

SIGNAL & TELECOM DEPARTMENT

KHURDA ROAD DIVISION

SALIENT FEATURES OF SIGNALLING SYSTEM OF KHURDA ROAD DIVISION:

Khurda Road Division has 105 stations and 27 Nos of Intermediate Block Signaling spread over 829.65 route Kms. Apart from this, there are 197 Manned interlocked LC Gates in the division out of which 89 are mid section LC gates provided with separate gate signals. A total number of Gazetted staff is 08 and Non-Gazetted staff is 851 in the Signal & Telecom Department.

This division is keeping pace with the modern signaling system. Technical up-gradation has become continuation feature in this division. Some of the important features are mentioned below:

- **MACLS Signalling:** All the stations including LC Gates in Khurda Road Division are provided with multiple aspect colour light LED signaling.
- **Electronic Interlocking:** Interlocking through software is a present day signaling system in Indian Railways. 44 Nos of stations in BHADRAK-PALASA section "B" Route have been provided with Electronic Interlocking. Fifteen (15) stations in SKND-KDJR section is also provided with Electronic Interlocking. 05 stations (DEG, BRST, MLT, and SIL & PUI) in DEG-PUI section have been provided with Electronic Interlocking also. Ten (10) stations in BRAG-TLHR section is also provided with Electronic Interlocking. So in all 74 stations of Khurda road division are provided with Electronic Interlocking.
- **Panel Interlocking:** 24 stations are provided with Panel Interlocking of Route Setting type.
- **Route Relay Interlocking:** BHADRAK, PARADEEP & KUR stations have been provided with Route Relay Interlocking.
- **MACLS & "C" Class:** There are 04 Nos of MACLS stations.
- **LED Signals:** To improve visibility of signal and reduce maintenance efforts, LED lit main signals are provided in all the stations and mid section interlocked LC Gates of KUR Division in place of conventional type filament lamps. So visibility of signal has been improved considerably and incidences of fusing of lamps has reduced drastically.
- **Data Loggers:** For continuous monitoring of signal failures, fault findings and report generation, preventive maintenance and for accident analysis data logger plays a vital role in modern signaling. Almost all the stations equipped with Electronic Interlocking are provided with inbuilt Data loggers. External Data loggers are provided at 98 stations and RTU at 85 locations, All Data loggers and RTUs at stations and locations are networked and connected to the main server at Khurda Road and Zonal HQ.. In addition to this data logger terminals have been extended to 06 control boards for effective controlling of trains and also extended to Operating Officers PC for necessary guidance during exigencies.
- **Integrated Power Supply:** To increase reliability of power supply and to decrease maintenance of conventional battery chargers, SMPS based integrated power supply systems have been installed in 227 locations.
- **Surge protection device:** All EI stations and lightning prone area are provided with A, B and C class surge protection device for protecting the equipments from lightning surges. D class surge protection devices for 110 V DC, 110V AC and 24V DC circuits are also provided in these stations.

- **Maintenance free earth** : Maintenance free earth available at all the 74 stations provided with Electronic Interlocking. These are provided to protect sophisticated EI equipments from high voltage surge.
- **LVCD** : For last vehicle checking device which proves complete arrival of the train at a station has been installed in Block sections and track circuits. Total 192 sections have been provided with SSDAC system. In addition to this 40 sections have been provided with HASSDAC. Apart from these 21 track circuits in girder bridge areas have been provided with HASSDAC in Automatic signaling section.

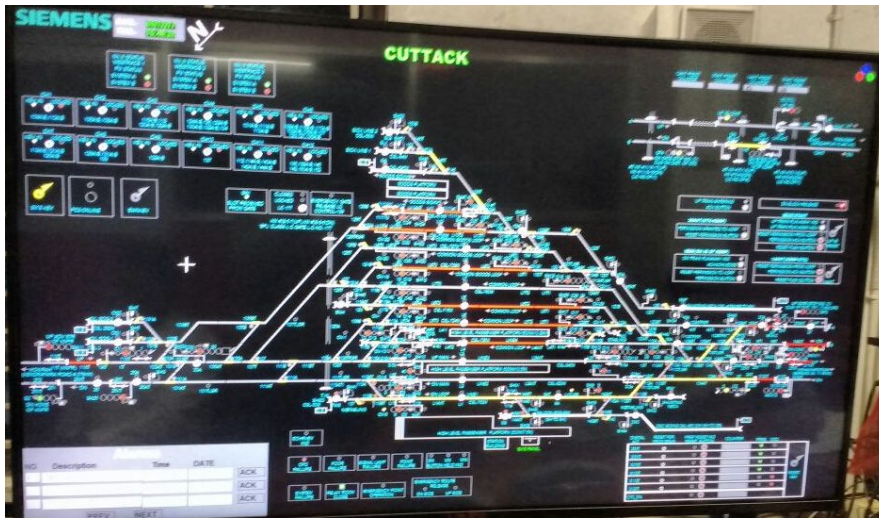
Photo of High Availability Single Section Digital Axle Counter (HASSDAC) :



- **Maintenance Improvement** : For attending failure immediately and so as to avoid train detention and also for carrying man and materials to the work site, Pick up vans have been provided to 11 SSEs of the section/ In charges.
- **New works** : To cater the increasing traffic density a new station Bhubaneswar new (BBSN) has been commissioned with connectivity to BRAG and CHRD and automatic section between MCS-BBSN and BBSN-BRAG.
- **Safety Works** : To improve safety and more reliable train working following safety works are in progress in the division.
 1. Provision of IPS to be installed at mid section interlocked LC gates.
 2. Provision of replacement of LC Gates by electrical operated lifting barrier.
 3. Provision of manning of Un-manned LC Gates.
 4. Provision of approach warning system and voice logger at LC Gates.
 5. GJTA station and MCS station have been commissioned with Electronic Interlocking with Dual VDU replacing old existing mechanical Lever frame cabin.
 6. A new station named BBS NEW station has been commissioned between MCS and BRAG station with EI and another station named Nayagarh Road has been commissioned with PI on KUR-Bolangir line after BORD station.
 7. GGTRONICS make both line LVCD have been provided from CLDR to SBTJ and from NANR to PRNR in IB and LVCD portion.
 8. CTC station has been commissioned with Electronic Interlocking of Westrace make having Dual VDU and 243 routes with Grid separation.
 9. NRG station has been commissioned with EI of Westrace make by replacing existing PI and has been provided with new IPS and Data logger.
 10. Air Conditioning has been installed at Relay room of 17 stations.
 11. Approaching warning buzzer for individual direction trains for gate man has been provided in Interlocked gates between KUR-CTC Automatic Signaling system.
 12. 60 Nos LC Gates have been provided with ELB.
 13. Electronic Interlocking version has been changed from 7 to CC 3.20 at 36 Nos of stations.
 14. 40 Sections have been provided with HASSDAC.

Traffic Facility Works:

1. Provision of Long haul loop at HND, GNGD, GAM,PRDP stations has been completed.
2. Extension of PF No.1 and 3 with relocation of cross over at JJKR.
3. IBS has been commissioned in between NQR and GHNH, GHNH and RQP to increase sectional capacity.
4. MCS-BRAG section has been commissioned with third line along with two Auto sections MCS-BBSN and BBSN-BRAG
5. CHRD-BRAG section has been commissioned with double line in DN direction and new fly over single line between BBSN and CHRD.
6. NIRGUNDI Junction station has been commissioned with Electronic Interlocking.



7. Increase of CSL on Berthing Line have been completed at 05 Stations.
8. 10 Nos of MSDAC at PUI in 24 detection points have been commissioned.

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