

Wire Rope Protect Automated Ticketing System from Shock and Vibration

Enidine Wire Rope Isolator Application

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Application Overview

Bus used in mass transit systems encounter a wide variety of road and driving conditions. These conditions can have damaging effects on electronic and mechanical components, especially those found in fare boxes.

In the past, bus drivers interacted with passengers. Today, new fare boxes have become the main interface. They can accept money, make change, read bus cards and dispense tickets.

Both the mechanical components used to accept coins and the optical components used to read passes were not designed for use in an environment exposed to shock and vibration. The manufacturer needed a solution that would reduce shock input to a new fare box design, while providing a system natural frequency that did not overlap with the engine idle frequencies. The goal was to design an isolation system that provided a system natural frequency of 8 Hz with enough deflection capability to protect the box from shock inputs.

Product Solution

The ITT Enidine Inc. solution included four wire rope isolators. Two isolators were placed in compression underneath the box and two in shear on the upper rear of the fare box. The location of the isolators optimized the stability of the system in both the vertical and horizontal axes.

Tests were performed on a shaker table which confirmed that the Wire Rope Isolation system provided the desired 8 Hz system natural frequency and had good stability in all axes. The Wire Ropes provided the deflection capability to isolate harmful shock inputs, ensuring proper functionality and minimizing maintenance.

The fare box systems are operating trouble free and the manufacturer plans to incorporate ITT Enidine Inc. Wire Rope Isolators for future fare box projects.



Application Opportunity

Wire Rope Isolators prevent shock and vibration inputs from damaging sensitive electronic equipment in many mobile applications. Bus fare boxes (SIC 3578) are just one example of the many electronics manufacturers who could improve their products with this technology.