

## Application Case Study – Norfolk Southern

**Project:** Track Inspection System

**Application:** Norfolk Southern uses a VME-based computing system to inspect the track as their freight trains go about their journey. There is a sensor box that is placed on the bottom of the train that measures the geometries of the track, down to 1mm of accuracy. Using lasers, gyroscopes, and accelerometers, the sensor gathers the data and sends it to the VME embedded computer for processing. It also sends data to a remote track inspection office for analysis.

**The Challenge:** Norfolk Southern needed an enclosure system that was a combination of semi-rugged, reliable, had redundant power options, and was a cost-effective solution.

**The Solution:** The Pixus 4U tall horizontal-mount VME chassis was the perfect choice for Norfolk Southern. The chassis has a semi-rugged design to meet some of the shock and vibration from the train. It features an N+1 power solution with redundant pluggable power supply units on the front of the enclosure. With a 7-slot VME64x backplane, the chassis platform can send real-time data on the track conditions. This helps the Norfolk Southern team in the inspection office make any repairs or adjustment that will improve safety and efficiency of the track.

Norfolk Southern uses two versions of the chassis, a DC powered solution for the freight trains. An AC powered design is utilized for the smaller service and utility trucks that can ride on the tracks.

In order to ensure proper cooling of the system, the enclosure employs a redundant fan system in a push-pull configuration. The side-to-side airflow path efficiently cools the 6U VME boards in the enclosure. The unit also has a SATA drive for memory/logging in the system. There are terminal blocks on the rear of the DC enclosure for power input into the system.

**Figure 1 and 2 (Front and rear images of the enclosure)**

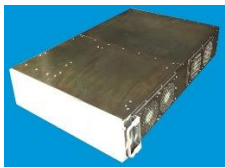




### Other Applications & Related Products

Pixus offers various horizontal-mount and vertical-mount orientation enclosures in various backplane sizes and configurations. This includes SOSA aligned, OpenVPX, VME64x and other form factors. Additionally, Pixus provides MIL ruggedized solutions for the various enclosure in both rackmount and ATR format.

Link for More Info On the Norfolk Design: <https://www.youtube.com/watch?v=vpa85Vx9JTc>



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