



UT-277R

High Speed RS-232/RS-485/RS-422 Fiber Optic Modem 光纤MODEM说明书

一、概述

UT-277R是多功能的支持异步RS-232, RS-485, RS-422通信接口的光纤MODEM, 是连接远程终端单元 (RTU) 到主机 (HOST) 或分布式数据采集系统 (SCADA) 控制器的最佳选择。支持RS-232, RS-485, RS-422多种异步通信协议, 可以同时混合使用两个RS-232, RS-485或RS-422接口, 支持2线(半双工)RS-485和4线(全双工)RS-422工作方式。UT-277R的RS-485方式支持数据 (TXD或SD) 发送控制, 从而提高了适应各类软件的能力, 也简化了控制方式, 光纤MODEM支持异步串行口之间的多种光纤连接方式, 它支持两个异步串行口的设备通过光纤进行全双工或半双工通信, 通信距离最远可达多模4公里, 单模20公里, RS-232信号的传输速率最高为115.2Kbps, RS-485/RS-422的信号传输速率最高可达460Kbps, 不同电气标准的接口可以混合使用, 可以用RS-232的设备去连接RS-485/RS-422的设备, 可以代替RS-232转RS-485/422接口转换器或光电隔离器, 并提供了优良的EMI特性。

UT-277R支持两个数据信号的传输: 发送数据和接收数据, 同时还提供了RS-485/RS-422的数据传输自动使能控制电路。零延迟转换时间, 所有的串行口都是通过接线柱连接, 光纤的连接通过两个ST/SC/FC接口。

二、性能参数

- 1、支持RS-232/RS-485/RS-422接口
- 2、异步传输: 点对点运用, 速率达460Kbps
- 3、传输距离: 多模4, 000米,单模20, 000/40, 000米
- 4、工作温度: -40度到+85度,相对湿度为5%到95%
- 5、工作波长: 1310nm(多模), 1310nm 1550nm(单模)

6、电气接口: RS-232: 采用接线柱连接器

RS-485/422: 采用接线柱连接器

光纤接口: 可选SC/ST/FC接口

7、RS-232接口特性: 标准RS-232三线接口+/-15KV (防静电) ESD保护支持速率最高115.2Kbps

8、输入电压DC9-48V 200mA

9、RS-485/422接口特性: 采用端口自适应技术实现从端口到速率调节自适应, 无需开关设置, +/-15KV (防静电) ESD保护支持多达32点轮询环境

三、连接器和信号

接线端子引脚分配

接线端子 (PIN)	信号定义	RS-422全双工接线	RS-485半双工接线
1	T/R+	发(A+)	RS-485 (A+)
2	T/R-	发(B-)	RS-485 (B-)
3	RXD+	收(A+)	空
4	RXD-	收(B-)	空
5	TXD	RS-232(发送)	
6	RXD	RS-232(接收)	
7	GND	RS-232(地线)	
8	VCC	电源输入 (DC9-48V)	
9	GND	地线	
10	ETH	大地	

四、光纤的连接

UT-277R使用一个组合的光发射器和光接收器, 光的波长为1310nm(多模), 1310nm(单模), 发射和接收采用标准的ST/SC/FC接口。几乎所有尺寸的多模光纤电缆都可以使用, 包括: 50 / 125, 62.5 / 125或100 / 140 μm; 单模: 8.3 / 125, 8.7 / 125, 9 / 125或10 / 125 μm在点对点状态下, 两个光纤MODEM要用两根光纤, 两根光纤的数据传输方向相反。同时也可以组成光纤环路模式, 详见6.3组环模式及6.4模式配置。

五、信号及电源指示灯

TXD: 光纤接口数据发送指示

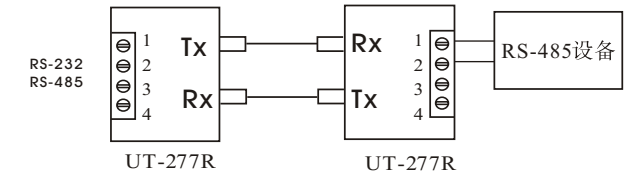
RXD: 光纤接口数据接收指示

PWR: 电源指示

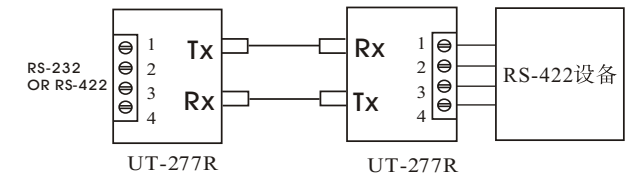
FAULT: 常亮为光纤故障

六、应用及连接示意图

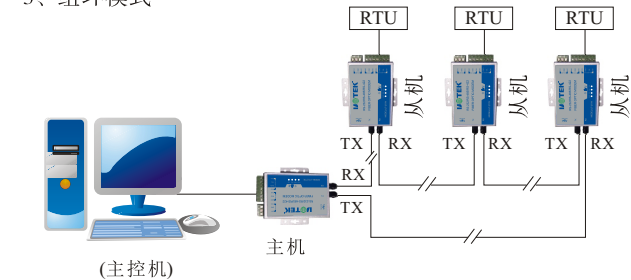
1、点对点半双工方式



2、点对点全双工方式



3、组环模式



4、模式配置

光普通模式:点对点		光组环模式:主机		光组环模式:从机	
开关	描述	开关	描述	开关	描述
1	OFF	1	OFF	1	ON
2	ON	2	OFF	2	ON
3	OFF	3	ON	3	OFF
4	OFF	4	ON	4	OFF

UT-277R

High-Speed RS-232/RS-485/RS-422

Fiber Optic Modem

User Manual

I. Summary

Being a multi-function fiber modem in support of asynchronism RS-232, RS-485 and RS-422 communication interface, UT-277R 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 UT-277R 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 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 UT-277R: 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/SC/FC interfaces are used for fiber connection.

II. Performance parameters

- ◎ Supports RS-232/RS-485/RS-422 interfaces.
- ◎ A synchronic 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°C to +85°C, 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: other interface can be ordered ST/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

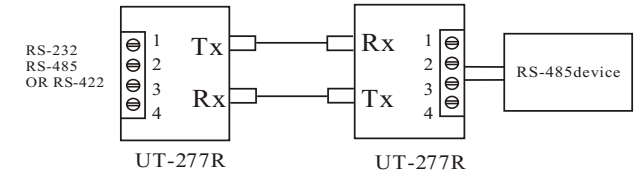
Two separate optical sender and receiver are used by UT-277R with a wave length of 1310nm (multi-mode) and 1310nm (single-mode) and both with standard ST/SC/FC interface. Multi-mode fiber cable of almost all sizes can be used, including 50/125um, 100/140um and 200um. Single-mode: 9/125um. Under point-to-point mode, two fibers are to be used for two fiber modems and the directions of the data transmission are opposite. Meanwhile, it can be worked under optic fiber loop mode; please check the mode in VI.3, and the mode configuration in VI.4.

V. Signal and power indicators

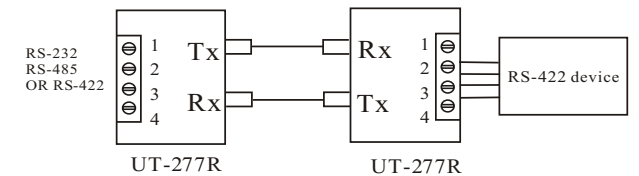
- TXD: indicating data sending from fiber interface.
- RXD: indicating data receiving by fiber interface.
- PWR: power indicator.
- FAULT: always-on means fiber fault

VI. Application and connection sketch

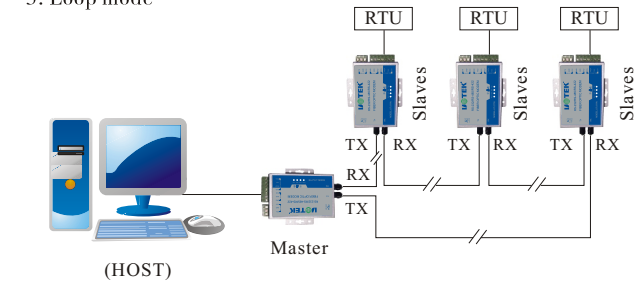
1. Point-to-point half duplex



2. Point-to-point full duplex



3. Loop mode



4. Mode configuration

Fiber regular mode: point to point		Fiber loop mode: master		Fiber loop mode: slave	
Switch	Description	Switch	Description	Switch	Description
1	OFF	1	OFF	1	ON
2	ON	2	OFF	2	ON
3	OFF	3	ON	3	OFF
4	OFF	4	ON	4	OFF