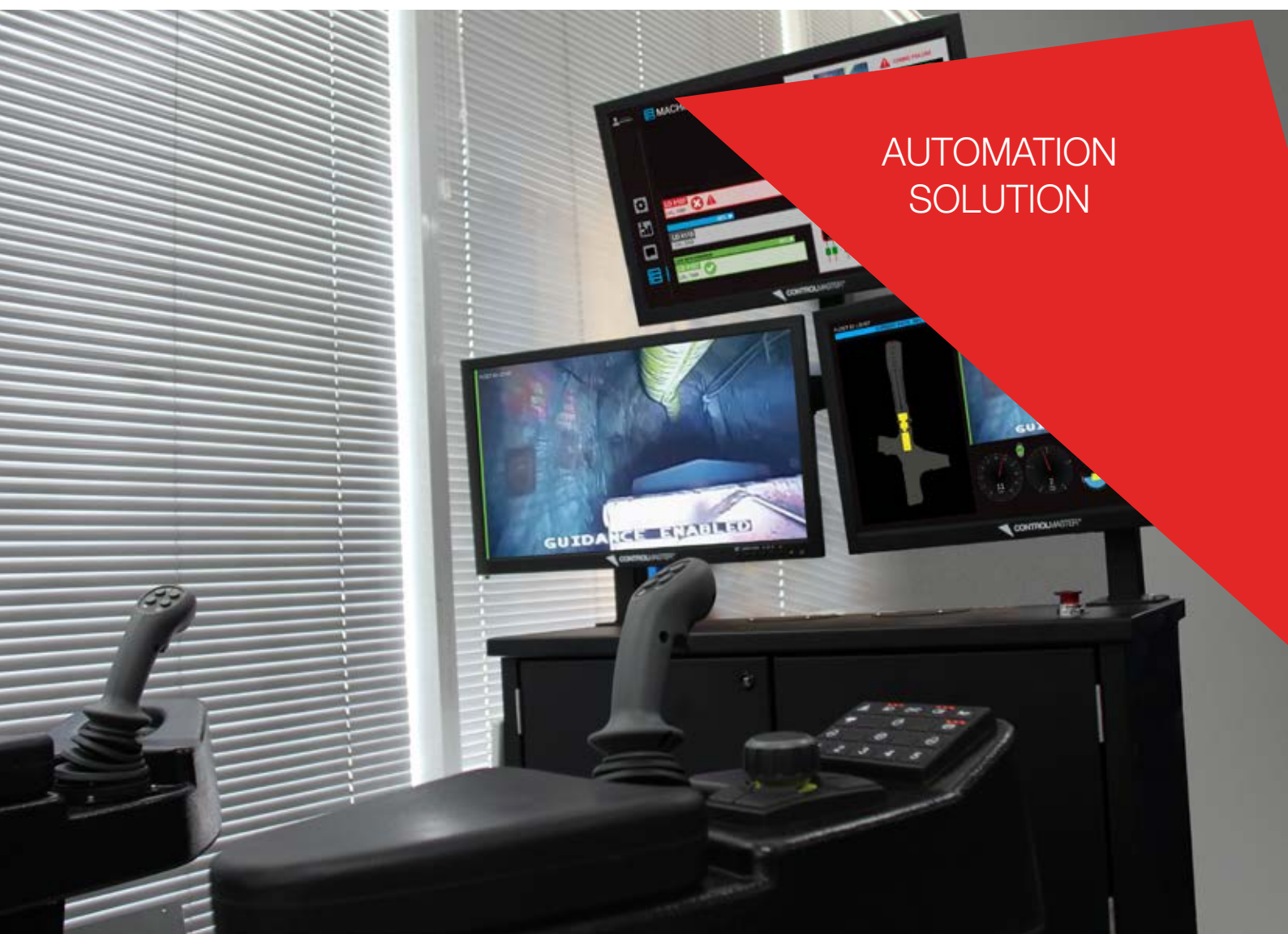




LESS MACHINE DAMAGE AND
MORE TONS MOVED - GUARANTEED!



rct-global.com



RCT'S GUIDANCE SOLUTIONS IN THE MARKET

Guidance was introduced to the market in January 2010 after extensive underground trials were successfully completed. In excess of 300+ operational systems around the globe are now delivering the efficiencies, and increases in safety and productivity.

The system has proven to be highly reliable and in most cases improves the availability of the machine due to less machine damage.

The system ensures the operation of the equipment performs at the optimum level based on underground conditions and does not exceed manufacturer's operational recommendations, wear and tear on machine components is reduced and availability improves. This result has seen most RCT customers fit the Guidance system as standard on their machines.

More than 5 million operating hours of
Guidance Automation

HOW IT WORKS

RCT's Guidance Solution is a responsive real time control system

As the machine travels along the drive, the front and rear lasers scan the drive. The Guidance Solution automatically controls the speed and direction of the machine, keeping it in the optimal tramming path and avoiding any major obstacles. The Solution uses machine OEM ground and engine speed sensors to provide machine speed inputs. A visual alert informs the operator which mode is selected.

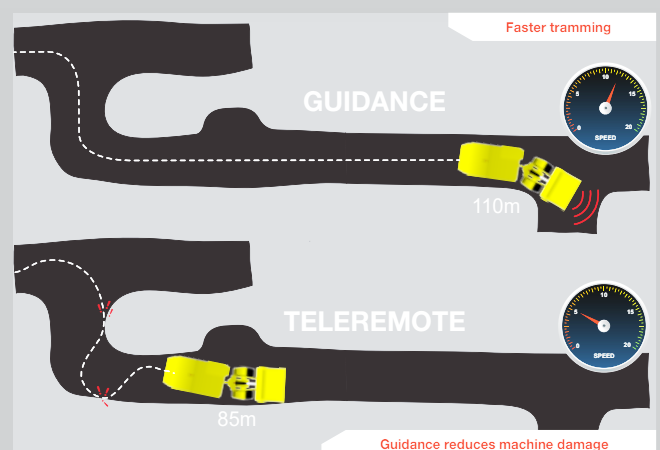
The Solution has been designed to reduce impact damage to the machine while increasing the general tramming speed, with overall improvements to the operational efficiency and productivity.

The Guidance solution enables the machine to navigate its own path along the drive by means of on board laser technology, automatically controlling steering, braking and the speed of the machine. Laser technology is utilised to keep the machine on the centre path of the drive, while the operator directs the machine in a forward or reverse direction and provides timely inputs left or right at intersections.

RCT's Guidance system allows the machine to travel at its maximum speed depending on drive conditions. Steering, braking, and speed are automatically controlled via the joystick position, together with the minimum width of the drive and the laser look ahead distances. The ability to travel faster than a Teleremote controlled machine, together with the assurance that the machine will only travel at the highest speed to suit the current mine conditions, reduces the stress on operators and the damage to machines, while increasing productivity.

The Solution interfaces into the ControlMaster® 2200 Teleremote System using existing Teleremote communications systems. It does not require a mine map because the system works with existing infrastructure. Due to the independence of Guidance to Teleremote, there is a level of redundancy that allows operations to switch from Guidance to Teleremote with reduced impact on production if damage to Guidance hardware was to occur. The flexibility of the Guidance solution allows for simple transfer of packages from machine to machine. Moving machines from site to site requires no additional setup, this results in further cost savings. The daily prestart checks for the Guidance system include the cleaning of laser lenses and cameras. Calibration is only required to be carried out at installation and servicing. The system is compatible with any underground articulated loader make or model. Installation and setup of the Guidance Solutions has been designed to be user friendly.

RCT's continued commitment to innovate in partnership with its customers is driving the development roadmap of the Guidance solution.





Guidance

The automation solution guiding the way to the future of mining.
Eliminate machine damage, tram faster & increase overall production.



Automation Centre

RCT offers numerous options when it comes to Automation Centres; from customised solutions to prefabricated rooms, surface solutions and more.



Driverless technology

Guidance Driverless technology delivers consistent machine operation and cycle times by significantly reducing damage and unplanned downtime caused by a machine impacting with surrounding infrastructure.

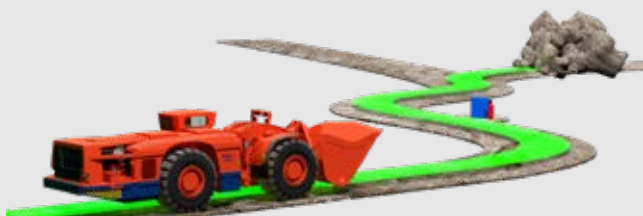
Greater speeds, consistent high production and less damage ensures KPI's targets are met every time.



Point-to-Point

The award winning Point-to-Point solution is the ultimate underground automation mining solution. The operator simply pushes a button and machine navigates itself to the destination; steering, braking, and speed are automatically controlled. The system utilises laser technology to ensure the machine remains on the centre of the drive, avoiding walls and other major obstacles.

Enables a machine to travel between waypoints to ensure faster cycle times and eliminate machine damage.



G-Dash

G-Dash further empowers Guidance operators with real-time information to make smarter decisions. This feature offers operators a graphical representation, conveniently and clearly displayed on a separate designated display.

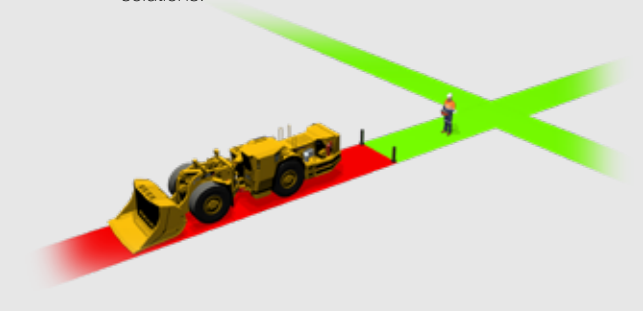
- Machine speed
- Machine RPM
- Machine gear
- Machine direction
- Laser degradation
- Signal strength
- Guidance enabled
- Pitch and roll
- Full bucket feedback



Laser Guard

The best safety management device for Automation & Control operation areas.

The Laser Guard machine containment system prevents driverless machines from leaving the operations area and restricts personnel from entering. This safety device is the preferred safety system used with all ControlMaster® solutions.



FMS (ready)

Relevant fleet data delivered to any smart mobile device. The Guidance solution comes EarthTrack® Fleet Management ready!





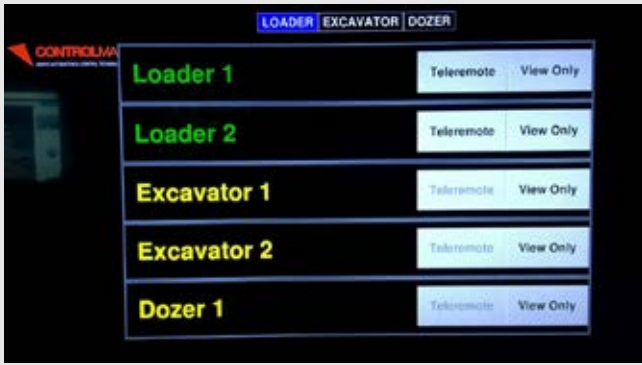
Guidance Expand

The additional options to further enhance Guidance to suit specific mine requirements.



Select

Allows an operator to switch from controlling one machine to another from the one operator station.



Control

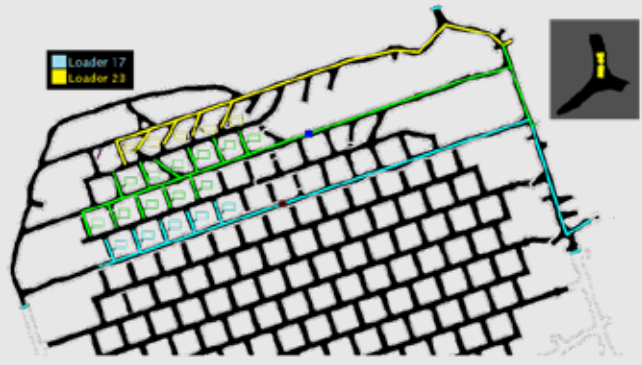
Take full advantage of RCT's Smart Technology and drive profits even higher by implementing RCT's multi machine solution.

Allows one operator to control multiple machines on site; delivering better visibility of the work area, maximum operator comfort and safety, all while lowering operating costs.



AutoNav

Simply choose where you want the machine to travel, and it will navigate the drive itself to multiple locations.



AutoDump

This completes the automation cycle to unlock productivity gains never seen before. Utilising physical waypoints and odometry, it trains the loader to dump into a stockpile, fixed point, ore pass or even a truck.



DigAssist

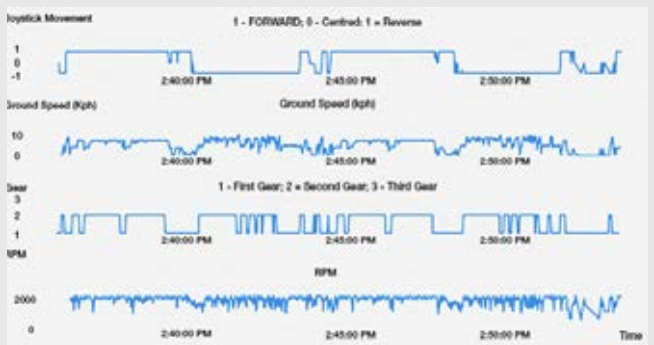
Will ensure the operator is in the optimal position for the ideal dig, ensuring their bucket is filled on the first time, every time!



G-Data

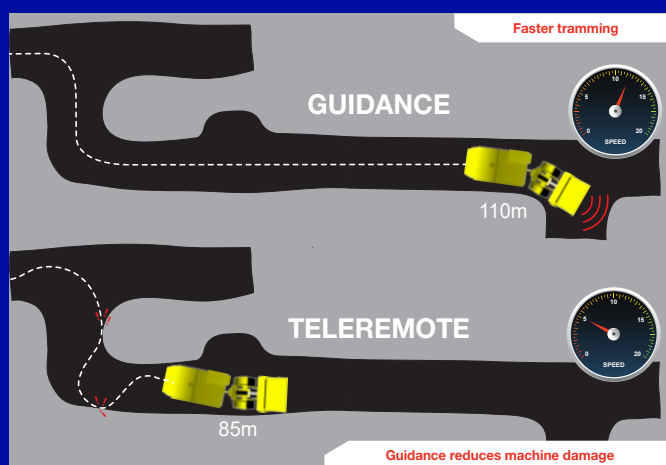
Provides relevant Guidance data.

Machine diagnostics and production-related data are gathered and displayed via EarthTrack® reporting to empower mine site's to make informed decisions.



WHAT RCT'S GUIDANCE SOLUTION MEANS FOR YOUR MINE OUTPUT

- Increased production
- Faster tramming cycles than conventional Teleremote operation
- Potential to operate larger machines in a smaller drive (within reason)
- Optimal travel speeds based on surroundings. Machine is able to travel at the highest speed to suit the current mine conditions
- Reduced Teleremote related damage
- Less component wear due to smoother operation
- Reduces operator fatigue
- Improves efficiency irrelevant of operator experience level (allows all operators to be comparable)
- Reduces machine damage
- Includes a wall hug feature with simple trigger operation
- Fits to new or existing machines
- Suited to any machine make or model



RCT'S AUTOMATION MINING SOLUTIONS UPGRADE PATH

The RCT Guidance Solution is an autonomous solution that can be interfaced with any communications systems. The solution is facilitated by the laser technology which assists the operator in navigating along the drive without the risk of machine impact damage. Operators require minimal experience and training to gain the most from their Guidance Solution.

Further innovation will be the introduction of the Multiple Machine Selection (MMS) feature. This will allow operators to select machines within the connected communication levels from the one Control Station either underground or on the surface. This feature will further enhance the ability to improve the productivity of mine operations.

CONTROL OPTIONS

For all Guidance operations the Control Platform will differ depending on the mining operational practices. RCT has a range of Control Platforms available. All control options can be configured to operate the Guidance solution.

- Modular Platform (portable control platform)
- Personnel Carrier (mobile control platform to add further flexibility to Guidance control)
- Automation Centre and Remote Operating Centre (ROC)
- Underground Cabins (fixed or portable with fibre optic ready to maximise operations between surface and underground) The cabin has been designed to be either portable or a fixed asset. When moving from one location to another it only requires communication and main power disconnection from the bulkhead.

SUPPORT

On demand after-sales service, product support, maintenance and skills training



71 countries worldwide

RCT is a full service company, offering clients the complete package with all its proprietary products. Including: skills training, parts, technical and customer service support.

- OEM maintenance agreement
- Auditing and installation
- Operational servicing
- Preventive maintenance
- Customised servicing schedule
- Servicing documentation
- Operator and maintenance training
- Service exchange equipment

Training courses

Get the most from your investment with RCT's comprehensive range of training courses to suit the solution and requirements.

- Trained personnel can better use, maintain and service remote and Teleremote equipment
- Knowledgeable personnel can minimise equipment downtime by diagnosing and fixing a problem more efficiently
- Allows mine sites to be more self-sufficient





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