Receiver/Transmitter (Rx/Tx) Module

FENWAL ®
Protection Systems

A UTC Fire & Security Company

F-74-203

FEATURES

- **Monitors and Controls up to 255 SmartOne™**
- **Detectors and Addressable Devices**
- **Analog Reporting From SmartOne™ Detectors**
- **Fail Soft Operation**
- **NFPA Style 4, 6 and 7.0**
- **Supports Loop Isolator Devices**

DESCRIPTION

The Receiver/Transmitter Module (Rx/Tx) functions as a data communication interface between the Central Control Module (CCM) and the Loop devices. A maximum of 255 FenwalNET Loop devices are supported by the Rx/Tx Module. The 255 addresses can be made up of any mix of SmartOne™ Detection devices and FenwalNET Addressable Loop devices. The FenwalNET 2000 system allows the installer complete control of the numbers of input and output devices installed on the Rx/Tx Loop.

The FenwalNET Broadcast Indexing Protocol (BIP) is used as the data transmission protocol between the Rx/Tx and the field devices. The entire system is scanned two times per second for status change. The BIP has two basic data transmission modes: Index Broadcast Mode and Group Broadcast Mode.
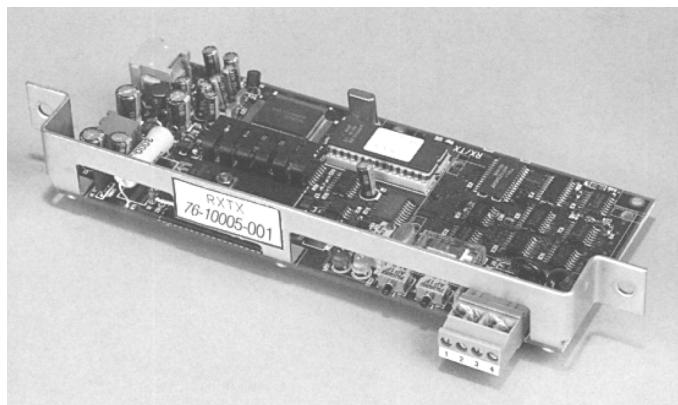
Index Broadcast Mode scans the devices on the multiplex trunk in eight groups of 32 for alarm and trouble status changes of any field device in that group, and collectively reports each group status.

If a status change is detected in a group, the Group Broadcast Mode polls every device in a group and sends status change data to the Central Control Module.

The maximum worst case time to report an alarm, including five verification sequences and time to display, is 2.5 seconds.

The multiplex trunk may be configured in a Style 4, 6, or 7 configuration. If a break in the field wiring of a Style 6 circuit occurs, the Rx/Tx automatically bidirectionally transmits both data and power. If the break is in a single conductor, all devices and detectors will remain fully operational in a Style 6 configuration. In a Style 4 configuration, T-Tapping is permitted. T-Tapping is only limited by sound installation techniques.

NFPA Style 7.0 is supported by the Rx/Tx Module through the use of Loop Isolator devices. The Loop Isolator device provides detection of and protection from wire to wire short circuit conditions. Should a short occur, the two adjacent Isolator devices will activate and isolate the effected portion of the Loop. This will allow the remainder of the Loop to continue operating normally. The two Isolators when activated, can indicate visually the direction of the short.

Because of the FenwalNET system's remarkable Fail Soft feature, the Rx/Tx module can receive and report alarms even if it has experienced a software or microprocessor failure. The FenwalNET field devices detect the failure in the Rx/Tx module and change their signaling method from addressable to zone-type reporting. Redundant circuitry in the panel, which is not dependent on microprocessor operation, will report a zone alarm. Audible and visual alarm indicating circuitry will be activated based upon field-programmed sequences.

Employing the FenwalNET BIP communication protocol, the Rx/Tx is capable of communicating with 255 Loop devices on a two-wire loop. This loop may be composed of standard conductors up to 10,000 Feet in length. Shielded or twisted cable is not required provided that the cable is in a dedicated raceway, or in a raceway which contains only Rx/Tx field circuits. In retrofit applications, existing wiring may be used as long as it meets NEC 760 and NFPA 72-1993 requirements.

Loop Isolation devices which support NFPA Style 7.0 are available in three packages, 6" Base Mount, Stand Alone and Rx/Tx mount. The base mount unit (P/N 74-200012-004) mounts in the center of the 6" detector base. The Stand Alone unit (P/N 74-200012-002) mounts onto a standard, single, gang electrical box. The Rx/Tx unit (P/N 74-200012-001) mounts directly onto the Rx/Tx Module. The Rx/Tx and Stand Alone units provide yellow LEDs which indicate the direction in which the short condition lies.

INSTALLATION

The Rx/Tx module is mounted to the motherboard card cage assembly in the FenwalNET 2000 cabinet. The Fen-

walNET 2000 accommodates 1 module.

A flat phone-type cable provides the connection between the CCM and the Rx/Tx Modules. Two conductors provide 24 VDC from the power supply to power the module and all connected Loop devices.
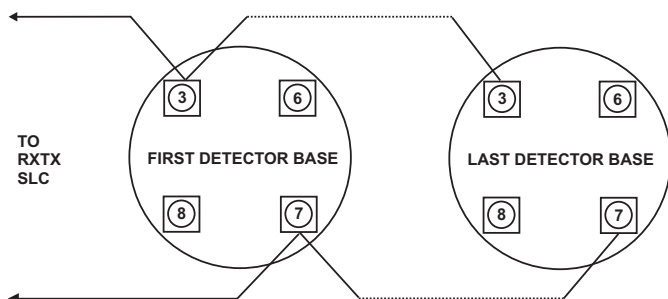
WIRING DIAGRAMS

Figure 1. Style 4 Wiring (2-Wire)
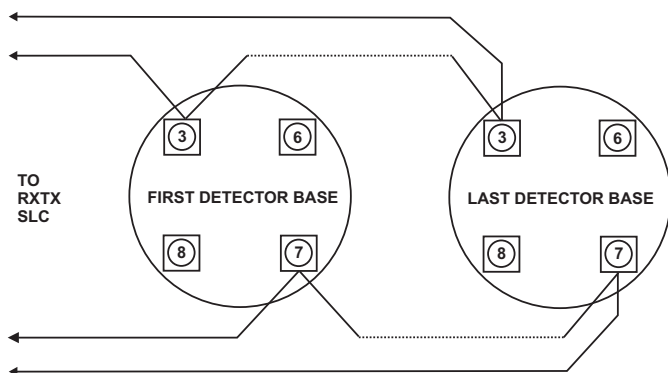6SB P/N 70-40000-1-100
4SB P/N 70-40000-1-101

Figure 2. Style 6 Wiring (4-Wire)
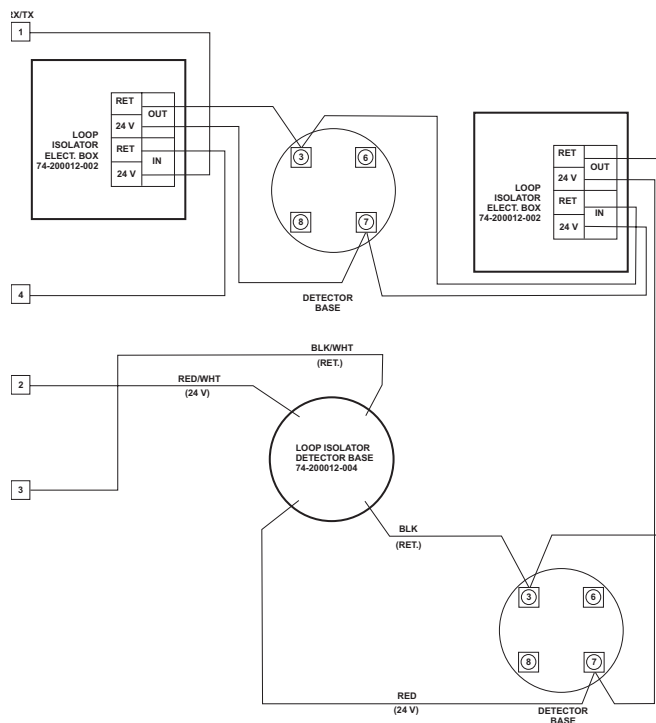6SB P/N 70-400001-100
4SB P/N 70-400001-101

Figure 3. Style 7.0 Using Loop Isolator Modules

SPECIFICATIONS

FIELD CIRCUIT CHARACTERISTICS

Maximum Voltage:	26.4 Vdc
Minimum Voltage:	19.0 Vdc
Max. Line Capacitance:	1.0 mF
Max. Line Resistance:	26 Ohms
Max. Line Length:	10,000 ft.
Max. Number of Smart and Addressable Devices:	255 (with up to 255 output devices)
Baud Rate:	600 BPS
Transmission:	Asynchronous
Operating Temperature:	32° to 120ºF

ORDERING INFORMATION

Part Number	Description	Shipping Weight
74-200005-001	Receiver/Transmitter (RX/TX) Assembly	1.1 lb.
74-200012-001	Loop Isolator – RX/TX	0.5 lb.
74-200012-002	Loop Isolator – Stand Alone	0.5 lb.
74-200012-004	Loop Isolator – 6-inch Base Mount	0.5 lb.

FENWAL
Protection Systems
A UTC Fire & Security Company

400 Main Street
Ashland, MA 01721
Ph: 508.881.2000
Fax: 508.881.8920
www.fenwalfire.com