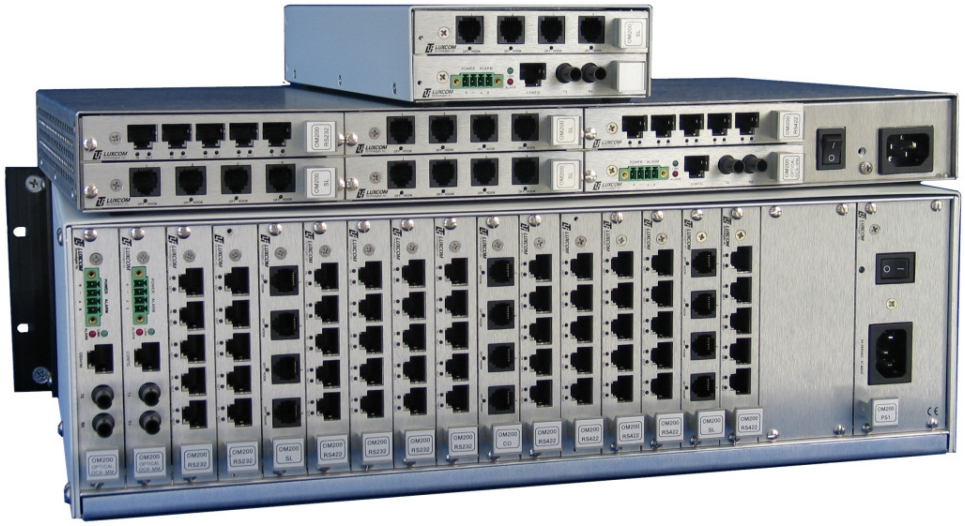
RS232 Serial Interface
For OM200 SONET-OC3 Multiplexer



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

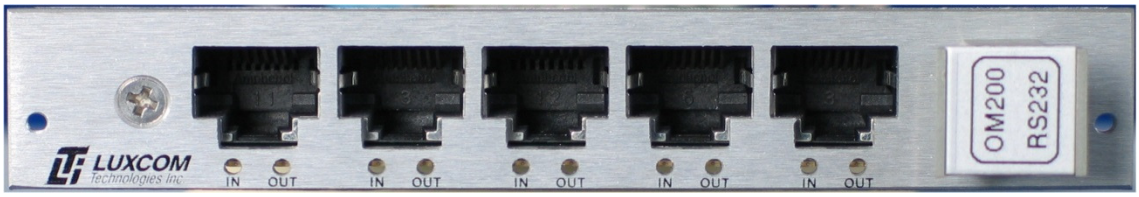
Other
- Contact sense/closure
- Alarm - chassis monitor
- Radar - video
- Optical SONET

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*

102 WALGREEN ROAD, OTTAWA, ONTARIO, K0A 1L0
Telephone (613) 831-7777 Fax (613) 831-7778
www. luxcom.com
email: sales@luxcom.com

Interface: OM200-RS232

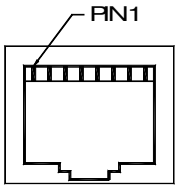


Description

The RS232 Interface has five identical ports. The card may be configured so that each RJ45 connector supports one asynchronous 128 kbps RS232 channel along with a low speed control line, or two 64 kbps RS232 lines - one for data and one for clock. Each port transmits one data and one clock line across the link. The data/clock channels are transparent to the data format and rate. The network management software allows the card to Interface with any other RS232 (or RS422) card on the network. *Port n* always communicates with *Port n* on the other card.

I/O Ports

The serial RS232 ports follows the EIA/TIA 561 standard. Jumpers on the board are moved to select a DCE or DTE I/O. A computer is a DTE and a modem is a DCE. A DCE usually Interfaces with a DTE, so a straight through cable can be used. Pin assignments are shown below.



Pin #	Pin Name	Direction for DCE mode	Direction for DTE mode
1	DSR Data Set Ready	Output High	Input NC
2	DCD Data Carrier Detect	Output High	Input NC
3	DTR Data Terminal Ready	Input NC	Output High
4	GND Ground		
5	RXD Receive Data	Output	Input
6	TXD Transmit Data	Input	Output
7	CTS Clear To Send, or Clock in low speed mode	Output	Input
8	RTS Request to Send, or Clock in low speed mode	Input	Output

NC = No Connection; Hi = Always high; Low = Always Low

DTE/DCE Jumper

Behind each RJ45 connector is a ganged jumper. If this jumper is on the rows of pins nearest the connector, the port is configured as a DTE. When the jumper is moved so it spans the pins furthest from the connector, the port is configured as a DCE. All other jumpers are not used.

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 on, several seconds off 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.

Enable high speed
This puts the modem in serial data mode. The data rate may be anything less than 128 kbps. The second input can be used as a hand-shake line (Clear To Send / Request To Send) which can only be toggled at less than 800 bps.
This card can also connect to a remote RS485 card (differential I/O), and must be in high speed mode when it does. Note that the handshake lines are ignored in this mode.

Enable low speed
This puts the modem in synchronous data mode. The data rate may be anything less than 64 kbps. The second input (labeled Clear To Send / Request To Send) can then be used as a clock line which can also be toggled up to 64 kbps.

Enable local loopback
Local loopback be enabled on any port; it causes the input data (as well as the handshake/clock input) to be locally looped back to the output. If the equipment attached to this port properly receives its transmitted data, then the electrical cable, and the I/O Interface of the local modem are good. Once activated, the IN and OUT indicator port will flash to indicate a test is in process. During the test, the data is not output at the remote end.

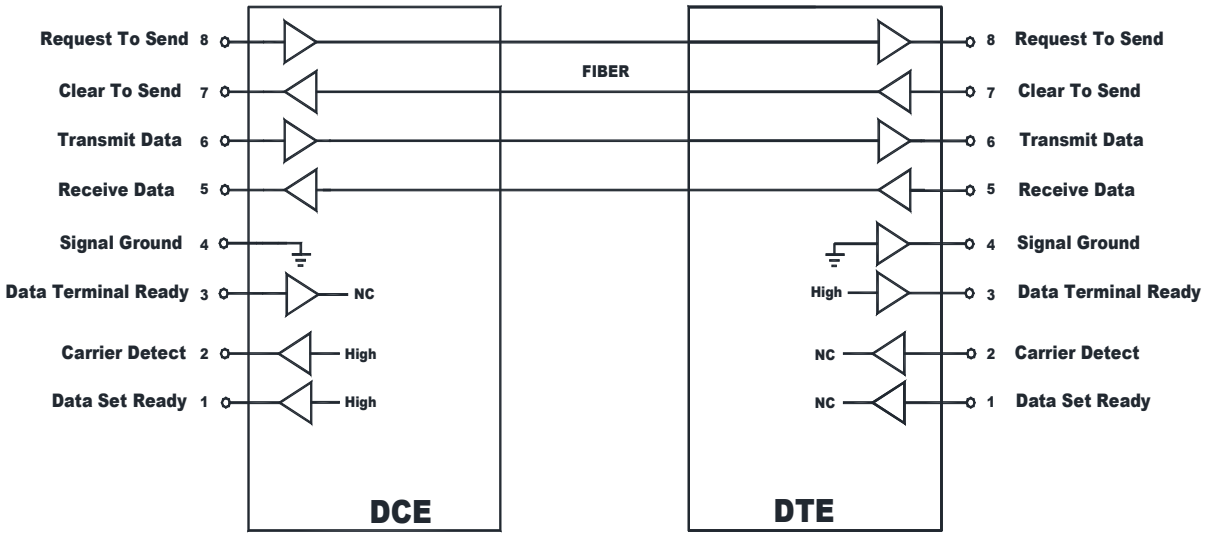
Enable remote loopback
Remote loopback causes the input data to be remotely looped back. The input data/clock is passed optically to the remote modem where it is sent back to the local modem. If the equipment attached to the local port properly receives its transmitted data, then the electrical cable, the software settings, the local I/O Interface, and the optical link are good; however, the electrical cable and I/O Interface at the remote end have not been tested; a local loopback at the remote end would test these. Once activated, the IN and OUT indicator at the local and remote port will flash to indicate a test is in process. During the test, the data is not output at the remote end.

Disable loopbacks
This stops all remote/local loopback tests.

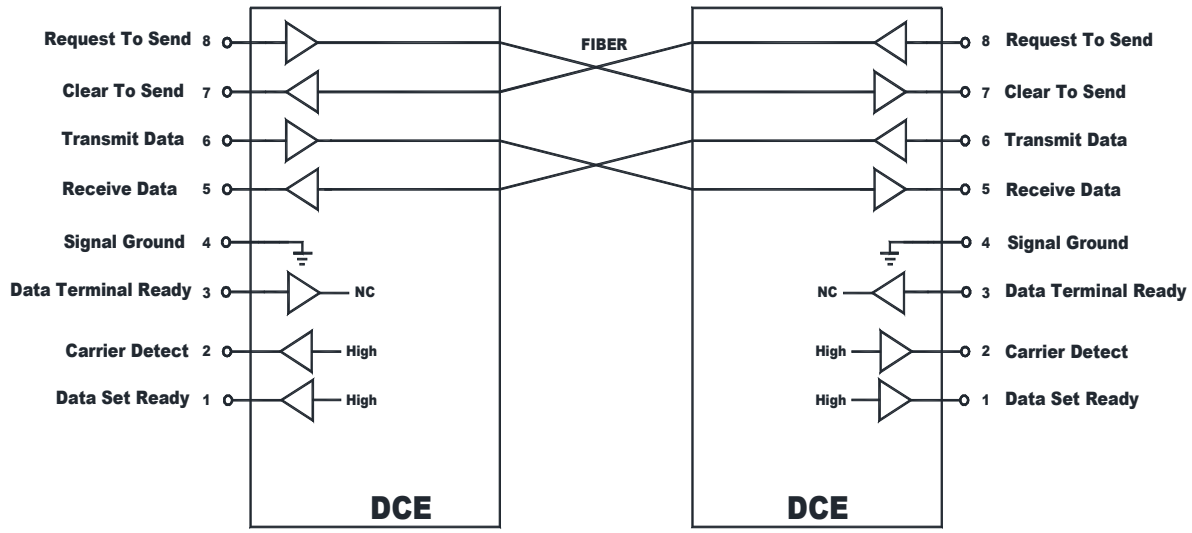
Interface Topologies

The following figures show the I/O pins for OM200 RS232 ports at the different ends of the network. Since a port may be interfacing with a DCE or a DTE, three possible configurations are possible. A common topology is when a computer (DTE) is to be connected to a modem (DCE) which is far away; in this case the OM200 network is inserted between the DTE/DCE so that it simulates a straight through cable; this is shown in the following illustration.

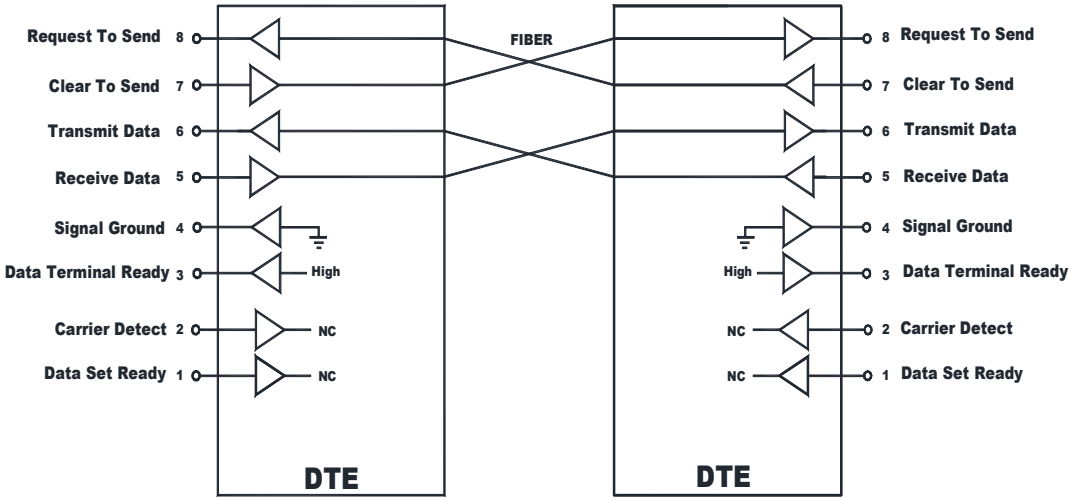
RS232 DCE to DTE CONNECTION



RS232 DCE to DCE CONNECTION



RS232 DTE to DTE CONNECTION



Test Modes

Local Loopback

An individual port can be put in local-loopback from anywhere in the network using the management software. Local- loopback causes 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.

Remote 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 this Interface 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 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.

Specifications

System bandwidth used by this card.	4.7%
Current used by this card	< 0.1 A
Power consumption	< 0.5 W
Operating temperature	-40C to +70C
I/O levels	EIA RS232C
I/O pin-out	EIA/TIA 561

Ordering Information

Part number: OM200-RS232

102 WALGREEN ROAD, OTTAWA, ONTARIO, K0A 1L0
Telephone (613) 831-7777 Fax (613) 831-7778
www. luxcom.com
email: sales@luxcom.com