

PANTOINSPECT

TECHNICAL SPECIFICATION

PantoScanner Mark 6



PANTOSCANNER TECHNICAL SPECIFICATIONS

PERFORMANCE

Vehicle speed	Min	5 km/h
	Max	Light rail / Depot version: 70 km/h High-speed version: 350 km/h
Vehicle direction		Bidirectional
Carbon strip lengths		650 – 1650 mm
Ambient temperature		-40 to +50 °C / -40 to +122 °F
Ambient humidity		Up to 98%

INSTALLATION

Scanner size (excl. mounting/servicing system)		L: 812 x W: 380 x H: 375 mm
Scanner weight (excl. options)		45 kg
Scanner enclosure		Stainless Steel with Aluminium plates
Scanner height above catenary wire		1900 – 2200 mm
Power supply		1 x 230 V, 10 A, max. 1 kW (consumption at rest without TEC: 70 Watt)
Isolation class		IP66
Network connectivity		10 Mbit/s recommended, min. 2 Mbit/s or 3G
Additional track-side equipment		RFID reader

SERVICE

On-site maintenance		Depending on local conditions, typically twice per year
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PANTOSYSTEM TECHNICAL SPECIFICATIONS

PANTOSERVER

Hosting		On-premises, or in PantoCloud
Operating system		Microsoft Windows Server
Integration options		PantoAPI (REST), local vehicle information systems, email, (S)FTP
Time to process recorded data		Typically < 10 seconds
Capacity		Storage capacity limited by disk space only

PANTOCLIENT

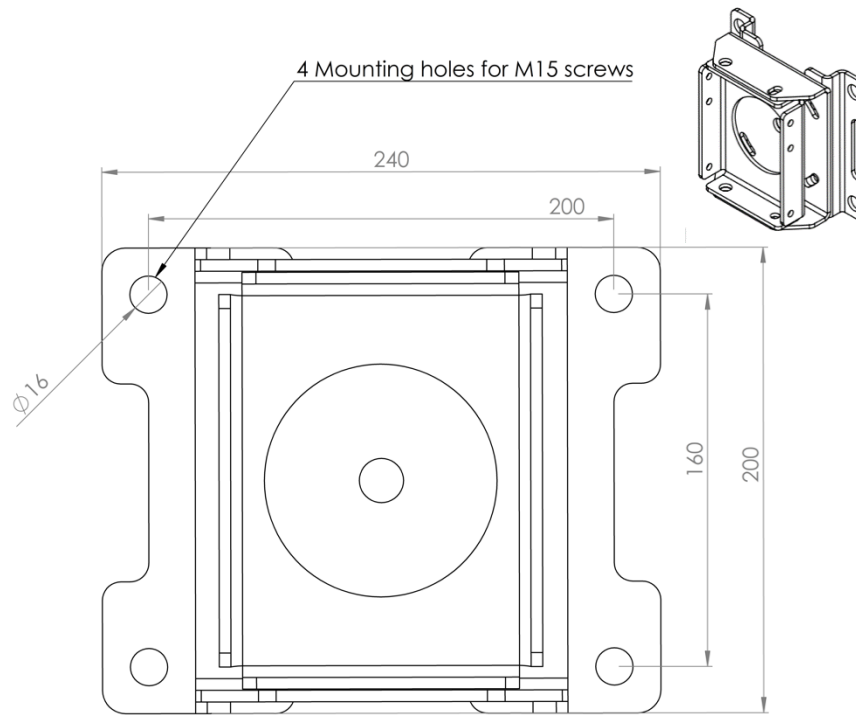
Operating system		Any web browser, fully supports smart phones and tablets
Language support		English, Deutsch, Français, Español, Nederlands, Dansk, Norsk, Polskie, Slovenský, Chinese Simplified, Chinese Traditional

ALARMS

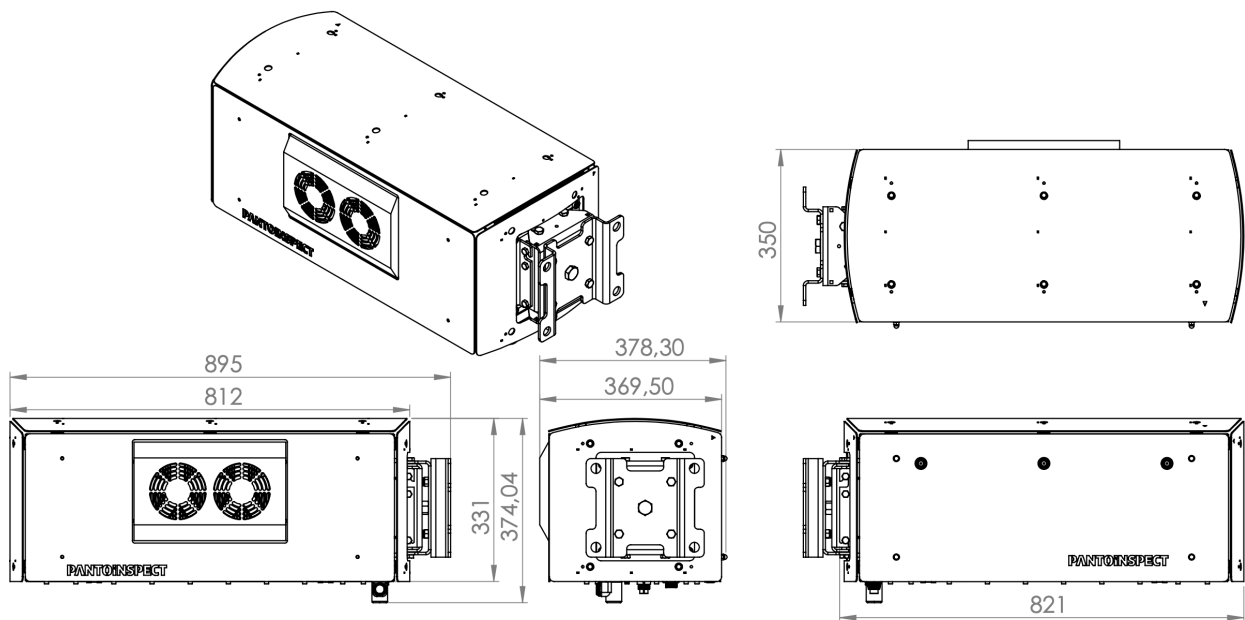
Alarm thresholds		Configurable per measurement type, pantograph model and vehicle operator
Alarm levels		Up to three severity levels supported

INSTALLATION BRACKET

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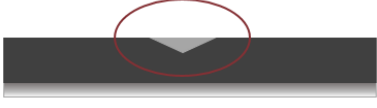

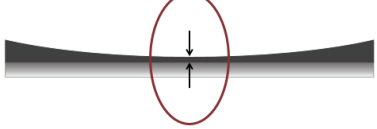
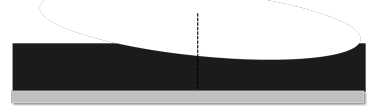



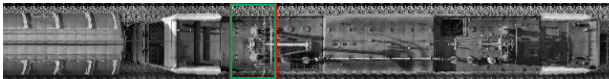


PANTOSCANNER DIMENSIONS



SYSTEM MEASUREMENTS

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	<p><i>Missing carbon</i></p> <p><i>Vertical crack</i></p>	<p>Resolution 1 mm, accuracy ± 2 mm Standard deviation < 1 mm</p> <p>Min. detectable size (W x D): 5 x 3 mm</p>
	<p><i>Edge chip</i></p>	<p>Resolution 1 mm, accuracy ± 2 mm Standard deviation < 1 mm</p> <p>Min. detectable size (W x D): 5 x 5 mm</p>
	<p><i>Abnormal wear</i></p>	<p>Resolution 1 mm, accuracy ± 2 mm Standard deviation < 1 mm</p> <p>Min. detectable size (W x H): 5 x 3 mm</p>
	<p><i>Remaining carbon</i></p>	<p>Resolution is 1 mm, accuracy ± 2 mm Standard deviation < 1 mm</p>
	<p><i>Asymmetry</i></p>	<p>Measured as percentage</p>
	<p><i>Uplift displacement</i></p> <p><i>Uplift force</i></p>	<p>Displacement resolution is 1 mm</p> <p>Force accuracy is based on the wire dynamics</p>
	<p><i>Horn displacement</i></p> <p><i>Missing horn</i></p>	<p>Horn displacement, angular or distance</p> <p>Horn presence detection</p>
	<p><i>Roll angle</i></p> <p><i>Yaw angle</i></p> <p><i>Pitch angle</i></p>	<p>Angular range from -6° to $+6^\circ$</p>
	<p><i>Roofcam</i></p>	<p>Images of the entire train roof</p>

Note: Accuracy and resolution may vary depending on pantograph type, manufacturing tolerances on new carbon strips, frequency of observations, local conditions, as well as differences in manual measurements for references. For all measurements, it is assumed the carbon strips are still in contact with the contact wire.