VitalNet™ PTC Solution
Central Office and Onboard

VitalNet Office Safety Server

Ansaldo STS USA developed the VitalNet Office Safety Server (VitalNet OSS) for the Alaska Railroad and is adapting it for use on freight and commuter lines across the United States.

The VitalNet OSS vitally encodes Mandatory Directives for delivery to the train's onboard computer and provides a vital computing platform that validates train authorities, speed restrictions, work authorities and dark territory switch positions. The flexible block design is scalable and allows the system's configuration to accommodate future changes to the railroad.

VitalNet Onboard Computer

Ansaldo STS USA has developed the VitalNet Onboard Computer (VitalNet Cab) to provide positive limits of authority and speed enforcement. This means that any function the system protects will be vitally enforced and stop the train in advance of a target. For example, if a freight train crosses the crest of a hill with a speed restriction on the down side, the VitalNet Cab's profile braking system defines the maximum authorized speed based upon several determining factors – hill grade, train consist, current speed, speed restriction and braking capacity of the train. The VitalNet Cab then presents the distance to the target and time to penalty at the current speed.

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www.PTC-ASTS.com

The place to find up-to-date PTC information from Ansaldo STS USA

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FREIGHT

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VitalNet™ PTC Freight Solution

☑ Wayside   ☑ Onboard   ☑ Central Office

☑ Integrated PTC Solution

Preserve your interlocking investment.

VitalNet PTC Solution
Wayside Components

MicroLok® II VitalNet CPU and VitalNet Coprocessor

The MicroLok II VitalNet CPU was designed to create a PTC-ready interface for your existing or new MicroLok II interlockings.

Combine the MicroLok II VitalNet CPU with the VitalNet Coprocessor to upgrade your interlocking to a fully functional wayside interface unit.

VitalNet Wayside Interface Unit

The VitalNet Wayside Interface Unit (VitalNet WIU) transmits wayside information to oncoming locomotives and provides PTC compatibility for dark territory, relays and third party interlockings. There are two models of the VitalNet WIU:

Dark Territory Model:
- 6 vital inputs (voltage detection or proximity sensor)
- 2 non-vital battery monitoring (1 internal)
- 1 non-vital temperature monitoring
- 3 vital outputs
- 3 Ethernet ports
- 1 USB 2.0
- Fixed application
- Embedded web server for configuration and diagnostics
- Basic user interface functionalities (status LED's, inputs, communication, push button)

Single Overlay Model:
- Dark Territory Model
- 18 vital inputs (voltage detection or current sensor)

VitalNet Point Monitor

The VitalNet Point Monitor is based on M23E technology and vitally monitors switch position using sensor technology. It is reversible and small, only 4 inches tall and 15 pounds, so it can be mounted directly onto either side of the rail. This eliminates the need to change ties and tamp or drill into the rail.

Wayside Implementation

MicroLok II - Existing Locations

Simply exchange your current MicroLok II CPU with a MicroLok II VitalNet CPU and Coprocessor to provide complete PTC functionality and eliminate the time and effort needed to retest the interlocking application logic.

Relay Interlocking Upgrade

The MicroLok II HB Cardfile and the VitalNet WIU provide simple, space-saving solutions to upgrade relay locations to incorporate PTC functionality.

1. Wall-mount these **overlay solutions** to simplify installation in overcrowded bungalows.

High Input/Output Count (up to 96)

Low Input/Output Count (up to 24)

2. **Replace the relays** with a solid state interlocking.

3. **Prepare for the future.**
Not ready to spend the money on a full solid state interlocking upgrade? The MicroLok II HB cardfile allows for an overlay solution today and the addition of track circuit and output boards at a later date to upgrade to a full solid state interlocking.

Intermediates

The MicroLok II HB with VitalNet CPU and Coprocessor is the perfect solution for your intermediate locations.
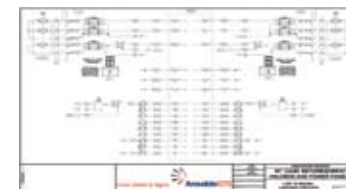
Third Party Systems

Overlay the VitalNet WIU onto an existing third party or legacy signaling system to provide PTC functionality. The existing signaling system will continue to control the interlocking and the VitalNet WIU simply relays the status, eliminating the need to retest the entire interlocking.

Dark Territory Switch Monitoring

The Short Tie Point Detector interfaces directly with the VitalNet WIU in dark territory and provides a switch's status to a locomotive's onboard computer.

Design Support

- Books of plan
- Detailed design
- Pre-packaged solutions

Ansaldo STS USA has an experienced workforce that can help implement any railroad solution.

Documentation

49 CFR Part 236 Subpart I required documentation:
- Preliminary Hazard Analysis (PHA)
- Failure Mode & Effect Analysis (FMEA)
- Fault Tree Analysis
- Safety Certification