

**Provides Two Extra Comms Ports
High Performance
Each Port RS232 and RS485**

Introduction

The 400-COM module provides two extra communication ports for use within the FMT-400 system. A maximum of one 400-COM module is supported by the 400-CPU-B (therefore providing two extra comms ports) and a maximum of three 400-COM modules are supported by the 400-CPU-C (therefore providing six extra comms ports). The 400-COM is not supported by the 400-CPU-A.

Each port provides both RS232 and RS 485 communications and supports the wide range of communication protocols offered by the FMT-400. The maximum baud rate supported is 57600 when used with the 400-CPU-B and 115200 when used with the 400-CPU-C.

(Please see separate data sheets for more information on the CPU modules).

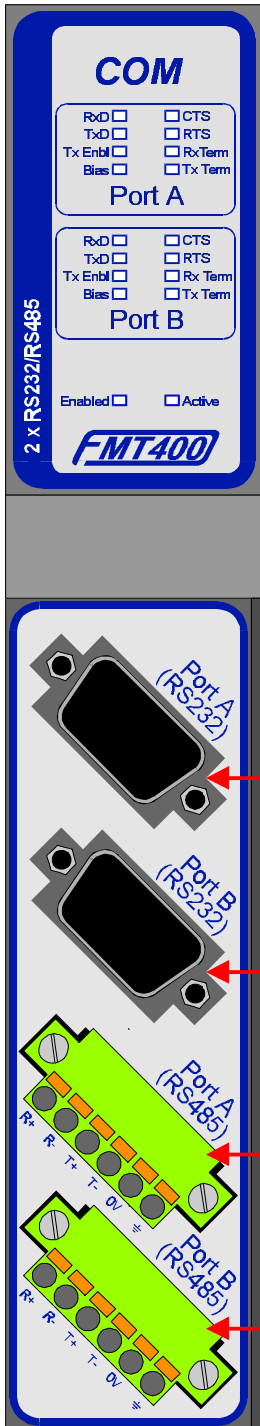
General Specifications

| | |
|------------------------------|---|
| Storage temperature | -20 to +70 °C |
| Operating temperature | 0 to 55 °C |
| Humidity | 10-90% non condensing |
| Weight | 510g |
| Dimensions | Standard FMT-400 size single width module |
| Spring terminal wire gauge | 0.2 to 1.5mm csa (24 to 14 AWG) |
| Current consumed from rack | 180mA from rack power supply |
| Port A Maximum Baudrate | 57600 (if used with 400-CPU-B) 115200 (If used with 400-CPU-C) |
| Port B Maximum Baudrate | 57600 (if used with 400-CPU-B) 115200 (If used with 400-CPU-C) |
| Ports A & B RS232 Protection | +/- 15KV ESD protected |
| Ports A & B RS485 Protection | Opto isolated |



Connection Details

Connections should be made to the 400-COM connectors as shown in the following diagrams.
 The RS232 connectors are 9-way female D-type connectors (pin out listed below).
 The RS485 connectors are 6-way spring terminal connectors (see page 3 for connections).
 To insert wires into the connector apply downwards pressure on orange tab using a small screwdriver or similar, insert wire then release pressure, the wire will be gripped firmly.



Note: For each port (A or B) you can use either RS232 or RS485 communications but not both types at the same time.
Examples:
 If the RS232 connector of port A is in use then the RS485 connector of port A can not be used.
 If the RS485 connector of port B is in use then the RS232 connector of port B can not be used.
 It is permissible to have one port using RS232 and the other RS485.

RS232 Ports Pin Assignments

| Pin No | Port A | I/O | Port B | I/O |
|--------|------------------|-----|------------------|-----|
| 1 | Protective Earth | - | Protective Earth | - |
| 2 | Receive Data | I | Receive Data | I |
| 3 | Transmit Data | O | Transmit Data | O |
| 4 | N/C | - | N/C | - |
| 5 | N/C | - | N/C | - |
| 6 | Programming | I | N/C | I |
| 7 | Common | - | Common | - |
| 8 | N/C | - | N/C | - |
| 9 | N/C | - | N/C | - |

Port A RS232 Connector

Port B RS232 Connector

Port A RS485 Connector

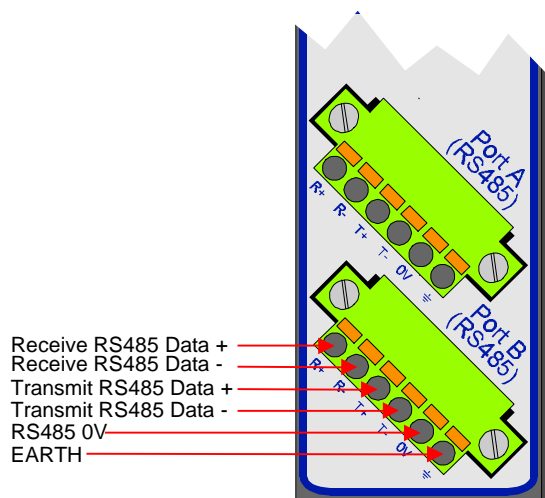
Port B RS485 Connector



Connection Details (continued)

Connections to the RS485 connector should be made in accordance with the terminal markings on the label (shown below). Either two or four wire RS485 communications can be used with the 400-COM. The following points relating to RS485 communications using the COM-400 should be noted:

- RS485 allows up to 32 ports to be connected together in a multidrop.
- The maximum allowable cable length is 1200 metres.
- Stub lengths from a junction box to the COM-400 port should be kept to a minimum
- Use good quality screened cable with twisted pairs.
- The screens should be continuous throughout the cable run and connected to a good earth at one end only.



Port Parameters Set Up

The port parameters are configured from within the 'Comms' page of the Flex32 project configuration screen. The parameters are common for both the RS232 and RS485 connectors of the port which is being configured. The following parameters can be configured for each port:

- Baudrate
- Number of data bits
- Parity
- Number of stop bits
- Station number (for user with Modbus RTU slave, Linkline and LinkLine Plus)
- Communications Protocol

For more information please see the Flex32 help.



RS485 Communications Additional Configuration

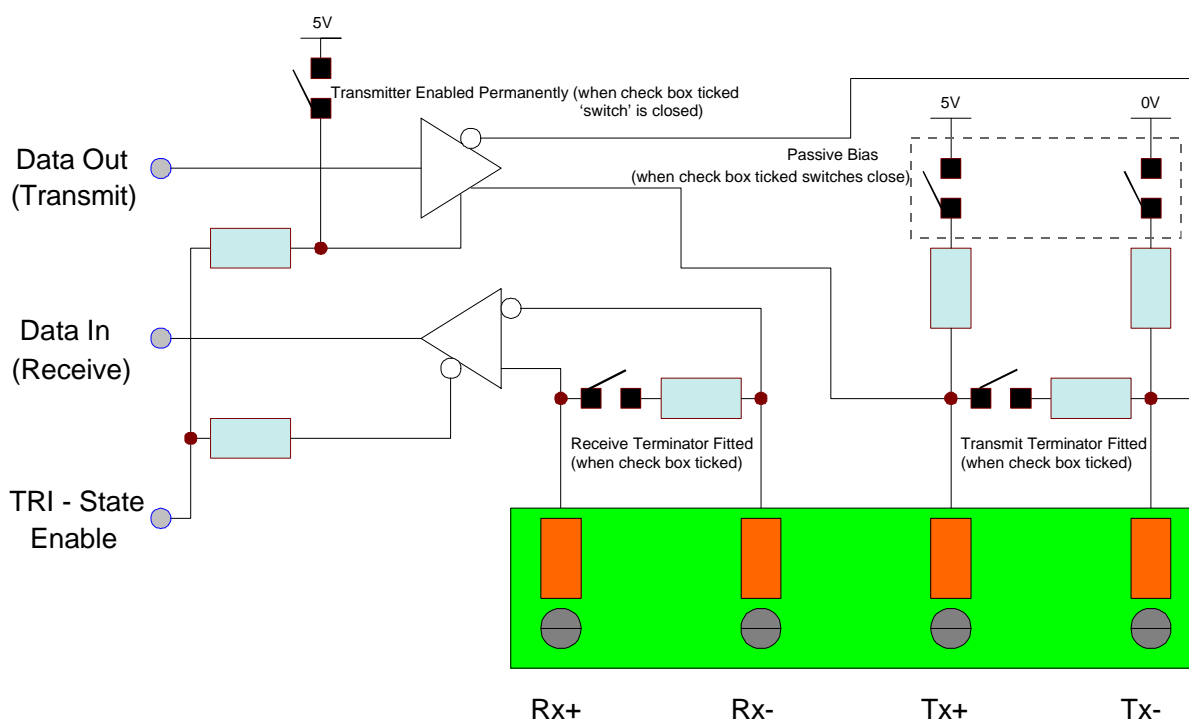
In addition to the configurable parameters already mentions on the previous page, the RS485 connectors can also have the additional settings made:

- Passive Biasing
- Receive Terminator
- Transmit Terminator
- Transmitter Permanently Enabled

The above settings can be made by clicking on the 'Adjust' button on the Flex32 toolbar, you will be presented with check boxes for each parameter. The affect of ticking the check boxes is listed below:

| Setting | Check Box Ticked | Check Box Unticked | Comments |
|---------------------------------|--|--|---|
| Passive Biasing | Transmitter Biased | Transmitter Tri State | Tick the check box if it is necessary to bias the transmitter lines to 5V and 0V (TxD+ and TxD- respectively, via 620Ω resistors). This is useful in electrically noisy environments. Note: A maximum of two transmitters on any one multidrop network should have these links fitted. |
| Receive Terminator | 120Ω resistor fitted between Rx+ and Rx- | No resistor fitted | Tick the check box if terminating resistors to the ports at each end of the cable run are required. |
| Transmit Terminator | 120Ω resistor fitted between Tx+ and Tx- | No resistor fitted | Tick the check box if terminating resistors to the ports at each end of the cable run are required. |
| Transmitter Permanently Enabled | Transmitter Permanently Enabled | Transmitter only enabled when the port is sending out data | Tick this check box only if the transmitter is only connected to one receiver. Do not tick this check box if the transmitter is connected to other transmitters in a multidrop. |

Illustration Representing Function Of Check Box Settings:



LED Descriptions

| <u>Label</u> | <u>Colour</u> | <u>Description</u> |
|--------------|---------------|---|
| 0 to 15 | Red | Indicates status of the digital output. When illuminated the output is turned on. |
| Enabled | Yellow | When illuminated shows that the module has been correctly set up within your project in Flex32 and that the CPU module has initialised the module. If not illuminated then the module may not have been set up in your project configuration. |
| Active | Yellow | Indicates activity within the module, this will normally flicker or appear to be constantly illuminated, activity occurs when the CPU module is writing data to the 400-COM. |

FMT-400

400-COM High Performance Comms Module



Colter
Systems
Ltd.



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Order Codes

Part Number
400-COM

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