



## **Signal & Telecommunication (S&T) Department**

Signal & Telecommunication (S&T) Department is responsible for installation and maintenance of **Signalling** systems, essential for the safe and speedy movement of trains & **Telecommunication** systems, required for the smooth running of trains and other business functions of the Corporation.

### **1. Signalling Systems – Salient Features**

- Uniform MACL (Multiple Aspect Colour Light) Signalling at all the Train Crossing stations.
- High-speed FOUR-Aspects MACL (Multiple Aspect Colour Light) Signalling system at all stations, with run-through facility via loop-lines, in Karanjadi to Barkur section.
- Panel Interlocking (PI) provided at all stations for centralised operations of Signals and Points.
- Tokenless block instruments provided at all stations to reduce delays in train operations.
- Data logger system at all stations for enhancing safety in train operations, improving line capacity and helping in predictive maintenance of S&T field gears; using Management Information System (MIS) Reports generated by Data logger servers.
- Track Voltage Monitoring System (TVMS) at all stations for predictive maintenance - To alert Station Master (through 'audio-visual' warning) in case 'low' voltage is detected of any 'track circuit' functioning on 'battery supply only', on account of 'no charging' taking place through its battery charger for any reason.
- Fuse Failure Alarm System (FFAS) at all stations – To alert the SM (through 'audio-visual' indication), in case any fuse of signalling circuit has blown off in the relay room. In addition, it also provides 'auto-changeover' for failed fuses of important circuits like for route initiation, signal clearance, point/signal/route groups etc.
- Safety enhancement by providing 'Biometric identification' of staff authorized for - (a) 'Operating' Signalling Panel in SM's office & (b) 'Opening' of Signal Relay room, at all stations.

- Safety enhancement by monitoring of 'Opening/Closing' of Level Crossing Gates including in mid-sections [Status: Provided on trial basis at 04 Level Crossing Gates, connected with Data logger system of one station].
- Integrated Voice and Data Services provided at Tunnel Ventilation Control Rooms of Natuwadi, Parchuri, Berdewadi, Karbude & Tike of Ratnagiri Region and Barcem and Karwar Tunnel of Karwar Region.
- Replacement of Block instrument by approved type i.e. "Provision of Block Panel along with Universal fail safe block interface (UFSBI) and Block proving by Axle counter (BPAC with HA-SSDAC)" in lieu of Tokenless Block instrument in Karanjadi (KFD) - Vinhere (VINH), Vinhere (VINH) - Diwankhavati (DWV), Diwankhavati (DWV) - Khed (KHED), Khed (KHED) - Anjani (ANO) Anjani (ANO)- Chiplun (CHI) block sections in Ratnagiri Region and at Manki (MANK) - Murudeshwar (MRDW) and Murudeshwar (MRDW) – Bhatkal (BTJL) block sections in Karwar Region.

## **2. Telecommunication Systems – Salient Features**

- Optic fiber and Quad cable based Communication circuits along the Konkan Railway route connected with its Corporate Office at Belapur, Navi Mumbai.
- KRNet (Konkan Railway's Intranet) supports Railway Application Package, developed 'indigenously'.
- Commercial exploitation of OFC - Working model: 'RailTel' acts as a business arm of KRCL while KRCL is still 'owning' and 'maintaining' its OFC.
- OFC system provides 'control' and 'administrative' trunk circuits with STD facility between all the Railway telephone exchanges as well as data circuits for connecting KRNet and PRS terminals en-route.
- Quad (Copper) cable caters for fulfilling the communication requirements of Block instruments, LC gate telephones and emergency sockets.
- Konkan Railway's telephone network connected with Indian Railway's telephone network through STD code '019'.
- Passenger Helpline '138' has been made functional and Security Helpline '182' has been made functional at Konkan Railway route.
- Telecommunication is a vital infrastructure for managing any transportation network and for this purpose, communication links have been provided for PRS (Passenger Reservation System), FOIS (Freight Operations Information



System), COIS (Coach Operations Information System), TMS (Train Management System) and RailNet, from Indian Railways.

- Multi-purpose Emergency Sockets at every Km of the track –
  - (a) External Socket - For Portable Control Telephone (with 4W/2W toggle switch), to establish -
    - Communication between Loco Pilot/Guard & Train Controller (4-Wire)
    - Communication between Patrolmen/Watchmen & Station Master of adjacent (south side) station (2-Wire)
  - (b) Internal Socket – For Normal ‘push button’ type auto telephone, to
    - Extend ‘Rly phone’ at work site/accident site from adjacent station
    - Extend ‘BSNL/Land Line phone’ at work site/accident site from adjacent station.
- Emergency Socket Location Identification System (ESLIS) has been provided at all EMC sockets, this facilitates exchange of Private Nos. by Station Master with Gateman, Tunnel Watchman in Block Sections at vulnerable cuttings and tunnels, ‘Enhancing Safety’ in Train operations by provisioning of ‘Voice Recoding with Time Stamp’ facility.
- Wi-Fi facility (30 minutes for free) has been provided at Madgaon station, for use of passengers through M/s. RailTel Corporation of India Ltd.
- MoU signed with M/s Syscon Infoway Pvt. Ltd. on 01.03.2016 for providing FREE Wi-Fi, internet facility at stations of Konkan Railway, the same is provided at Kolad, Mangaon, Veer, Karanjadi, Vinhere, Diwankhauthi, Khed, Anjani, Chiplun, Kamthe, Savarda, Aravali Road, Sangameshwar, Ukshi, Bhoke, Ratnagiri, Nivsar, Adavali, Vilavade, Rajapur Road, Vaibhavwadi Road, Nandgaon Road, Kankavali, Sindhudurg, Kudal, Zarap, Sawantwadi Road & Madure stations.
- LED Video Wall Display of 9.6 x 7.2 feet is installed at Madgaon station on Platform no. 1.
- Electronic Train Reservation Chart is provided at Madgaon & Udupi
- IP Based Video Surveillance System is provided at 28 stations on Konkan Railway Route. The stations are Kolad (KOL), Mangaon (MNI), Veer (VEER), Karanjadi (KFD), Vinhere (VINH), Diwankhavati (DWV), Khed (KHED),



Chiplun (CHI), Aravali Road (AVRD), Sangmeshwar Road (SGR), Ratnagiri (RN), Vaibhavwadi Road (VBW), Kankavali (KKW), Kudal (KUDL), Sindhudurg (SNDD) and Sawantwadi (SWV) in Ratnagiri region (16 stations) & Pernem (PERN), Thivim (THVM), Karmali (KRMI), Verna (VEN), Madgaon (MAO), Cancona (CNO), Karwar (KAWR), Gokarna (GOK), Murudeshwar (MRDW), Bhatkal (BTJL), Udupi (UD), and Surathkal (SL) in Karwar region (12 stations).

- 'Wireless based Visual Warning Aid for Loco Pilots' (to be activated by 'Cutting Watchmen') is provided at vulnerable cuttings (namely 'Agave Cutting' at Km 148/015 & 149/070 and 'Bordave cuttings' at Km 323/2 & 321/1-2).

### 3. Multi-Skilled Cadre

To achieve economy of operations, the concept of '**multi-skilling**' has been implemented by merging of Signal and Telecom Cadres in one. Moreover, S&T department also maintains computer communication Network (KRNet) and Passenger Reservation System (PRS).