HFB-FO-232-R2M

RS-232 Self-healing Fiber Optic Converter(Modem)

User Manual

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1. Overview

1.1 Introduction

The HFB series RS-232 Multi-Drop Self-Healing Ring Fiber Optic Modem interlinks with RS-232 interface devices over a pair of optical fiber cables. This product is intended for self-healing ring topologies. Our Multiple Self-Healing Ring Configuration offers maximum reliability as it can recover simultaneous faults or failures in two different locations. The Self-Healing Ring consists of two data paths, Ring A and Ring B, with each data path running in an opposite direction to the other. Under normal operation, only the primary data path (Ring A) is used, when there is a fault (cable or failed device), the data path will turn around before it reaches the fault or failed unit and use the secondary data path (Ring B) to complete the link. With this process, the data path remains intact. The data communication protocol is transparent and compatible with all the RS-232 upper protocols.
The HFB series Fiber Optic Modem can be widely used, such as Industrial Controls, Intelligent Transportation Systems (ITS), Industrial Networking, Supervisory Control and Data (SCADA) and so on.

1.2 Technical Specification

DATA	
Number of Channels	1
Interface	RS-232 Terminal Block
Maximum Access Nodes Number	30 to 50, depends on actual conditions
RS-232 Working Rate	DC 0-115.2kbps
RS-232 Distance	As standard RS-232 limit
Connector Type	Terminal

OPTICAL	
Number of Fibers	2 or 4
Wavelength	MM: 1310/850nm SM:1310/1550nm
Fiber Type	62.5/125 MM 9/125 SM
Distance	0-2km(MM) 0 ~ 20km(SM)
Connector Type	ST/FC/SC(PC)

GENERAL	
Operating Temperature	-30 ~ 70˚C / -30 ~ +158ºF
Operating Humidity	0 ~ 95% non-condensing
Mean Time Between Failure (MTBF)	> 70,000hrs
Power Supply	AC or DC
Enclosure Color	Silver
Dimensions (Wall mount, L× W×H)	149mm×135.1mm×36mm

1.3 Warranty

- Repair
  - Please contact your local distributors when product is defective. Please apply RA in advance and prepay shipping cost when returning the defective product to us. We will pay the cost for sending it back to you.
  - Please attach a statement clearly describing the problem.
- We will repair defective product under warranty free of charge to our customer.
- 5 years warranty for product only.
- Any unauthorized modification of hardware and software voids the warranty.
- Warranty does not cover mishandling and/or abuse of the product.

Products comply with the following Safety Label for International Fiber Communication Equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful Interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at this own expense.

2 Installation

2.1 Package Contents

- Two HFB Multi-Drop Self-Healing Ring Fiber Optic Modem
- One User Manual

Please contact dealer or distributor if part is missing or damaged.

2.2 Wall Mount Enclosure

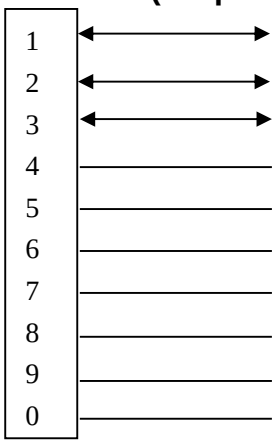
The Top View

LED Indicators:

POW:	Power Supply	On if power input is OK.
ACT :	RS232 Data transmit/receive.	Flashing if there is activity.
FTX1:	The secondary ring Transmit Fiber Link	Off if the fiber link is normal.
FRX1:	The secondary ring Receive Fiber Link	Off if the fiber link is normal.
FTX2:	The primary ring Transmit Fiber Link	Off if the fiber link is normal.
FRX2:	The primary ring Receive Fiber Link	Off if the fiber link is normal.

Connectors:

Terminal (10 pins) assignment:



1	V+	AC or DC +
2	N/A	No Connection
3	V-	AC or DC -
4	G-	Dry Contact Alarm-
5	G+	Dry Contact Alarm+
6	GND	The Secondary mode
7	ZM	The Secondary mode
8	GND	GND of RS-232
9	T(+)	RS-232 TX
0	R(-)	RS-232 RX

FTX1: Fiber Optical ST of the Primary ring Transmit
FRX1: Fiber Optical ST of the Primary ring Receive
FTX2: Fiber Optical ST of the Secondary ring Transmit
FRX2: Fiber Optical ST of the Secondary ring Receive

2.3 Caution

- Switch off all power supply before installation
- Ensure fiber is properly aligned to the receiving connector
- Do NOT stare at the fiber core
- When selecting the Point-to-Point (Trunk Line) / Point-to-Multipoint (Star topology), all the HFB Fiber Optic Modem should be set in the primary mode.
- When selecting the Multi-Drop Self-healing Ring Mode, only one HFB Fiber Optic Modem should be set in the primary mode, the others are set in the secondary mode.
- On the bottom of the product, there is a DIP Switch, the users should setup the DIP Switch according to the selecting mode.

DIP Switch setup table:

The Primary mode:

DIP	D1	D2	D3	D4	D5
STATE	Terminal Resistance	Reserved	Reserved	OFF	Reserved

The Secondary mode:

DIP	D1	D2	D3	D4	D5
STATE	Terminal Resistance	Reserved	Reserved	ON	Reserved

2.4 Install Application

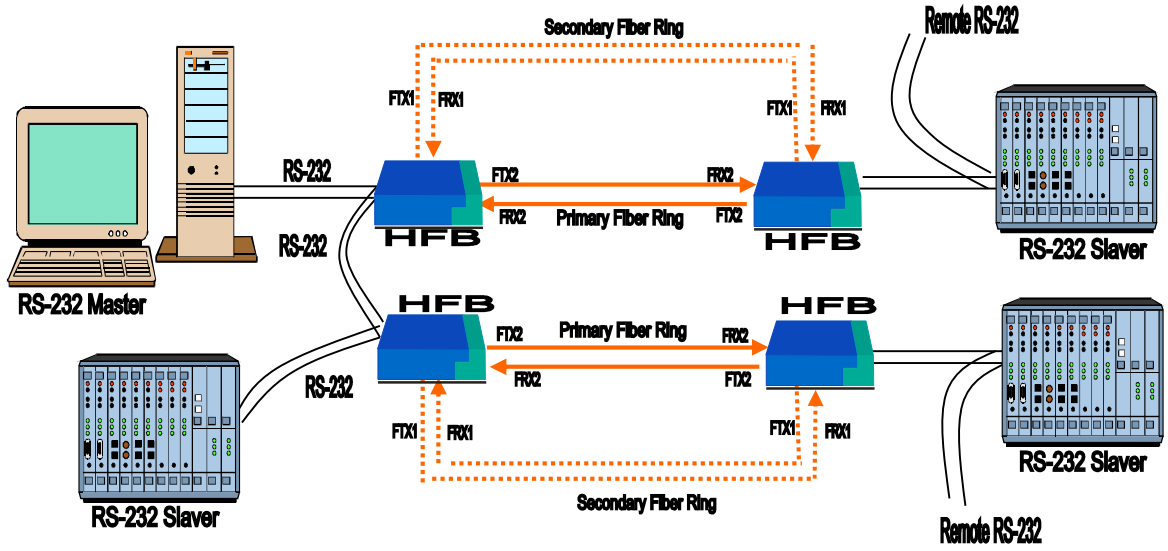


Figure 1. Point-to-Point (Trunk Line) / Point-to-Multipoint (Star topology)

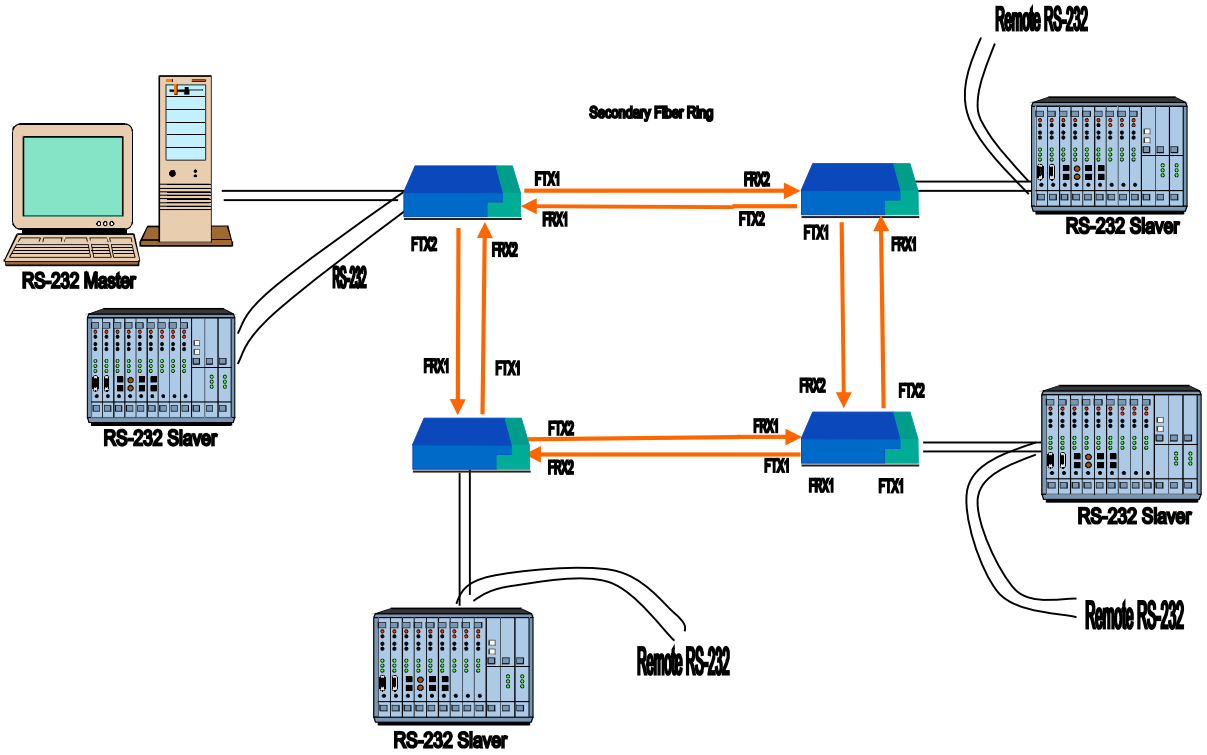


Figure 2. Multi-Drop Self-healing Ring Mode

3 Dimensions (mm)

Wall Mount: