

Data Logger Connectivity : FEP ACCESS

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Extending RS232 FEP ports and NMDL Ethernet Port between Test Room and NMDL Room over a single Fiber optic link using CYGNUS 888 Fiber Optic Multiplexer

Data Loggers used in Railways are networked in a daisy chained fashion. Each daisy chain of data loggers terminates in a FEP (Front End Processor) which accumulates events from the daisy chained Data Loggers connected to it. The FEP is usually located in the “Test Room” at the Divisional Headquarters. In the “Network Management for Data Loggers (NMDL)” system,

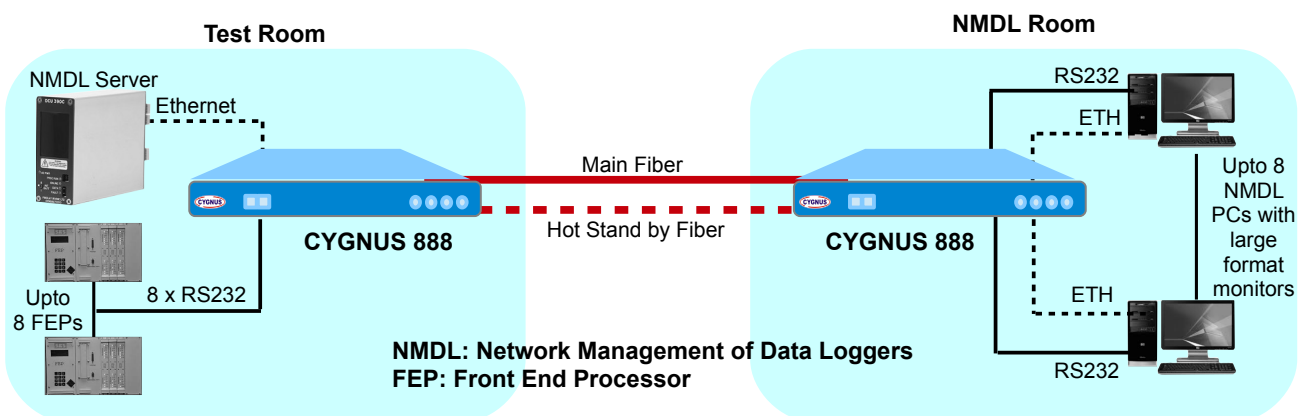
- raw data collected by a FEP is sent to a “NMDL PC” for processing. RS232 ports are provided on the FEP for this purpose. NMDL PCs are located in the NMDL Room
- NMDL PCs process the data and display relevant information on large format monitors in the NMDL Room. They also send back the processed data to a “NMDL Server” located in the Test Room for storage and archiving. The link between NMDL PCs and NMDL Server is an Ethernet link.

Thus the following communication facilities are therefore required between Test Room and NMDL Room:

1. RS232 port extension from FEPs to NMDL PCs
2. Ethernet extension from NMDL PC to NMDL Server.

Since there are multiple FEPs in the Test Room, a large number of RS232 ports need to be transported from Test Room to the NMDL Room. Copper based connectivity for this would typically require a large number of copper pairs. A separate LAN Extender pair would also be required for extending the Ethernet Port from NMDL Room to Test Room. Such a large number of copper circuits would create a lot of clutter, making it difficult to set up and maintain the system.

CYGNUS 888 Fiber Optic Multiplexer offers an elegant and cost-effective alternative which is easy to operate and maintain. CYGNUS 888 has 8 RS232 ports and 4 Ethernet Ports. A pair of these units, interconnected over a single fiber circuit can simultaneously extend both RS232 and Ethernet ports between two locations. In the present application this means that a pair of CYGNUS 888 units can extend 8 RS232 ports from FEPs to NMDL PCs, and simultaneously extend Ethernet ports from NMDL PCs to NMDL Server. Cable clutter is eliminated since all this is achieved on a single fiber circuit. An added advantage is that fiber is immune to electromagnetic interference, and so there is little chance that such interference can introduce errors in data. The distance between the server room and the Test room can be as much as a few kilometers. The product can also be optionally ordered with a second hot standby fiber, which automatically takes over if the main fiber link fails. RS232 port speeds can be up to 115.2 kbps, and all RS232 ports have 1500 VAC Isolation Protection for increased robustness. A typical setup is shown below.





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CYGNUS 888 is successfully working in this application at the headquarters of Secunderabad Division (South-Central Railway) at Sanchalan Bhawan, Secunderabad. Three pairs of CYGNUS 888 Fiber Optic Multiplexers are being used to extend 20 RS232 ports from the FEPs from the Test Room to NMDL PCs in the NMDL Room and to provide simultaneous Ethernet connectivity between NMDL Room and Test Room.

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