RockMonitor XR

Highly accurate, mine-wide
remote strata monitoring system

Monitoring the integrity of rock structures in underground mining and tunnelling, ensuring the highest levels of worker safety, providing continuous data to allow optimisation of roof support planning

Available through

STRATA WORLDWIDE

P5625.1601 Rev B

Improve safety and efficiency

Our telltale systems have been proven in some of the world's largest mines to dramatically improve safety and increase efficiency – independently assessed to reduce injury and incident reports by 65% and increase productivity by 40%.

– The RockMonitor XR system tracks strata movement throughout the mine in real-time, providing information to central control areas and giving advance warning of excessive displacement.

– Respond early to prevent stoppages due to excessive strata movement, and in the worst case scenario where rockfall cannot be prevented, to facilitate the early evacuation of mine personnel and equipment.

– Automated notifications provide advance warning of excessive movement so that workers never have to take unnecessary risks.

– Significantly improve bolting strategies by analysing detailed rate-of-movement graphs to determine the optimum amount of protection. An independent study showed a 49% cost reduction in standing supports through increased spacing with the NOME telltale system deployed.

– Increase the up-time on longwall operations, through efficient deployment of assets and by eliminating the need to stop production to take manual readings.

65%

reduction in injuries and incident reports

Mine-wide remote strata monitoring

The RockMonitor XR system provides a continuous, remote strata monitoring solution that delivers detailed real-time information on rock movement throughout the mine. The intrinsically safe system comprises a controller combined with multiple telltale measurement instruments.

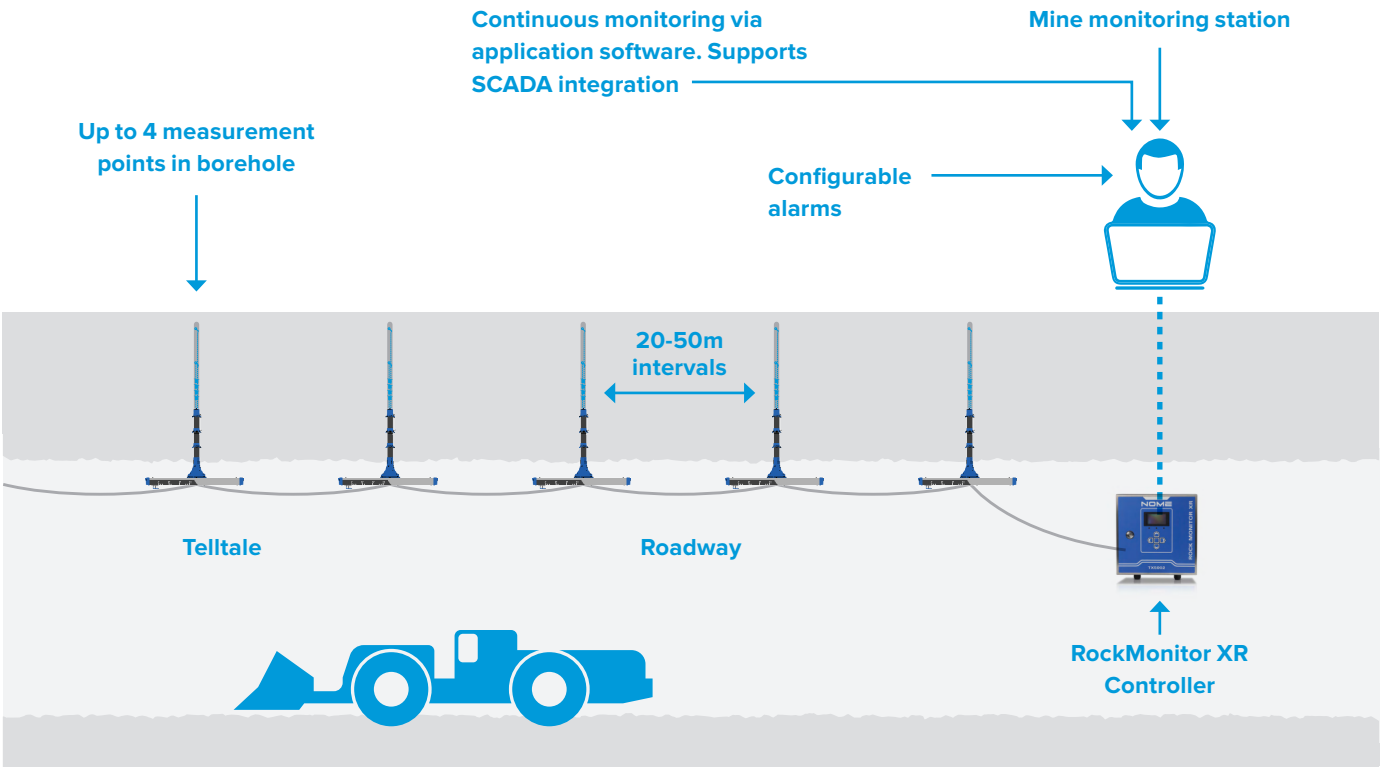
Information is transmitted back to the control centre with information displayed via sophisticated application software. The system can also integrate with SCADA platforms to provide continuous information on the system status.

Plug and play

Installing measurement devices underground can be extremely challenging. That is why the RockMonitor XR system has been designed to be as simple as possible to install and setup.

Telltales can be added dynamically to the system and will automatically configure and start transmitting data immediately. A portable reader is available to aid installation and ensure the integrity of the telltale network.

System installation



Flexible alarms

Alarms are fully configurable for any telltale and can be tailored for each specific measurement point. Monitor rate of movement or absolute movement, use system wide alarm setpoints or location specific configurations to suit the geological profile or bolting strategy.

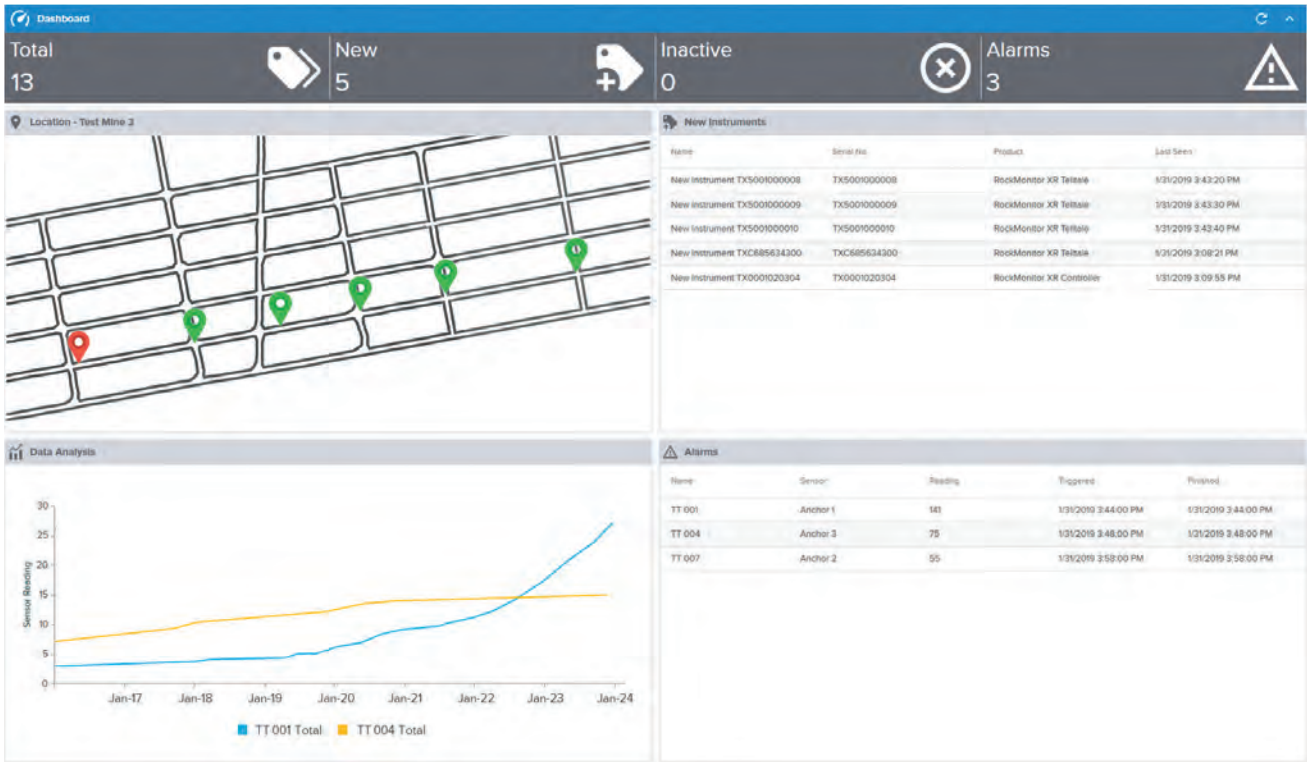
Configuration is quick and simple using the accompanying application software, which also provides continuous feedback on alarm status. Users can align alarm protocols with mine specific Trigger Action Response Plans (TARP) giving immediate notification of breaches and allowing close monitoring of potentially dangerous strata movements.

Monitoring, analysing and reporting

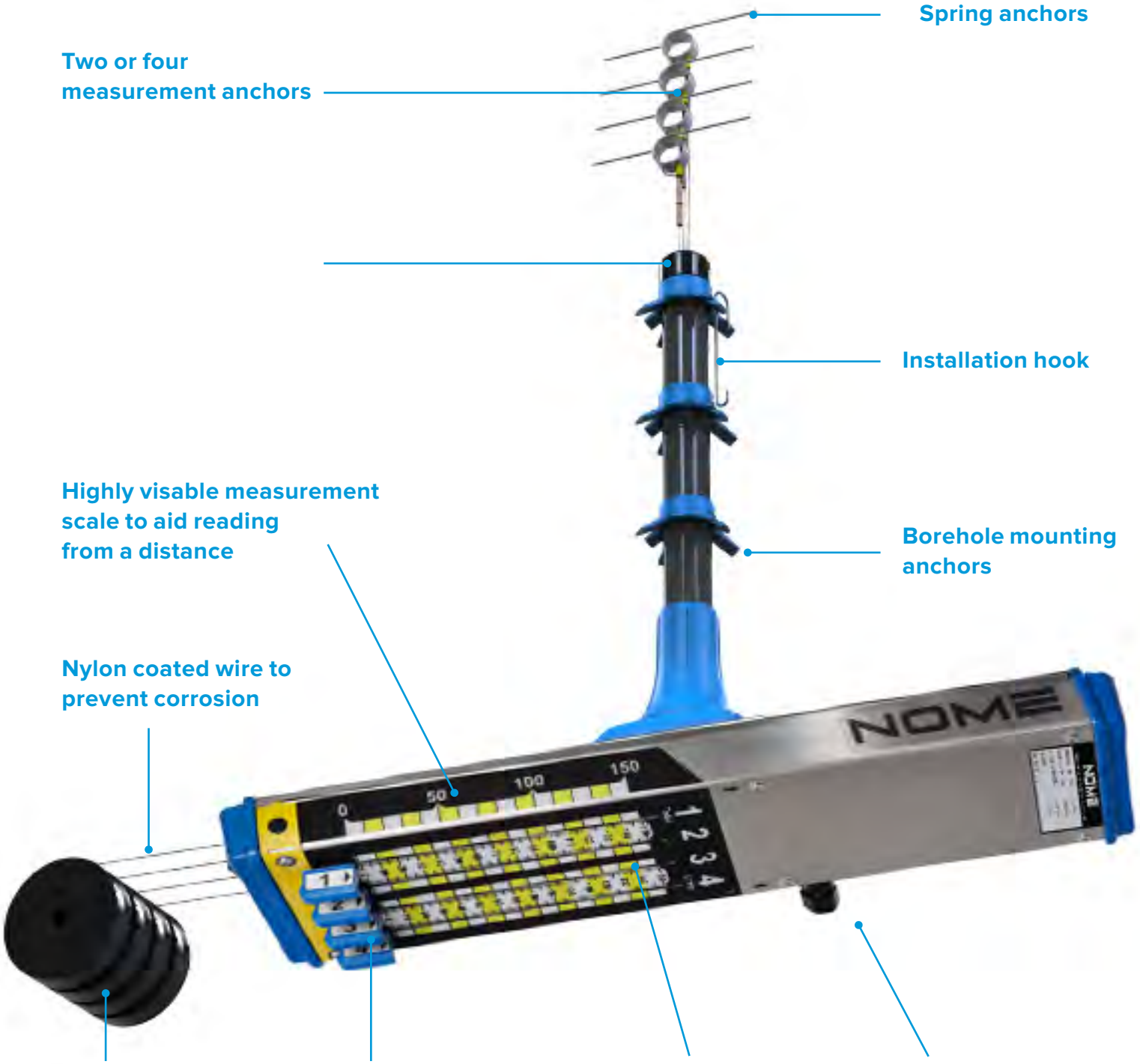
Collating, analysing and reporting data is essential for any mining operation. The RockMonitor XR system makes this fast and easy via powerful NOME | Core application software.

View live readings or historic data and output detailed graphs to provide critical insight into strata movement and mine safety. Users can monitor multiple systems using detailed GIS mapping to give at-a-glance information on measurements and alarms.

NOME | Core – Monitoring and analysis



RockMonitor XR Mine-Wide Strata Monitoring



Technical Information

RockMonitor XR System

Operating range	Up to 10 km - For full details refer to user manual
Number of telltales	Up to 150 per controller
Full system refresh rate (150 Telltales)	15mins
Ambient temperature	0°C to +50°C
Humidity	10 to 98%
Certification	ATEX/IECEx Group I - For full certification details refer to user manual

Note: a system typically comprises a controller and a number of telltale devices. The portable reader is designed for use during installation and maintenance and is not considered part of a system.

TX5001 RockMonitor XR Telltale

Ambient temperature	0°C to +50°C
Storage temperature	-20°C to +50°C
Humidity	10 to 98%
Ingress protection	Dust and waterproof to IP54
Housing materials	SS316, PC/ABS
Net weight	2.1kg
Measurement points	2 or 4
Borehole diameter	35 to 45 mm
Measurement range	0 to 150 mm (without reset)
Accuracy	<1.0mm
Repeatability	<0.1mm
Certification	ATEX/IECEx Group I - For full certification details refer to user manual

TX5002 RockMonitor XR Controller

Ambient temperature	0°C to +50°C
Storage temperature	-20°C to +50°C
Humidity	10 to 98%
Ingress protection	Dust and waterproof to IP66
Housing materials	Coated steel
Net weight	6.8kg
Nominal power supply requirements	12V, 500mA
Minimum Supply Input	9.8V
Maximum Peak Supply Current (150 Telltales)	425mA
Display	128 x 64 pixels LCD with backlight illumination
Communications	RS485 data output or Ethernet
System data refresh	3-10 minutes (dynamic depending on system size)
Certification	ATEX/IECEx Group I - For full certification details refer to user manual

TX5003 RockMonitor XR Reader

Ambient temperature	0°C to +50°C
Storage temperature	-20°C to +50°C
Humidity	10 to 98%
Ingress protection	Dust and waterproof to IP54
Housing materials	SS316, Acetyl, (contained in a leather pouch)
Net weight	1.1kg no pouch, 1.4kg with pouch
Battery	NiMH
Battery run time	Up to 12 hours
Battery charge time	6 hours
Display	128 x 64 pixels LCD with backlight illumination
Certification	ATEX/IECEx Group I - For full certification details refer to user manual

Dimensions

TX5001 RockMonitor XR Telltale

TX5002 RockMonitor XR Controller

300mm

300mm

151mm

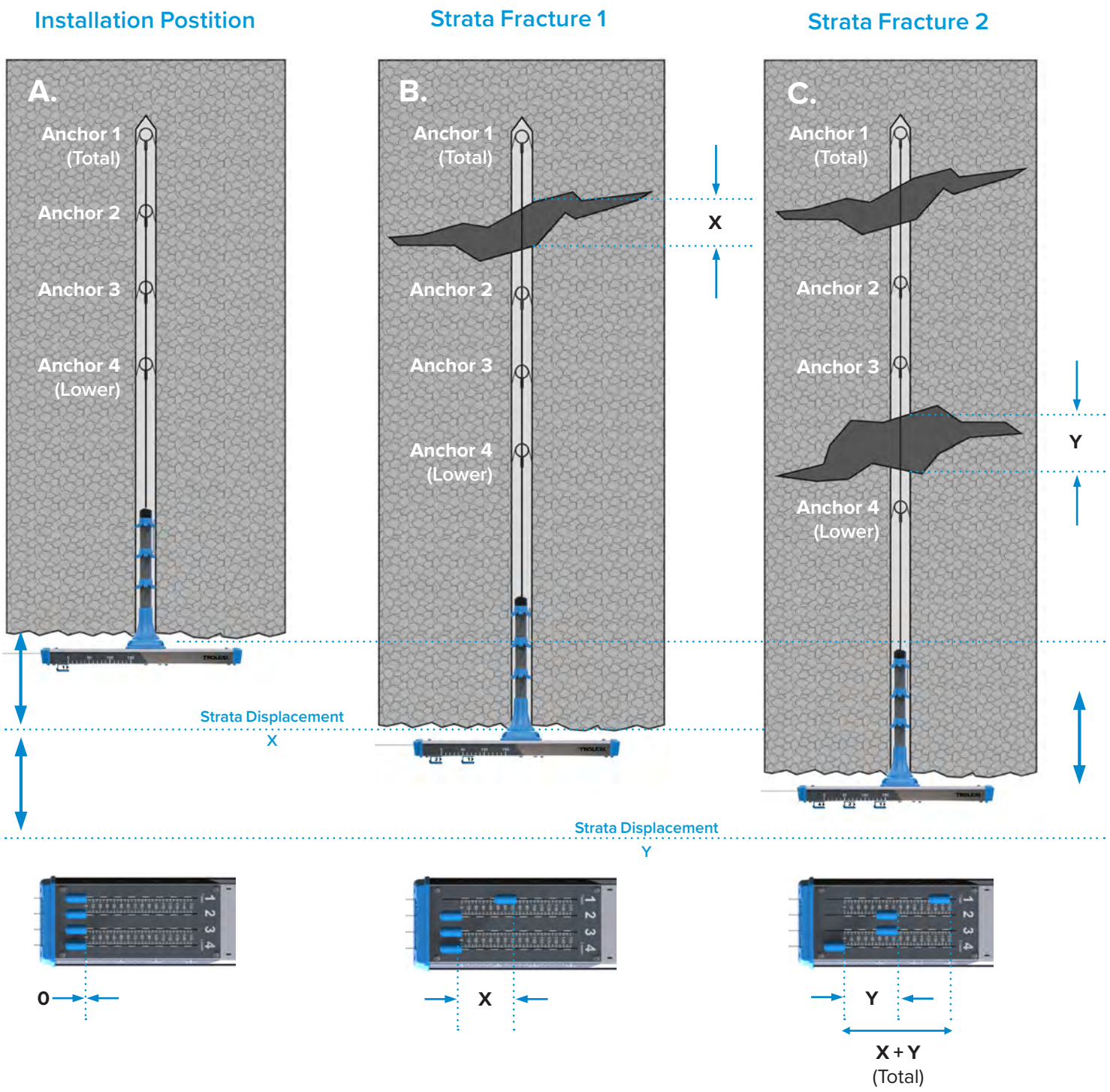
TX5003 RockMonitor XR Reader

121mm

191mm

54mm

Theory of operation



Installation position. No strata movement, indicated at '0mm' by displacement markers against measurement scale

Fracture displaces strata between Anchor 1 and 2 by 'X'. Anchor 1 displacement marker moves to represent displacement figure.

Second fracture displaces strata between Anchor 3 and 4 by 'Y'. Anchor 2 and 3 displacement markers move to represent displacement figure 'Y', whilst anchor 1 displacement marker moves to represent a total distance of 'X + Y'.

Additional Information

Anchors

The measurement anchors secure the nylon coated steel anchor wires into the borehole. Displacement is measured between the anchor point within the borehole and the tunnel roof. Telltale instruments are configured to provide either two or four measurement points.

Anchor Heights

Measurement can be adjusted to any length of borehole. Select custom lengths to avoid unnecessary anchor wire wastage.

Topology

The system has been designed to provide full flexibility in how the network of telltales is configured. Telltales can be connected in a continuous daisy-chain or spurred from an existing cable installation, allowing the system to be easily expanded.

Cable Lengths

If a daisy-chain topology is selected then the telltale instrument will have two cables (one input and one output) to allow connection to the network. If the spur topology is selected then only a single cable is required to connect the telltale to the system.

Note: for further information on the above features, please refer to the user manual.

NOME

RockMonitor XR:
Nome Services

Established in 2006, Nome Services provides expert support to the global mining industry. Offering complete strata management solutions including real-time strata monitoring, geotechnical consultation, and world class technical support, Nome Services has been at the forefront of delivering enhanced safety in underground mining.

Working with all major international mining companies, Nome Services has a proven track record delivering complex projects in the most demanding applications. Supported by an experienced and diverse team of highly qualified specialists in a range of disciplines such as electrical, mechanical, and geotechnical engineering, Nome Services has installed ATEX / IECEx certified strata monitoring solutions in some of the world's largest mines.

Available through

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