Precision in every measurement.

20+	5	20+ years
Intellectual property assets	Product series	Technical experience since 2002

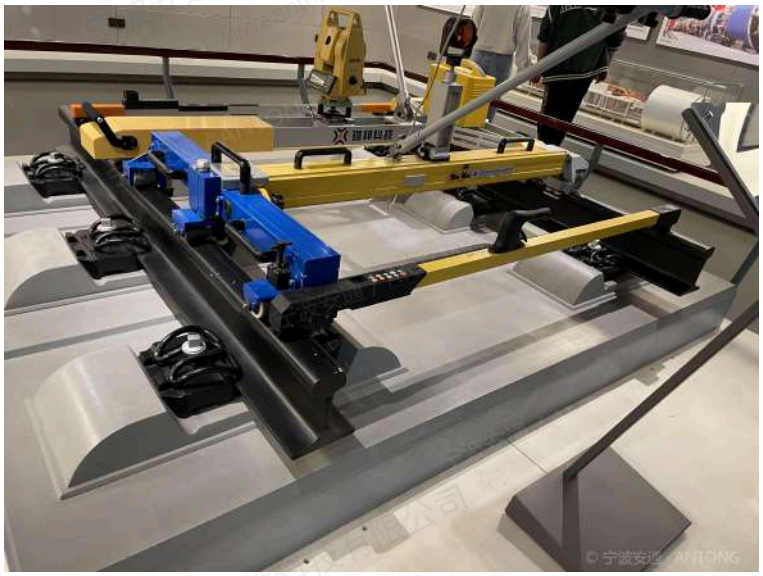
RAILWAY PRECISION METROLOGY
& INTELLIGENT INSPECTION EQUIPMENT

Ningbo Antong High-Speed Rail Technology Co., Ltd.

COMPANY & PRODUCT BROCHURE / 2026.09

Inventor of the digital railway track gauge

With technical roots dating to 2002, Antong began R&D alongside the development of high-speed rail in China. Its early Class 0 electronic precision track gauge preceded the Beijing–Tianjin high-speed line.



Electronic measuring instruments · China Railway Museum



Historical mechanical instruments

Two historical models. A transition in measurement.

DGJC-A and DGJC-B models feature in the China Railway Museum’ s historical displays, documenting the transition from mechanical to electronic measurement. This continuing technical heritage supports precision measurement in railway operations.



DGJC-A



DGJC-B

From mechanical readings to electronic measurement. From early invention to field applications.

Company history and museum exhibits / Company-supplied photographs

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Company & Product Directory

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ENGINEERING

Turning expertise into equipment

Optics, mechanics, electronics, software and algorithms for railway measurement.



Product display and metrology environment

OPTICS

Laser measurement
Machine vision

Non-contact measurement and profile inspection.

MECHANICS

Precision structures
Measurement references

Instrument positioning and verification structures.

ELECTRONICS

Displacement sensing
Temperature acquisition

Field-state sensing and measurement data capture.

SOFTWARE

Embedded systems
Platform software

Device connectivity and work records.

ALGORITHMS

Measurement processing
Trend analysis

Data comparison and threshold alerts.

MEASUREMENT / INSPECTION / MONITORING / VERIFICATION / DATA

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Capability backed by experience

Technical experience, customer relationships and documented credentials.

20+
Intellectual property assets
Inventions, utility models and software copyrights

16
Results commercialised
16 results over the past three years

100%
Bachelor's degree or above
Including senior professionals and registered metrologists

20+
Years of technical experience
Technical experience since 2002

CUSTOMERS & PARTNERS

QUALIFICATIONS & TECHNICAL RECORDS



Digital turnout offset gauge Technical review



Rail straightness instrument Technical review



ISO 9001 quality management



Digital track gauge technical review

PRODUCT TECHNICAL REVIEWS

- Digital Railway Track Gauge
- Digital Railway Turnout Offset Gauge
- Rail Straightness Measuring Instrument
- Rail Thermometer
- Railway Track Gauge Calibrator - ATGJ-1
- Railway Track Gauge Calibrator - ATGJ-2

Certificates are reproduced as issued; product scope and dates follow the originals.

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Overseas Project Application

Jakarta-Bandung High-Speed Railway / Indonesia



Jakarta-Bandung High-Speed Railway



Track gauge product appearance

Antong equipment in overseas projects

The Jakarta-Bandung High-Speed Railway project uses Antong track gauges in an English-language version.

Product: Digital Railway Track Gauge

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Digital Railway Track Gauge (General Purpose)

Measures track gauge and cant on plain track and turnouts. Also supports check gauge, check rail back-to-back distance, check and wing rail gaps, and flangeway width.



TECHNICAL SPECIFICATIONS

Track gauge range	1410 to 1470 mm
Cant range	-185 to +185 mm
Accuracy class	Class 0 (≤350 km/h), Class 1 (≤250 km/h)
Operating temperature	-30°C to +55°C
Gauge body	Length 1600 mm, Weight Approx. 3.0 kg
Power supply	Built-in lithium battery
Battery life	≥6 working days
Data transfer	Bluetooth, USB

Standards / metrological references: JJG 219—2015 Verification Regulation of Track Gages for Standard Gauge Railway; TB/T 1924—2008 Track Gages for Standard Gauge Railway

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Digital Railway Track Gauge (Large Display)

A large OLED display supports shared reading and verification by multiple operators.



TECHNICAL SPECIFICATIONS

Track gauge range	1410 to 1470 mm
Cant range	-185 to +185 mm
Accuracy class	Class 0/Class 1
Operating temperature	-30°C to +55°C
Gauge weight	Approx. 3.0 kg
Power supply	Built-in lithium battery
Battery life	≥6 working days
Feature	Large display

Standards / metrological references: JJG 219—2015 Verification Regulation of Track Gages for Standard Gauge Railway; TB/T 1924—2008 Track Gages for Standard Gauge Railway

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Digital Railway Track Gauge (Voice Announcement)

Announces measurement results in real time for work at night, in tunnels and in conditions with limited visibility.



TECHNICAL SPECIFICATIONS

Track gauge range	1410 to 1470 mm
Cant range	-185 to +185 mm
Accuracy class	Class 0/Class 1
Operating temperature	-30°C to +55°C
Gauge weight	Approx. 3.0 kg
Power supply	Built-in lithium battery
Battery life	≥6 working days
Feature	On-site voice output

Standards / metrological references: JJG 219—2015 Verification Regulation of Track Gages for Standard Gauge Railway; TB/T 1924—2008 Track Gages for Standard Gauge Railway

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Digital Railway Track Gauge (1520 mm Broad Gauge)

Measurement range and reference geometry adapted to broad-gauge railways, with direct OLED readout.



TECHNICAL SPECIFICATIONS

Track gauge range	1495 to 1555 mm
Cant range	-185 to +185 mm
Accuracy class	Class 0/Class 1
Operating temperature	-30°C to +55°C
Gauge weight	Approx. 3.0 kg
Power supply	Built-in lithium battery
Feature	Range adapted to broad gauge
Check gauge range	1466 to 1486 mm
Nominal track gauge	1520 mm

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DGJC-Y Push-type Track Gauge

Measures while being pushed directly along the rails, reducing gauge-position adjustments. Supports manual and automatic modes, Bluetooth app connectivity and distance display.



TECHNICAL SPECIFICATIONS

Dimensions	1610×410×185 mm
Weight	≤6.6 kg (Including push handle)
Track gauge range	1410 to 1470 mm
Track gauge error	≤0.2 mm (Manual)
Cant range	-200 to +200 mm
Cant error	≤0.25 mm (Manual)
Distance error	1m/1 km
Operating temperature	-20°C to +55°C
Battery life	≥22 h (20°C)
Charging	TYPE-C 5V
Measurement modes	Manual/Automatic
Data transfer	Bluetooth

Standards / metrological references: JJG 219—2015 Verification Regulation of Track Gages for Standard Gauge Railway; TB/T 1924—2008 Track Gages for Standard Gauge Railway

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New Wheel-Rail Contact Cant Gauge

Simulates contact between a JM3 wheel and the rail to measure actual cant and track twist. Rotatable templates select standard or worn tread profiles.



TECHNICAL SPECIFICATIONS

Inside distance	1353±1 mm
Cant zero error	≤0.15 mm
Cant indication error	≤0.3 mm
Cant reversal error	≤0.3 mm
Dimensions	1623×37×215 mm
Weight	Approx. 3.8 kg
Tread profile	JM3 standard / worn
Power supply	Built-in lithium battery

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Rail Lip Track Gauge

Adds a rail lip height measurement module to a track gauge, supporting track gauge, check gauge, cant and rail lip height measurements.



TECHNICAL SPECIFICATIONS

Lateral measuring range	-10 to +3 mm
Vertical travel range	-5 to +16 mm
Measurement error	±0.2 mm

MEASURING HEAD ADJUSTMENT

The measuring jaw moves vertically and laterally. Lateral zero: the measuring face is flush with the outer face of the fixed head; right is negative. Vertical zero: the upper jaw surface is flush with the rail seating plane; downward is positive. Retract the jaw above the seating plane and lock it after use.

Standards / metrological references: JJG 219—2015 Verification Regulation of Track Gages for Standard Gauge Railway; TB/T 1924—2008 Track Gages for Standard Gauge Railway

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Digital Railway Track Gauge (Check and Wing Rail Gaps)

Modified from the standard track gauge to address China State Railway requirements. Designed for measuring the check-rail entry transition section and flangeway width, while retaining track gauge and cant measurement. Technical specifications match the standard model.



TECHNICAL SPECIFICATIONS

Track gauge range	1410 to 1470 mm
Cant range	-185 to +185 mm
Accuracy class	Class 0 (≤350 km/h), Class 1 (≤250 km/h)
Operating temperature	-30°C to +55°C
Gauge body	Length 1600 mm, Weight Approx. 3.0 kg
Power supply	Built-in lithium battery
Battery life	≥6 working days
Data transfer	Bluetooth, USB

Standards / metrological references: JJG 219—2015 Verification Regulation of Track Gages for Standard Gauge Railway; TB/T 1924—2008 Track Gages for Standard Gauge Railway

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Switch Rail Opening / Throw Gauge

Measures switch rail throw for turnout adjustment and inspection. OLED readout supports on-site reading, data storage and transfer.



FUNCTIONS & CONFIGURATION

Application	Switch rail throw measurement
Readout	OLED digital display
Data management	Measurement storage and transfer
Data transfer	Bluetooth, USB
Power supply	Built-in lithium battery
Operating temperature	-30°C to +55°C

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Digital Railway Turnout Offset Gauge (Conventional Railway Turnouts)

Digital readout for conventional railway turnouts offset measurements.



TECHNICAL SPECIFICATIONS

Product measuring range	0 to 1290 mm
Range specified by JJG	100 to 1290 mm
Max. permissible error (JJG)	Initial: ±0.4 mm; subsequent: ±0.5 mm
Repeatability (JJG)	≤0.1 mm (digital type)
Resolution (JJG)	≤0.1 mm (digital type)
Operating temperature	-30°C to +55°C
Power supply	Built-in lithium battery
Application	Conventional turnouts

Standards / metrological references: JJG 1108—2023 Verification Regulation of Railway Turnout Offset Gauges

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Digital Railway Turnout Offset Gauge (High-Speed Turnouts)

Digital readout for high-speed turnouts offset measurements. A 0–2300 mm range is available on request.



TECHNICAL SPECIFICATIONS

Product measuring range	0 to 1800 mm
Range specified by JJG	100 to 1800 mm
Max. permissible error (JJG)	Initial: ±0.4 mm; subsequent: ±0.5 mm
Repeatability (JJG)	≤0.1 mm (digital type)
Resolution (JJG)	≤0.1 mm (digital type)
Operating temperature	-30°C to +55°C
Power supply	Built-in lithium battery
Application	High-speed turnouts
Custom measuring range	0 to 2300 mm (custom specification)

Standards / metrological references: JJG 1108—2023 Verification Regulation of Railway Turnout Offset Gauges

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Digital Railway Track Gauge (Switch Rail Lowering)

For switch and crossing nose lowering measurements. Digital readings support turnout inspection and maintenance.





TECHNICAL SPECIFICATIONS

Track gauge range	1410 to 1470 mm
Cant range	-185 to +185 mm
Accuracy class	Class 0/Class 1
Operating temperature	-30°C to +55°C
Gauge weight	Approx. 3.0 kg
Power supply	Built-in lithium battery
Battery life	≥6 working days
Feature	Switch and crossing nose lowering measurement

Standards / metrological references: JJG 219—2015 Verification Regulation of Track Gages for Standard Gauge Railway; TB/T 1924—2008 Track Gages for Standard Gauge Railway

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Switch Rail Wear Gauge

Measures switch rail side wear, vertical wear and lowering, with dual digital readouts. Left- or right-side assembly; reference-rail or dedicated-fixture calibration.



PRODUCT INFORMATION

Horizontal scale range	25–240 mm
Vertical scale range	95–220 mm
Resolution	0.01 mm
Repeatability	≤0.03 mm
Indication error	±0.2 mm
Power supply	1.5 V button cell
Dimensions (L × W × H)	218 × 320 × 321 mm
Weight	Approx. 1 kg
Operating temperature	-5 to 55°C
Relative humidity	≤80%

Standards / metrological references: JJF (China Railway) 004—2018 Calibration Specification for Switch Rail Lowering Measuring Instruments

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Switch and Stock Rail Wear Measuring Device (Quick-Mount Track Gauge Type)

A quick-mount digital device fitted to a track gauge. Measures switch rail and crossing nose lowering, and rail side wear.



TECHNICAL SPECIFICATIONS

Lowering range	-10 to 40 mm
Lateral travel	-200 to 200 mm
Side-wear range	0 to 200 mm
Reading precision	0.01 mm (As stated in the manual)
Repeatability error	≤±0.05 mm (As stated in the manual)
Rail compatibility	43/50/60/75 kg/m
Power supply	1.5 V / 3 V button cell
Operating temperature	-5 to 55 °C
Weight	Approx. 2 kg

Standards / metrological references: JJG 1127—2016 Verification Regulation of Wear Tools for Rail (wear measurement function)

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Portable Switch and Stock Rail Wear Measuring Device

Portable instrument with dual digital scales, handle and calibration block for switch and crossing nose wear and switch rail lowering measurements.



TECHNICAL SPECIFICATIONS

Design	Portable, independently handheld
Readout	Horizontal and vertical digital scales
Main components	Scales, handle, probes and calibration block
Accessory	Calibration block
Controls	Zero setting and mm/inch conversion
Vertical wear range	0 to 15 mm
Side wear range	0 to 25 mm
Switch rail lowering range	0 to 50 mm

Standards / metrological references: JJG 1127—2016 Verification Regulation of Wear Tools for Rail (wear measurement function)

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Railway Frog Structure Height Gauge

Measures the height difference between the frog nose and wing-rail top surfaces. Digital-gauge requirements below follow JJG 1183-2021 Verification Regulation of Railway Crossing Structural Height Measuring Instruments.



METROLOGICAL REQUIREMENTS (REGULATION)

Main beam length	≥300 mm
Measuring range	Must cover -15 to +15 mm
Digital resolution	≤0.01 mm
Indication error	Within ±0.10 mm
Repeatability	≤0.03 mm
Digital drift over 1 h	≤0.01 mm
Indication variation	≤0.04 mm across lateral travel
Locating-face coplanarity	≤0.02 mm
Working-face roughness	Ra ≤0.8 μm

Standards / metrological references: JJG 1183—2021 Verification Regulation of Railway Crossing Structural Height Measuring Instruments

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Rail Straightness Measuring Instrument (Single Measurement)

Non-contact optoelectronic measurement of one face per operation: running surface or gauge face. Adjust the locating blocks to change faces; automatic storage and Bluetooth/USB transfer are supported.



TECHNICAL SPECIFICATIONS

Model	ZDY-S-AT-CW-1
Measuring range	-4 mm to +4 mm
Measurement error	Class 1: ≤0.05 mm; Class 2: ≤0.07 mm
Repeatability	Class 1: ≤0.02 mm; Class 2: ≤0.03 mm
Operating temperature	-30°C to +55°C
Operating humidity	<90% RH, non-condensing
Data transfer	BLE 5.0, USB
Weight	5.5 kg (excluding battery)

Standards / metrological references: JJG (Railway) 167—2024 Verification Regulation of Rail Straightness Measuring Instruments; TB/T 3323—2013 Rail Straightness Measuring Instruments

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Rail Straightness Measuring Instrument (Dual Measurement)

Non-contact optoelectronic measurement of both the running surface and gauge face in one operation. A mobile terminal supports automatic storage and Bluetooth/USB transfer.



TECHNICAL SPECIFICATIONS

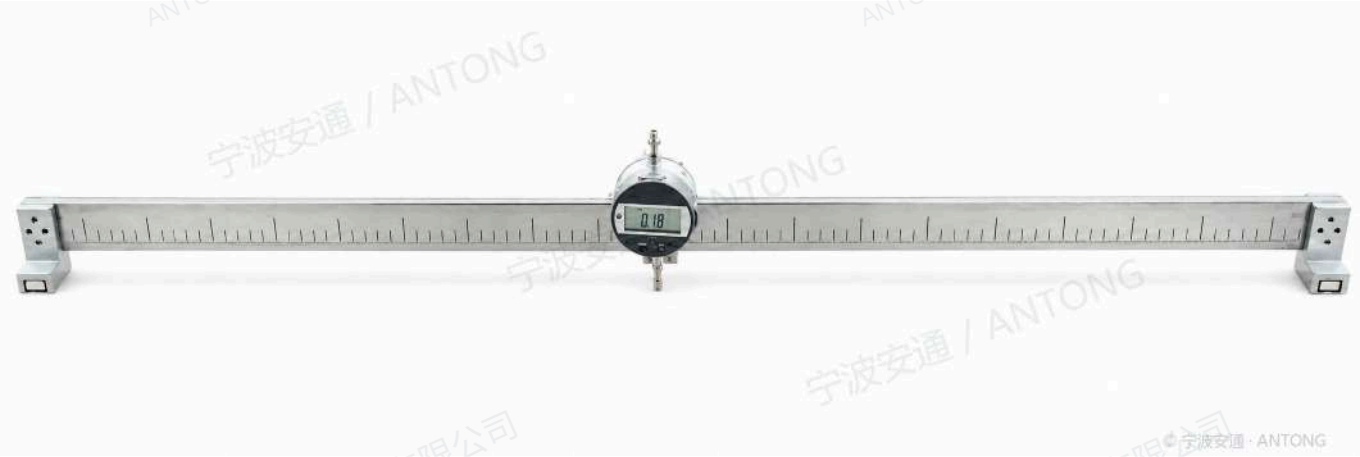
Model	ZDY-B-AT-21-CW Class 1, dual measurement, normal-temperature type
Measuring range	-4 mm to +4 mm
Measurement error	≤0.05 mm (Class 1)
Repeatability	≤0.02 mm (Class 1)
Operating temperature	-30°C to +55°C
Operating humidity	<90% RH, non-condensing
Data transfer	BLE 5.0, USB
Weight	6.5 kg (excluding battery)

Standards / metrological references: JJG (Railway) 167—2024 Verification Regulation of Rail Straightness Measuring Instruments; TB/T 3323—2013 Rail Straightness Measuring Instruments

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Electronic One-Metre Straightedge

A magnetic-attachment digital one-metre straightedge for rail weld alignment and straightness inspection.



PRODUCT INFORMATION

Type	Digital, magnetic attachment
Specification	One metre
Application	Rail weld alignment and straightness inspection

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Rail Surface Damage Measuring Instrument

GBSC-60(N) measures the depth of scratches, depressions and spalling on 60 and 60N rails. An articulated measuring arm provides access to different rail surfaces.



TECHNICAL SPECIFICATIONS

Measuring range	0–8 mm
Travel	15 mm
Resolution	0.01 mm
Repeatability	≤0.03 mm
Indication error	Within ±0.1 mm
Power supply	3 V CR2032 coin cell
Dimensions (L × W × H)	260 × 66 × 290 mm; excluding indicator
Weight	2 kg; excluding indicator
Operating temperature	0–40°C
Storage temperature	-20 to +70°C
Relative humidity	≤80%

Standards / metrological references: JJF(CR) 030—2020 Calibration Specification for Rail Surface Scuff Measuring Instruments

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Rail Profile Measuring Instrument

Laser ranging and magnetic-scale displacement measurement capture the rail-head profile and analyse vertical and lateral wear. Supports recording, storage and display of data and profile images.



TECHNICAL SPECIFICATIONS

Model	GW-GGKX-A01
Rail crown vertical error	±0.10 mm maximum
Vertical / lateral wear error	0 to 0.6 mm maximum
Repeatability	≤0.02 mm
Operating temperature	-20°C to +50°C
Operating humidity	<90% RH, non-condensing
Insulation resistance	≥1 MΩ
Data interface	USB
Dimensions	294×245×280 mm
Weight	8.6 kg (excluding support rod)

Standards / metrological references: JJF(CR) 003—2018 Calibration Specification for Rail Cross-Section Profile Measuring Instruments

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Turnout Cross-Section Profile Measuring

Measures turnout rail-head profiles and vertical / lateral wear using laser ranging and magnetic-scale displacement measurement. Supports data and profile recording, storage and display.

profiles and analyse wear.



TECHNICAL SPECIFICATIONS

Model	GW-DCKX-A01
Maximum error	±0.10 mm
Repeatability	≤0.02 mm
Insulation resistance	≥1 MΩ
Operating temperature	-20°C to +50°C
Operating humidity	<95% RH, non-condensing
Data interface	USB
Dimensions	456×254×218 mm
Weight	Approx. 10.8 kg (excluding support rod)

Standards / metrological references: JJF(CR) 003—2018 Calibration Specification for Rail Cross-Section Profile Measuring Instruments

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XJC-1 Track Spacing Measuring Instrument

Measures track spacing while being pushed, together with gauge and cant. Supports manual/automatic modes, real-time feedback and Bluetooth app connectivity.



TECHNICAL SPECIFICATIONS

Dimensions	1610×410×185 mm
Weight	≤6.6 kg (Including push handle)
Track gauge range	1410 to 1470 mm
Track gauge error	≤0.2 mm (Static)
Cant range	-200 to +200 mm
Cant error	≤0.25 mm (Static)
Laser range	0.03 to 40m
Laser error	±2 mm (Static)
Laser power	<1mW (Class 2)
Operating temperature	-15°C to +55°C
Battery life	≥8 h
Charging	TYPE-C 5V
Data transfer	Bluetooth

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Multifunctional Track Cross-Section Gauge

GDC-I. Function 1: ballast cross-section measurement, including thickness, shoulder height and slopes. Function 2: rail joint stagger measurement; read the scale difference and record manually.



TECHNICAL SPECIFICATIONS

Displacement range	Horizontal 0 to 3000 mm; Vertical 0 to 1000 mm
Displacement accuracy	±1 mm; Repeatability ±0.5 mm
Displacement resolution	0.1 mm
Angle range	0 to 180°
Angle accuracy	±0.3°; Repeatability ±0.2°
Angle resolution	0.1°
Display / communication	0.96 inch OLED; 2.4G Bluetooth
Power / temperature	2000 mAh; Type-C 5 V; -20 to 50°C

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Rail Thermometer (Integrated)

An integrated circuit sensor and LCD form a single instrument. A strong magnetic probe attaches to the rail; peak-value recording is supported.



TECHNICAL SPECIFICATIONS

Measuring range	-40°C to +70°C
Resolution	0.1°C
Maximum error	±1.0°C
Power supply	3.7 V rechargeable lithium battery
Charging	TYPE-C 5V, Approx. 2 to 2.5 h
Peak recording	Supported
Probe attachment	Strong magnetic attachment

Standards / metrological references: JJG 1158.2—2018 Verification Regulation of Rail Thermometers — Part 2: Digital Rail Thermometers

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Rail Thermometer (Wired)

For long-term installation at fixed measuring points, with an integrated circuit sensor, wired transmission and LCD readout.



TECHNICAL SPECIFICATIONS

Measuring range	-40°C to +70°C
Resolution	0.1°C
Maximum error	±1.0°C
Power supply	3.7 V rechargeable lithium battery
Charging	TYPE-C 5V
Transmission	Wired

Standards / metrological references: JJG 1158.2—2018 Verification Regulation of Rail Thermometers — Part 2: Digital Rail Thermometers

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Rail Thermometer (Wireless)

Maintenance-free design with battery operation for more than one year. Wireless transmission supports flexible sensor deployment, with temperature readings on an LCD.





Mounting detail

TECHNICAL SPECIFICATIONS

Battery life	**More than 1 year**
Maintenance	**Maintenance-free**
Measuring range	-40°C to +70°C
Resolution	0.1°C
Maximum error	±1.0°C
Power supply	3.7 V rechargeable lithium battery
Charging	TYPE-C 5 V
Transmission	Wireless

Standards / metrological references: JJG 1158.2—2018 Verification Regulation of Rail Thermometers — Part 2: Digital Rail Thermometers

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Rail Thermometer (Networked)

Multiple measuring points form a wireless network and upload to Antong Cloud for centralised rail-temperature monitoring, trend analysis and threshold alerts.



TECHNICAL SPECIFICATIONS

Measuring range	-40°C to +70°C
Resolution	0.1°C
Maximum error	±1.0°C
Power supply	3.7 V rechargeable lithium battery
Charging	TYPE-C 5V
Transmission	Wireless network
Platform connection	Automatic upload to Antong Cloud
Alerts	Threshold alarms

Standards / metrological references: JJG 1158.2—2018 Verification Regulation of Rail Thermometers — Part 2: Digital Rail Thermometers

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Portable Photoelectric Instrument for Longitudinal Rail Displacement in CWR

XZY-1. Laser measurement with a mobile app for observation-point management, displacement calculation and historical records.



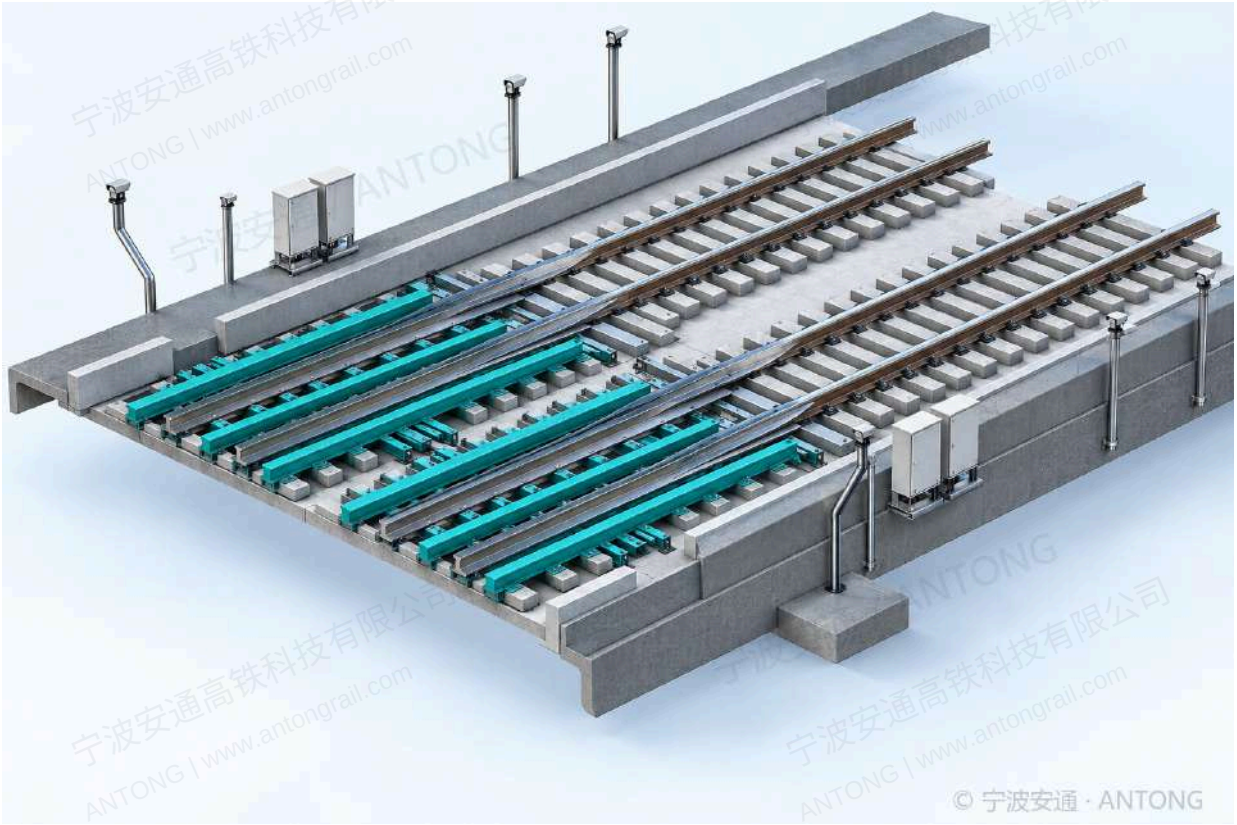
PRODUCT INFORMATION

Model	XZY-1
Measurement method	Laser measurement
System	Instrument and mobile app
Connection	Bluetooth; keep phone within 2 m
Point management	Mileage and initial reference value
Data export	Excel format
Charging	Dedicated charger

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Rail Longitudinal Displacement Monitoring

Online rail-creep monitoring with laser and vision options. Data are uploaded to Antong Cloud for trend analysis and threshold alerts.



TECHNICAL SPECIFICATIONS

Measurement accuracy	Laser ±1 mm/Vision ±0.5 mm
Communication	Wireless ≤200m/Wired ≤100m
Terminal power	Battery/Wired
Platform connection	Automatic upload to Antong Cloud

Standards / metrological references: JJF(CR) 035—2020 Calibration Specification for Rail Displacement Measuring Devices

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Rail Lateral Displacement Monitoring

Monitors lateral rail displacement and alignment changes to support assessment of lateral track stability.



TECHNICAL SPECIFICATIONS

Measurement accuracy	Laser ±1 mm/Vision ±0.5 mm
Communication	Wireless ≤200m/Wired ≤100m
Terminal power	Battery/Wired
Platform connection	Automatic upload to Antong Cloud

Standards / metrological references: JJF(CR) 035—2020 Calibration Specification for Rail Displacement Measuring Devices

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Rail Settlement Monitoring

Monitors vertical rail settlement at bridge/tunnel transitions and sections affected by subgrade settlement.



TECHNICAL SPECIFICATIONS

Measurement accuracy	Laser ±1 mm/Vision ±0.5 mm
Communication	Wireless ≤200m/Wired ≤100m
Applications	Bridge/tunnel transitions / subgrade settlement
Platform connection	Automatic upload to Antong Cloud

Standards / metrological references: JJF(CR) 038—2021 Calibration Specification for Railway Settlement Measuring Devices

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Sleeper Lateral Displacement Monitoring

Monitors lateral sleeper displacement in key sections, including heavy-haul lines and curves.



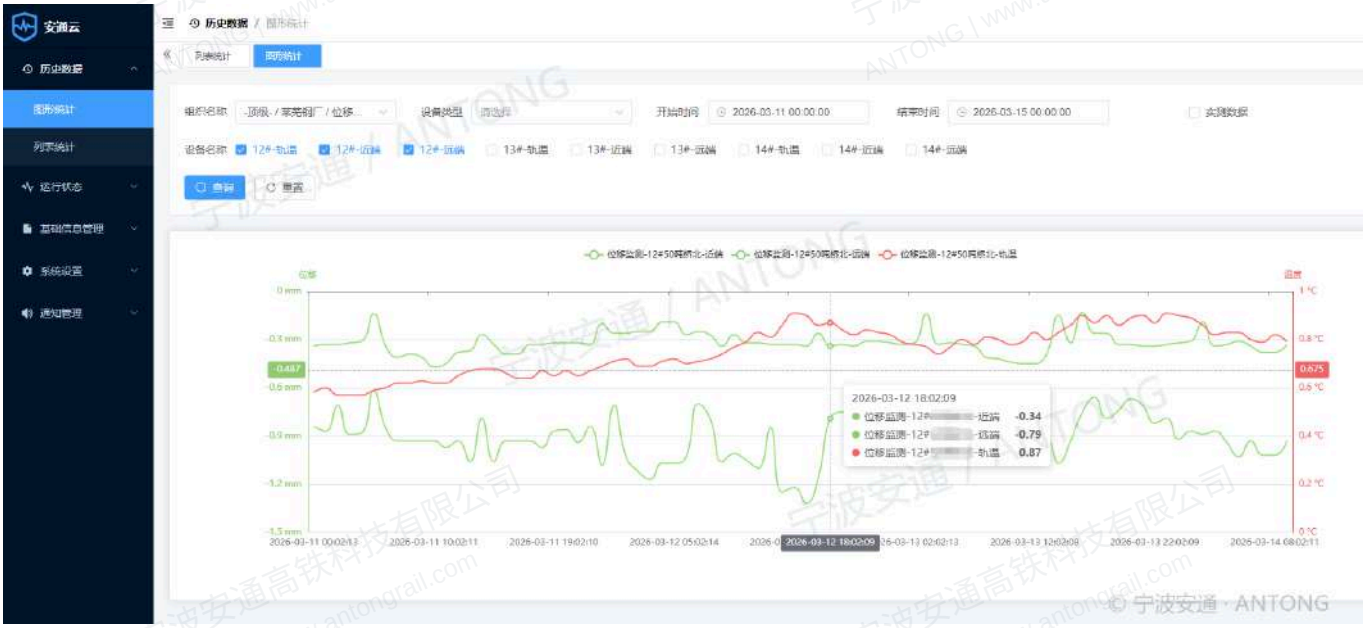
TECHNICAL SPECIFICATIONS

Measurement accuracy	Laser ±1 mm/Vision ±0.5 mm
Communication	Wireless ≤200m/Wired ≤100m
Applications	Heavy-haul railways / curves
Platform connection	Automatic upload to Antong Cloud

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Field data, available for review

Connecting equipment acquisition, data collection and field management.



Antong Cloud interface

Automatic acquisition

Collect equipment data with less manual entry.

Historical queries

Search by line, device and time.

Trend analysis

Review displacement and rail-temperature curves.

Threshold alerts

Generate alerts from configured thresholds.

Data export

Support reporting and further analysis.

Multi-device access

Access from PCs, tablets and phones.

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From measuring point to management

Choose sensing, power and communication to suit the installation conditions.



Field sensing

Laser / vision

Data transmission

Wired / wireless

Platform functions

Trends / alerts / queries

Measurement accuracy	Laser +/-1 mm; vision +/-0.5 mm
Communication	Wireless <=200 m; wired <=100 m
Terminal power	Battery / wired
Platform connection	Automatic upload to Antong Cloud

Applicable products: Rail Longitudinal Displacement Monitoring and Rail Lateral Displacement Monitoring.

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Rail displacement monitoring at tunnels

Track lateral displacement changes at transitions inside and outside tunnels.



Laser or vision monitoring modules continuously capture displacement at tunnel transition sections. Wired or wireless transmission sends measurements to Antong Cloud for real-time viewing, historical trends and threshold-event records.

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Displacement and rail temperature together

Monitoring key cross-sections of rail expansion joints.



Longitudinal displacement sensors and rail-temperature modules collect data at key sections. Antong Cloud brings the records together to compare temperature and displacement changes, supporting anomaly identification and field checks.

Rail temperature range	-40 °C to +70 °C
Resolution / maximum error	0.1 °C / +/-1.0 °C
Product combination	Longitudinal displacement monitoring + networked rail thermometers

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Monitoring tailored to each section

A shared data-management approach for different field conditions.



Sleeper displacement on curves

Vision targets at representative cross-sections continuously track lateral sleeper displacement.



Key subgrade sections

Longitudinal displacement and temperature modules on both rails collect synchronised data to support condition assessment.

Define the monitoring task

Select measurement targets and parameters for the intended operation.

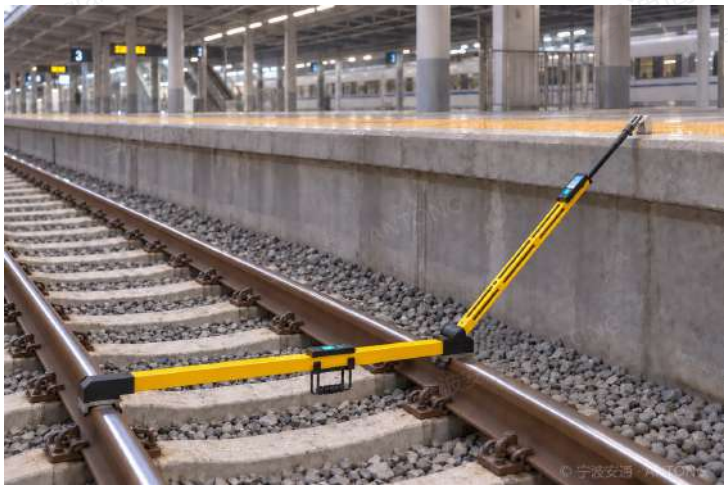
Use the records in the field

Real-time queries, historical trends and threshold-event records support inspection and response.

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XJY-2 Portable Platform Clearance Measuring Instrument

Uses the rail surface as a reference for single-point horizontal and vertical platform clearance, gauge and cant measurements. Supports spot checks and Bluetooth app communication.



TECHNICAL SPECIFICATIONS

Horizontal dimension	1300 to 2000 mm
Vertical dimension	0 to 1350 mm
Track gauge	1410 to 1470 mm
Cant	-100 to 100 mm
Horizontal error	-3.0 to 0 mm
Vertical error	0 to 2.0 mm
Weight	≤6 kg
Battery life	≥12 h
Charging	5V/3A, Approx. 3 to 5 h
Data transfer	Bluetooth, app

CUSTOM SIZES FOR WIDE PLATFORMS

Dimensions can be customised for wide-platform measurement. Range and configuration are confirmed for each project.

Standards / metrological references: GB 146.2—2020 Gauge for Standard Gauge Railways — Part 2: Structure Gauge; JJF(CR) 042—2021 Calibration Specification for Platform Clearance Measuring Instruments

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XJY-D Mobile Platform Clearance Measuring Instrument

Push-along platform clearance measurement using infrared laser and image recognition. Also measures gauge, cant and canopy clearance; supports Wi-Fi, SD backup and a detachable folding structure.



TECHNICAL SPECIFICATIONS

Horizontal clearance	1300 to 2000 mm
Vertical clearance	500 to 1350 mm
Track gauge	1410 to 1470 mm
Cant	-100 to 100 mm
Horizontal error	Static-3.0 to 0 mm, Dynamic-4.0 to 0 mm
Vertical error	Static0 to 2.0 mm, Dynamic0 to 3.0 mm
Track gauge error	±0.50 mm
Operating temperature	-10°C to 60°C/-30°C to 50°C
Battery life	≥8 h
Measurement method	Laser + image recognition
Data transfer	Wi-Fi + SD card
Structure	Detachable and folding

Standards / metrological references: GB 146.2—2020 Gauge for Standard Gauge Railways — Part 2: Structure Gauge; JJF(CR) 042—2021 Calibration Specification for Platform Clearance Measuring Instruments

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Clearance / Canopy Measuring Module

A modular clearance-data acquisition unit for equipment integration and data collection.



TECHNICAL SPECIFICATIONS

Module type	Clearance / canopy measuring module
Measuring range	0.1 to 100 m
Measurement accuracy	±1.5 mm
Integration	Modular, suitable for integration
Data collection	Supported

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Intelligent Distance Meter for Train Control Data

The LKCJY-V1.0 combines distance, clearance and handheld ranging functions. Supports Bluetooth app recording and measuring-point management.



TECHNICAL SPECIFICATIONS

Distance range	-16 to 16 km; Resolution 1 mm
Maximum distance error	≤0.5 m/km
Clearance range	Horizontal 1 to 10 m; Vertical -1 to 3 m
Maximum clearance error	±20 mm
Handheld ranging	3.5 to 1200 m; Resolution 0.1 m
Environmental conditions	-20 to 55°C; ≤90%RH (25°C)
Power / battery life	Type-C 5 V; Fully charged ≥24 h
Dimensions / mass	1625×455×200 mm; ≤8 kg (Including push handle)

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Turnout Point Machine Simulator (ZD6 Type)

The DZM-AT-ZD6 uses DC contactors to simulate ZD6 point-machine circuit-controller actions for turnout control-circuit testing. Approximately 12 kg, backpack-portable, with automatic, manual and jog modes.



TECHNICAL SPECIFICATIONS

Ambient temperature	-20°C to 70°C
Continuous operation	≥10 h
Dimensions	480×360×210 mm
Weight	Approx. 12 kg
Operating modes	Automatic/Manual/Jog
Power supply	Built-in battery (DC 220 V)
Compatibility	ZD6 four-wire / six-wire systems

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Air Pressure Gauge Tester

Available in portable pressure-monitoring and compatible pressure-measurement configurations. Models and specifications are listed separately.



AT01 (Portable)



AT01 (Compatible)

TECHNICAL SPECIFICATIONS

Product types	AT01 type (Portable) / AT01 type (Compatible)
Measuring range	Both models: 0 to 1 MPa
Error / accuracy	Portable: ±2 kPa; Compatible: ±0.1%FS
Operating temperature	Portable: -40 to +60°C Compatible: -50 to +60°C
Fully charged battery life	Portable: >30 h; Compatible: ≥14 h
Data interface	Portable: USB, Curve recording and Excel export
Wireless configuration	Compatible: 1 W, 4800 bps, GFSK
Sampling / transmission	Compatible: 500 ms/sample

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ATGJ-1 Railway Track Gauge Calibrator (Gauge Block Type)

For verification of Class 0, 1 and 2 track gauges. Gauge block combinations reproduce track gauge; gauge blocks reproduce cant using the sine principle. Precision CNC-machined blocks and structural parts.



TECHNICAL SPECIFICATIONS

Accuracy class	Class I
Track gauge range	1410 to 1470 mm
Cant range	-185 to +185 mm
Track gauge reproduction	Gauge block combination (1410 to 1470 mm)
Cant reproduction	Gauge blocks using the sine principle
Motion unit	Imported
Manufacturing	Precision CNC machining

Standards / metrological references: JJG 404—2023 Verification Regulation of Railway Track Gauge Calibrators

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ATGJ-2 Railway Track Gauge Calibrator (Lead Screw Type)

For verification of Class 0, 1 and 2 track gauges. A handwheel-operated lead screw adjusts track gauge, with scale readout. Cant is reproduced using gauge blocks and the sine principle.



TECHNICAL SPECIFICATIONS

Accuracy class	Class I
Track gauge range	1410 to 1470 mm
Cant range	-185 to +185 mm
Track gauge error	Zero position ±0.04 mm, Non-zero position ±0.06 mm
Track gauge adjustment	Lead screw with handwheel; scale readout
Cant reproduction	Gauge blocks using the sine principle
Motion unit	Imported
Manufacturing	Precision CNC machining

Standards / metrological references: JJG 404—2023 Verification Regulation of Railway Track Gauge Calibrators

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Calibrator Horizontal Zero-Point Calibration Instrument

Measures level in forward and reverse orientations. Displays A/D counts and their difference as a reference for levelling a stone surface plate.



TECHNICAL SPECIFICATIONS

Measurement accuracy	±10A/D counts
Repeatability	±5A/D counts
Display resolution	1A/D counts
Measuring range	0 to 65535 A/D counts
Weight	1.9 kg
Dimensions	1589×35×58 mm
Battery	5400 mAh lithium battery
Operating temperature	-10°C to +50°C
Operating humidity	≤80%
Automatic power-off	After 10 minutes of inactivity

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ZJQ-1 Railway Turnout Offset Gauge Calibrator

Combines gauges and measuring blocks to reproduce reference values for 100-1290 mm, 100-1800 mm and 100-2300 mm turnout offset gauges.



TECHNICAL SPECIFICATIONS

Measuring range	100 to 2300 mm
Dimensions	2506×280×129 mm
Weight	31.1 kg (Excluding working gauges)
Reference method	Gauges and measuring blocks
Compatible offset gauges	100-1290/100-1800/100-2300 mm
Measuring points	12 standard measuring points

Standards / metrological references: JJG 1109—2015 Verification Regulation of Railway Turnout Offset Gauge Calibrators

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Platform Clearance Instrument Calibration Bench

Calibrates gauge, cant, horizontal and vertical distances on platform clearance instruments, using three groups of calibration points.



PRODUCT INFORMATION

Instrument under calibration	Platform clearance measuring instrument
Calibration parameters	Track gauge, cant, horizontal and vertical distances
Calibration points	3 groups

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Automated Platform Clearance Calibrator

Calibration and reference-value reproduction for platform clearance instruments.



Vertical clearance	150-1350 mm; U <= 0.25 mm
Horizontal clearance	1300-2000 mm; U <= 0.30 mm
Cant reproduction	30, 60, 90 mm; U <= 0.25 mm
Track gauge reproduction	15, 30, 45, 60 mm; U <= 0.15 mm
Clearance adjustment blocks	Horizontal / vertical dimensions: U <= 0.01 mm
Calibration environment	(20 +/- 5) °C; stabilisation >= 4 h

Calibration covers clearance, gauge and cant, using the corresponding reference structures and adjustment blocks.

Calibration reference: JJF(CR) 042—2021 Calibration Specification for Platform Clearance Measuring Instruments, Appendix A.

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Track Gauge Verification Data Management Software

Bluetooth acquisition, automatic calculation and report generation for semi-automated verification.



Data acquisition	Automatic Bluetooth acquisition
Data processing	JJG 219-2015 Verification Regulation of Track Gages for Standard Gauge Railway; automatic calculation
Report output	One-operation report generation
Data management	Automatic management of verification data and work records

01 Acquire

Smart terminals capture measurement data.

02 Check

Mobile tools assist with error checks.

03 Store

Software retains work records.

Combined configuration: digital track / turnout offset gauges + dedicated calibrators + data management software

Standards / metrological references: JJG 219-2015 Verification Regulation of Track Gages for Standard Gauge Railway; JJG 404-2023 Verification Regulation of Railway Track Gauge Calibrators

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Measuring Head Customisation

Special-profile / Raised / Wear / Bespoke Heads

Special-profile Heads



One-piece contact profile clears the rail lip to reach the measuring surface below.

Raised Heads



Adapt head height to increase clearance beneath the gauge beam.

Wear Measuring Heads



Configure contact positions for switch and stock rail wear measurement.

Bespoke Heads



Tailor the profile, mounting interface and contact datum to the application.

Hump Yard Gauge | Raised-beam Design

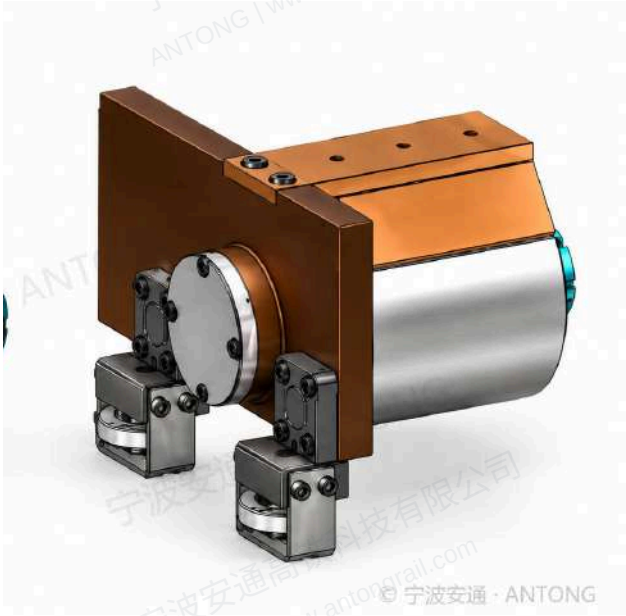


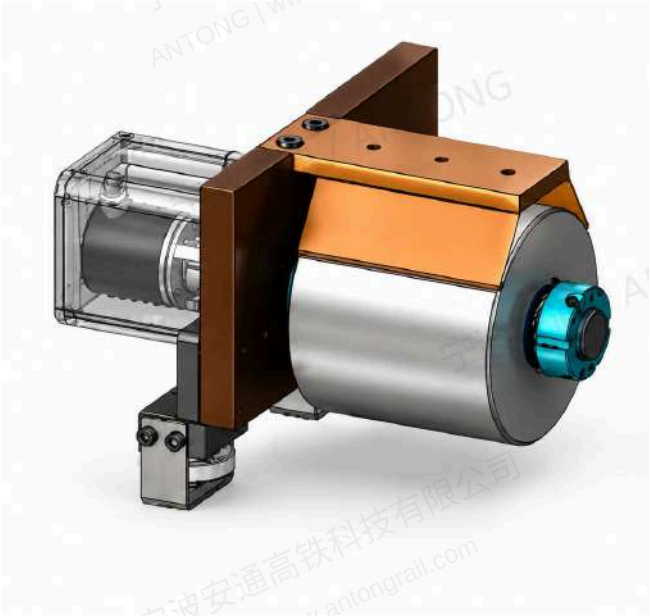
Raise both complete heads to lift the beam. Head height, contact datums and mounting are tailored to site conditions.

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Custom Wheel Assemblies & Equipment Modification

Customisation and modification of wheel assemblies, supports, positioning and measuring structures.





Wheel Assembly Design



Equipment Modification

Adapt head positions, supports, locating structures and access while retaining the required measurement relationship with the rail.

Requirements, structural design, assembly verification and acceptance conditions are confirmed for each project.

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Custom Measurement & Monitoring Applications

Bridge Eccentricity Measurement / Track Slab Tilt Monitoring



Bridge Eccentricity Measurement

Define the measurement datum, eccentricity direction and contact or positioning method.



Track Slab Tilt Monitoring

Configure monitoring direction, mounting positions, data acquisition and field operating requirements.

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Development for field requirements

Projects in development across inspection, monitoring, verification and simulation.



IN DEVELOPMENT

Fastener Central Support Gap Measuring Instrument

Quantitative fastener-gap measurement for condition assessment.



IN DEVELOPMENT

Intelligent Rail Fastener Inspection Instrument

Intelligent identification of fastener condition and defects.



IN DEVELOPMENT

Intelligent Rail Fastener Maintenance Robot

Automated execution of fastener maintenance.



IN DEVELOPMENT

Curve Versine Measuring Instrument

High-precision measurement of curve versines.

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Development for field requirements

Projects in development across inspection, monitoring, verification and simulation.



IN DEVELOPMENT

Broken Rail Monitoring Device

Online rail-break monitoring and alarms.



IN DEVELOPMENT

Automated Track Gauge Calibrator

Automated track gauge verification.



IN DEVELOPMENT

Power Supply Panel Simulator

Power-panel operating-condition simulation and testing.



IN DEVELOPMENT

Broken Rail Monitoring System

Online monitoring and alarms for rail breaks.

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From requirements to field operation

Project delivery around equipment, applications and metrological verification.

01 Requirements and selection

Define measurement targets, operating conditions and data needs to select products and configurations.

02 Delivery and commissioning

Coordinate delivery, installation, commissioning and the associated technical documentation.

03 Operator training

Train users in equipment operation, data queries and routine maintenance.

04 Technical service

Provide configuration-related technical support, fault diagnosis and maintenance services.

05 Metrology and review

Coordinate verification, calibration and instrument condition management as required.

Equipment supply / Application solutions / Data platforms / Custom development / Technical training

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Precision in every measurement.

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