AXXIS
DIGITAL INITIATION SYSTEM

PRODUCT CATALOGUE
2018

The AXXIS™ Digital Initiation System

currently holds the world record for the largest blast using electronic detonators, firing 6,690 detonators on FQM's Kansanshi operation in North-Western Zambia.

WORLD RECORD BLAST

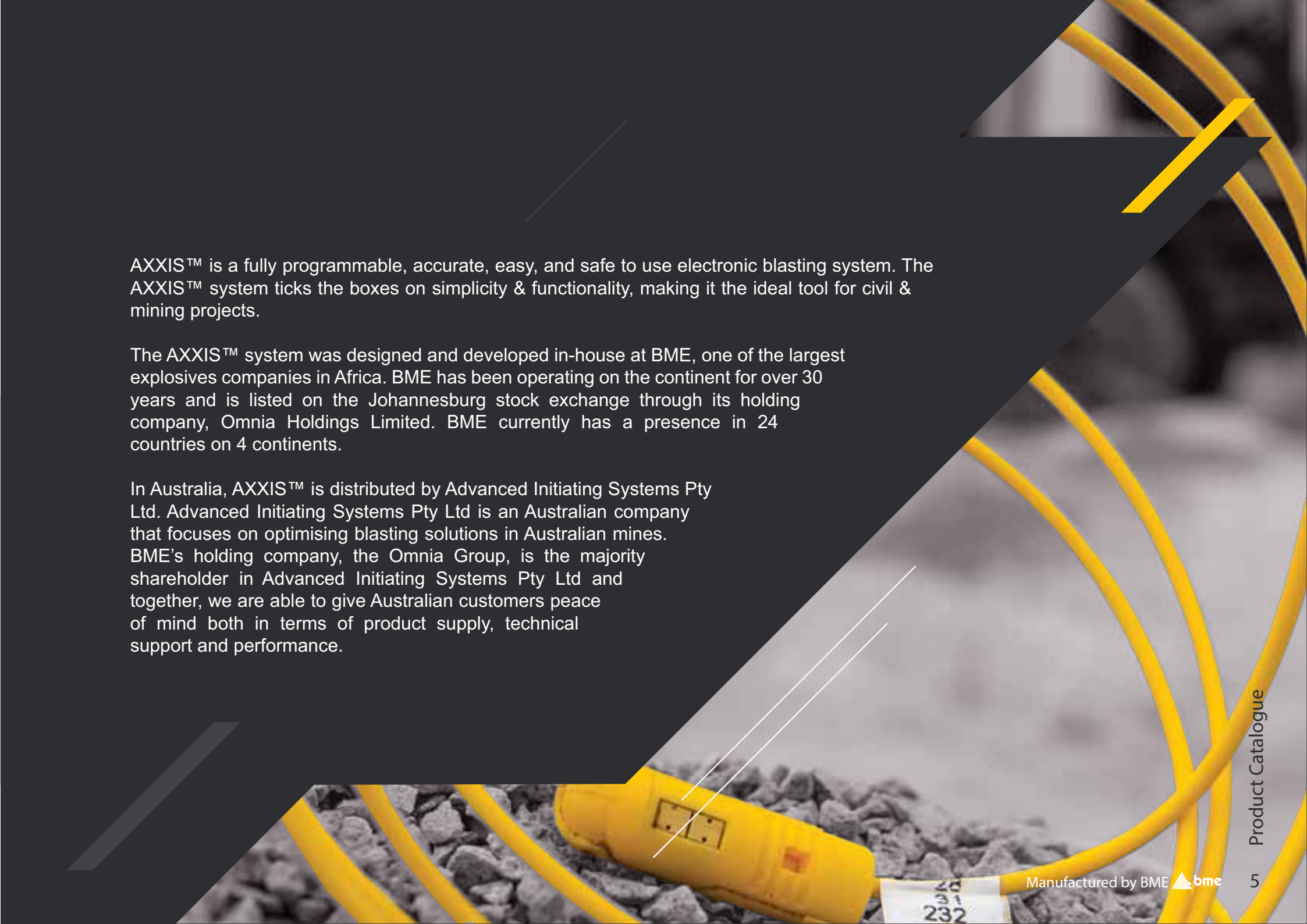World record blast for BME 6,690 AXXIS™ electronic delay detonators

Manufactured by BME **bme**

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Product Catalogue

WELCOME TO THE WORLD OF AXXIS™

AXXIS™ is a fully programmable, accurate, easy, and safe to use electronic blasting system. The AXXIS™ system ticks the boxes on simplicity & functionality, making it the ideal tool for civil & mining projects.

The AXXIS™ system was designed and developed in-house at BME, one of the largest explosives companies in Africa. BME has been operating on the continent for over 30 years and is listed on the Johannesburg stock exchange through its holding company, Omnia Holdings Limited. BME currently has a presence in 24 countries on 4 continents.

In Australia, AXXIS™ is distributed by Advanced Initiating Systems Pty Ltd. Advanced Initiating Systems Pty Ltd is an Australian company that focuses on optimising blasting solutions in Australian mines. BME's holding company, the Omnia Group, is the majority shareholder in Advanced Initiating Systems Pty Ltd and together, we are able to give Australian customers peace of mind both in terms of product supply, technical support and performance.

FOOTPRINT

Africa

- South Africa
- Lesotho
- Swaziland
- Botswana
- Zimbabwe
- Namibia
- Zambia
- Mozambique
- Malawi
- Tanzania
- DRC
- Rwanda
- Ghana
- Burkina Faso
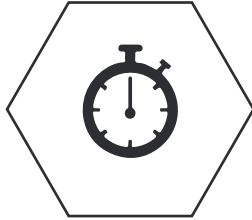- Sierra Leone
- Guinea
- Senegal
- Mauritania
- Mali

Product Catalogue
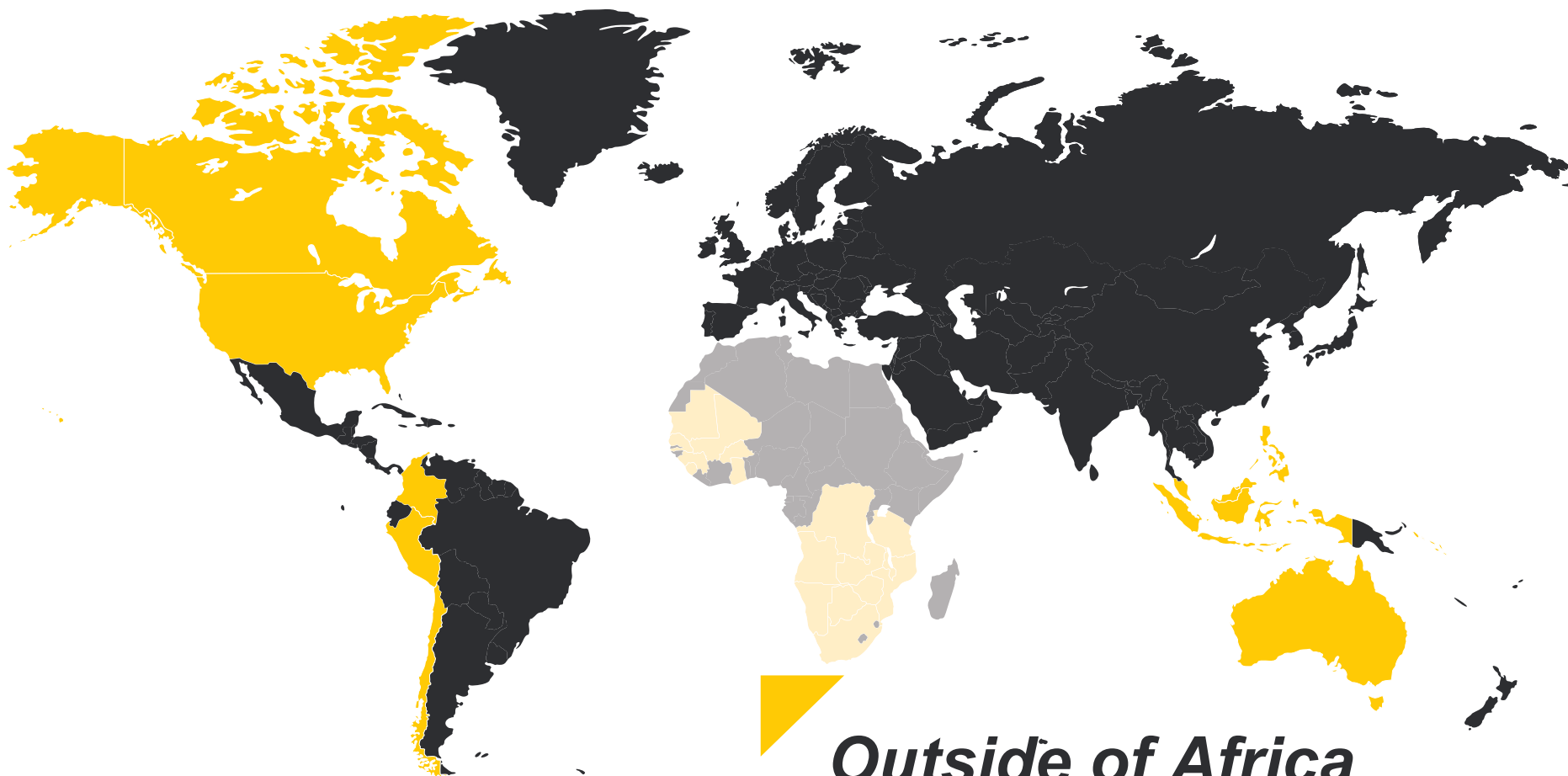
Outside of Africa

- Singapore
- Indonesia
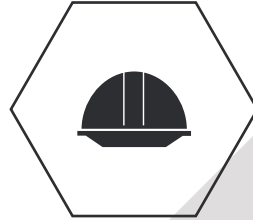- Australia
- USA
- Canada
- Colombia
- Peru
- Chile

THE SYSTEM

System features:

State-of-the-art blast and design software allowing for complex timing designs for vibration control, improved fragmentation, heave, and better final walls.

AXXIS™ is one of the safest initiation systems available.

For safety, AXXIS™ offers a full two-way communication between the blasting box and detonators.

During detonator logging, there is no direct communication with the detonators.

The high-strength downlines, quality connectors and strength of the detonator shells ensure fewer blast delays caused by leakage and fewer lost holes resulting from cable damage.

Using the AXXIS™ system, you can program AXXIS™ detonators to fire accurately at any time between 0 and 15000 ms.

You can fire up to 500 detonators from one AXXIS™ Blasting Box.

How will the AXXIS™ system provide value?

- Faster loading
- Lower costs
- Higher productivity
- Faster ore exposure
- More space to mine
- Faster crusher throughput
- Higher productivity
- More processed value
- Lower carbon footprint
- Larger multiple blocks reducing mine downtime for blasting
- Same results are possible with a slightly expanded pattern, thus neutralising the higher detonator costs

Benefits of the system:

- Accurate
- Safe
- Flexibility in timing designs
- Vibration and airblast control
- Finer, more consistent fragmentation
- Better control of muckpile shape
- High wall damage control
- Stock controls

Manufactured by BME bme

PRODUCTS

AXXIS™ Blasting Box

The AXXIS™ Blasting Box can be used as a stand-alone unit with a blasting line connected directly to the detonators, or in a wireless configuration with two or more AXXIS™ Blasting Boxes.

For a large blast, a total of twenty boxes can be linked together, for a total of up to 10 000 detonators.

Voltage
24 volt rechargeable Li-ion batteries

Battery life
15 hours x 500 detonator blasts (battery life dependent on the number of detonators in each blast)

Operating temperature range
-20 to +60 °C

User interface
Black and white LCD screen using two buttons to navigate through menus and fire blasts

Communications interface
USB port

Number of detonators per blasting box
600 / link 500

Wireless range between boxes
1000m-5000m line of site (depending on country's frequency allocation)

Communication
Two-way communication between blasting box and detonators.
All detonators are interrogated before blasting time.The blast can be fired using wireless communication between a remote blasting box and the blast.

AXXIS™ Logger

The AXXIS™Logger is a small, robust unit that is used to scan each detonator connector and allocate a delay period to that connector.

The unit has a touch screen interface and a numeric keypad for entering detonator firing time values and connector IDs (should this be necessary if a connector has been damaged). The AXXIS™ Logger can be used directly to programme delays by blasters, but can also be used in conjunction with AXXIS™ BLASTMAP™ III.

PRODUCT SPECIFICATIONS

Voltage
9 volt Li-ion rechargeable battery

Battery life
15 hours continuous room temperature operation

Operating temperature range
-30 to +60 °C

Battery charging
4 to 4.5 hours to full charge

Storage
-40 to +70 °C

Shock
MIL-STD-810F, Method 503.4

Logging modes
Manual / increments / double prime / AXXIS™ BLASTMAP™ III Downloads

User interface
Touch screen and numeric keys

Communications interface
USB port

AXXIS™ Smart Line Tester

The AXXIS™ Smart Line Tester is a small low current device that is used to test a surface line, which has a number of detonators connected to it, for leakage, current consumption, and functionality.

Function
• Device for safely testing lines for leakage before blasting time
• Safely testing functionality of the detonators

Maximum number of detonators
The maximum number of detonators on a line that can be tested is 50.
The reason for this is that the leakage tester generates a very low energy current for safety reasons.

Maximum current output
20 mA

Power supply
Li-ion Batteries

AXXIS™ GII™ Detonator

The AXXIS™ GII™ detonator is a standard size detonator that will function in all standard sized boosters that are used in non-electric blasting.

AXXIS™ GII™ detonators use 2-core double insulated downline cables. Higher resistance to electrostatic discharge and high induced ground currents make the GII™ detonator safer to use in all mining conditions.

Case of detonator
Magnesium aluminium alloy / copper alloy

Detonator size
Fits any standard booster

Cable type
Twin core copper cable, double insulated

Spool description
Cable spooled in shrink-wrapped spools with detonator feed from centre of spool for safety

Standard lengths
10m - 20m - 30m - 40m - 50m - 60m - 70m (other lengths available on request)

Connector
Yellow pin-hinged two-way connector with intelligent electronic data capability

Firing time range
0 to 15 000 ms

Accuracy
0 to 5000 ms < 1ms scatter
Operating temperature
-20 to +60 °C

Storage temperature
-30 to +50 °C

Shelf life
At recommended storage temperature - 48 months

Safety function
AXXIS™ GII™ detonators do not include any permanent energy source and there is no direct communication with the detonator during logging. AXXIS™ GII™ detonators will only function with AXXIS™ Blasting Boxes. Special security PIN codes are required to operate the system. A deadman's switch disarms all detonators if the blast needs to be aborted at short notice.

AXXIS™ BLASTMAP™ III
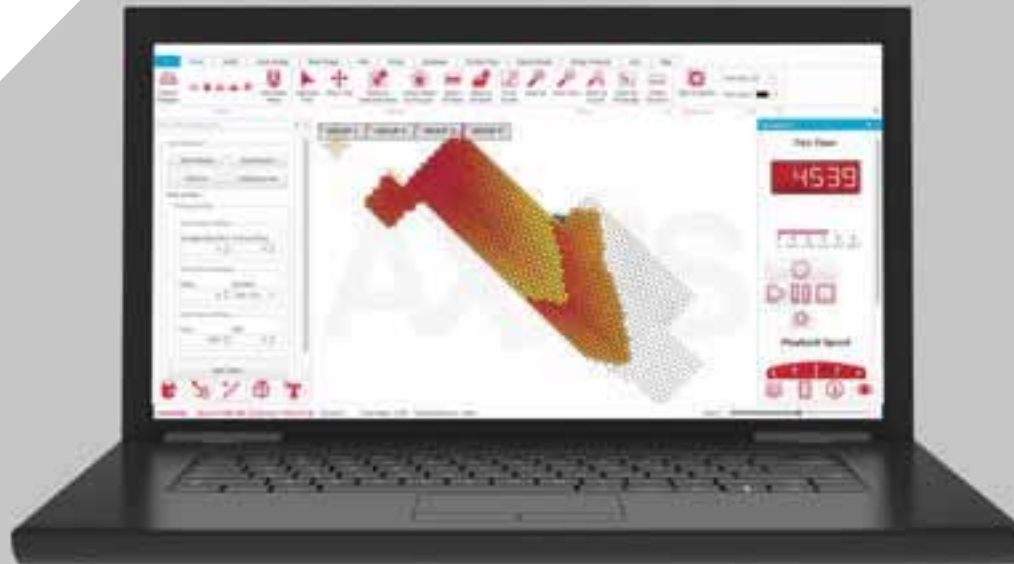
Complete blast planning, design, and analysis software. Powerful, easy to use, flexible, accurate.

AXXIS™ BLASTMAP™ III is software for designing blast timing for use with AXXIS™. It is a powerful and modern software that allows design of the blasts from hole layouts to charge quantities, deck charging and blast timing.

Features

- Design a blast from scratch (pattern, hole diameters, explosives, rock type) using survey information about the block geometry and surface
- Carry out detailed charge and timing designs based on actual hole positions
- Calculate costs and quantities based on actual drilling information
- Import any text or xlsx data file
- Import AXXIS™ electronic detonator IDs, design timing
- Export design information to text/csv file.
- This allows for other software, such as drill navigation software to drill according to design
- Multiple deck capability for designing specialised blasts, such as layered blasts, and for vibration control needs
- Blast timing design and simulation. Both non-electric and electronic timing designs can be carried out
- The software is optimised for use with AXXIS™ electronic delay detonators. Wave interference modelling for optimising timing for either vibration control or optimal fragmentation
- Powerful contouring capabilities for blast timing, surface and floor elevations, vibration maps, and energy distribution in a blast
- Powerful reporting capabilities for blast design records and communicating critical design issues such as costs, quantities, and energy.

Minimum software requirements

- Operating system: Windows XP, Vista, Windows 7, Windows 8
- Microsoft Dot Net Framework 4.0

Minimum hardware requirements

- Ram: 4 Gb
- Disk space: 500 Mb
- Processor: Dual Core 2.00 GHz
- Operating system type: 32 bit

Recommended hardware requirements

- Ram: 8 Gb
- Disk space: 500 Mb
- Processor: Core i7 2.00 GHz
- Operating system type: 64 bit

UNDERGROUND CENTRALIZED BLASTING SYSTEM

System overview

The AXXIS™ Underground Centralized Blasting System initiates blasts from a safe and convenient place on surface. The system allows real time local monitoring with remote access monitoring capabilities. The AXXIS™ Underground Centralized Blasting System is modular in design. It consists of the following:

1. AXXIS™ Centralized Control Box which is installed on surface,
2. AXXIS™ Centralized Blasting Boxes located at blasting points throughout the mine.
3. AXXIS™ logger to read UIDs of the AXXIS™ GII™ electronic detonators
4. AXXIS™ Portable Control Unit

Benefits of the system:

• Pre- and post-blast diagnostics allows for the identification of any safety hazards or production issues
• Graphical User Interface identifies location of blast boxes throughout the mine
• Reduction of lost blast
• Ability to initiate electronic detonators and non-electrics improving productivity
• Timing off set can be customized for ring and slot blasting
• Fast programming cycles
• Reliable, easy to use and convenient

Features

• Central point for blasting with the blasting signal power available from only this one point.
• Monitoring via the local network with easy to use Graphical User Interface.
• Remote monitoring through the internet using a web browser.
• Basic information of the AXXIS™ Centralized Blasting Box is visually conveyed through a status light.
• AXXIS™ Centralized Blasting Boxes provide the ability to independently isolate the specific section from the firing command. As the Blasting Boxes are connected in series, leaving them in the off state, will allow connected and armed Blasting Boxes deeper in the mine to blast despite a Blasting Box being off.
• Proprietary uplink protocols enable monitoring over existing cables obviating the need to run additional cabling.
• AXXIS™ Centralized Blasting Boxes fire once during the two-minute blasting period
• Centralised Blasting Box is fitted with the option of initiating non-electrics using the BME starter block
• The system can initiate 100 electronic detonators in parallel with individual timing off set
• The system is equipped with a pre-programmed timing off set to initiate non-electrics
• File transfer via Bluetooth functionality
• Robust and rugged design for underground environment
• Pre-blasting information is available through the interface that will report problems prior to blasting

AXXIS™ Centralized Control Box

Function
Controlled firing of up to 100 AXXIS™ Centralized Blasting Boxes

GUI
Graphical User Interface displaying the status and data of the system in real time

Firing Light
Lights up for 120 seconds during the blasting period

Alarm Light
Latches to indicate that either power was lost and restored to the AXXIS™ Centralized Control Box or a cable fault has occurred

Cable Fault Light
Indicates that between-cable leads resistance has dropped below 2kΩ (the AXXIS™ Centralized Control Box must be in OFF mode)

Mains Supply
110-250V_{AC}

Construction
The circuitry is fitted in an IP65 plastic enclosure which is housed in a , lockable steel cabinet with a polycarbonate window which allows examination of the AXXIS™ Centralized Control Box status

Unit Dimensions
Plastic enclosure 260mm x 200mm x 100mm
Steel enclosure 460mm x 320mm x 150mm

Unit Mass
12.5kg

Temperature Range
-5 to 45°C

AXXIS™ Centralized Blasting Box

Detonator

Only AXXIS™ Electronic Delay Detonators and AXXIS™ stoping Electronic Delay Detonators.

Mains Supply

110-250V$_{AC}$

Nominal Voltage

24V

Firing Capacity

A maximun of 100 AXXIS™ EDDs or 10 AXXIS™ stoping EDDs can be initiated per blast.

Control Voltage

Modified 110-250V$_{AC}$ 50Hz in firing mode; does not fire at less than 100V$_{AC}$ 36V$_{AC}$ in cable network test (standby) mode

Status Light

Tri-coloured light indicating multiple states. Refer to attached information on the light of the AXXIS™ Centralized Blasting Boxes

Firing Switch

Inhabits firing when in OFF mode position; does not affect operation of supply status light

Construction

The circuitry is sealed in an IP65 plastic enclosure which is housed in a lockable steel cabinet with a polycarbonate window which allows for examination of the AXXIS™ Centralized Control Box status

Unit Dimensions

Plastic enclosure 163mm x 125mm x 66mm
Steel enclosure 285mm x 215mm x 95mm

Unit Mass

6.2kg

Temperature Range

-5 to 45°C

AXXIS™ CBS Logger

Function

The AXXIS™ Logger is a portable device that is used to read the UID and allocate delays to the AXXIS™ EDDs that will be used for ring blasting.

Mass

376g

Logging Mode

Manual/Automatic

Voltage

3.7 V Li-Ion rechargeable battery

Operating Temperature Range

Operation: -20 to +50°C
Storage: -40 to +70°C

Sealing

IP65

User Interface

Touch panel, finger or gloved finger input

Communication Interface

Bluetooth

AXXIS™ Portable Control Unit

Function
Controlled firing of up to 100 AXXIS™ Centralized Blasting Boxes

Firing Light
Lights up for 120 seconds during the blasting period

Alarm Light
Latches to indicate that a cable fault has occured

Cable Fault Light
Indicates that between cable leads resistance has dropped below 2kΩ (OFF mode)

Mains Supply
110-250V_{AC}

Construction
The circuitry is sealed in an IP65 sealed plastic enclosure which is housed in a portable water and dust proof, sealed and lockable case.

Unit Dimensions
Inner enclosure 170mm x 135mm x 85mm
Outer case 263mm x 232mm x 125mm

Unit Mass
2.5kg

Temperature Range
-5 to 45°C

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