

ELECTRONIC PRODUCT DESIGN, DEVELOPMENT & SERVICES ENTERPRISE

COMPANY PROFILE- RAIL SYSTEMS

N & S SOLUTIONS PVT LTD .,
REGISTERED OFFICE & DEVELOPMENT CENTRE
NO 37-38, RELIABLE RESIDENCY,
1ST MAIN , 8TH CROSS, HSR LAYOUT,
HARLUR, BANGALORE - 560102



Application Engineering

Product Design

Product Life Cycle Management

Engineering

Manufacturing

Assembly & Testing

Environment Qualification Test

Commissioning

After – Sales & Services



History

N& S Solutions Pvt Ltd was established has a Trading company in 1999 and formally converted to a Design Manufacturing Enterprise in August 2009.

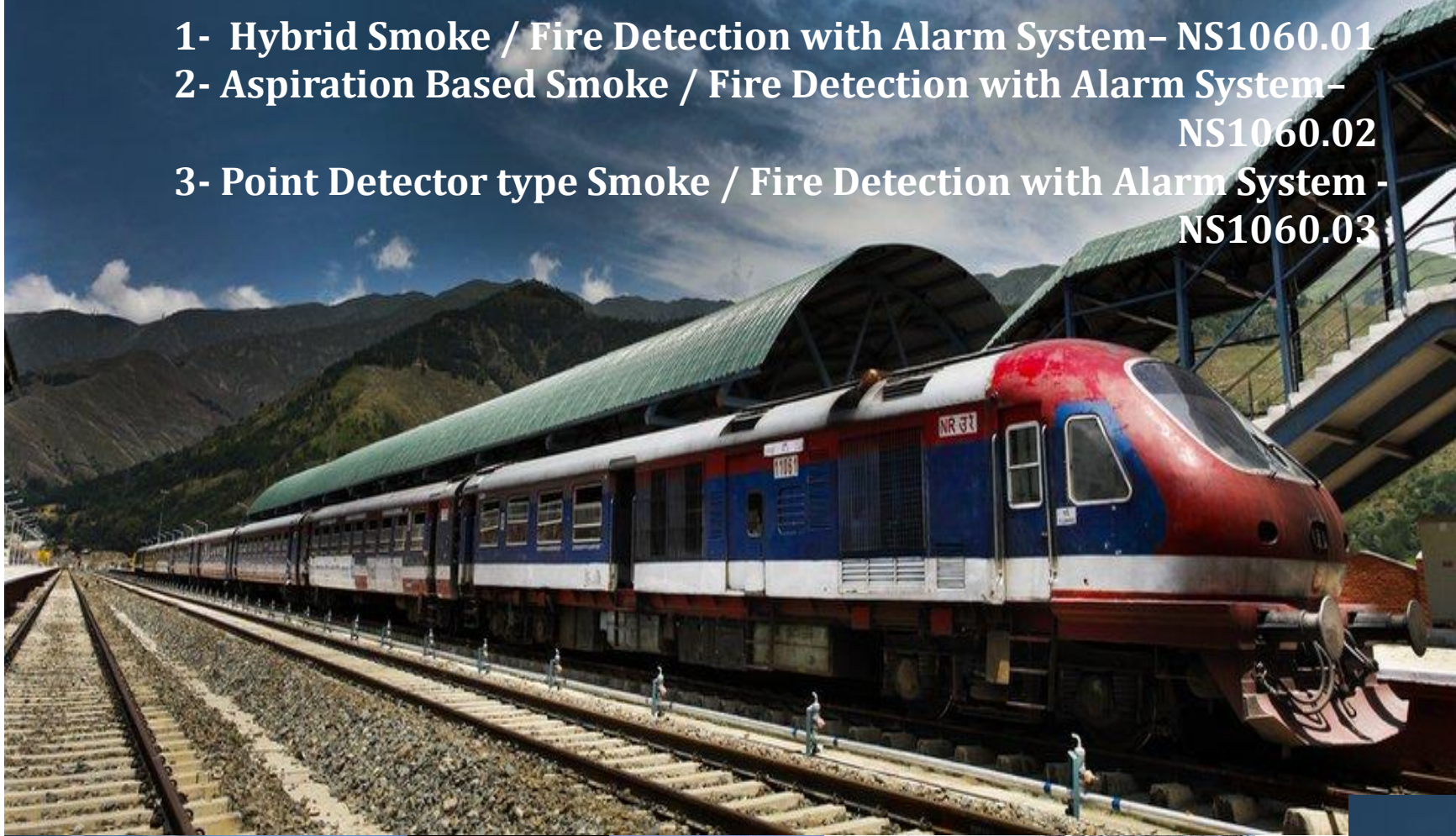
The Promoters of the Company are, Shri. K.S Shailesh Kumar and Shri. Arun Verma , They Both come with more than two decades of experience and domain knowledge specifically in Locomotive Engineering , Project Management, Manufacturing , Engineering and Knowledge Management Industries.

N & S Solutions Pvt Ltd has a history of successfully replacing OEM Manufactured critical Products at lower cost and Technological improvements to customers using new Technologies locally.



SMOKE / FIRE DETECTION SYSTEMS

- 1- Hybrid Smoke / Fire Detection with Alarm System- NS1060.01
- 2- Aspiration Based Smoke / Fire Detection with Alarm System- NS1060.02
- 3- Point Detector type Smoke / Fire Detection with Alarm System - NS1060.03



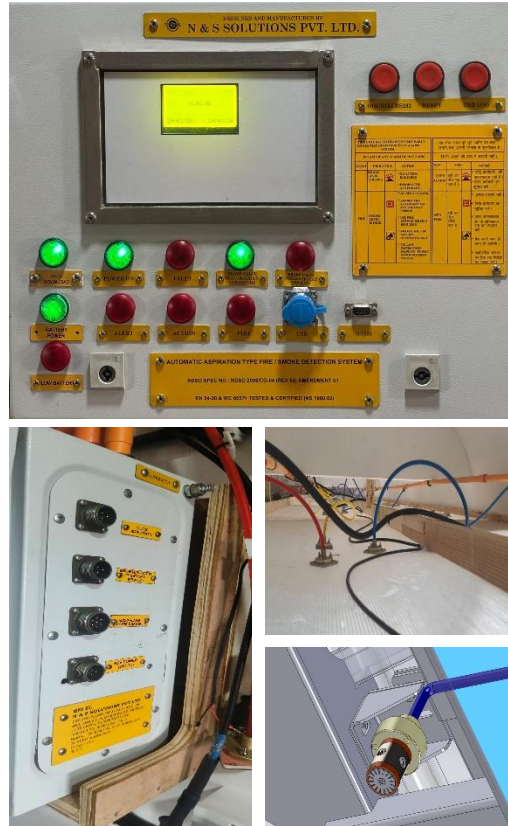


NS FIRE DETECTION SYSTEM

NS1060.01 HYBRID FDS



NS1060.02 ASD FDS



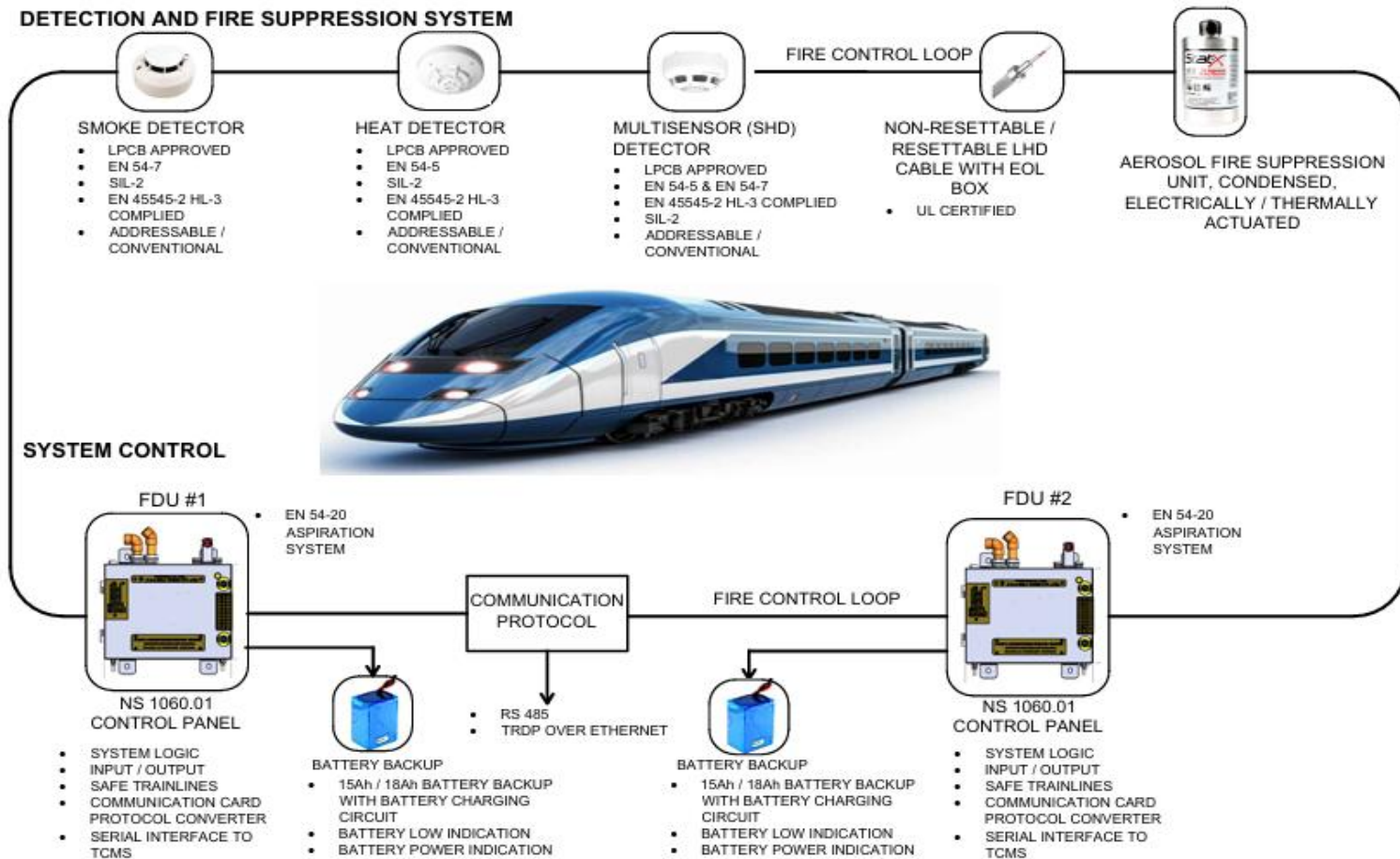
NS1060.03 PD FDS





HYBRID FIRE DETECTION SYSTEM- NS1060.01

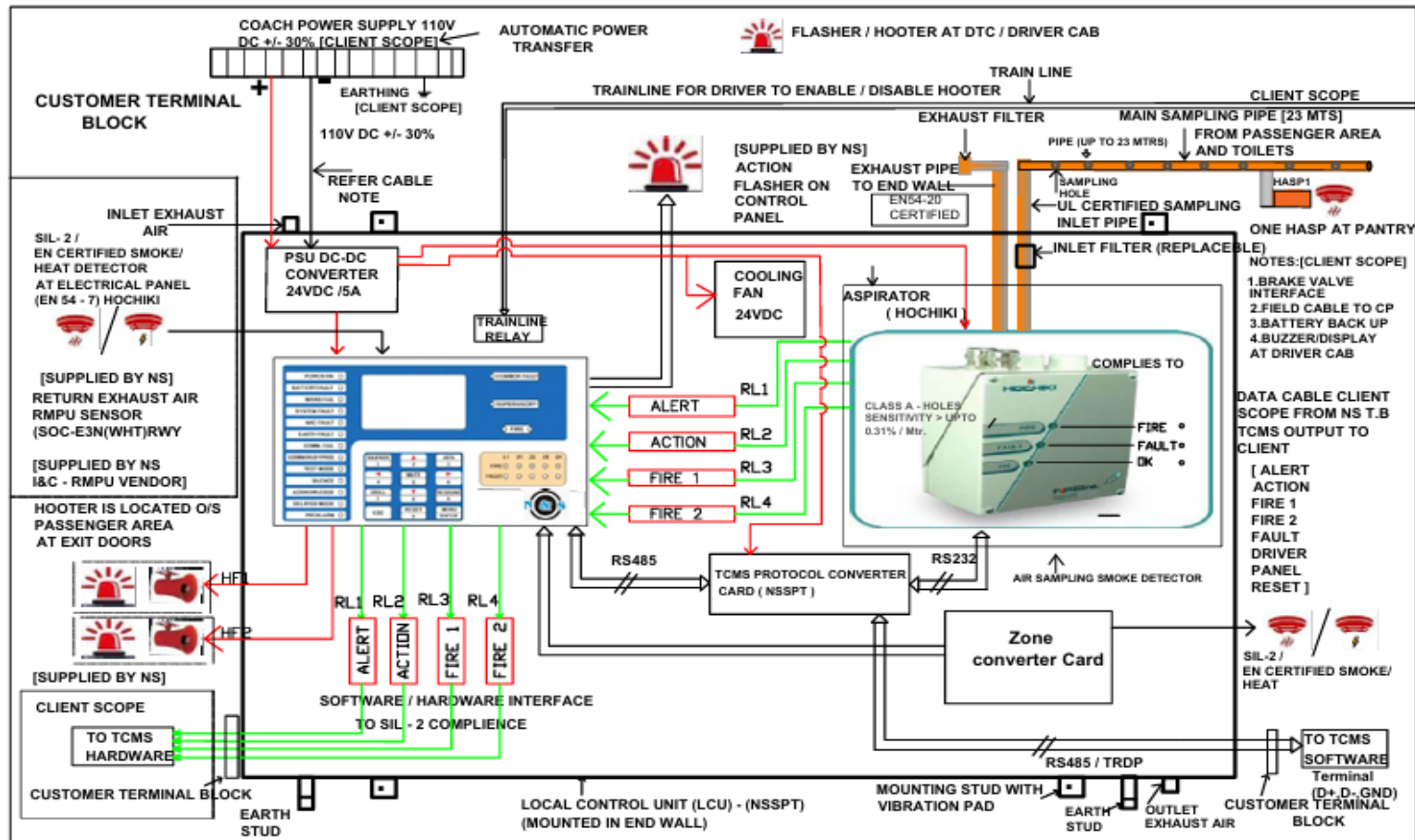
SYSTEM ARCHITECTURE





HYBRID FIRE DETECTION SYSTEM- NS1060.01

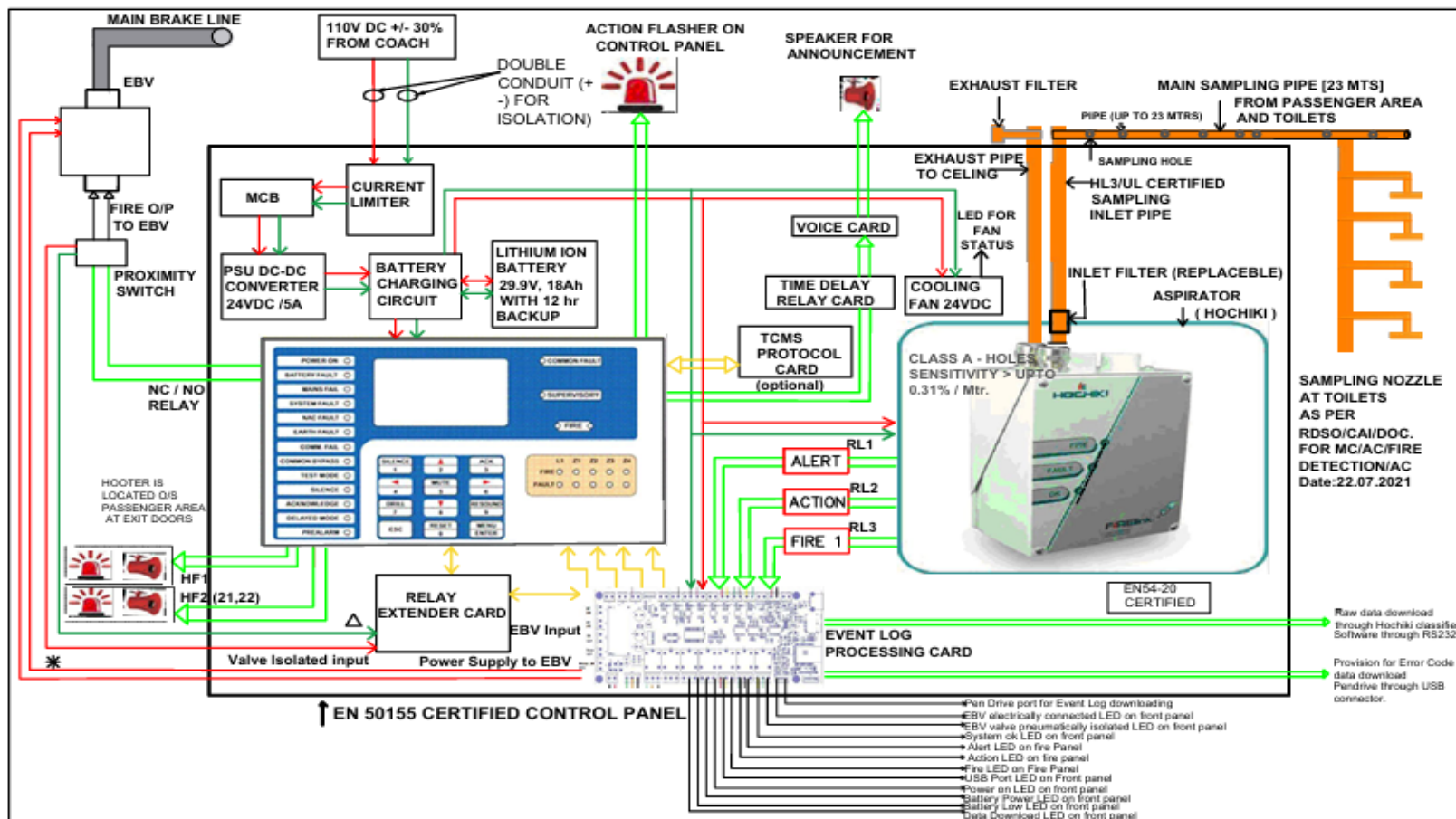
BLOCK DIAGRAM





ASPIRATION BASED FIRE DETECTION SYSTEM- NS1060.02

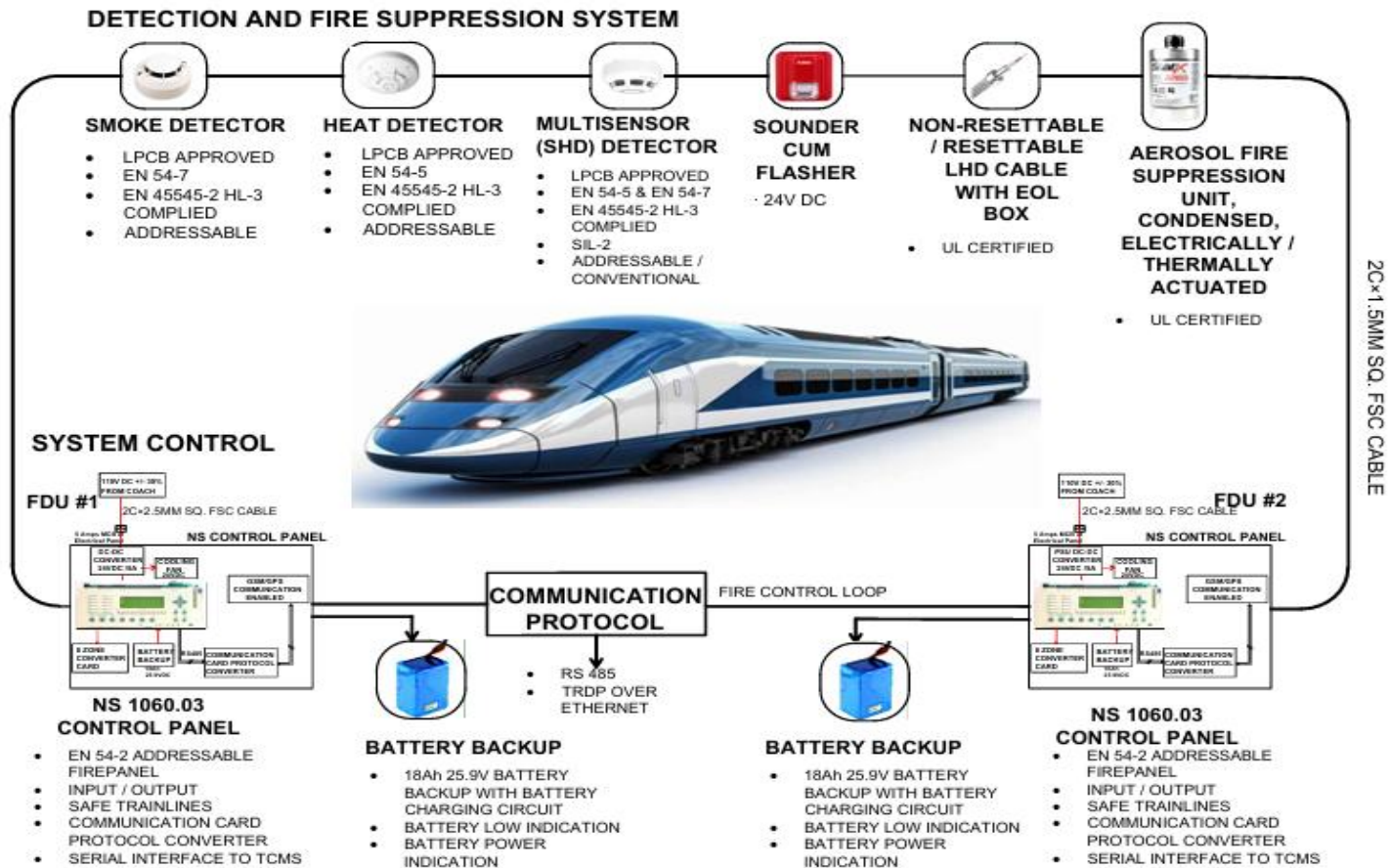
BLOCK DIAGRAM





POINT DETECTOR TYPE FIRE DETECTION SYSTEM- NS1060.03

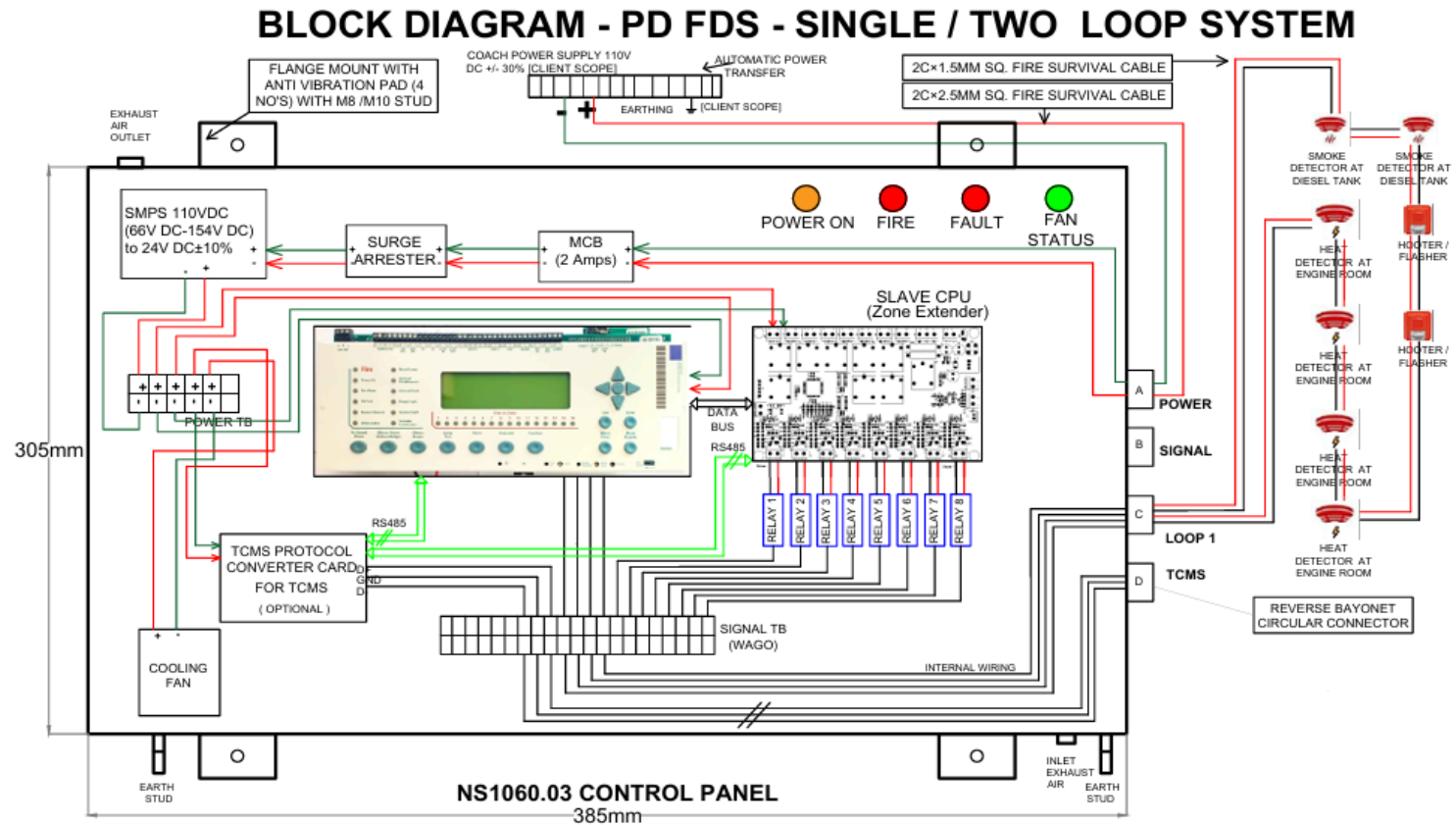
SYSTEM ARCHITECTURE





POINT DETECTOR TYPE FIRE DETECTION SYSTEM- NS1060.03

BLOCK DIAGRAM



ELECTRIC LOCOMOTIVE – SWITCHING SYSTEMS

1- MAXIMUM CURRENT RELAY – NS 1180

2- MINIMUM VOLTAGE RELAY – NS 1110.02



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MAXIMUM CURRENT RELAY – NS1180

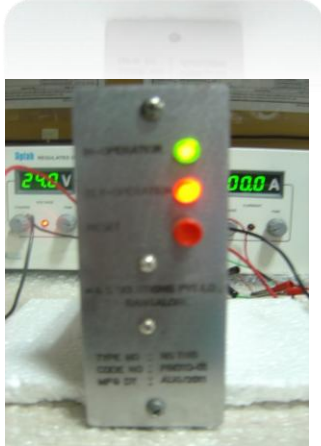


NSSPT Developed Maximum Current Relay is used to protect the Control systems at other end from overload. Maximum Current Relay are used in WAG-9, 3 – Ø, 50 Hz, 6000 Hp locomotives of Indian Railways.

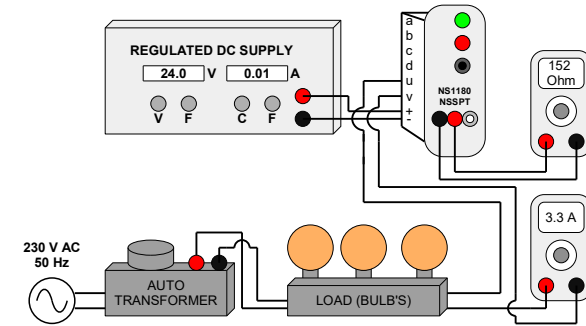
The NSR family of Maximum Current Relay are low power module for electrical and electronics system safety. This module provides high accuracy, efficiency, and reliability that remain constant over the entire operating range and their full life.

FEATURES

- Output error is limited to 1.5% at T=25°C.
- Fast response.
- Low losses.
- High accuracy.
- 100mv/amp sensitivity.
- Linear operation.
- Nearly zero magnetic hysteresis.
- Light weight.
- Low internal conductor resistance (92mΩ).



TEST SETUP



MCR (NS1180) - TEST SETUP

SPECIFICATION

Relay Contact Rating: Continuous Current	Maximum 2A DC
Making Current	Maximum 2A DC at 110 Volt
Breaking Current	Maximum 2A AC 50 Hz at 220 Volt
Setting Current	2 Amps to 10 Amps AC
Response Time Pick Up Drop Out	Less than 70 m.sec Less than 60 m.sec





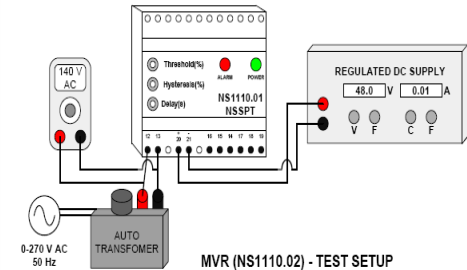
MINIMUM VOLTAGE RELAY – NS1110.01



NSSPT Developed Minimum Voltage Relay is used to protect the controller circuitry from damage due to low voltage supply. Minimum Voltage Relay is used in WAG-9, 3 – Ø, 50 Hz, 6000 Hp locomotives of Indian Railways.

The NSR family of Minimum voltage Relay is designed as protection modules for electrical/ electronic systems. The advantage includes a high level of accuracy, efficiency, reliability that remain constant over the entire operating range.

TEST SETUP



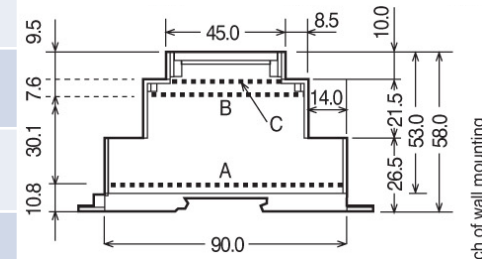
SPECIFICATION

Temperature	15....30 Deg C
Nominal Temperature Range	0....45 Deg C
Limit Temperature Range	-10....55 Deg C
Limit Temperature Range for storage	-25....70 Deg C
Relative Humidity	Up to 75%
Dimensions	4 modules DIN 43880
Voltage	10....120% UN (accuracy cl.1) 20....120% UN (accuracy cl 0, 5)
Test Voltage	5kV standardized impulse 1, 2/50µ 0, and 5Js

FEATURES

- Microcontroller based operation.
- Adjustable Pick-Up Voltage.
- Adjustable Drop-Out voltage.
- Adjustable Timing.
- High accuracy.
- Dust protected stated Relay.
- Start Up minimum DC supply detection.
- Light Weight.

OUTER DRAWING



ELECTRIC LOCOMOTIVE – CONTROL SYSTEMS

- 1- Diagnostic Terminal – NSDT1001
- 2- Amplifier to Oil Circuit – NS1080
- 3- Driver Display Unit – NS1201
- 4- Fire Detection Unit – NS1060



DIAGNOSTIC TERMINAL – NSDT-1001



FEATURES

- The equipment is built around a High speed microcontroller.
- Communication gateway enabling direct connection with locomotive control system through Isolated High Speed Serial Bus (IHSSB).
- Robust Aluminum EMI/EMC protected housing.
- MIC Grade PCB

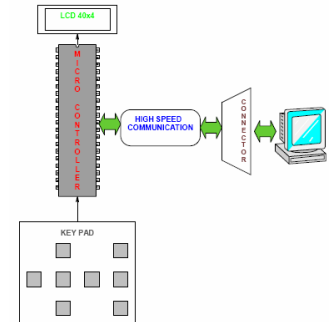
Diagnostic Terminal module was developed for troubleshooting and online diagnosis of WAG-9 and WAP-5 (6000 HP, 3-Ø, 25 Kv, 50 Hz AC) locomotives.

The equipment is built around a High speed microcontroller and has a communication gateway enabling direct connection with locomotive control system through Isolated High Speed Serial Bus (IHSSB). This diagnostic tool acts like a network node on IHSSB and all operation status can be viewed on real-time. The equipment is very compact with input supply of 77-125 V DC.

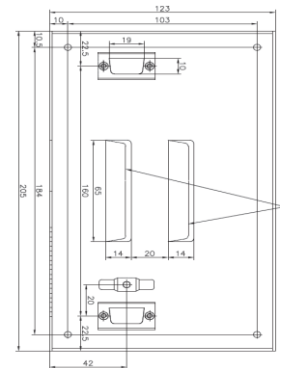
SPECIFICATION

Display	LCD with LED Backlight (40 X 4)
Color	Yellow Green
Size	190 mm X 54 mm X 13.5 mm
Brightness Control	Programmable Contrast Control,
Backlight	Programmable
Character set	ASCII, 8 Bit
Key Pad	8 Keys (3 Rows X 8 Columns)
Rated Input Voltage	77-125 V DC Power 3.0 W

TEST SETUP



OUTER DRAWING





AMPLIFIER TO SENSOR OIL CIRCUIT – NS1080

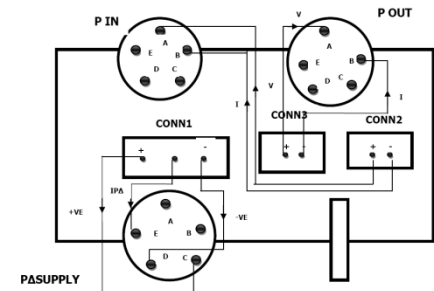


The NSSPT Developed Differential Amplifier powers two two-wire loop powered 4-20mA pressure sensors and produces a single three-wire 4-20mA signal, which is proportional to the difference between the two inputs.

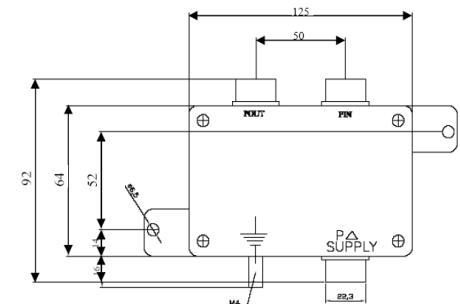
SPECIFICATION

Operating Voltage Area U_B	18.....30 V DC
Output Signal IP	4.....20 mA
Measuring Principle	Current Sensing
Quantity to be measured	Positive differential between two 4-20mA,
Pressure area of sensors	0.....4 bar (relative)
Differential pressure area	0.....2 bar (polarized)
Maximum Load resistor	250 Ω
Characteristics deviation	0.25% of full scale
Operating Temperature	-25 to +85°C

TEST SETUP



OUTER DRAWING





FIRE DETECTION UNIT- NS1060



NSSPT Air Sampling Fire detection unit consists of Photo Electric Smoke Detectors, Suction unit with Airflow monitoring and LED VISUAL Indications. Alphanumeric display for displaying status of the system and shows the specific types of fault so that we can easily take an action against that fault to restore the system.

All these functionalities have been supported using digital computing enabled through microcontroller which is EMI /EMC protected.



The Primary application of this unit is to detect smoldering fire occurring in vicinity of suction pipe by sensing the by product of smoldering fire (i.e. Smoke) and flaming fire.

The suction pipe is connected to the unit through a PG 29 Gland cable pipe connector. Air samples enter into the Chamber through openings on the suction pipe. Air flow monitoring has been implemented by calculating inlet and outlet air pressure difference

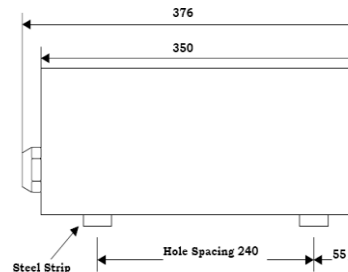
SPECIFICATION

Input Supply	20-30 V DC
Nominal Supply	24 V DC
Dimension (H X W X L mm)	140 X 290 X 350
Temperature Range Operation	-20° C to +60° C
Storage Temperature	-20° C to +85° C
Electrical connection	25 way sub -D Bucket soldering Connector

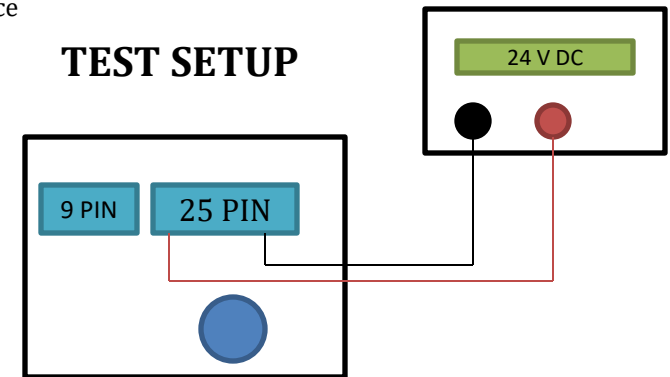
FEATURES

- Latest Microcontroller based circuit system
- Programmable type therefore control over sensitivity , Airflow & Alarm threshold level
- Power On self Diagnostics
- Robust SS Construction , facility for additional smoke & Fire monitoring system
- Accuracy achieved through digital computation
- Fault Diagnostics Data Download , Data Download capability.

OUTER DRAWING



TEST SETUP



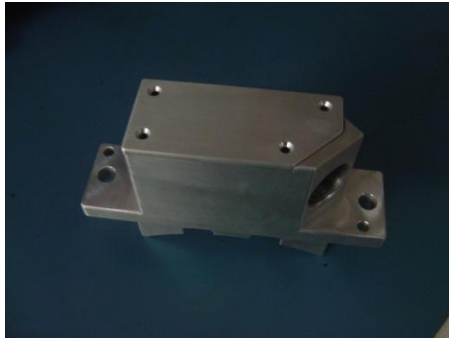
ELECTRIC LOCOMOTIVE – SENSORS

- 1- Active Speed Sensor for Traction Motor – NS1020.02
- 2- Pressure Sensor Oil Circuit Transformer – NS1300
- 3- Temperature Sensor Oil Circuit Transformer – NS1010.08





ACTIVE SPEED SENSOR FOR TRACTION MOTOR – NS1020.02



NSSPT Developed Active Speed Sensor offers industry one of the most reliable, Accurate and robust methods of speed sensing. Purpose designing housings for arduous operating environments where Reliability is paramount. Ease of access, convenient installation, protection against severe Environmental conditions and high tolerance to shock and vibration . Capable of withstanding the requirements of IEC 60571, Environmental Reliability Qualification Standards.

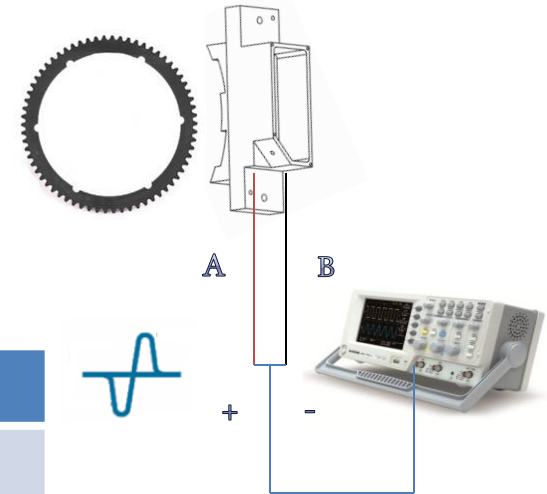


APPLICATIONS

The 3-phase locomotive uses the Traction Motor Speed for calculation of the Locomotive speed in order to activate the speed control and more importantly For the adhesion control during starting and braking. The effectiveness of slip Control depends upon the accuracy of the speed sensor, especially at crawling Speeds.



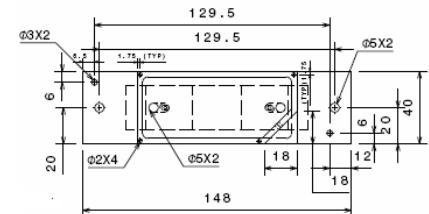
TEST SETUP



SPECIFICATION

DC Operating voltage	72VDC to 140VDC
Nominal Temperature Range	-40°C to +150°C
Operating Air Gap	2.8 mm
Altitude	2800 to 12000 Feet
Relative Humidity	0 to 100%
Protection Classification	IP68

OUTER DRAWING



N&S TEMPERATURE SENSOR OIL CIRCUIT TRANSFORMER –NS1010.08



The Temperature Sensor Probe contains Dual PT100 Element within stainless steel housing for use in air, oil or water mediums for measuring Temperature. The high accuracy PT100 Element provides a fast & accurate thermal response.

SPECIFICATION

Housing Material	Stainless Steel
Sensor Construction	2 Resistances Thermometers in one Body
Operating Temperature	-45 °C to +125 °C
Sensor Tip Environment	-45 °C to +125 °C
Test Voltage	1000V AC for 60 Sec
Cable Type	Radox GKW RW/EMV (Electron Beam Irradiated)
Conductor	STD Tin plated copper or Equivalent
Cable Length	3.5 meters or as required
Sensor Construction	2 PT 100 Resistances Elements in One assembly

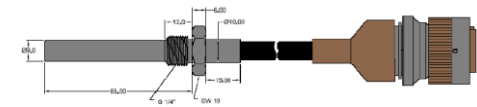
APPLICATION

- Sensing of coolant temperature of compressor in locomotives.
- Air compressor temperature detection.
- Off-Highway vehicles.
- Machine Condition Monitoring.
- Traction Converter Cooling Circuit
- Process Plant.
- Sensing of Battery Box Temperature.

TEST SETUP



OUTER DRAWING



DIESEL LOCOMOTIVE – TEMPERATURE SENSORS

- 1- Sensor Assembly 1000 RTD – NS1010.01
- 2- Temperature Sensor Traction Motor – NS1010.12
- 3- Engine Temperature Sensor– NS1010.10





SENSOR ASSEMBLY 1000 RTD – NS1010.01



Sensor Assembly 1000 RTD contains High precision temperature sensor within stainless steel housing for use in air, oil and water medium. Three pin connector terminate these parts to the Application in Locomotive. This unit will give change in resistance proportionate to change in temperature.

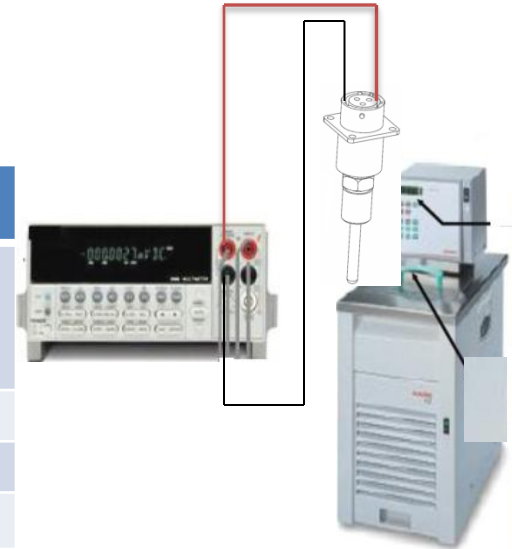
SPECIFICATION

Element	Platinum Resistance Temperature Detector 1000 Ohm $\pm 0.06\%$ at 0° C.
Accuracy	$\pm 0.5^{\circ}\text{C}$ Over Application Range
Temperature Range	Element Rated to 500° C.
Sheath	4.7752 OD, 316 Stainless Steel
Temperature Coefficient	0.00385 Ohm/ Ohm/ C.Of Resistance (TCR)
Construction	Platinum Thin-Film deposited on ceramic Substrate with fused glass covering the Platinum.
Resistance	Meets DIN-IEC-751 (Formerly DIN 437600) Class A

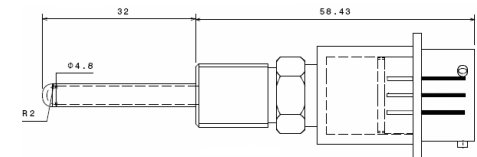
APPLICATION

- Sensing of coolant temperature of compressor in locomotives.
- Air compressor temperature detection.
- Sensing of Battery Box Temperature.
- Machine Conditioning Monitoring.
- Traction Converter Cooling Circuit

TEST SETUP



OUTER DRAWING





TEMPERATURE SENSOR TRACTION MOTOR – NS1010.12



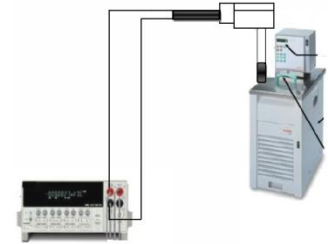
Sensor Assembly 1000 RTD contains High precision temperature sensor within stainless steel housing for use in air, oil and water medium. Three pin connector terminate these parts to the Application in Locomotive.

This unit will give change in resistance proportionate to change in temperature.

SPECIFICATION

Housing Material	Stainless Steel
Sensor Construction	1 Resistances Thermometers in one Body
Operating Temperature	-45 °C to +125 °C
Sensor Tip Environment	-45 °C to +125 °C
Test Voltage	1000V AC for 60 Sec
Cable Type	Radox GKW RW/EMV (Electron Beam Irradiated)
Conductor	STD Tin plated copper or Equivalent
Cable Length	3.5 meters or as required
Sensor Construction	PT 100 Resistances Elements in One assembly

TEST SETUP





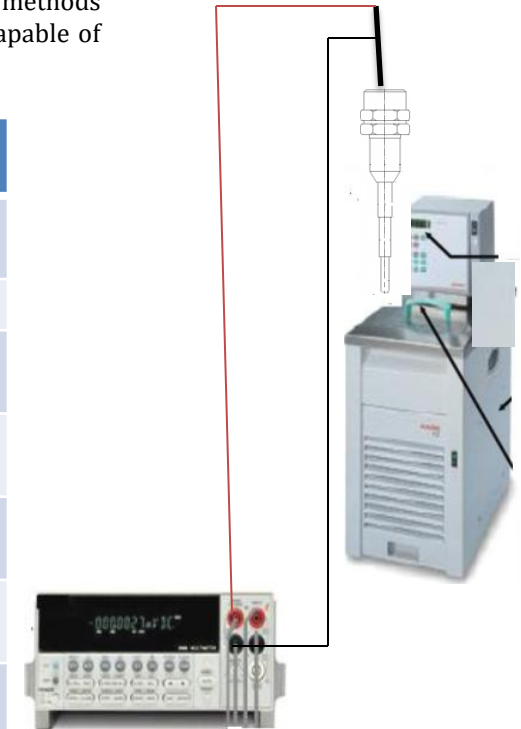
ENGINE TEMPERATURE SENSOR- NS1010.10



The NSSPT developed Temperature Sensor offers industry one of the most reliable accurate, portable, compact and robust methods of sensing wide ranges of temperature. The sensor is capable of meeting the requirements of MIL STD 202F and IEC 571.

SPECIFICATION

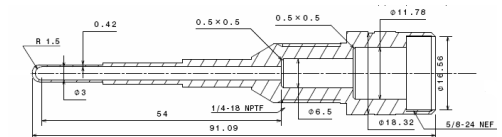
MATERIAL	Stainless steel SS304/316I/18-10
SENSOR	-40°C to + 150°C
SENSOR RESISTANCE	40000 +/-0.88% Ohms @ 25°C
AMBIENT TEMPERATURE	-55°C to +150°C
RELATIVE HUMIDITY	0-100%
MOUNTING THREAD	¼ Inch NPTF Male
CONNECTORS	2-Pin Amphenol 97-3101A-10SL-4P(426) OR equivalent



APPLICATION

- Sensing of coolant temperature of compressor in locomotives.
- Sensing of Battery Box temperature.
- Air compressor temperature detection.
- Machine Conditioning Monitoring.
- Traction Converter Cooling Circuit.

OUTER DRAWING





DIESEL LOCOMOTIVE – SPEED SENSORS/ RADAR ASSY

- 1- Sensor Turbo Speed – NS1020.06
- 2- Pick Up Magnetic Speed Sensor – NS1020.05
- 3- Magnetic Speed Sensor– NS1020.04
- 4- Radar Assembly – NS1020.07





SENSOR TURBO SPEED – NS1020.06



NSSPT developed Turbo Speed Sensor is used in Diesel Electric Locomotive for control Circuitry.

The device with both the terminals tied together will withstand the voltage of 500 V AC, rms 60 Hz to case for one minute. The maximum rate of application of voltage is 100 V AC rms/ sec.

The materials used are inherently non-nutrient to fungus and shall not blister, crack, outgas, blow or exhibit other immediate or latent defects that adversely affect storage, operation or environmental capabilities of these devices.

SPECIFICATION

PARAMETER	VALUE
Output Voltage	5.0 V PK-PK MIN
Coil Resistance	360 Ohms Max
Inductance	50MH Max
Dielectric Strength	500V RMS at 60Hz for 1 Min. Max not to exceed 100V per second
Leakage Resistance	100 Mega Ohms Min
Temperature Limit	-67° F TO +350°F

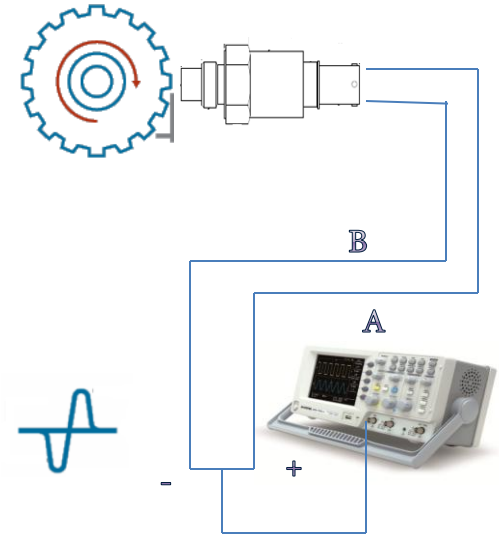


FEATURES

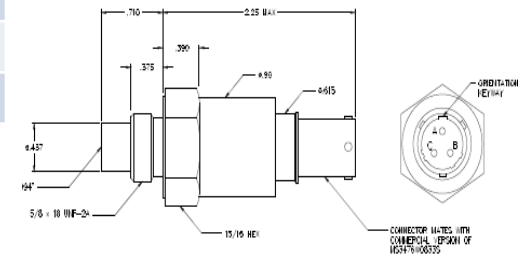
- Specially designed for the complete versatility of speed sensing
- Small, Robust easy to install.
- Designed for use in harsh working environment and hazardous areas.



TEST SETUP



OUTER DRAWING



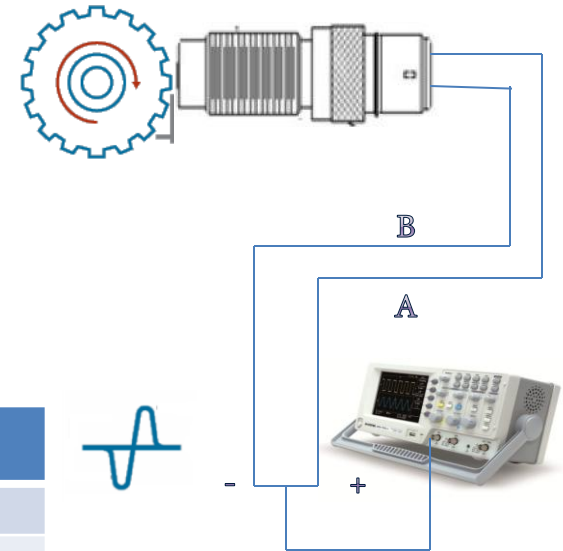
N&S PICKUP MAGNETIC SPEED SENSOR- NS1020.05



NSSPT Developed Pick up Magnetic Speed Sensor is a passive single channel sensor with variable frequency AC voltage output. It offers industrial one of the most reliable, accurate and robust methods of speed sensing.

In the Sensor the magnetic core is exposed through the end of the sensor body for reducing the air gap between the sensor and the target & thereby yielding greater low speed sensitivity.

TEST SETUP

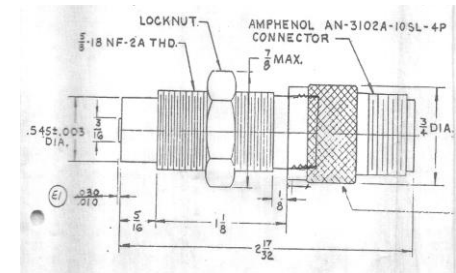


SPECIFICATION

PARAMETER	VALUE
Resistance	200 Ohms Max @20°C
Inductance	65 TO 85 MH
Capacitance	14MMF(Average)
Insulation Resistance to shell	100 megohms
Temperature Range	-100° F TO +225°F



OUTER DRAWING



APPLICATION

- CAM & CRANK shaft position/ Speed measurement.
- Detection of direction & position of Gear wheel.
- Turbo shaft speed measurement





MAGNETIC SPEED SENSOR- NS1020.04



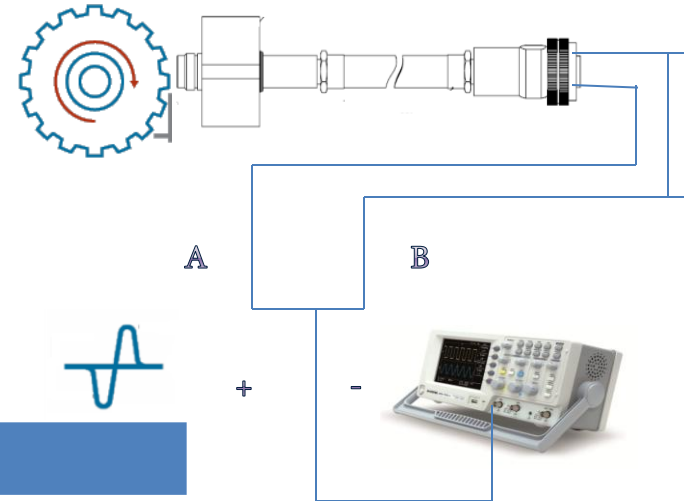
NSSPT Developed Magnetic Pick Up Speed Sensor offers industry one of the most reliable, accurate and robust methods of speed sensing. Purpose designing housings for arduous operating environments where reliability is paramount. Ease of access, convenient installation, protection against severe environmental conditions and high tolerance to shock and vibration. Capable of withstanding the requirements of MIL 202F, Environmental Reliability Qualification Standards.



APPLICATION

A.C. Traction Motor Speed Sensing in Locomotives

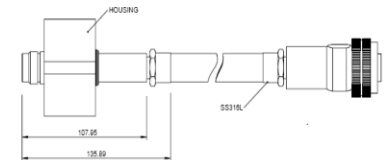
TEST SETUP



SPECIFICATION

Ambient Temperature Limit	-40°C to +85°C
Operating Air Gap	For min. voltage requirement: 0.033" For max. Voltage requirement: 0.017"
Altitude	2800 to 12000 Feet
Relative Humidity	0 to 100%
Frequency Range	10Hz to 2700Hz derived from a 10 Pitch, 60 Tooth, 20 deg. Pressure angle gear with the air Gap

OUTER DRAWING



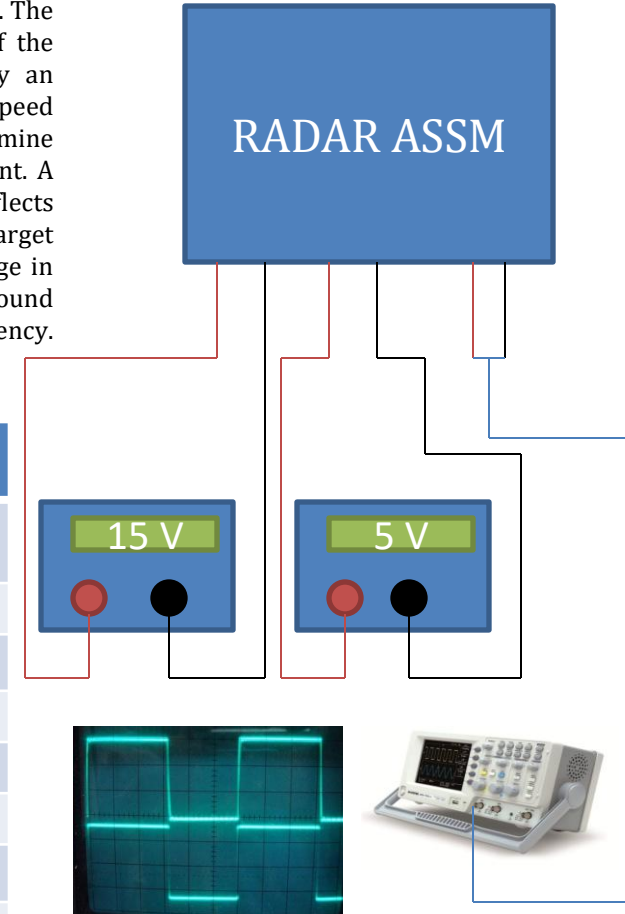


RADAR ASSEMBLY – NS1020.07



A change in the observed frequency of a wave, occurring when the source and observer are in motion relative to each other, with the frequency increasing when the source and observer approach each other and decreasing when they move apart. The motion of the source causes a real shift in frequency of the wave, while the motion of the observer produces only an apparent shift in frequency. Also called *Doppler shift*. Speed sensing Radar uses the principle of Doppler shift to determine the ground speed of the vehicle or other type of equipment. A microwave signal that is transmitted out of the sensor reflects off the target and is received by the sensor. When the target (terrain) is moving relative to the sensor, there is a change in the frequency of the reflected signal (Doppler shift). The ground speed is calculated by measuring the change in frequency.

TEST SETUP



APPLICATION

Actual ground speed monitoring
Direction detection.

SPECIFICATION

Input Supply	72 V Dc Nominal (48 – 88 V Dc)
Output frequency	22.5 Hz / Mph
Mounting Angle	37.5°
Radar type	K-Band Radar
Antenna type	Planner array antenna
Transmission Frequency	24.125 GHz
Band width	500 MHz
Velocity range	0.5 – 180 Km/h



DIESEL LOCOMOTIVE – ELECTRONIC/ELECTRICAL PRODUCTS

- 1- Electronic Water Level Indicator – NS 1030.01
- 2- LT Indication Panel – NS1130
- 3- Main Reservoir Pressure Transducer – NS1300

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ELECTRONIC WATER LEVEL INDICATOR- NS1030.01



APPLICATION

- High Operating Voltage: 48 V Dc to 88 V Dc
- High Accuracy
- Stainless steel body
- Fast response
- High reliability
- Sound Construction

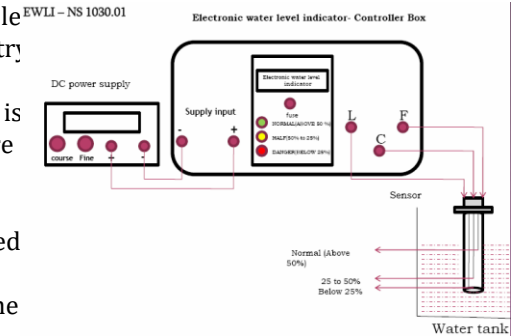
Electronic water level indicator is used in EMD Locomotive to check the water level. This unit issues has three probes of different sizes to detect the level of water.

This unit works on the principle of current conduction property of water. When water level reduces to 25 %, it isolates the whole loco control system from supply to protect other control circuitry from excessive heating effect.

There are three different level detection and indication system is involved (i.e. 100%, 50%, 25 %). For each level indication there is one LED provided on front panel of controller.

This unit contains two different systems (i.e. Sensor unit & Controller unit). The sensor unit is to be fitted in the pressurized water expansion tank of diesel locomotive to sense the water level inside the tank. The control panel has been fitted inside the driver's cab to give audio-visual indication to the driver having relay with "NO" and "NC" contacts

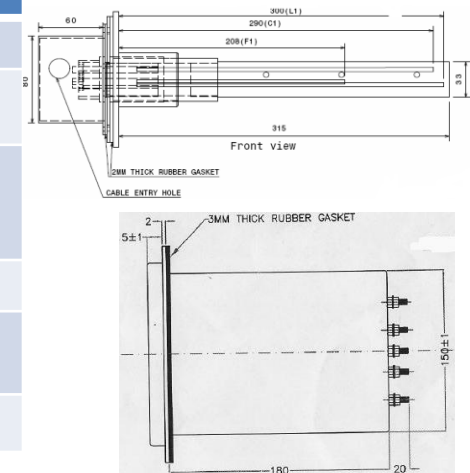
TEST SETUP



SPECIFICATION

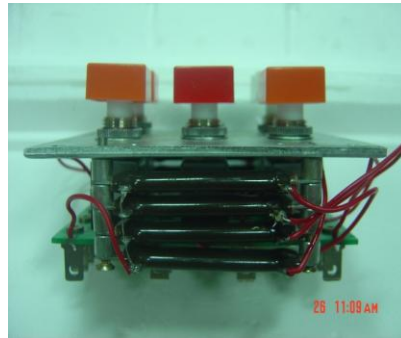
Current Consumption	32 m Amp (Max)
Display System	3 LED (for 3 states)
Operating Voltage	72 V Dc (Nominal), 48 V Dc to 88 V Dc
Ambient Temperature	0°C to 70°C
Relative humidity	100%
Ambient Condition	1.6 mg/cub m Dust Level

OUTER DRAWING





LT INDICATION PANEL – NS1130



This unit is an indication unit. It takes input from various sensor available in the locomotive and generate output in the form of flashing LED at the front panel and then in respective terminal.

Panel consists of 6 switches as mentioned below:

- TE LIMIT
- SAND LIGHT
- WHEEL SLIP
- FLASHER LAMP
- PCS (Pneumatic Control System)
- BREAK WARN

TE LIMIT: It indicates Tractive Effort limiting functions have been activated from Microprocessor.

SAND LIGHT: It indicates that sanding request has been made to the Microprocessor by means of sand switch actuation on the locomotives. Other sanding request are made by the emergency air break apply.

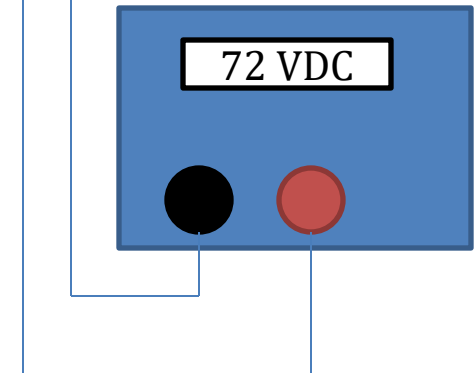
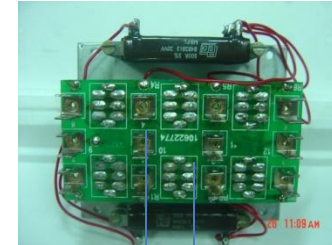
WHEEL SLIP: The condition cause the wheel slip light to switch ON is locked wheel and these conditions is not simulating in the panel.

FLASHER LAMP: Flasher ON/OFF when either outside flasher lamp is flashing provided that flasher lamp is not burned out and light circuit breaker is closed flashes at same rate at the outside flasher lamp.

PCS (Pneumatic Control System): When the pressure is below 3.8 kg/cm^2 in main reservoir the PCS get on when EM it is recommend its goes OFF

BREAK WARN: The light turns ON whenever the locomotive is generating excessive dynamic braking current regardless of Tractive Effort meter reading.

TEST SETUP





MAIN RESERVIOR PRESSURE TRANSDCER – NS1300

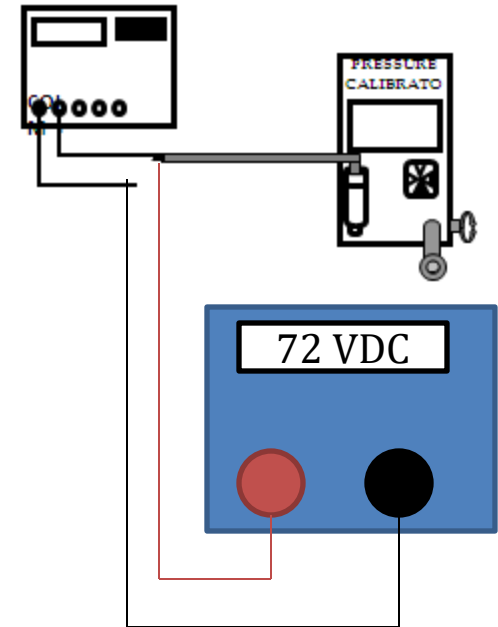


The sensing Element is ceramic capsule connected to signal conditioning circuit to provide a 2 wire, 4...20MA and linear pressure related output signal

FEATURES

- Pressure ranges from 0 to 20 bar
- Chemical and corrosion resistant ceramic diaphragm with integral temperature compensation
- 2 Wire, loop powered 4...20ma linear analogue outputs.
- Designed for use in harsh working environments and hazardous areas
- Gauge or absolute.
- High impact and vibration tolerance for heavy – duty applications.
- Stainless steel housing with various connection options.
- Standard pressure connection 1/4" NPT Internal (other pressure ports available to special order)

TEST SETUP



LOCOMOTIVE CONTROL PANELS

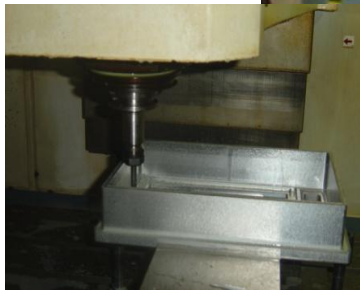
- 1- HB 1 & HB 2 AND SB1 & SB2 PANELS
- 2- Driver Control Desk for Locomotives



N&S Facilities Resources

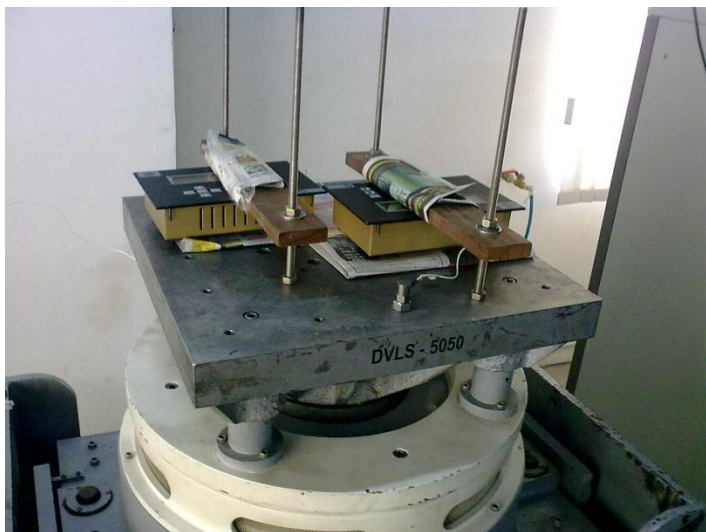


Facilities Resources





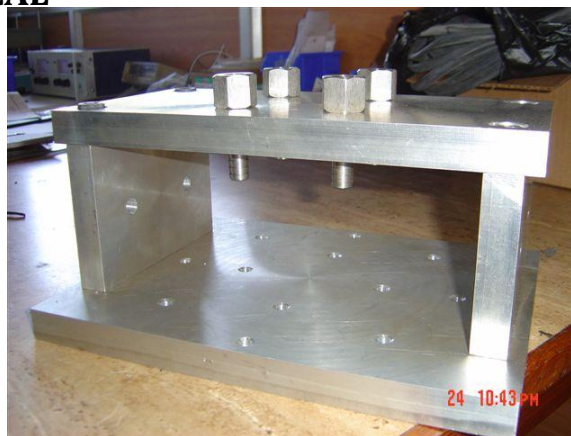
PRODUCT LIFE CYCLE MANAGEMENT- ENVIRONMENT QUALIFICATION TEST -NABL CERTIFIED



VIBRATION TEST- VERTICAL



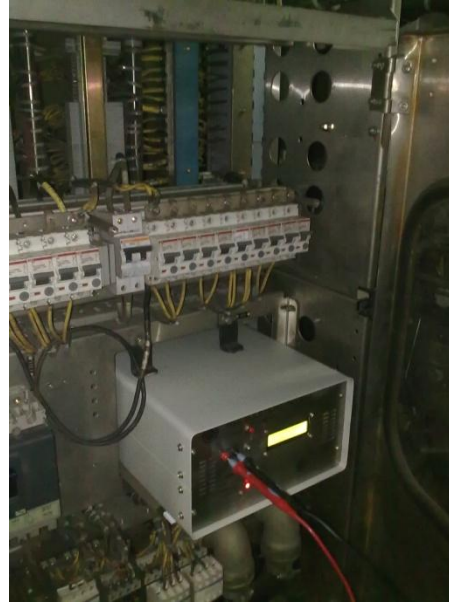
VIBRATION TEST- HORIZONTAL



VIBRATION TEST- SENSORS



PRODUCTS COMMISSIONED ON LOCOMOTIVES FOR FIELD TRIAL & APPROVALS



Esteemed Clients of N & S Solutions

- 
- Chittaranjan Locomotive Works (CLW)
 - Diesel Locomotive Works (DLW)
 - Central Railway
 - East Central Railway
 - Northern Railway
 - North Eastern Railway
 - Northeast Frontier Railway
 - North Western Railway
 - Southern Railway
 - South Central Railway
 - South Eastern Railway
 - South East Central Railway
 - South Western Railway
 - West Central Railway
 - Western Railway
 - Rail Wheel Factory
 - GE Transportation India Ltd
 - ICF - Integral Coach factory
 - RCF - Rail Coach Factory





Certification



GST NO: 29AABCN9709K1ZX

TAN NO: BLRNO4400E

PAN NO.: AABCN9709K



NS DEMO SIMULATION COACH FOR LIVE SMOKE AND PERFORMANCE TESTING



N & S SOLUTIONS PVT LTD.,

ISO 9001:2008 COMPANY



REGISTERED ADDRESS:
N&S SOLUTIONS PVT LTD
NO:37-38 RELIABLE RESIDENCY, 1st
MAIN
8th CROSS, HARLUR, HSR LAYOUT
BANGALORE – 560104

FACTORY ADDRESS: N&S SOLUTIONS PVT LTD
BUILDING NO: 31,32,33,34,35
SHREE ANGALA PARAMESHWARI RESIDENCY
MUNESHWARA LAYOUT, HARALUKUNTE
KUDLU MAIN ROAD, BANGALORE-560068

MARKETING & R&D OFFICE: N&S
BUILDING NO.4, 4th FLOOR,
12th CROSS, MUNESHWARA LAYOUT
HARALUKUNTE, KUDLU MAIN ROAD
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