same current loop
- Prevent ground loops and eliminate loop errors
- Isolate RTU's, PLC's, SCADA I/O from the field loop.



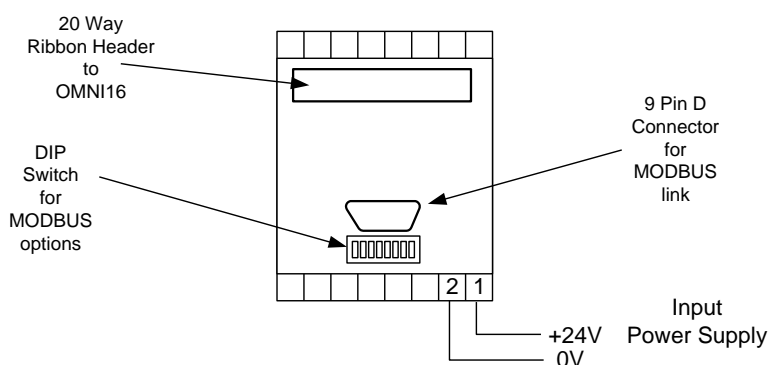


## Mechanical Layout

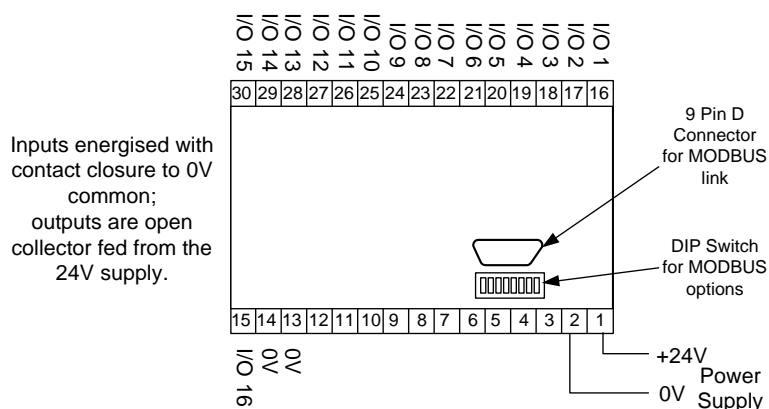


Model	Height (A)	Width (B)	Length (C)
C2302	115mm	55mm	75mm
C2303	115mm	100mm	75mm
C2304	115mm	55mm	75mm
C2305	115mm	100mm	75mm

## Connection Diagram



### POWER AND INPUT/OUTPUT RIBBON CONNECTIONS (C2302/4)



### POWER AND INPUT/OUTPUT TERMINAL CONNECTIONS (C2303/5)



# OMNITERM Modbus Interface modules

Models C2302C to C2305C - 24Vdc Modbus Input/Output Modules

Model Number  
**C2302C**

## Specifications

### Product Options

Model Number	C2302	C2303	C2304	C2305
Model Name	MIR	MIT	MOR	MOT
Number of Digital Outputs	0	0	16	16
Number of Digital Inputs	16	16	0	0
Ribbon Cable Terminations	Yes	No	Yes	No
Screw terminations	No	Yes	No	Yes

### Digital Inputs (Models C2302 and C2303 only)

Input Type	Activated by shorting the input to 0V. Use a dry contact or open collector NPN transistor switch.
Open Circuit Voltage	24Vdc nominal (power supply voltage)
Closed Circuit Current	3mA nominal
Guaranteed On Voltage	Less than 0.5Vdc
Guaranteed Off Voltage	Greater than 10Vdc

### Digital Outputs (Models C2304 and C2305 only)

Output Type	Open Collector Transistor switch to 0V.
Open Circuit Voltage	40Vdc maximum
Closed Circuit Current	50mA maximum
Guaranteed On Voltage	Less than 1Vdc at 50mA

### Modbus Communications

Baud Rates	1200, 2400, 9600, 19200 baud
Modes	ASCII or RTU
Master/Slave	Selectable as Master or Slave
Physical Standard	Selectable RS232 or RS485
Communications Interface	DB9 Male Connector

### Power Supply

Supply Voltage	24 Volts -15% / +15% (20-28Vdc)
Current Consumption	120mA max. plus output current

### Configuration as Modbus Slave

Method	Via DIP Switch
Modbus functions supported	C2302/3:2, 3, C2304/5: 3, 5, 6, 16

### Configuration as Modbus Master

DIP Switch setting	All switches ON
Method	Via PC based Omniset Configuration Software (free from our website)

Modbus functions supported	C2302/3:2, 3, 4 C2304/5: 3, 5, 6, 16
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Queries supported	Up to 32
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### Environmental Conditions

Operating Temperature	-10°C – 60 °C (+14°F – 140°F)
Storage Temperature	-25°C – 85 °C (-13°F – 185°F)

### Compliance to Standards

Safety	EN 60950:1995 <b>Note:</b> When used with ac Voltage Inputs greater than 60V, additional safety precautions in installation and marking are required to comply with safety standards.
Emissions	EN 55011 EN50081-2:1994 Group I, Class A EN50082-2
Immunity – ESD	IEC 61000-4-2:1995, level 3
Immunity – RF Fields	IEC 61000-4-3:1995, level 3
Immunity – Fast Transients	IEC 61000-4-4:1995 2 kV – DC power port 1 kV – input/output lines
Insulation	Basic Insulation between isolated circuits per IEC950
Insulation Test Voltage	Input/Output/Supply 100% tested to 1500Vac

### Mechanical

Model Number	C2302	C2303	C2304	C2305
Width (mm)	55	100	55	100
Height	115mm			
Length	75mm			
Mounting	Snaps on to DIN rail EN50022-35 Or screws to vertical surface			
Housing	Shock resistant ABS			
Flammability	UL94-HB (Housing) UL94-V0 (Terminals)			
Terminal/wire size	0.14 – 2.5mm <sup>2</sup> stranded			

### Weight

Unpacked	315g (C2302/C2304) 205g (C2303/C2305)
Packed	Extra 40g on average

### Ordering Information

C2302C	Modus 16 channel digital inputs via ribbon
C2303C	Modus 16 channel digital inputs via terminals
C2304C	Modus 16 channel digital output via ribbon
C2305C	Modus 16 channel digital outputs via terminals

### Accessories

C1178A	Isolated USB to Mini Jack Programming. Cable
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