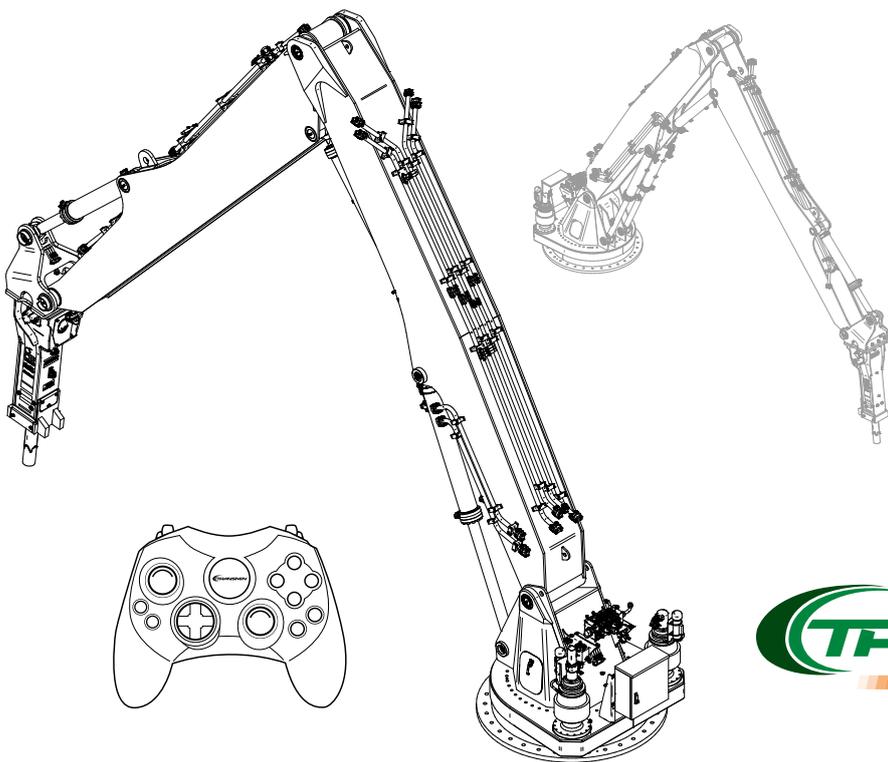




RockLogic™

Intelligent rockbreaker control for most boom systems.
Eliminate hazards. Maximise speed and productivity.



Search "RockLogic"



Committed to being a
world class supplier and service provider
recognised for integrity and innovation

Company Profile

Australian Engineering Worldwide

Transmin is a world-class provider of innovative engineered equipment, supplies and services to the resources and bulk materials handling industries, including; mining, minerals-processing, oil & gas, logistics, utilities, agriculture, quarrying and construction.

Proven Results

Established in Perth in 1987, Transmin sets the standard for mechanical equipment design and application, led by our specialist Engineering division, and backed by our dedicated Service and Parts divisions. Transmin's Control and Automation division delivers award-winning software solutions specialising in remote equipment operation and systems integrations.

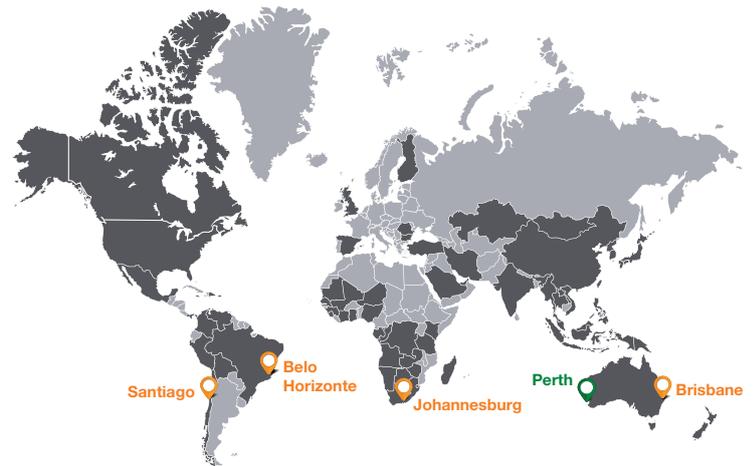
Transmin's head office and major manufacturing facilities are located in Perth, Western Australia, with regional offices situated in Brisbane, Johannesburg, Santiago and Belo Horizonte, Brazil. Our international network of suppliers and industry partners provides global reach and the capability required to undertake and support projects anywhere in the world. Transmin engineered equipment is currently deployed in over 60 countries.

The Transmin original equipment range covers most bulk materials-handling applications, including; feeders and conveyors, bulk loading and unloading hoppers, rock-breakers and grapples, hydraulic boom systems, bin isolation gates, reagent preparation and processing facilities, lime preparation facilities, ball mills, bucket elevators, and silos.

RockLogic is Transmin's multi-award winning intelligent control system for rockbreakers. **RockLogic** can be retro-fitted to suit most model rockbreakers, and is ideal for sites operating a rockbreaker over crushers and sizers.

With RockLogic, the routine task of breaking oversize rocks can be automated and remote operated, resulting in significant productivity gains, reduced operating costs and an increased safety on-site.

www.transmin.com.au



-  Transmin Head Office
-  Transmin Offices
-  Countries in which Transmin equipment is deployed (60+)



WA Industry & Export Awards



WA Industry & Export Awards



WA WorkSafe Awards



National iAwards



WAIATA Awards



WA Pinnacles Awards

RockLogic - Multi-Award Winning Technology

Maximise Speed, Efficiency & Safety

Already installed at some of Australia's largest mine sites, the RockLogic Intelligent Rockbreaker Control System maximises safety, increases productivity and reduces downtime and maintenance costs.

This is achieved thanks to the system's unique suite of Core software modules (page 5), and an advanced hardware package fitted to the boom itself (RockLogic sensors and control box).

Suitable For;

- ▶ Open pit sites
- ▶ Underground sites
- ▶ Sites operating fixed and/or mobile crushing stations

Applicable to;

- ▶ All sizes and models of rockbreakers
- ▶ New Rockbreakers
- ▶ Retro-fitting to existing rockbreakers
- ▶ Most boom OEM models



Common Safety Hazards & Delays



Whether operating above or below ground a number of potential hazards are associated with rockbreaking at the crushing station. One of the most common (and costly) hazards involves collisions between the rockbreaker and surrounding buildings, equipment and other infrastructure.

Operating a rockbreaker also exposes site-personnel to several risks, including; machinery and vehicle risks (including travel to and from site), working in confined spaces, working at heights, fly-rock, heat, noxious atmospheres, ground disturbances and noise.



Delays that add up over time

Transmin case studies estimate an average of 15 oversize rocks are handled every day at a single crushing station.

The resulting down-time impacts on crushing throughput and loader dumping schedules, which amounts to significant losses in productivity over the longer term.

For operations with multiple crushing stations, these delays can add up to several weeks of lost productivity over the course of a typical year.

Through a combination of automated movements, remote operation and plant and process integration, **Transmin RockLogic minimises these delays to deliver substantial gains in productivity.**

RockLogic™ Core Modules



RockLogic™ Core Modules

All RockLogic systems operate from a suite of core software modules.

Each module focusses on one key area / deliverable, yet they all sync seamlessly together, allowing the end user to design a RockLogic package that's tailored to their specific needs on-site (page 9).

All core modules are highlighted above, with the following key deliverables:

- ▶ Improve safety by eliminating hazards (SafeLogic)
- ▶ Improve production capacity / throughput
- ▶ Increase rock-breaking efficiency
- ▶ Improve staff utilisation
- ▶ Reduce downtime and maintenance costs
- ▶ Integrate with other important site operations

Each module is explained in detail over the page ▶

RockLogic™ Modules Explained

REMOTE OPERATION

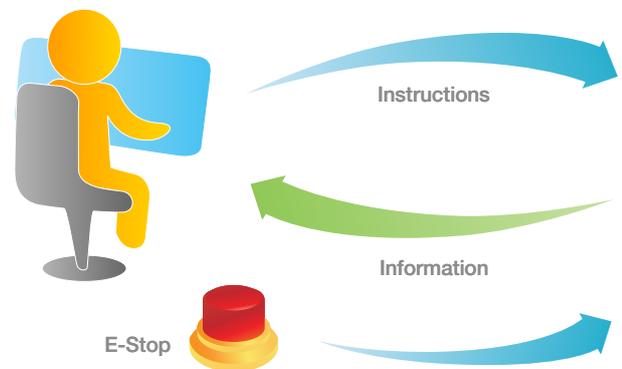
Remove your personnel from hazardous environments with *Remote Operation*.

Rock-breaking operations are hazardous and demanding on operators. RockLogic remote operation removes the operator from the immediate vicinity of the rockbreaker to a remote location through the use of low latency networking technology. This eliminates hazards to the operator, reduces travel time to and from site and enables integrated operation planning. RockLogic also provides a bypass mode allowing fall-back for maintenance operations.

For high output mines multiple rockbreakers at different crushing stations can be controlled efficiently from one control centre, improving staff utilisation.



Operation Workstation (Remote location)



AUTOMATED MOVEMENT

Improve rockbreaker efficiency with *Automated Movement*.

Go from park to deploy and back to park with a press of a button - minimising crushing delays.

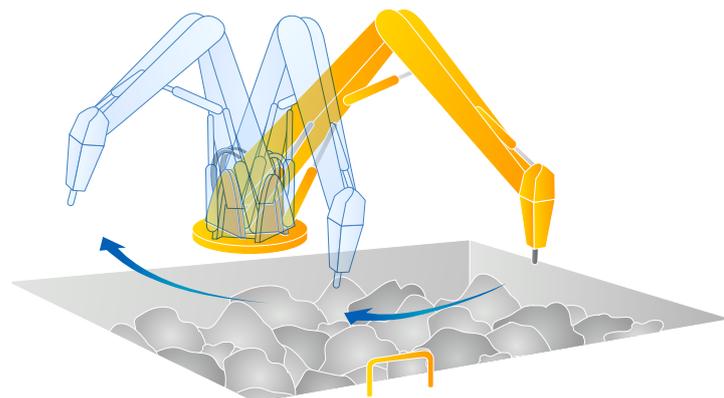
RockLogic engineers program customised automated movements for each site that optimise rock-breaking efficiency and reduce cycle times, providing higher site crushing capacities. Automated movements also allow an operator to multitask more effectively - increasing output.

MAINTENANCE PROGRAM

Reduce the cost of your rockbreaker *Maintenance Program*.

Smoother rockbreaker movements, cylinder sensing, data logging and collision avoidance extend the machine's life, maintenance periods and dramatically reduce the on site maintenance costs.

RockLogic also provides a bypass mode allowing fallback for maintenance operations.

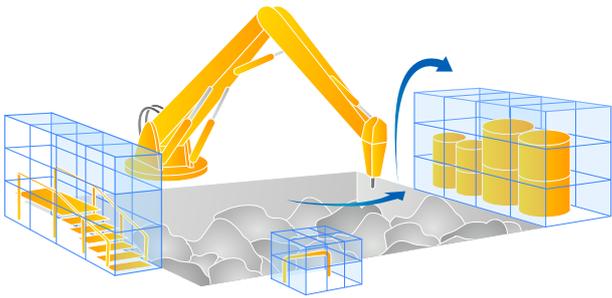


COLLISION AVOIDANCE

Eliminate site & rockbreaker damage with *Collision Avoidance*.

Prevent unnecessary downtime by eliminating damage to the rockbreaker and/or surrounding plant equipment with customised collision avoidance.

Surveyor and CAD data provided to RockLogic engineers is utilised to create a fully customised 'virtual' collision avoidance grid that is unique to your site's operation. Once the grid is mapped, the rockbreaker's movements are automatically restricted from impacting the surrounding infrastructure.



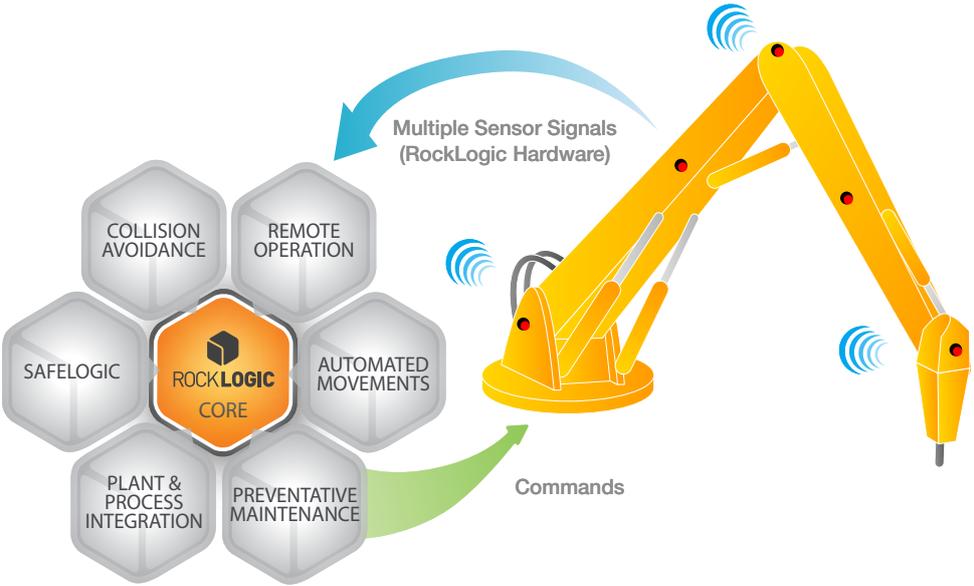
SAFELOGIC

Integrate with your *Safety Systems*.

Tailored safe machine shutdown systems, integrated with isolation gates and 'E' stops, reduce risks and save lives.

The added incentive of remote operation is to remove the operator from potential hazards, including; machinery and vehicle risks, working in confined spaces, working at heights, fly-rock, heat, hazardous atmospheres, ground disturbances and noise.

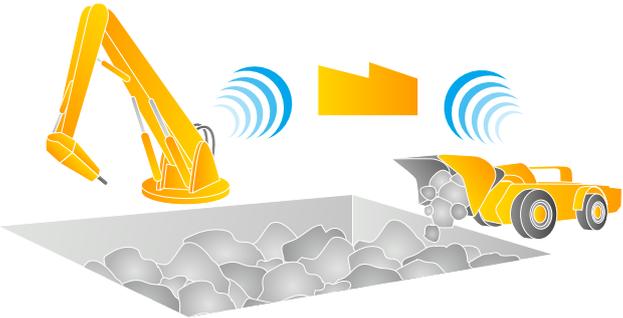
The resulting time and productivity loss arising from these potential risks can be significant.



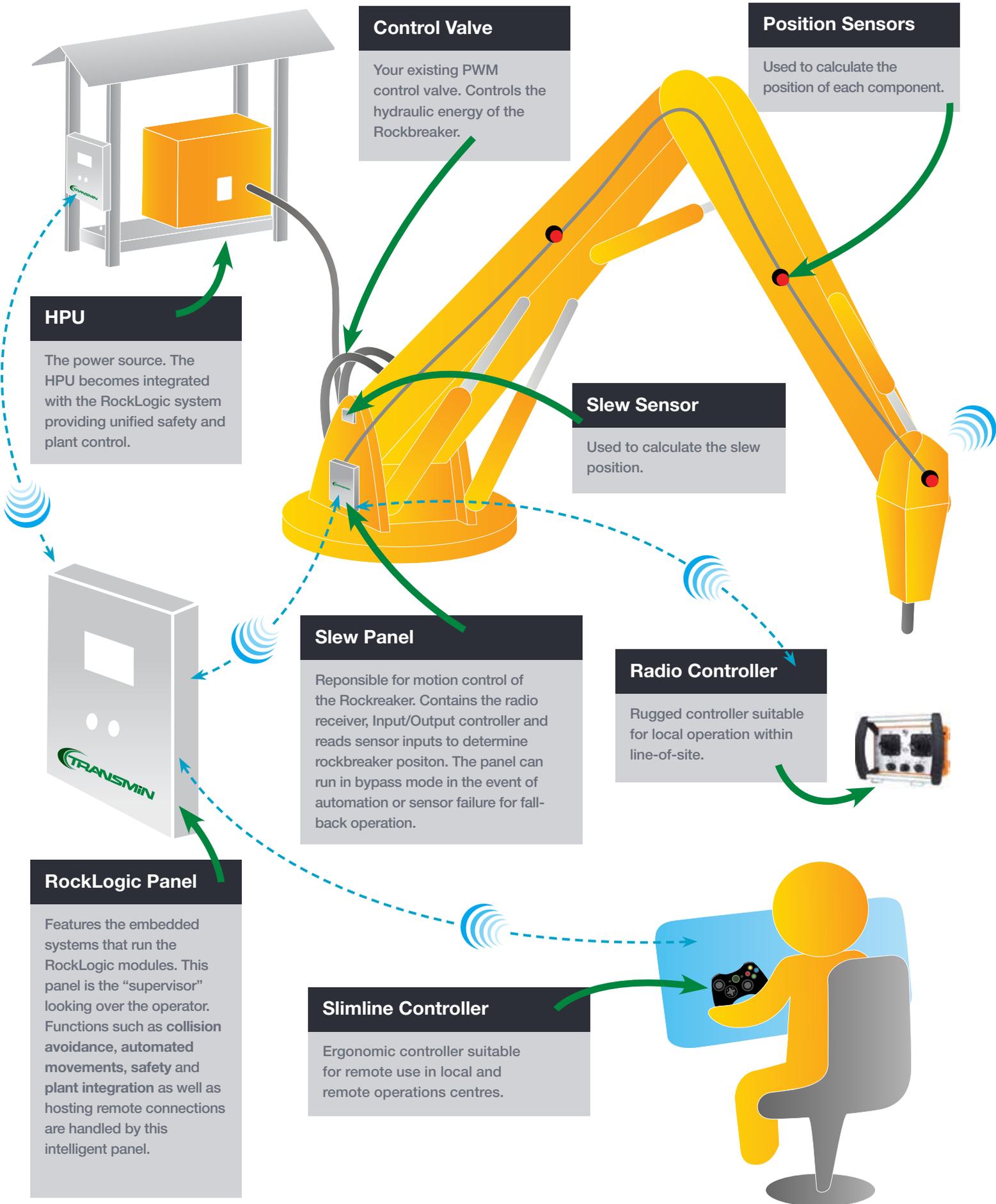
PLANT & PROCESS INTEGRATION

Improve communication between equipment with *Plant & Process Integration*.

Signals to and from vehicles and plant equipment, automatically retract the rockbreaker for continuous crushing operation. The system utilises control signals from both the plant control system and the automated movement system to ensure maximum throughput and minimal delays to crushing - resulting in significant long-term productivity gains.



RockLogic™ Hardware Overview



RockLogic™ Editions



RockLogic™ and RockLogic™ LITE.

RockLogic is available in two editions to suit most applications and requirements, these are: RockLogic and RockLogic LITE. RockLogic LITE is designed as a cost-effective, easy to configure alternative with reduced commissioning times. Users have the option of starting on 'LITE' and then upgrading modules at any time as per their requirements. Each package comes with the following modules included:

PACKAGE	RockLogic™ LITE	RockLogic™
Modules		
Collision Avoidance	Yes* (base)	Yes
Automated Movements	Yes** (base)	Yes
Remote Operation	Yes	Yes
SafeLogic	Yes*** (base)	Yes
Preventative Maintenance	Yes	Yes
Plant & Process Integration	No	Yes
Gateway - Multi-Operation	No	Yes
3D Visualisation	No	Yes

*RockLogic LITE collision avoidance module is based on a simplified “work in the box” concept. Collision avoidance will be active within a predefined area ('box'). RockLogic features fully active 3D collision avoidance and requires extensive 3D mapping and configuration.

** Automated movements include park and deploy. Deploy moves the Rockbreaker to the centre of the collision avoidance box.

*** Standard input/outputs for standard functionality are included, such as over slew limits and external e-stop.

Tailorable support packages are available.

Tailored Features & Support to Meet your Needs.

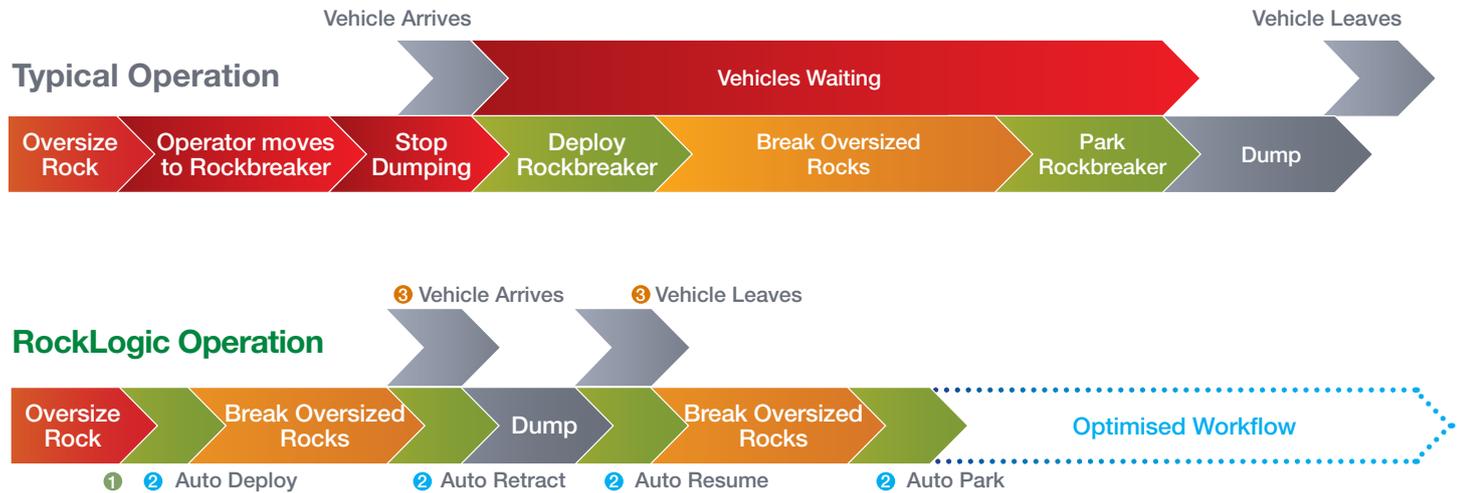
Pricing and support is tailored to the software modules chosen. RockLogic specialists will assist with installation, commissioning, upgrades, as well as providing remote and over-the-phone technical support.

RockLogic next generation features such as back-to-base monitoring, automated service reminders, conditioning monitoring and online operator usage metrics, will be available in the near future.

RockLogic™ Case Study

Less Downtime = Greater Productivity

Reduced vehicle waiting times and streamlined rockbreaker operation can amount to significant gains in productivity over the long-term. Multiply these gains by the number of crushing stations on site and it's easy to see how RockLogic can save millions of dollars in lost productivity over the course of a single year:



- ① Remote operation enables instant operator responses.
- ② By optimising rockbreaker movements, automated park and deploy speeds up rockbreaking operations.
- ③ RockLogic Process Integration prevents vehicle interruptions, which allows continuous dumping and less waiting time for vehicles.



An average **15 oversize rocks/day**, per crushing station

- ▶ **Automated Movements: Save an average 2mins/deployment**
- ▶ **Plant & Process Integration: Save an average 4mins/deployment**

$$(2+4) \times 15 = 1\text{hr } 30\text{mins/day}$$

or, **22.7 days (over 3 weeks)/year**



For more information on how RockLogic can improve productivity at your operation, or to schedule a live demonstration, contact us via the website at www.transmin.com.au

For Rockbreaker OEM's interested in taking advantage of RockLogic's unique features to improve the safety, speed and productivity of your rockbreakers, contact us to enquire about our OEM Partner Program.

ROCKLOGIC 



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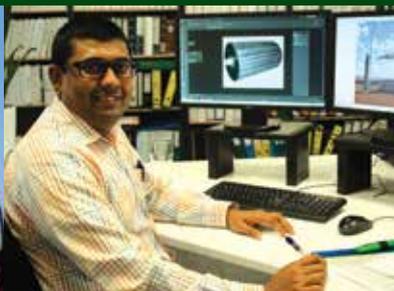
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