

Onboard Broken Rail Detection System

Integrated Rail Solution



SYSTEM DESCRIPTION

- The **Broken Rail Detector System (BRDS)** is used to detect breaks $\pm 1\text{mm}$ and above in the rail and to alert the Central Train Control (CTC) timeously in order to determine the risk the rail break poses to rail traffic and manage the infrastructure maintenance personnel
- The system consists of two Magnetic Measurement Units (MMUs) mounted 75mm above each rail, on any suitable rail going vehicle
- The MMUs are connected to the Broken Rail detection & Navigation Computer (BRNavC). The BRNavC must be connected to the auxiliary electrical system as well as the GPS, GSM and Data Radio antennas of the vehicle
- Data processing and backup is done in the Cheetah Tactical Router that serves as a local BOF on the locomotive

BROKEN RAIL DETECTION SENSOR (MMU)



Master Display Unit

- Display
 - 11.6" Diagonal 16:9 TFT / 1920x1080 Resolution
 - Sunlight Readable
 - Resistive touch
- Interfaces
 - 1Gb Ethernet / RS422 / USB / CAN
 - 28Vdc (MIL-STD-1275) / 110Vdc
 - On-board GPS and Antenna interface (option)
 - IP or SDI Video interface (option)
 - M.2 slot for LTE Module (option)
 - 64GB internal SSD storage
 - MSATA Hard Disk storage up to 4TB
 - Blue Force Tracking interface

Environmental Conditions

- MIL-STD-1275
- MIL-STD-810
- MIL-STD-461
- Temperature (Operational) -20°C to +70°C
- Temperature (Storage) -40°C to +80°C
- Sand and Dust MIL-STD810G Dust (<150um)
- Humidity Natural' of 80%RH at 40°C
- Electromagnetic – MIL-STD-461F Class B
- Altitude – Storage/Air Transport' up to 15km
- MTBF – 15,000 hours @55°C Gm

Magnetic Measurement Unit

- Power
 - 24Vdc
- Interfaces
 - RS422 / Wi-Fi / Can / 1Gb Ethernet

COTS Processing Unit

The upgradeable COM Express processor module and M.2 interface provide a future proof development hardware platform.

Interfaces

- 4X PCIe Gen2 (2 GB/s BW)
- Ethernet 10/100/1000 Mb/s
- 2x USB 3.0, 6x USB 2.0 and external SATA 3.0
- GPIO, 2x serial, I2C, SMB, SPI, LPC, HD Audio
- HDMI/DisplayPort and LVDS panel outputs