

High-Speed RS-232/RS-485/RS-422 Multi-Mode Fiber Optic Modem OX-377 Fiber Modem User Manual

I. Summary

Being a multi-function fiber modem in support of asynchronism RS-232, RS-485 and RS-422 communication interface, OX-377 is the best choice for the connection from remote terminal unit (RTU) to host or Supervisory Control and Data Acquisition (SCADA). It supports multiple asynchronism communication protocols including RS-232, RS-485 and RS-422, and it also supports a combination of two of the RS-232, RS-485 or RS-422 interfaces as well as both of the working modes, i.e. Two-line (half-duplex) RS-485 and four-line (full duplex) RS-422. The ability to support RS-485 mode for data TXD or SD sending control greatly improves its compatibility with various kinds of software besides a sharp simplification of control method. Various kinds of fiber connection between asynchronism serial interfaces are supported by OX-377 fiber modem. Both half duplex and full duplex communications through fiber between two asynchronism interface devices are supported with a communication distance as far as 4 kilometers for multi-mode and 20 kilometers for single-mode. The transmission rate for RS-232 can reach a maximum of 115.2KBPS, while for RS-485/RS-422 a maximum of 460KBPS can be achieved. Interfaces of different electric standards can be mixed for use with nice EMI/RFI performance, e.g. RS-232 devices can be connected to RS-485/RS-422 devices, and the interface converter or photoelectric isolator can be replaced from RS-232 to RS-485.

Two data signal transmissions are supported by OX-377: data sending and data receiving. At the same time, automatic control circuit is also provided for RS-485/RS-422 data transmission. Zero delay for converting time is achieved. ST interfaces are used for fiber connection.

II. Performance parameters

- Supports RS-232/RS-485/RS-422 interfaces.
- Asynchronous transmission: point-to-point with a rate as high as 460KBPS.
- Transmission distance: 4,000 meters for multi-mode and 20,000 meters for single-mode.
- Working temperature: -40℃ to +85℃, relative humidity from 5% to 95%.
- Working wave length: 1310nm (multi-mode) and 1310nm (single-mode)

- Electric interfaces:
 - RS-232: pole-shaped connector.
 - RS-485/422: pole-shaped connector.
- Fiber interface: ST interface (other interface can be ordered SC/FC)
- RS-232 interface features:
 - Standard RS-232 three line interface +/-15KV (anti-static), ESD protection, maximum rate of 115.2KBPS.
 - Input voltage DC9-48V@200mA.
- RS-485/422 interface features:
 - Self-adaptive interface technology enables the self adaptation of rate regulation from interface, no switch needed, and the +/-15KV (anti-static) ESD protect supports as much as 32 points of polling.
 - And 600W surge protection each line for RS-422 and RS-485 interfaces.

III. Connector and signal

Connector (PIN)	Signal	RS-422 Full-duplex	RS-485 half-duplex
1	T/R+	Send(A+)	RS-485 (A+)
2	T/R-	Send(B-)	RS-485 (B-)
3	RXD+	RXD(A+)	N/C
4	RXD-	RXD(B-)	N/C
5	TXD	RS-232(Send)	
6	RXD	RS-232(RXD)	
7	GND	RS-232(GND)	
8	VCC	Power input (DC9-48V)	
9	GND	GND	
10	ETH	ETH	

IV. Fiber connection

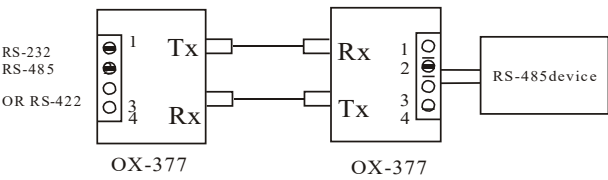
Two separate optical sender and receiver are used by OX-377 with a wave length of 1310nm (multi-mode) and 1310nm (single-mode) and both with standard ST interface. Multi-mode fiber cable of almost all sizes can be used, including 50/125um, 100/140um and 200um. Single-mode : 9/125um Under point-to-point mode, two fibers are to be used for two fiber modems and the directions of the data transmission are opposite.

V. Signal and power indicators

- TXD: indicating data sending from fiber interface.
- RXD: indicating data receiving by fiber interface.
- PWR: power indicator.

VI. Application and connection sketch

1. Point-to-point half duplex



2. Point-to-point full duplex

