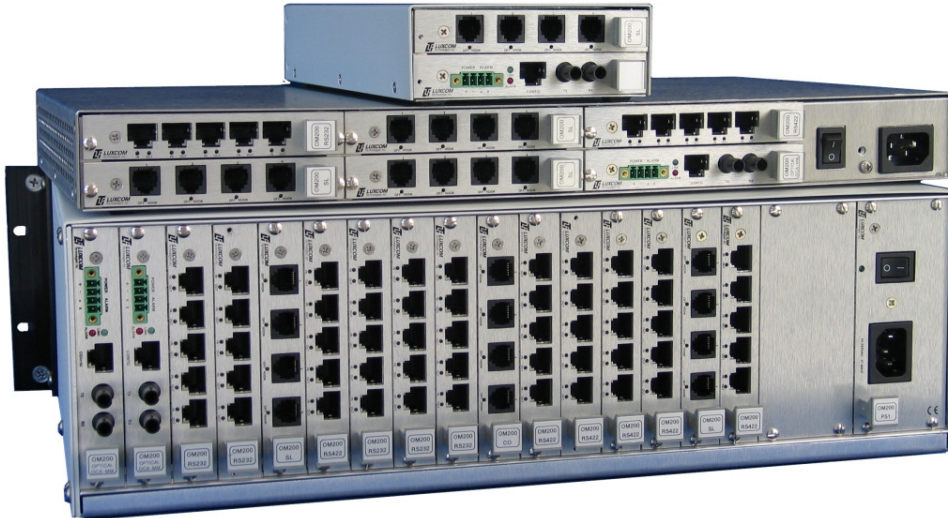


RS485 2-wire/4-wire Interface For OM200 SONET-OC3 Multiplexer



Chassis

- Chassis sizes of 2, 4, 6, and 16 slot.
- Optical data rate of 155Mbps
- Single or multimode fiber versions
- Point-to-point topology
- Add/drop topology
- Fiber protection ring switching

Interfaces

Telephony

Subscriber Loop & CO
Digital - MC300
Digital – M3903/4
T1 or E1

Data

EIA530, RS232, V.35
RS485/RS232 - Add/Drop
RS232
RS485
Ethernet

Audio

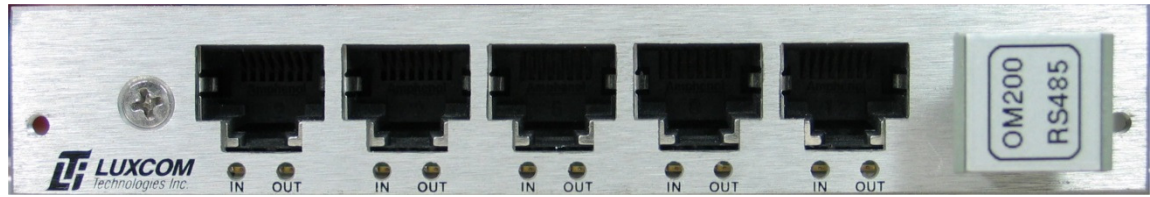
Analog 2-wire
Analog 4-wire
E&M
Radio - Harris RF5800H

Other

Contact sense/closure
Alarm - chassis monitor
Radar - video
Optical SONET

General

Every chassis requires at least one *Optical SONET* card and one *Interface* card.
Full details can be found at: www.luxcom.com/product/om200



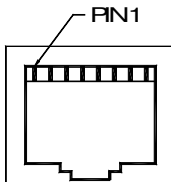
Description

This Interface has five identical ports. Each port communicates with a corresponding port at the remote node. The interface may be RS422 four-wire mode (separate transmit/receive pairs), or it may be two-wire RS485, where several driver/receivers share a two-wire pair in half duplex transmission. Data rates may be up to 256 kbps. These ports are transparent to the data rate and data format.

A feature on this interface allows it to connect to either a remote RS485 or RS232 card. If the remote card is RS232, that card must be configured in high speed mode (128 kbps max). In this mode the remote RS232 handshake lines are ignored.

I/O Ports

Pin assignments for one port are shown below.



Pin #	Name	Direction
1	OUT-A	Output from OM200 in 4-wire; not used in 2-wire
2	OUT-B	Output from OM200 in 4-wire; not used in 2-wire
3	IN-A	Input to OM200 in 4-wire; bidirectional in 2-wire
4	No Connection	
5	Signal Ground	
6	IN-B	Input to OM200 in 4-wire; bidirectional in 2-wire
7	Chassis Ground	
8	Chassis Ground	

Cables

The OUT-A and OUT-B (as well as IN-A and IN-B) must share the same twisted pair; otherwise cross-talk and EMI radiation will occur. Also to minimize EMI radiation, connect the source and the destination equipment's signal grounds together using one of the cable's wires. Sometimes the cable has a braid or foil shield; it is preferable to connect it only to one of the chassis; when making this connection at the OM200 chassis, connect the shield to pins 7 or 8 of the RJ45 connector, or use a cable with a metal RJ45 housing. The pin-out of these ports allows a Cat-5 Ethernet cable to be used.

120 Ohm Termination Jumper

The cards are shipped with the 120 ohm termination impedance connected. If it is necessary to disconnect this termination, the card will have to be removed from the chassis. Behind each RJ45 connector is the jumper which allows the 120 Ohm line terminating resistance to be connected or not connected. This jumper should be in the position marked TERM unless an external termination resistor is installed. In RS485 2-wire transmission, several pieces of equipment can be connected to the same wire pair, but only the equipment at the ends of the wire should have the termination installed, so if the OM200 is at an intermediate position on the wire, its jumpers should be moved to the unterminated position.

Indicators

ALARM on (red) indicates there is no connection with a remote partner, or a card failure.

IN on indicates there are data transitions on the input data line. A slow flash of several seconds indicates the channel has been put in local or remote loopback by the network management software.

OUT on indicates there are data transitions on the output data line

Management Port Settings

The network management software is used to set the following modes.

1 Set 2-wire RS485 mode (half duplex, one pair of wires, < 128 kbs)

Index	Data Rate	Timeout ms
0	2.4K	4
1	4.8K	2
2	9.6K	1
3	19.2K	0.5
4	38.4K	0.25
5	64K	0.18
6	128K	0.08

This menu item allows the transmission time-out to be set when RS485 2-wire mode is selected. Protocols used with RS485 are generally half duplex, poll-respond transmission. A number of

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interfaces attach to the 2-wire bus, and the default state of these interfaces is receiving from the bus. During activity one interface drives the bus then reverts back to receive mode. Once the OM200 starts driving the bus it does not know when the incoming data burst is finished (because an idle period may be a series of low data bits or may be the end of transmission); therefore the user must set a time-out value letting the OM200 know that an idle period greater than this period represents the end of transmission. For example, for a baud rate is 10 kbps, each bit is 0.1 ms, and a byte is typically 10 bits long, or 1 m second. Each byte is guaranteed to have at least one transition (since the start and stop bits have opposite polarity). The port should then have a time-out of something greater than 1 ms. This time-out can be longer if the controller at the far end does not to respond before the OM200 node has reverted to receive.

- 2 Set 4-wire low speed RS422 mode** (full duplex, two pairs of wires, < 128 kbs)
- 3 Set 4-wire high speed RS422 mode** (full duplex, two pairs of wires, < 256 kbs)
- 4 Set 4-wire RS232 to RS422 cross connect mode** (see *Description*, <128 kbps)
- 5 Enable local loopback**

An individual port can be put in local-loopback from anywhere in the network using the management software. Local-loopback cause's data on the input pin to be immediately routed to the output pin. If the equipment attached to this Interface properly receives its transmitted data, then the electrical cable, and this cards receiver/driver are good. Data is not passed across the link during this test. Once activated, the *IN* indicator for this port (as well as the *IN* indicator at the remote end) has a slow flash as a reminder that the port is in test mode.

6 Enable local loopback

An individual port can be put in remote-loopback from anywhere in the network using the management software. Remote-loopback causes data on the input pin to be passed optically to the remote modem where it is sent optically back to the local modem. If the equipment attached to the OM200 properly receives its transmitted data, then the entire link (with the exception of the driver/receiver at the remote end) has been tested. A local-loopback test at the remote end would be necessary to have full assurance that the link is good. Data is not output at the remote end during the remote-loopback test. Once activated, the *IN* indicator for this port (as well as the *IN* indicator at the remote end) has a slow flash as a reminder that the port is in test mode.

7 Disable local loopback

Local and remote loopbacks are disabled on a port by port basis.

Specifications

System bandwidth used by this card	5 % for Lo speed 10% for Hi speed
Current used by this card	< 0.3 A
Power consumption	< 1.5 W
Operating temperature	-40C to +70C
I/O levels.....	EIA-RS485

Ordering Information

Part number OM200-RS485

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