



THE DRIVING FORCE BEHIND POWERFUL IDEAS

MULTI RESETTING VIGILANCE CONTROL DEVICE (VCD) OR DRIVER ALERTER



MEDHATM Servo Drives Pvt. Ltd., established in 1984 is an R&D focussed company dedicated to railway products. Over last 25 years, MEDHA's inhouse design teams have developed various world class hi-tech products and systems for application in Locomotives, Coaches and Stations/ Yards. MEDHA's state of art Design Centre and Manufacturing facilities employs over 900 people who are constantly striving to apply latest technologies to create innovative products in wide range of fields like Control Electronics, Power Electronics, Electro-mechanical systems and Signaling Systems. All new developments and modifications go through stringent testing, validation and verification of both hardware and software, many times going beyond customer specification requirements.

MEDHA has well equipped manufacturing facilities that are **ISO 9001:2000** certified by American Quality Assessors (accredited by **ANAB**). Facilities include automated assembly of Surface Mounted Devices on PCBs, CNC machines, various test equipment and custom test jigs for in process and final inspection of all manufactured goods. MEDHA supplies products for Locomotives including IGBT based AC Traction Control Systems for Diesel Locomotives, various models of microprocessor based Locomotive Control Systems including control panel and electricals for Diesel and Electric locomotives, microprocessor based Governors, 180 kVA 3 phase Static Converters for Electric Locomotives, Speed and Event recorders, TFT LCD Driver Display screens, End of Train Telemetry, etc. For signaling applications, MEDHA has developed Electronic Interlocking system and Integrated Signaling Power Supplies. For coaches, MEDHA supplies various models of underslung naturally cooled inverters ranging from 2.5 kVA to 50 kVA.



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Application

VCD is a microcontroller based safety device which will automatically apply penalty brakes in case the driver is incapacitated or dead. Similar operation is available in older locomotives in the form of Deadman's Lever.

Operating Principle

Installed on locomotive, VCD will give cyclic warning to the driver. Based on driver's reaction to this warning (in terms of any of the pre-defined sets of actions to be done by the driver), the system will automatically reset the alerting cycle. In case the driver fails to acknowledge the initial alert signals, a set of additional alert indications are given. Failing to respond to these additional alert signals also will result in automatic application of penalty brakes.

Some of the pre-defined set of actions to reset Alerter cycle can include:

1. Change of notch position/ Master Handle Reverser
2. Increase / decrease of level of dynamic braking
3. Normal application of formation brakes
4. Operation of locomotive horn
5. Operation of sanding valves
6. Pressing of VCD reset button
7. Other customized actions based upon locomotive type

These pre-defined set of actions are regularly monitored by VCD system and VCD cycle is reset whenever any of the above actions takes place.

In case the driver fails to acknowledge the Alerter warning signal during initial time period (say 60 sec), an additional indication in form of blinking LED will be given for pre-defined time. After the predefined time if acknowledgement is not yet received, an additional audio alarm is given. If the driver further fails to acknowledge the alarm, automatic application of brakes will take place and Engine is brought to IDLE speed.

Salient Features

- Microcontroller based system offering very accurate timing controls
- Non-resettable electro mechanical counter indicates the number of times penalty brakes have been applied
- VCD cycle is suppressed in case the locomotive is working as slave in Multiple Unit operation or is at standstill
- Sealed isolation switch is provided to manually isolate VCD in case of system malfunction
- Provision to interface with speedometer for operation only beyond certain speed limits
- Works on locomotive battery voltage
- Potential free relay output is provided for interfacing with Anti Collision Device unit where ever provided



RESET UNIT



CONTROL UNIT