



VHF Based Approaching Train Warning System For Track Maintainers

QUALITY
THAT PROMISES
CONSISTENT
PERFORMANCE



Transmitter



Receiver



Antenna Tower

VHF Based Approaching Train Warning System For Track Maintainers

System Features

- Wireless advance safety warning system to warn working staff of approaching train on a hand held receiver.
- Transmitter trigger is provided automatically from relay room.
- Coded signals are transmitted to indicate information of an approaching train.
- The RF signals are used to generate necessary audio visual alarms with vibration alert to maintenance Staff.
- System is designed to work in both RE / Non-RE section of railways.
- Safe maintenance of track 24×7 for staff of Indian Railways.
- VHF Antenna is located at a height in free air on high mast ANTENNA TOWER

Fixed Transmitter Technical Features

- VHF Transmitter has built-in Power Supply with battery backup.
- Each VHF Transmitter has a unique ID code for stations.
- Connected to Antenna through RF cable.
- Operates at 220V AC input supply.
- Trigger to this system can be applied automatically- using **potential free contact of signalling Relay**- Advance starter signal from Relay Room.
- System starts transmitting on receiving trigger in UP/ DN Signal.
- System transmits UP / DN signal approximately once every 20 Seconds for reminder to the user.
- Blinking LED (UP & / DN) indicates transmitter status.
- Transmitted Signal is received by HHR within the coverage distance and **line of sight**.



Specification No. RDSO/SPN/TC/105/2015

Fixed Transmitter Specifications

Carrier Frequency Stability	160.450 MHz and +/- 5PPM	Transmitter Indications with 5mm LED ON : white LED: Transmitter ON UP : Blue LED : Up signal from signaling Relay DN : Yellow LED: DN Signal from signaling Relay TXC : Dual LED (RED): transmitted Carrier TXD : Dual LED (GREEN): Transmitted Data LOW : RED LED: Battery Low CHG : Dual LED (RED): Battery Charging FULL : DUAL LED (GREEN): Battery Full Charged UP : GREEN LED: UP signal from Manual Trigger DN : GREEN LED: DN signal from Manual Trigger
Frequency Deviation	+/- 5kHz	
Spurious and Harmonics	Better than 70db	
RF Power Output	Min 15 Watt	
Dimensions	Less than 200x275x200mm (W x D x H)	
Operating Temperature Range	-10°C to 55°C	
Net Weight	Less than 9Kg	

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Hand Held Receiver (HHR) Features

- Small foot print with built in antenna (pocket model) with belt holding clip.
- HHR is provided in ABS molded enclosure
- HHR receives coded RF signal within the "Line of Sight" & coverage area
- HHR have built in battery & monitoring circuit and protected from overcharging.
- HHR provides 3 level indications (i) LED indications, (ii) Buzzer, (iii) Vibration.
- Built in UP / DN LED indication for approaching train.
- Buzzer sound suitable to draw attention of user.
- Power ON/OFF switch to protect battery drain.
- Independent battery charger for charging battery



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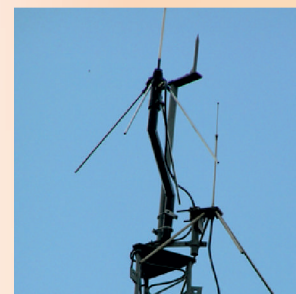
Hand Held Receiver Specifications Technical parameters:

Sensitivity	0.25 μ V/-110 dbm at 12 dB SINAD
Frequency Stability	\pm 5PPM
Selectivity	Better than 65db
Harmonic and Spurious rejection	Better than 70db
Squelch Sensitivity	Better than -119 dbm
Indications	
UP Direction Train	Blue LED
DN Direction Train	Yellow LED
Battery Status	Battery Low:- Red LED Battery Charging: Blinking GREEN LED Battery Fully Charged: Steady GREEN LED
Operating Conditions	-5°C to 55°C
Dimensions	30×50×150mm (W×D×H)
Weight	less than 150gms
Battery Charger	220 V AC/3.6 V DC
Battery Back UP	Approx. 8 Hrs.

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Ground Plane Antenna Specifications

Frequency Range	150-175 MHz
Bandwidth	25 MHz
Impedance	50 Ohms unbalanced
VSWR - less than	1.5
RF Power Handling capacity	50 Watt
Connector Type	Connector type - UHF- Female
Lightening Protection	Direct Ground

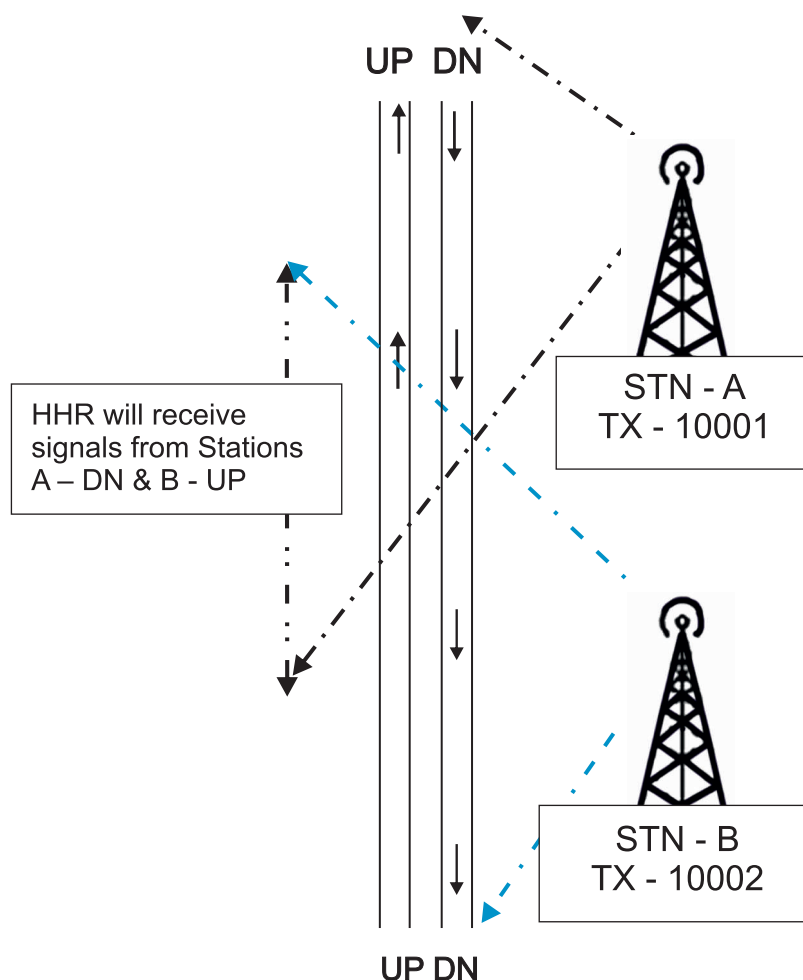


Typical Antenna Mounting at Tower

Block Diagram for 1 blocks section

HHR will get “UP” & or “DN” Signals, within range, only from respective stations

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GENERAL AUTO ELECTRIC CORPORATION

D/207, Ansa Industrial Estate, Saki Vihar Road, Saki Naka, Andheri (East), Mumbai 400072, INDIA.

T: [+9122] 6692 3194-95 | F: [+9122] 6692 3196 | marketing@gaec.in | www.gaec.in