

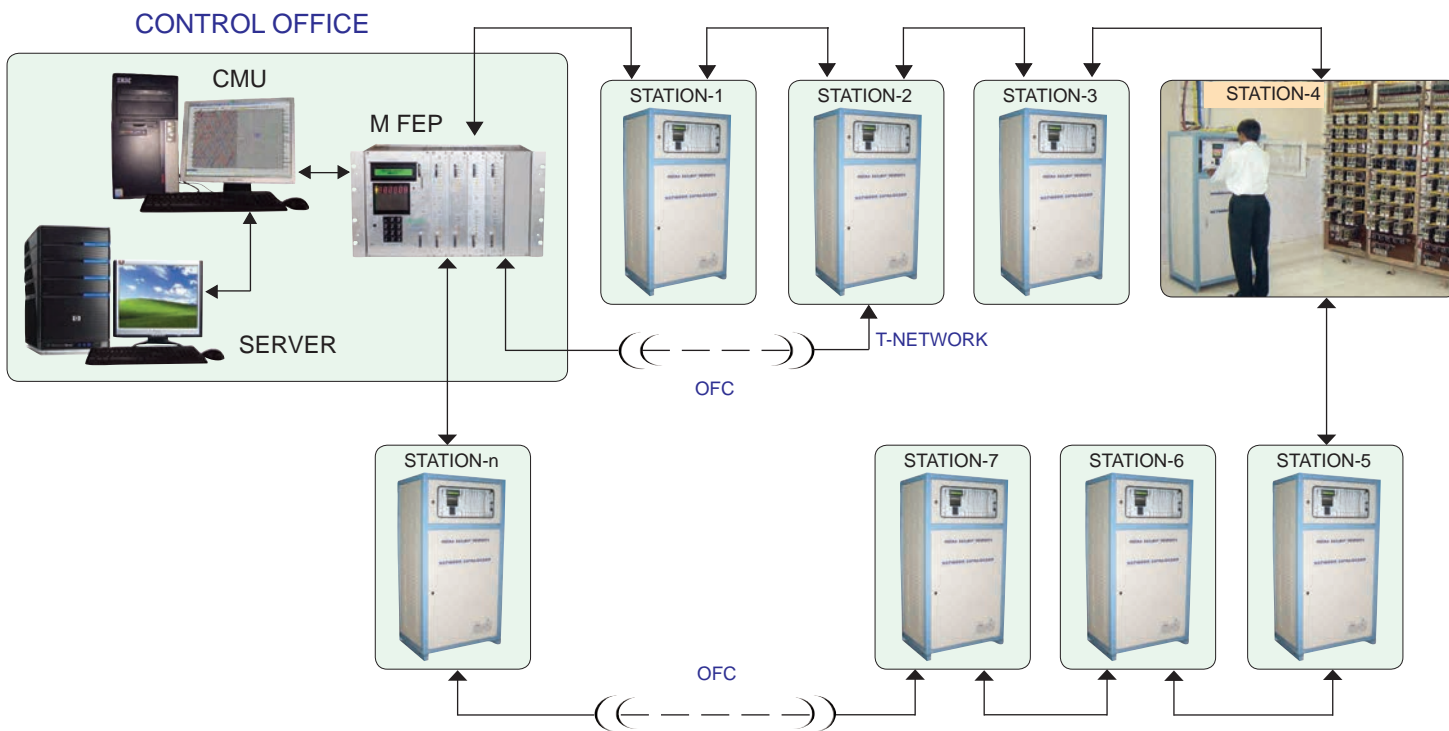
RDSO Specification: IRS: S: 99 / 2006

By monitoring the signaling system, Data logger system helps in finding-out the mistakes done by signal operators, loco pilots and the misbehavior of signaling systems. Thus helping railways in preventing accidents and also reducing detentions to train services.

Data logger system monitors the railway signaling system by monitoring the status of relays and data generated by processor based signaling equipment. Potential Free contacts of relays are mined to data logger as input. Data from processor based equipment is acquired through communication port.

Based on the change of status of relays with the help of application software the movement of trains, operations by signal operator and health of signaling system is monitored. Data Logger also monitors power supplies.

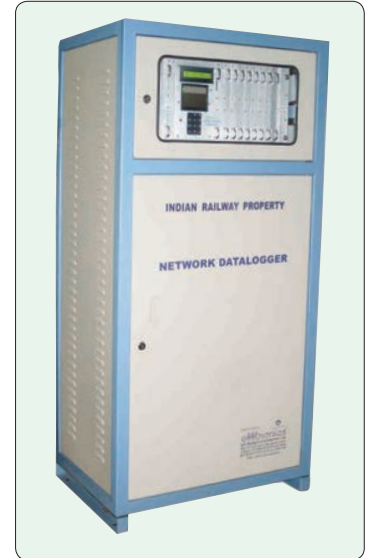
DATA LOGGERS IN NETWORK



- ❖ Data logger is placed in the relay room. Data logger monitors the relay status and records its change with time stamp.
- ❖ Each data logger has number of data output ports for communicating the recorded information to the Central/ Local Fault Analyzing System.
- ❖ Data loggers are networked in daisy chain to a Front End Processor provided in central location, usually, divisional control office.
- ❖ Data logger can be networked with copper cable [twisted type - in 4 wire mode], voice channels on OFC/MW, data channels [E1] or dark fiber. Data from data logger can be sent to central location by mobile network in GPRS.
- ❖ Analog and digital Data from FEP is taken by CMU[Central Monitoring Unit] by NMDL[Network Management of Data Loggers] software to generate online simulation and signaling equipment faults, wrong operations by SM and mistakes of Loco Pilots.
- ❖ The NMDL software further stores the data in the server for access through LAN/WAN, by multiple users.
- ❖ It is possible to send the faults to signal asset maintenance personnel as SMS in the mobile network to reduce MTTR.
- ❖ Reports can be generated to estimate the health of the signaling equipment and inputs required to be provided to increase MTBF of the equipment.

DATA LOGGER

- ❖ Micro processor based Embedded system,
- ❖ DIGITAL INPUTS : 512 to 4096 [optically isolated] - two data loggers can be connected in tandem to increase the capacity
- ❖ Analog inputs: 32 to 96 [individually isolated].
- ❖ Nonvolatile Data Storage: in Flash RAMs up to Ten (10) lakhs of events
- ❖ Eight serial ports for data network.
- ❖ Dot matrix printer interfacing for online/ offline data printing.
- ❖ Data Speed : 57.6Kbps
- ❖ In-built dual leased line voice modem or inbuilt dual E1 converter for network
- ❖ User interface: LCD and 7-Segment LED display with Keyboard
- ❖ Control of potential free relay control from central place.
- ❖ Optional GPRS modem connectivity, where copper cable is not available, can directly transfer data to central place



FRONT END PROCESSOR



- ❖ Buffers data in between Central Monitoring Unit and Data logger Network.
- ❖ Receives Network data through Eight(8) serial ports and transfers out the data to Two(2) computer ports.
- ❖ Data buffering of Ten(10) lakhs of events.
- ❖ Software filter for redundant data.

REMOTE TERMINAL UNIT

- ❖ RTU is a mini data logger suitable for Auto sections.
- ❖ Maximum 64 opto isolated digital input @ 16milli sec sampling.
- ❖ Maximum 32 individually isolated voltage channels @ 1 sec.
- ❖ Nonvolatile data storage of One(1) lakh events in Flash RAM.
- ❖ Two(2) serial ports for data network with in-built dual modem.
- ❖ Efficient network protocol to effect higher data rate (57.6Kbps).
- ❖ Optional GPRS modem connectivity, where copper cable is not available, can directly transfer data to central place.

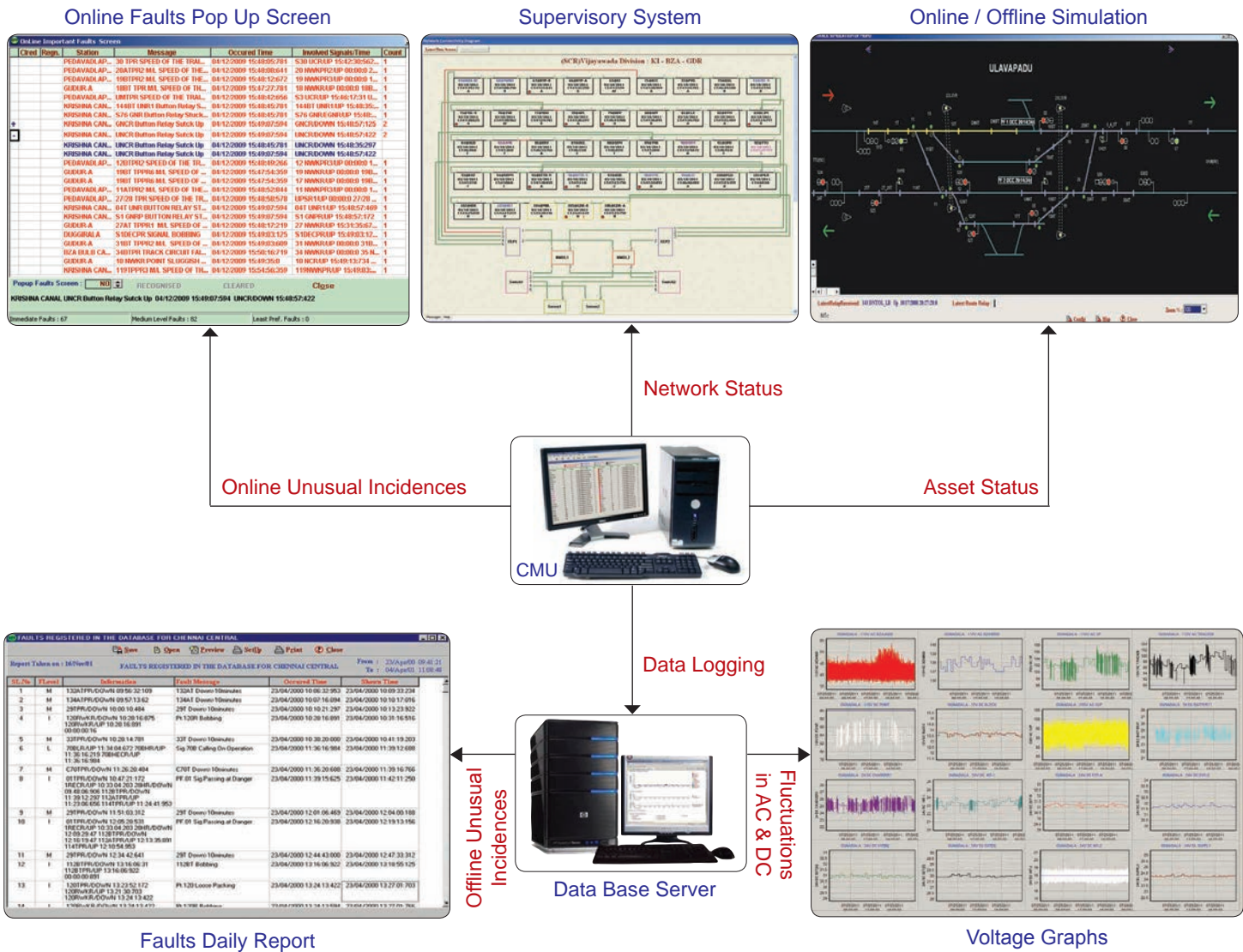


DATA LOGGER SYSTEM

NETWORK MANAGEMENT OF DATA LOGGER (NMDL)

Network Management of Data Loggers (NMDL) is a software

- ❖ To Receive data from Data logger network.
- ❖ To Record station wise status of Signaling Relays and Power Supplies in sequence.

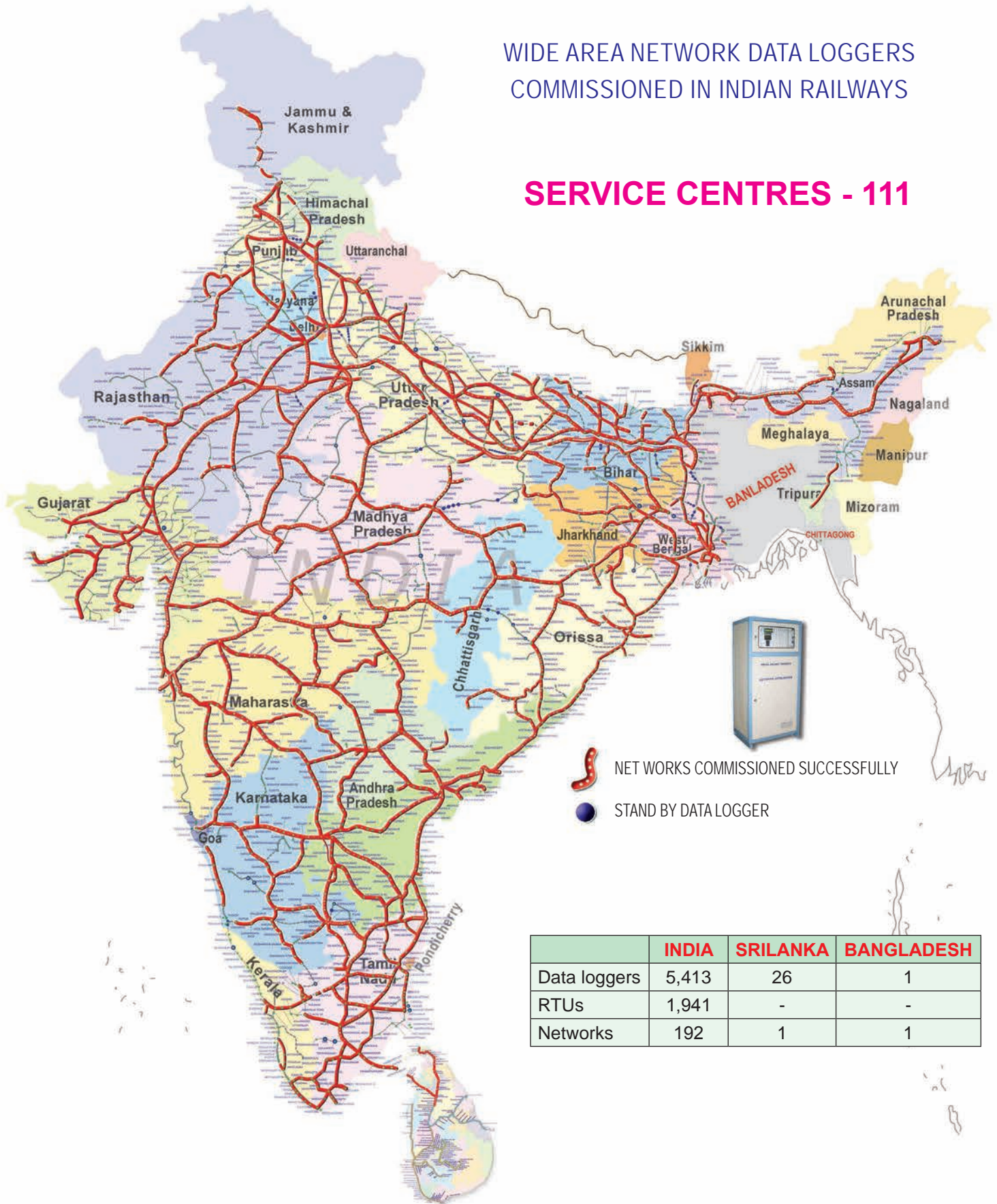


FEATURES

- ❖ On-line Asset-Failure Alarms.
- ❖ Online Yard Simulation.
- ❖ Asset Lifetime Alerting.
- ❖ Auto SMS of Asset Failure.
- ❖ Log of events Reports.
- ❖ Supervisory System for easy Maintenance of Data logger Network.
- ❖ Power Supply variations as Graphs.
- ❖ Offline Yard Simulation.
- ❖ Summary Report of Asset Failures.
- ❖ Auto Mailing Facility of Asset-Failure Reports.

WIDE AREA NETWORK DATA LOGGERS COMMISSIONED IN INDIAN RAILWAYS

SERVICE CENTRES - 111



	INDIA	SRILANKA	BANGLADESH
Data loggers	5,413	26	1
RTUs	1,941	-	-
Networks	192	1	1

'R & D'
Recognised by
DSIR
Govt. of INDIA


Efftronics Systems Pvt. Ltd.
ISO 9001 : 2008
20000873 QM08

Approved by
RDSO
Govt. of INDIA
Ministry of Railways

EFFTRONICS SYSTEMS PVT. LTD.
40-15-9, Brundavan Colony, Vijayawada-520 010, A.P., INDIA
☎ : +91(866) 2466675, 2493375 Fax: +91(866)2474097
E-mail: info@efftronics.com Visit: www.efftronics.com, www.effe.in