ADM RAIL SOLUTIONS

100 %
Recycled Material

www.admtech.com.au

Contents

ADM Team, Head Office, Victoria

About Us

What we do

We support customers across Australia with products such as industrial power supplies, LED drivers, position sensors, pressure sensors, load cells, and encoders, supporting many different industries. Our customers include businesses in the industrial automation, medical and pharma, F&B, research and design, and even higher education, as well as lighting specialists and original equipment manufacturers.

But it doesn't stop at stocking and supplying products. We offer a wide range of services Australia wide, delivered by ADM's highly dedicated and professional technical team because it matters to you. We understand that it matters that you can quickly get a product to your door, and that you need to also get that product to your door at a fair and reasonable price.

We understand that technical support matters, which is why we keep our technical team up to date with the latest product information.

We understand that you want to partner with a supplier that is focused on what matters to you.

Our Services

Rental / Loan of hand held test & measurement equipment.

Expertise & technical support across all of our products.

Calibration of transducers, sensors & other equipment.

Service and repair down to component level.

Jonathan Brown, General Manager and Kristin Brown, CEO

Who we are

ADM Systems Pty Ltd is a family run group of businesses, first established by our Managing Director, Glenn Bates in 1986, and now led by our CEO, Kristin Brown.

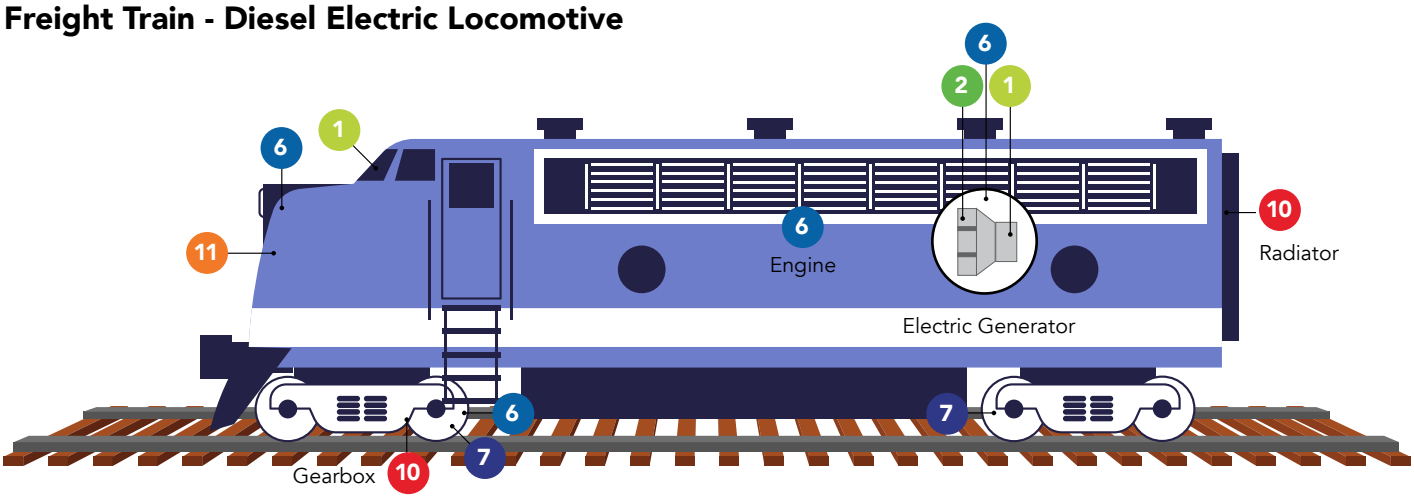
Since then we have grown to become Australia's largest distributor of MEAN WELL Power Supplies, Eurotherm Process Control and Data Management Solutions, Industrial Transducers and Sensors, PCA Encoders, Industrial Connectors, and Test & Measurement Instrumentation suitable for a wide range of applications.

ADM has a strong commitment to holding stock. This means you know the product is available when you need it. We also offer volume pricing and scheduled ordering to original equipment manufacturers, and projects that need to order in high quantities, as well as convenient online ordering services for small scale enterprises and retail customers. Our technical staff undertake regular factory training and have close working relationships with our leading suppliers, so that they are up to date with the latest technologies available. This ensures you have the best performing position transducers, load cells, LED drivers and all other components for your application.

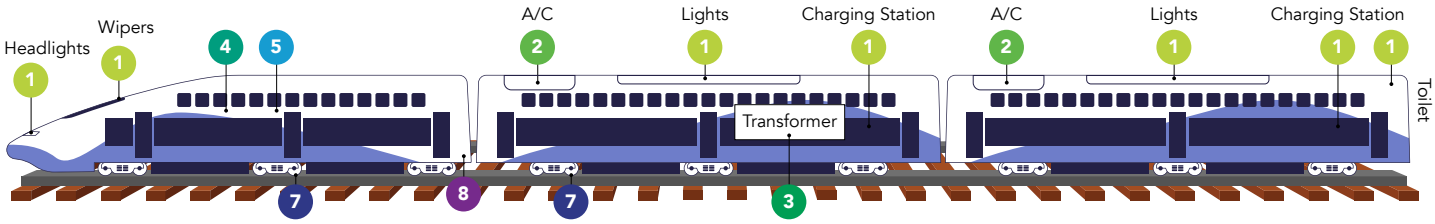
IF YOU ARE VISITING OUR HEAD OFFICE IN DINGLEY VILLAGE, YOU ARE LIKELY TO RECEIVE A VERY WARM WELCOME FROM OUR COMPANY DOGS.

PRODUCT OVERVIEW FOR THE RAIL INDUSTRY

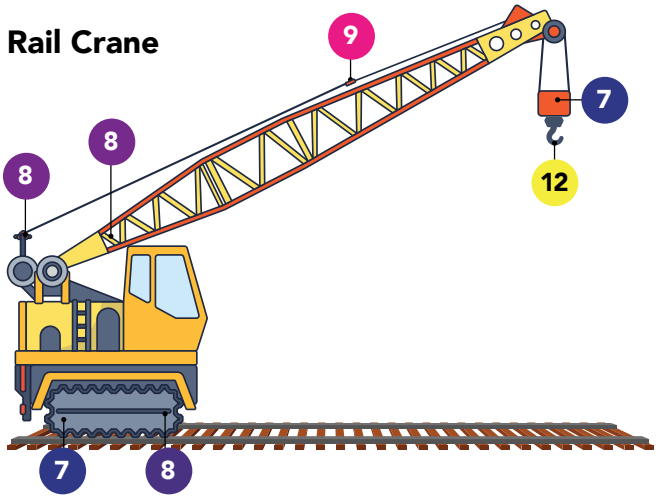
Freight Train - Diesel Electric Locomotive



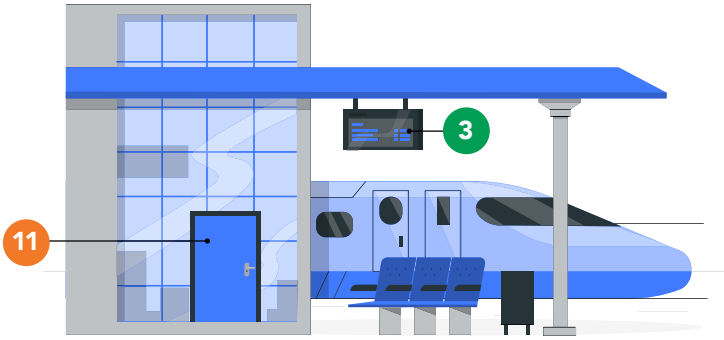
Passenger Train – Tram and Light Rail Vehicle



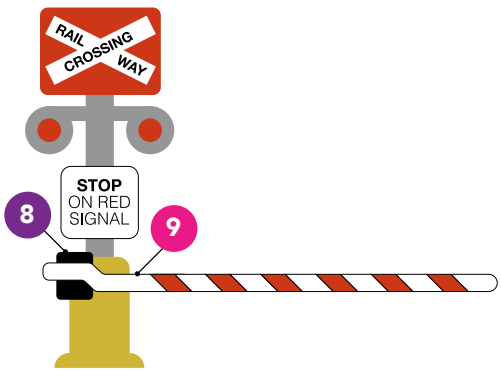
Rail Crane



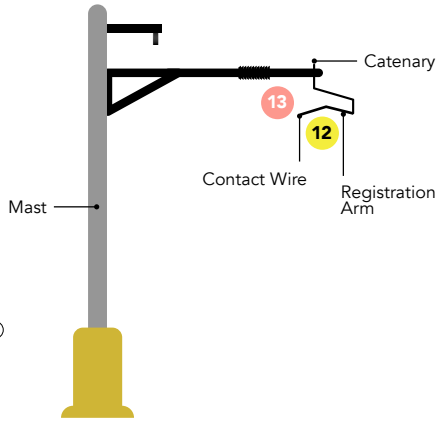
Platforms & Control Centres



Flashing Signal Assembly with Boom



Overhead Catenary System



Legend

1. DC-DC Converters
2. DC-AC Power Supplies
3. Enclosed Power Supplies
4. DIN Rail Power Supplies
5. Connectors
6. Sensors
7. Encoders
8. Inclinometers
9. Transducers
10. Liquid Level Sensor
11. Data Loggers / HMI Displays
12. Load Cells
13. EMF Meters

POWER PRODUCTS

MEAN WELL DC-DC Converters

ADM has been the primary MEAN WELL distributor in Australia for over 20 years. Since 1982, MEAN WELL has grown to be one of the leading standard switching power supply manufacturers in the world. ADM ensures all MEAN WELL products available locally are certified with Australian Approvals.

MEAN WELL RSD Series and DDR Series are designed to meet the railway safety standards EN50155 and EN45545-2, and are suitable for railway telecommunication, security, and control systems.

The advanced circuitry of the RSD series enables efficiency of up to 93%, and the semi-encapsulated design provides protection of PCB while giving it the ability to withstand moisture, dust, vibration, and heat, making it suitable for rugged environments.

The DDR Series, on the other hand, is a DIN rail-type power supply that has an ultra-slim enclosure design with a width dimension of only 85.5mm. This enables convenient installation onto TS-35/7.5 or 15 standard DIN rails without having to worry about spacing.

RSD Series - 30 / 60 / 100 / 150 / 200 / 300 / 500

- Compliance to EN50155 (and EN45545-2 for 30W and 60W models)
- Power outputs: 30W to 500W
- Ultra compact and 1U low profile: 25mm to 41mm
- 4000V DC I/O Isolation
- Protections: Short circuit, Overload, Over voltage and Input reverse polarity
- Built-in constant current limiting circuit
- Cooling by free air convection
- Wide operating temperature (-40°C up to +80°C depending on model)
- LED indicator for power on
- Half encapsulated
- 3-year warranty

DDR Series – 120 / 240 / 480

- Compliance to EN50155 and EN45545-2
- 2:1 wide input range
- Wide operating temperature
- 150% peak load capability
- Current sharing up to DDR-240 and DDR-480 (3+1)
- DC output adjustable
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- 4000V DC I/O Isolation
- Protections: Short circuit, Overload, Over voltage, Input reverse polarity, Input Under Voltage Protection
- DC OK relay contact
- Remote on / off control DDR-240 and DDR-480
- 3-year warranty

RQB150W12 - 150W Quarter Brick

- Compliance to EN50155 standard
- Output voltages from 12V to 54V
- 12:1 input range
- Industry standard pin out
- No minimum load required
- Fully encapsulated
- 3KVAC I/O isolation
- Remote on / off control
- Output can be trimmed ± 10%

PREMIUM POWER SUPPLIES

ADM is an authorised Premium Power Supply distributor in Australia.

Premium has over 30 years of experience in supplying power solutions to the international railway market. They offer a wide range of industrial power supplies, DC to DC converters, and AC to DC inverters with railway approvals - EN50155, the standard for parameters like temperature, shock and vibration, and EN45545-2 the standard that applies to fire hazards.

Premium Power Supply DC to DC converters are applicable for a wide range of applications in the railway's DC distribution system that powers traction and operations.

Premium DC to DC Converter Model	Applications
CCS-60 / CTS-120 / CTS-240	Control systems, toilet, headlights and windscreen wipers, and front hatch mechanisms
CRS-500-T / CRS-1000-T	Traction, operating systems, HVAC including hot water, lighting, public information display, and door systems

CTS Series – 60 / 120 / 240

- Enclosed Type
- Approvals: EN50155, EN45545-2, RCM
- Single output type
- 5-year warranty

CRS Series – 500 / 1000 / 2000

- Enclosed Type
- Approvals: EN50155, EN45545-2, RCM
- Power outputs: 500W to 2000W
- Output voltages: 24V to 110V
- 3000Vac, 4200Vdc 1min Input/Output Isolation
- Single output type
- 5-year warranty

CCS-60

- PCB Type
- Approvals: EN50155, EN45545-2, RCM
- Power outputs: 50W to 70W
- Output voltages:12V to 110V
- 3000Vac, 4200Vdc 1min Input/Output Isolation
- Dimensions: Eurocard 3U
- 5-year warranty

CVS-280

- Enclosed Type
- Approvals: EN50155, EN45545-2, RCM
- Power output: 280W
- Output voltages: 24V to 110V
- 7 kVrms Input/Output Isolation
- 5-year warranty

SAFE AND COMFORTABLE TRANSPORTATION WITH DC TO DC CONVERTERS

DC to DC converters are widely used for railway applications. Their main purpose is for either converting the DC voltage to what is needed to run a specific equipment, or for stabilising the DC output to match the exact voltage required.

One main function of a DC to DC converter is to provide stable power for the DC distribution system used for the railway's traction system, which moves the trains safely to their destinations.

On the trains are multiple electronics that are powered by precise voltage requirements. These equipment include the train control systems, headlights, automatic doors, wipers, heating, ventilation, as well as lighting, and public information displays.

If the train is equipped with toilets and hatch mechanisms, then a DC to DC converter is also used to run the hot water and flush system, as well as the hatch mechanism respectively.

If you have a specific DC to DC converter requirement, contact ADM to get technical advice and assistance.

DC-AC RAILWAY SINE WAVE INVERTERS

Sine wave inverters convert DC to AC with a sine wave output, which is similar to the power supplied by the grid. They are designed to convert power with minimised heat generation that results in reduced energy loss during the conversion process.

One of the biggest advantages of using AC is that it is easier to convert the voltage of any current, making high-voltage transmissions feasible and cost-effective.

Railway sine wave inverters can be used to power onboard train equipment such as heating, ventilation, air conditioning (HVAC), signaling and control equipment, communication network, and safety systems, including emergency lights and brakes.

Premium Power Supplies

OCS-260

- Approvals: EN50155, EN45545-2, RCM
- Output voltages: 120VAC to 230VAC
- Power outputs: 180W to 220W
- 5-year warranty

ODS Series
750 / 1500 / 3000

- Approvals: EN50155, EN45545-2, RCM
- Output voltages: 120VAC to 230VAC
- Power outputs: 450W to 3000W
- 5-year warranty

ODX Series
3000 / 6000

- Approvals: EN50155, EN45545-2, RCM
- Output voltages: 120V to 400V (depending on models)
- Power outputs: 2400W to 4800W
- Input and Output Alarms
- Remote Off function
- 5-year warranty

ENCLOSED POWER SUPPLIES

MEAN WELL

HRP Series – 100 / 150 / 200 / 300 / 450 / 600 / 1000

- Built-in active PFC function
- High efficiency, no load power consumption <0.5W~0.75W
- 5-year warranty

RSP Series - 75 / 100 / 150 / 200 / 320 / 500

- 1U Low profile with active PFC function: 75W~320W: 30 mm, 500W: 40.5 mm
- Built-in constant current limiting circuit (RSP-75/100/150)
- Built-in remote ON/OFF control (RSP-75/100/150/500)
- Built-in remote sense (RSP-500 only)

QP - Quad Rail 150 / 200 / 320

- Universal AC input, full range
- Built-in active PFC function
- Protections: Short circuit, overload, over voltage, (over temp for 200 and 300 models)
- 3-year warranty

UHP Series - 200 / 350 / 500 / 750 / 1000 / 1500 / 2500

- Slim and low profile
- Fanless design, free air convection
- Built-in active PFC function150%
- Peak load capability (100ms)
- High voltage output available for HV type
- DC OK active signal and redundant function (option)
- Operating altitude up to 5,000m
- LED indicator for power on
- Rugged, suitable for station power systems

RCP Series 1000 / 1600 / 2000

- Charger : RCB-1600
- Rack: RCP-1U /RHP-1U / RKP-1U
- Controller & Monitor: RCP-MU / RKP-CMU1
- Complete rack mountable front-end solution: rectifier and charger for station power systems
- 1U low profile
- 19-inch rack shelf available

SD Series - 15 / 25 / 50 / 100 / 150 / 200 / 350 / 500 / 1000

- 2:1 wide input range (4:1 for SD-500/1000)
- 1.5~2KVAC isolation by models
- 1U low profile (41mm) for SD-1000
- 12V/0.25A auxiliary output for SD-500/1000
- Built-in remote ON/OFF control and remote sense for SD-500/1000

DIN RAIL POWER SUPPLIES

MEAN WELL

HDR Series
15 / 30 / 60 / 100 / 150

- Plastic case, step shape
- 1Ø, full range input
- Compact size, 1SU~6SU width (DIN EN43880)
- Isolation class II
- DC output voltage adjustable
- No load power consumption <0.3W
- Assemble on industrial rail TS-35 / 7.5 or 15

MDR Series
10 / 20 / 40 / 60 / 100

- Plastic case, ultra slim
- 1Ø, full range input
- No load power consumption<0.75W~1W
- Assemble on industrial rail TS-35 / 7.5 or 15
- Built-in active PFC function
- DC OK signal output (MDR-10/20)
- DC OK relay contact (MDR-40/60/100)
- Class I, Div 2 Hazardous Locations T4 (MDR-40/60)

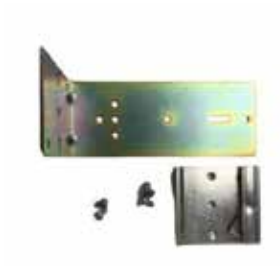
NDR Series
75 / 120 / 240 / 480

- Metal case, economical models
- 1Ø, 90~264Vac, full range input
- Slim size, model width: 32 ~ 85.5mm
- EMC EN55022 class B
- Assemble on industrial rail TS-35 / 7.5 or 15
- 3-year warranty

SDR Series - 75 / 120 / 240 / 480 / 480P / 960

- Metal case, slim size
- 1Ø, full range input (230VAC only for SDR-960)
- 94% high efficiency and complete functions
- Built-in active PFC function (except SDR-75)
- Assemble on industrial rail TS-35 / 7.5 or 15
- Built-in DC OK relay contact (except SDR-75)
- 130%~150% peak load capability by models
- Current sharing function (SDR-480P/960)

Accessories



- DRL Right angle brackets available in three sizes
- DIN clips
- Terminal covers

CONNECTION TECHNOLOGY

Harting Han Connectors

ADM is an authorised distributor of Harting Han Connectors, and stocks the commonly used products in Australia.

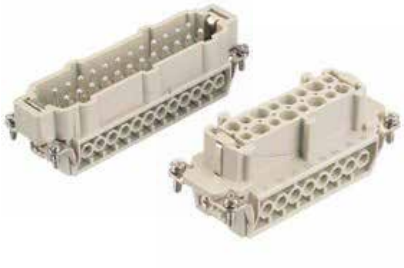
Harting was founded in Germany in 1945, and since then has grown to be one of the largest manufacturers of industrial connection technologies, with a comprehensive portfolio of circular connectors, device connectivity, and industrial connectors Han.

Harting supplies the connection technology for transmitting data, signals and power in railway applications. This technology applies to the Ethernet backbones and data infrastructures (e.g. for sensors and passenger information systems).

Contacts/Terminations

- Screw terminal
- Crimp terminal
- Cage-clamp terminal
- Solder terminal
- Axial-screw terminal
- IDC termination

Inserts



- Leading protective ground
- Polarised for correct mating
- Interchangeability of male and female inserts in hoods and housings
- Captive fixing screws
- Can be used with hoods and housings, or for rack and panel applications

Hoods/Housings

- Available: standard, for harsh environmental requirements and for intrinsically safe plant
- IP65 Protection Rating
- Electrical connection with protective ground
- High mechanical strength and vibration resistance ensured by locking levers
- Spring-loaded covers in shockproof thermoplastic or metal covers, both lockable

Levers

- Single and double locking

Tools

- Removal tools
- Crimp tools

Accessories

- Frames
- Cable glands
- Protective covers

Sensoteq Vibration Sensors for Train Systems' Condition Monitoring

Sensoteq products are suitable for heavy duty industrial environments, and the automotive industry, including railways.

Our technical team at ADM can offer advice and assistance for the Sensoteq product range, so contact us to discuss your applications.

Kappa X sensor KPX1001

The Sensoteq Kappa X sensor range is a wireless triaxial vibration sensor designed to continuously monitor rotating equipment. These sensors are designed to detect faults and inefficiencies of the railway's wheelsets, gearboxes and motors caused by constant exposure to vibration, and varying speeds and temperatures.

When used in tandem with the cloud-based Analytix platform, the key parameters and trending values are reported, which allows for predictive maintenance, thereby reducing unexpected breakdowns.

Highlights

- 10kHz Fmax
- Small diameter mount, magnetic or stud
- Long life replaceable battery

Power Source - Battery

- Type: Replaceable 3.6V 1/2AA
- Chemistry: Lithium Thionyl Chloride
- Life: 5 yrs (battery saver modes available to increase life)
- Battery life based on: Default profile as defined on the next page at ambient temperatures

Mechanical – Physical

- Weight (Magnet): 125g
- Lid Material – Lid: POM-GF20
- Base Material: Stainless Steel
- Mounting Option (m):
  - 0 - Internal M6 Thread
  - 1 - Magnetic Mount (std)
  - 2 - Stud Mount with Axy-fix threaded attachment
- Pull Force: 26kg
- Base Dimensions: Ø25mm

Mechanical – Environmental

- Operating/Storage Temp.: -40 to 85°C (-40 to 185°F)
- Ingress Protection: IP69K
- Shock: 50g
- Explosive environments: ATEX Version Available

Sensoteq Analytix

Diagnostic Dashboard - The Sensoteq Analytix platform provides a clean interface from which to view the data generated from our sensor range. Data is broken down automatically and displayed to the user in a simple hierarchy that lets the user locate poorly performing or at-risk machines quickly. View the data at a level that suits you as a user.

Features

- Secure remote access to your data
- Auto-analysis
- Visualisation of your data
- Alarms: Text, email or integrations
- Condition monitoring diagnostic tools
- Report generation and automatic reports
- Unlimited user per site
- Maintenance, support and frequent updates
- API integration available

Kappa X Wireless Sensor

Measures and transmits data every minute to ensure an accurate diagnosis can be performed for predictive maintenance of the train's systems.

Kappa X Gateway

Provides a communication link from the sensors to Sensoteq Analytix through Wi-Fi, ethernet or mobile connection. Gateway can also monitor ambient temperature to account for daily and seasonal fluctuations.

Sensoteq Gateway

The Sensoteq Gateway has been specifically developed to connect with all Sensoteq's sensor range, including the Kappa X. The gateway provides connectivity for Kappa and Tau to the Analytix Cloud Platform.

Features

- Connects Sensoteq Kappa and Tau
- Waterproof (IP65)
- Robust metal enclosure
- Easy setup and installation
- High gain antennas
- Range of communication option

Power Source - Wired

- Input Voltage: 12VDC Nominal, 7VDC Minimum, 24VDC Maximum
- Current: 1.0 amp peak (WIFI), 2.0 amp peak (Cellular)
- Connection: 2-pin IP65
- Power Supply: Standard 1.5m cable with plug and multi-region adapter supplied

Mechanical – Physical

- Weight: 640g (±20g)
- Material: Aluminum (6000 series)
- Mouting Options (m):
  - 0 - Bolted (Standard)
  - 1 - DIN Rail Adaptor
  - 2 - Pole mount

Mechanical – Environmental

- Operating/Storage Temperature: -20 to 85°C (-4 to 185°F)
- Sealing: IP65
- Shock: 50g

AVTRON™ ENCODERS

A Nidec BRAND

Anywhere an encoder failure would cost money and downtime, you need an Avtron encoder.

HS45

Magnetic Durability, Worldwide Compatibility

- No fragile optics, no glass disks v All electronics fully potted/encapsulated
- Cast aluminum heavy duty housing v 3-5X heavier duty bearings
- Insulated from motor shaft currents
- Immune to magnetic and electrical interference from motors and brakes
- 3 Year No-Hassle Warranty
- Mechanical Overspeed Switch Option

AV56S and AV56A

STRONGER and SMARTER

- Heavy Mill Duty
- Simple, Secure Installation
- Wide-Gap Technology: No Sensor Scraping or Adjustment
- Up to 50000 PPR
- No Couplings or Bearings
- Sealed Electronics
- Self-Diagnostic LED and Alarm Output
- Universal 5-24V Operation
- 3 Year No-Hassle Warranty
- All models are protected against all short circuits and wiring errors

SENSORS

ENCODERS

Avtron

Avtron, a Nidec company, was founded in 1953 and is the world's largest-selling brand of heavy and harsh-duty encoders suitable for hazardous conditions. Matching the challenging requirements of many industries, including railways, is central to Avtron's product design philosophy.

Avtron AV56 and AVHS45 encoders are designed for use in rough environments with constant exposure to extreme temperatures, water, oil, and dirt.

AV56 encoders are used for railway's traction motor control, brake systems, wheel slip detection, and maintenance diagnostics through LEDs and alarm outputs. On the other hand, the AVHS45 series is suitable for crane and hoist control during freight handling, and accurate position feedback for railway door, signal and switch systems.

Avtron AV56 Series THIN-LINE III Heavy Mill Duty Magnetic Modular Encoder - Shaftless

The Avtron AV56 series of heavy mill duty modular magnetic encoders are designed to fit standard 4.5" C-Face motors, including Marathon Blue and Black Max, as well as Baldor Reliance models. Installation is straightforward, and rugged construction and transparent diagnostics minimise downtime associated with encoders.

To enhance durability, the magnetic sensors are fully potted, ensuring resistance to dirt and liquids without the use of glass disks or optics that could become clogged. The absence of moving or wearing parts contributes to the reliability of the system.

The patented Wide-Gap™ Cam Screw Rotors™ not only prevent sensor damage but also simplify installation, ensuring a secure mount to the shaft.The universal 5-24V design enables longer cable runs and safeguards against wiring errors and surges.

Advantages

- Shrugs off dirt, oil, and water contamination
- Highly resistant to electrical and magnetic motor and brake noise
- If damaged, electronics can be replaced without removing rotor
- Patented Cam Screw Rotor™ eliminates rotor slipping
- Built-in motor position guide and diagnostic check
- No air gap adjustment required
- Sealed thru-shaft option
- Fits shafts 0.500" - 3.188" [10 - 85 mm]
- 4,500,000+ hour MTBF design

Specifications

- Operating Power: Volts: 5 - 24 VDC; Current: 100mA, no load
- Output Format: A Quad B with Marker (A,/A, B,/B, Z,/Z)
- Second Isolated Output: Optional
- Frequency Range:
  - @5V, @1m cable, 250 kHz Max
  - @24V, @300m cable, #8 output, 45 kHz Max
- Maximum Cable Length: 1000' (1000 feet / 304800 mm)
- PPR: 4 - 5000
- Speed: 5400 RPM Max. std., for higher speeds, consult factory
- Electronics: Fully Encapsulated, IP67 (see manual for details)
- Temperature: -40° to 100°C (150°C rotor)
- Vibration: 18Gs
- Shock: 1 meter drop test
- Chemical: Polyurethane enamel paint protects against salt spray, mild acids, and bases.
- Weight: 2 - 3 lbs [0.9 - 1.36 kg]

All dimensions are in inches [millimeters]; Specifications and features are subject to change without notice.

Avtron HS45 Series
Hollow Shaft Heavy Mill Duty
Magnetic Encoder

The Avtron HS45 has been designed to directly mount onto a flange motor frame, with options for most European-style, IEC Standard motors (as used in Australia), as well as US-style motor frames (NEMA).

This is a through hollow shaft encoder with a narrow body that has oversized bearings and magnetic sensor technology, making it extremely reliable.

Advantages

- Type: Hollow shaft
- Mounting: 1 in. bore, insulated shaft bushing, universal end or thru shaft mountable
- Shaft: 1" Thru-shaft cam screw rotor
- Cover Style: Thru-shaft outboard seal plate with V-Ring seal
- Output: Line driver 5-24V HTL
- Left Pulses: 1024 PPR (A, A/, B, B/, Z, Z/)
- Right Pulses: none
- Connectors: 10 pin Industrial (mini-EPIC Style) w/ plug, remote alarm diagnostics
- Included: Universal tether/torque arm kit
- Modifications: Super magnetic shielding

Specifications

- Operating Power: Volts: 5-24VDC; 100mA, no load
- Output Format: A Quad B with marker (A,/A, B,/B, Z,/Z)
- Second Isolated Output: Optional
- Frequency Range: 0 to 165 KHz
- Maximum Instantaneous Current Output: 3000mA*
- PPR: 8-5000
- Speed: 5000 RPM Max. std., for higher speeds, consult factory
- Enclosure: IP65
- Electronics: Fully Encapsulated, IP67*
- Temperature: -40° to +100°C*
- Vibration: 18Gs
- Shock: 100Gs
- Chemical: Polyurethane enamel paint protects against salt spray, mild acids, and bases.

*see manual for specification details

INCLINOMETERS

ADM is an authorised distributor of POSITAL encoders and inclinometers.

Headquartered in Germany, POSITAL specialises in the design and manufacture of sensors for motion control safety assurance systems. Their products are used in a wide range of applications including manufacturing, mining, agriculture, energy, and railways. Over one million product combinations are available to ensure you can get exactly what you need.

POSITAL Tiltix Inclinometers

Inclinometers, also known as tilt sensors, are position sensors that measure the slope, angle or tilt of objects based on gravity. They offer an easy and efficient way of monitoring spatial orientations without the need for mechanical linkages, which is a real advantage for design engineers.

For railways, inclinometers are useful in monitoring the angle and position of the tracks to determine any changes that could indicate damage or wear. This information is helpful for maintenance and repair schedules, before they become unsafe for use.

Features

- Single and Dual Axis Measurement: Up to 360° Single and Up to +/-180°, Dual pitch and roll
- Horizontal or Vertical Mounting Orientation
- Analogue and Digital Interfaces Available: CANopen, SSI, J1939, and ModBus RTU
- High shock and vibration resistance of up to 200g (Gravity)
- Durable: up to IP69K

Dynamic

- Ideal for applications with dynamic movements
- Output a clean measurement signal that can be used reliably on mobile equipment such as cranes, construction, mining, agricultural machinery and other applications, where sudden movements, shocks and vibrations are likely to be encountered.

Static

- Static inclinometers can significantly improve operating safety in mobile machines, platform leveling or medical applications by continuously monitoring the tilt or inclination angles.

TRANSDUCERS

ADM is an authorised distributor of RDP and UniMeasure Displacement Transducers.

Transducers are used to monitor the position of trains on tracks, to measure the position of switch rails (for point machines), to help in aligning train doors, and to track the position of the pantograph (for trams).

RDP Electronics

RDP is a British company established over 45 years ago, and has built a reputation as a supplier of high-quality transducers and instrumentation products, all backed by RDP's ISO 9001:2000 quality control system.

DCC Series

- Output Displacement Transducer
- Supply voltage: 12V-36V
- Electrical interface for industrial applications
- 4-20mA 2 wire interface
- Operating temperature range: -10°C to 70°C
- Stainless steel
- High accuracy, cycle life and resolution

DCW Series

- Submersible DC to DC LVDT Displacement Transducer
- Supply voltage: 12V-36V
- Voltage / 4-20mA output
- Operating temperature range: V output: -50°C to 80°C, 4-20mA output: -10°C to 70°C
- Stainless steel
- High accuracy, cycle life and resolution

DCV Series

- Isolated 0 to 10V Output Displacement Transducer
- Excitation/Supply: 14V to 26V, 30mA
- DC to DC
- Electrical interface for industrial applications
- Operating temp.: -40°C to 70°C
- Stainless steel
- High accuracy, cycle life and resolution

UniMeasure – Draw Wire Sensors

UniMeasure has been manufacturing position and velocity sensors in Oregon, USA since 1987.

Often referred to as string pots, yo-yo pots, or draw wire transducers, linear position transducers can be used for precise measurement of linear displacement in railway applications. They have relatively non-critical alignment requirements, are compact in size, and easy to install.

With a variety of available electrical outputs that include voltage, 4 to 20mA current and digital, UniMeasure transducers provide a cost-effective method for linear position and velocity feedback.

	HX Series	JX Series	LX Series	RTX Series	Standard Series	ZX Series
						
Measurement Parameter	Linear Position	Linear Position	Linear Position	Rotary Position	Linear Position	Linear Position
Housing Construction	Aluminium, Stainless Steel, Thermoplastic	Thermoplastic	Thermoplastic	Aluminium, Stainless Steel, Thermoplastic	Aluminium	Aluminium
Ingress Protection	IP-65 (NEMA 4x) Optionally: IP-68 (NEMA 6)	IP-52 (NEMA 12) Optionally: IP-65 (NEMA 4X)	IP-40, (NEMA 1)	IP-65 (NEMA 4X)	IP-40 (NEMA 1) Optionally: IP-50 (NEMA 1)	IP-40 (NEMA 1)
Integral Dust Protection	Yes	Yes	No	----------	Optional	No
Linearity (analogue output)	±0.25% FS to ±0.25% FS	±0.25% FS to ±1% FS	±0.25% FS to ±1% FS	±0.30% FS	±0.25% FS to ±0.25% FS	±1% FS
Linearity (digital output)	±0.03% FS	±0.10% FS	±0.10% FS	----------	±0.03% FS	----------
Measurement Ranges	0 to 2” (50mm) to 0 to 2000” (50m)	0 to 2” (50mm) to 0 to 80” (2m)	0 to 2” (50mm) to 0 to 50” (1.25m)	0 to 45 deg to 0 to 200 turns	0 to 2” (50mm) to 0 to 80” (2m)	0 to 1.5” (38mm)
Typical Applications	Valve Positioning, Railroad Maintenance Equipment, Flood & Irrigation, Control Gates, and Textile Machinery	Automotive Suspension, Concrete Metering, Saw Blade Positioning, Liquid Level Check, and Agricultural Product Testing	CAT Scan Tables, Hospital Beds, Fume Hoods, Automotive Steering, Brake and Throttle Positioning	Rotary Valve Positioning, Industrial Gate Positioning, Rack and Pinion Systems, Machining Equipment	Conveyor Width Setting, Injection Molding Machines, Extrusion Presses, Crash Testing	Throttle Positioning Applications with Dithering and Vibration

LIQUID SENSORS

Gill

Gill Sensors and Controls is a leading manufacturer of innovative measurement sensors, relied upon to inform and control processes in a diverse range of industries and applications, such as off-highway construction, motorsport, defence markets, and railways.

Gill Sensors and Controls are well known for high quality "fit and forget" products, clearly understanding that long-term product performance is paramount to customers.

Contact ADM for your specific requirements so we can work on a customised solution for you.

LevelPro 7010 Liquid Level Sensor

LevelPro is designed for use in harsh environments at extreme operating temperatures, where the continuous real-time liquid-level monitoring of a variety of fuels, oils, chemicals, saline, and water is required.

Gill LevelPro can provide coolant-level indication in the train cab to prevent breakdowns caused by insufficient coolant. They remain operational and accurate over prolonged periods without maintenance, and unaffected by the high levels of vibration and heat, which meet the service specification of the locomotive.

Features

- Industrial
- 4-20mA Out up to 2m
- Uses capacitive technology
- Has no moving parts, floats or mechanical linkages

WearDetect – Oil Debris Sensor

WearDetect is an oil debris sensor that detects the initial stages of machine failure by monitoring continuous ferrous wear.

It is primarily used in oil-based systems, such as gearboxes, axles and engines, and are applicable for use in the railway industry.

WearDetect is designed to plug into an existing oil drain plug in oil lubricated mechanical systems that experience wear over time. The magnetic tip collects iron particles, and the sensor provides a dynamic measurement of the amount of debris that has built up in the oil, which gives an indication of when the oil needs to be changed.

It is supplied with a local display indicating build-up and oil temperature.

Oil Debris Sensor with Display

- Real-time and continuous condition monitoring
- Communicates with DCS/PLC/CMMS or IoT systems
- Local indicator display
- Outputs: 0-10V, 4-20mA, CAN

Oil Debris Sensor

- Real-time and continuous condition monitoring
- Communicates with DCS/PLC/CMMS or IoT systems
- Outputs: 0-10V, 4-20mA, CAN, Modbus

REDUCING LOCOMOTIVE DOWNTIMES

Application Study

Whilst ADM does not offer typical engineering consultancy services, we do often go beyond our customers' expectations to ensure that we offer the best solution possible. One recent example involves one of Australia's leading rail freight operators, who experienced a common occurrence of diesel locomotives on their network losing oil prematurely, negatively affecting operations. A typical diesel freight train houses six gear cases per locomotive, often with each gear case suffering oil loss.

Gill LevelPro 7010 Liquid Level Sensor

The underlying issues stem from the design of the gear case oil seals. As one would expect, oil within the gear case is there to reduce friction and transfer heat from moving parts. However, throughout long hauls, the gear case's housing is subjected to heat and mechanical stress. Over time, these effects lead to oil leakages.

The oil loss problem has not been unique to one or two gear cases on a single locomotive but occurs randomly across their entire fleet of diesel locomotives. The randomness of this issue has led to additional checks required before trips that have effectively led to higher operational costs, allocating resources for maintenance, repairs, and wages spent managing this issue.

Having unsuccessfully tried to find a solution internally over several years, the operator approached ADM to find a suitable oil-level sensor that could be accommodated within the gear case's tight physical dimensions.

ADM's challenges were finding a sensor that could mount within the confined space of the gear case, measure level and temperature, be immersed in the oil, and tolerate high vibrations and temperatures. A suitable monitoring system to capture, record, and communicate the level measurements with operations teams was also required.

The first step was to inspect the gear case, to facilitate this the customer gladly sent ADM a decommissioned unit. Upon inspection, the ADM team found a port hole typically reserved for mechanical inspection, which could serve as a location for the sensor. However, it would require a bespoke mounting solution. Secondly, ADM needed to find a suitable level and temperature sensor that could tolerate the hostile environment of the gear case. The ADM team identified a unique sensor typically reserved for performance sports, defence vehicles, and aeronautic engineering. This sensor is IP68-rated, compact, and lightweight, and capable of taking conductive and capacitive measurements. To mount this sensor, the ADM team used a 3D printer to produce a bespoke mount, which was designed to fit within the dimensions of the port hole. The final step was to identify a data recording device to relay information from the sensor to the train engineer and the remote train operations centre. The best solution with the required functionality was the Eurotherm versadac™ secure data recorder.

versadac™ Series - Scalable DIN Rail Data Recorders

The Eurotherm versadac™ was by far the most suitable given it offers scalable digital recording with expandable analogue input capability, allowing for the monitoring of several locomotives coupled together. It also boasts Modbus over Ethernet functionality, which is used to communicate the level and temperature data to the remote operations team.

ADM takes great pride in contributing to the resolution of a longstanding challenge faced by our customer. Our solution has enabled a major freight operation to effectively monitor a select group of trains, resulting in significant enhancements to their maintenance scheduling, reducing costs. This approach has notably decreased the incidence of gear case failures, enabling strategic planning to expand this solution across the entire fleet, integrating the system seamlessly during routine maintenance periods.

DATA LOGGING PRODUCTS

Eurotherm data logging products provide secure data storage over an extended period of time and allows easy access to process records.

Data collection is an important compliance requirement under the Rail Safety National Law (RSNL) of Australia. Data collection and storage for railway companies enable consistent, quality and accurate national rail safety data that help stakeholders make decisions relating to rail safety and comfort of passengers.

Eurotherm, now a Watlow brand, was established in the UK and has been in business for over 50 years.

versadac™ Series
Scalable DIN Rail Data Recorders

The versadac™ scalable recorder offers a versatile solution for data recording at point of measurement.

Comprehensive security and data integrity make it ideal for use in regulated industries, such as the railway sector.

Data is recorded in tamper resistant binary check summed files (known as UHH) and stored in on board flash memory. Flexible archiving strategies ensure long term data is kept secure for later retrieval and analysis if required.

Features

- Scalable DIN Rail Data Recorders
- Supply voltage range: 24V dc ± 20%
- Power consumption: < 82W maximum for fully loaded rack
- Fuse rating: 0.5A time lag (Not customer replaceable)
- Surge current: 8A maximum
- Operating temperature: 0 to 55°C
- Storage temperature: –25°C to 85°C
- Relative humidity: 5 to 95% (non-condensing)
- Shock: 15g static shock
- Height: 180mm
- Depth: 132-135 mm with retaining lever raised
- Mounting: DIN rail or Bulkhead, mounted vertically

nanodac™ Series
Graphic Recorders with Up to 6 Channels

The nanodac™ series comprise four high accuracy universal inputs for secure data recording and optional PID control.

These compact ¼ DIN panel mount graphic recorders are enhanced by a full colour, ¼ VGA, 320 x 240 pixel display to bring a crystal-clear operator interface, even for small machines.

It can store your information in either an open .csv format or in a secure, check summed format to protect data integrity.

Features

- Supply voltage
  - Standard: 100 to 230V ac ±15% at 48 to 62Hz
  - Low voltage Option: 24V ac
- (+10% –15%) at 48 to 62Hz, or 24V dc (+20% –15%)
- Power dissipation 9W (max.)
- Fuse type No internal fuse fitted
- Interrupt Protection (Standard unit): Holdup >20ms at 85V RMS supply voltage
- Interrupt Protection (Low voltage unit): Holdup >20ms at 20.4V RMS supply voltage
- Operating temperature: 0 to 55°C
- Storage temperature: –20 to +70°C, max rate of change 1°C per minute
- Operating humidity: 5% to 85% RH noncondensing
- Storage humidity: 5% to 85% RH noncondensing
- Front of panel protection
  - Standard: IP65
  - Washdown: IP66, NEMA12

MINI8 Series - Eurotherm Process Controller; DIN Rail Modular, Multi Loop

The Mini8 loop controller is a compact DIN rail mounted multi-loop precision PID controller and data acquisition unit.

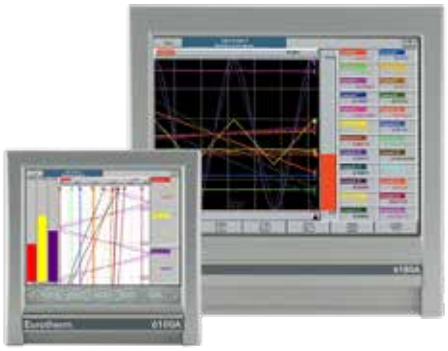
It offers a wide choice of I/O and a selection of Ethernet, EtherCAT, DeviceNet and serial industrial communications protocols.

The controller mounts on 35mm Top Hat DIN Rail. It is designed for permanent installation, for indoor use only, and to be enclosed in an electrical panel or cabinet.

Features

- Power supply voltage: 17.8VDC minimum to 28.8VDC maximum
- Supply ripple: 2Vp-p maximum
- Power consumption: 15W maximum
- Maximum applied voltage any terminal: 42V peak
- Operating temperature: 0 to 55°C (32°F to 131°F)
- Storage temperature: -10°C to +70°C (14°F to 158°F)
- Relative humidity: 5% to 95% RH non-condensing
- Altitude: <2000m (<6561.68ft)
- Protection: IP20 - The Mini8 loop controller must be mounted in a protective enclosure

6000 Series - Eurotherm Graphic Recorders with 48 Universal Inputs



The Eurotherm 6000 series offers input accuracy with a 125ms total sample rate for up to 48 input channels that are freely configurable. They can be accessed via LAN, dial-up connection, Intranet or Internet.

Each recorder has an intuitive touch screen display, onboard flash data storage capability, compact flash card drive, and Ethernet communications.

Data is stored in a tamper-resistant binary format that can be used for secure, long-term records.

Features

- Power supply voltage standard: 100 to 230V ac ±15%; 47 to 63Hz or 110 to 370VDC
- Temperature limits:
  - Operation: 0 to +50° C | Storage: –20 to 60° C
- Humidity limits:
  - Operation: 5% to 80% RH | Storage: 5% to 90% RH
- Protection:
  - Bezel and display: IP66 | Sleeve: IP20
  - 6100A Portable case option: IP21
- Shock: BS EN61010
- Vibration (10 to 150Hz): BSEN60873, Section 9,18
- Altitude: <2000 meters

ELECTROMAGNETIC FIELD (EMF) METERS

Wavecontrol - Founded in 1997 and specialising in the design and development of ISO 17025-accredited EMF meters. Contact ADM for technical advice.

Wavemon LF-400 Personal monitor

Provides personal monitoring and alarm for occupationally exposed workers – ensuring safety from potentially high EMF fields.

- Overexposure warning
- ICNIRP, 2013/35/EU and IEEE
- Exposimeter with datalogger
- Comes with harness, belt or arm holder

SMP3 Advanced 3-in-1 EMF Field Meter

- DC field measurements
- Spectrum analysis – FFT up to 10 MHz
- Broadband measurements up to 60 GHz
- EU Directive 2013/35, ICNIRP, IEC, EN, IEEE, SC6
- USB and fibre optic comms, easy firmware upgrade

Measurement of EMF Fields in and around Railway Environments

Daily commuting via train and moving freight by rail have become significant aspects of daily life. Train passengers and employees may encounter electromagnetic fields (EMF) at levels higher than those typically found in our homes and workplaces.

EMF is generated by the operation of trains and the railway infrastructure.

Sources include traction power systems (the electrical systems that power the trains), overhead wires, substations, and various electronic and electrical equipment used in railway operations.

High-frequency exposure, which can be produced by telecommunication infrastructure and Information and Communications Technologies (ICT) devices, does not fall within the scope of this article. In the case of low-frequency exposure, the main sources are the rolling stock (railway vehicles) and the energy supply.

Measuring the EMF

Measurements are conducted both inside and outside the rolling stock using the Wavecontrol SMP3 Meter and WP400 (1Hz -400 kHz) field probe. In railways, there are three electromagnetic sources that can affect humans: the rolling stock, the traction power supply, and the signalling equipment. Since detectable emissions from these three sources are in the frequency range of DC to 20 kHz, both the WHP-DC (DC-40kHz) and WP400 (1Hz-400kHz) probes with SMP3 are ideal for EMF measurement across railway infrastructure.

The SMP3 meter is an instrument designed for measuring electromagnetic fields (EMF) and is equipped with different probes to cover a wide range of frequencies from DC (0 Hz) up to 60 GHz. It is used in different sectors and industries such as Railway, Power, Manufacturing, Chemical, Medical, Defence, RFID and EAS, Telecommunications, and more.

WEIGHING PRODUCTS

Load Cells

ADM is an authorised distributor of Burster, Curiotec and Laumas load cells. It is important for our team that we get the right specifications of your requirements to ensure that your chosen load cell will integrate with your weighing system. Contact us so we can help you select the best load cell type for your applications.

A load cell is a device that converts force into electrical signal. They are considered transducers as they convert one form of energy into another.

Load cells are used in the railway sector for several maintenance and operational functions of the train, rail tracks, catenary systems and platforms. They play an important role in measuring train cab/wagon and axle loads, and in determining the force required by catenaries, brake systems, as well as the force used for opening and closing train doors.

Load cells are also applicable to rail cranes when gauging load capacities during freight handling, carrying out accident recovery works, and permanent way maintenance.

Single Point Load Cells

Single Point load cells, also referred to as strain gauge load cells, are transducers that convert mechanical force into readable digital values. They work by accurately measuring weight even when the load is not evenly distributed, due to their ability to accommodate off-centre loading.

Canister and Pancake Load Cells

Canister load cells are used for very high capacity weighing as it provides precision for force applied vertically. They can be installed for single or multi-weigh installations such as weighbridges or railroad scales.

S Beam Load Cells

S type or S beam load cells are used to measure both tension and compression forces, and are named after their distinct 'S' shape.

S Beam load cells are applicable for assessing force measurements of static loads. They have minimal interference from external factors such as temperature changes, and have superior side load rejection.

S load cells are often used for hanging scales to gauge loads of containers and cargos, to measure force exerted on couplings between rails, suspension and brake systems, and more.

Laumas TLB4 Load Cell Transmitter

NMI TRADE APPROVED

The Laumas TLB4 is a versatile and NMI trade-approved weight transmitter, designed to function as a comprehensive solution for load cell signal processing. This advanced device incorporates multiple roles, including a load cell transmitter, summing box, equaliser, controller, and indicator.

Features

- Four independent channels
- Flexible analogue output options: 0/4-20 mA, 0-5/10 V, and ±5/10 V
- DIN Rail mounting
- 6-digit LED display and pushbutton controls
- 2 logic inputs and 3 relay outputs
- Supports Modbus RTU with optional expansions for CanOpen, Ethernet/IP, Ethernet TCP/IP, Profinet, EtherCAT, etc.
- NMI Trade Approved

Tank and Trunk Weighing Load Cells

Tank and trunk weighing load cells are used to measure weights of tanks containing liquids, such as fuel and chemicals, as well as containers, silos and cargos with heavy material loads like sand, gravel and other construction materials.

These measurements help monitor axle loads to ensure the railway is balanced, therefore avoiding off-track derailments. They also provide a guide to dynamic weights that gives allowances for factors including suspension travel, overhang on curves and lateral movements on tracks.

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