

## DSD Vigilance Unit

The Driver Safety Device (DSD) Vigilance Unit is a key component of the DSD vigilance system suitable for use with Diesel or Electric Multiple Units, locomotives or other railway traction units.

The DSD Vigilance System is employed to ensure that the train driver remains alert whilst he is in a position to control his vehicle. It achieves this by monitoring the state of certain resettable or variable inputs - e.g., DSD Pedal, Direction Selector, Power Controller, Brake Controller, Warning Horns and Automatic Warning System (AWS) caution acknowledgement.

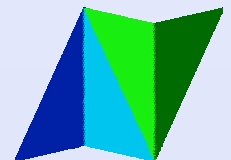
Where state changes of the system inputs do not occur within a pre-set time interval, warning is issued to the driver requiring positive action to prevent the system subsequently applying the emergency brakes.

The DSD Vigilance Unit meets all relevant performance and environmental specifications required by the rail industry and is service proven.



Driver Safety Device for multiple units, locomotives and railway traction units.

- High immunity to electrical disturbances and interference prevents spurious operation
- No maintenance; comprehensive Built-in-Test and Fail-Safe Watchdog, with LED display
- Available in 24V dc and 110V dc versions; other voltages to special order
- High reliability - service proven
- Meets all relevant rail industry specifications



## Summary of Functions

- The DSD Vigilance Unit monitors the activity of the driver whilst the train is in motion.
- The Driver has a foot-operated pedal which must be depressed for normal operation of the rolling stock. This pedal is monitored by the DSD Vigilance Unit and in the absence of any driver activity within a pre-set delay time, a warning is sounded in the driving cab. The driver must release and then depress the DSD foot pedal to cancel the warning and reprime the unit.
- During normal activity periods certain signals, such as operation of the speed or brake controller or acknowledgement of AWS as the train passes signals with adverse aspect, will keep the unit in a primed state, and no external action is taken by the unit except to keep the emergency brake released.
- The unit allows operation from either cab or multiple cab rolling stock, and only sound the warning buzzer in the active cab.
- Indicators visible through a window in the front panel show operational status, allowing failed units to be identified at LEVEL 1 maintenance.
- The unit requires no routine maintenance or setting up during installation and units bearing the same part number are interchangeable.
- Units are available which operate from a 110V dc supply or from a 24V dc supply.

## Specification

### Inputs

- 6 Digital inputs (0V to V supply)
- 4 Optically isolated digital inputs (Brakes) (isolated 0V to isolated V supply)
- 4 Analogue inputs (0V to 10V dc)
- 1 Optically isolated input (AWS) (12V dc)
- 1 DSD Pedal input (0V to V supply)

### Outputs

- Buzzer Output (150mA resistive)
- Brake Circuit (0.75 A inductive 96V dc or 1.5 A inductive 24V dc)
- Display (Light Emitting Diodes)
  - Operational (Green)
  - Transition (Yellow)
  - Fault (Red)

### Time Constants

- Action Time ( $t_1 = 6 \text{ sec} \pm 1 \text{ sec}$ )
- Delay Time ( $t_2 = 60 \text{ sec} \pm 3 \text{ sec}$ )

### Fault isolation

- Built-in-Test (BIT) operates in two modes :-
  - Initial BIT
  - Continuous BIT

### Temperature and Humidity

- Operating and Storage :-
  - 25°C to +55°C
  - 20% to 95% RH

### Vibration

- Amplitude :-
  - $a = 25/f \text{ mm}$  for 1 to 10Hz
  - $a = 250/f^2 \text{ mm}$  for 10 to 400HzSinusoidal in all three axes; 50 hrs endurance test

### Shock

- 3g in any direction

### Waterproof

- Meets IP54 (BS5490)

### Sand and Dust

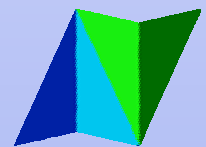
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### Electrical Insulation

- 2 kV rms 50 Hz for 1 minute; 20 M $\Omega$  at 500V dc

### Electrical Interference

- Complies with RIA Technical Specifications 12 and 18



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