

Saving Millions in Mines by Automated Traffic Control

emsProductFocus29-Automated Traffic Control Director

Revolutionizing Underground Mine Traffic – Automated Tidal Flow

Single-lane underground roads save money and space – but they create congestion, long waits, bottlenecks, dust clouds, and real collision risks when vehicles meet head-on.

The Key Challenges:

- Traffic jams and delays: Vehicles bunch up, slowing everything down.
- No easy passing: Narrow tunnels mean risky manoeuvres or full stops.
- Collision danger: Human judgment errors in low visibility led to accidents.
- Endless waiting: Trucks idle, cutting productivity and raising frustration.
- Dust & poor visibility: Stop-start traffic stirs up dust, making it harder to see.



EMS's Automated Tidal Flow Solution – No Operators Needed
We turn single-lane roads into smart, self-managing tidal flow systems using **high-performance UHF vehicle tags + illuminated automated booms**. Vehicles move safely and efficiently – one direction at a time – with zero personnel intervention.

How It Works (Smart, Automatic & Safe):

- **Unique UHF Tags on Every Vehicle:** On-metal tags that read reliably underground – each vehicle gets a distinct ID.
- **Illuminated Automated Booms:** Booms at key points (intersections, narrow sections) raise/lower to control flow – bright lights signal "go" or "stop".
- **Radar + Tag Detection:** Radar spots approaching vehicles; tag reader confirms ID and direction – system decides who goes first.
- **No Personnel Sensing:** Radar ignores people on foot – only vehicles trigger the logic.
- **Priority Hierarchy:** Emergency, loader, or critical vehicles get automatic right-of-way – tags ranked so they override normal flow.
- **Tidal Logic:** System alternates directions based on real-time traffic – prevents head-on meets and keeps flow balanced.

How It Tackles Every Challenge:

- **No more congestion:** Automated sequencing clears bottlenecks fast.
- **Safe passing zones:** Booms enforce one-way flow – vehicles pass only when safe.
- **Collision risk slashed:** No human decisions – system prevents head-ons.
- **Minimal waiting:** Optimized flow means less idle time – trucks keep moving.
- **Less dust & better visibility:** Smoother traffic = less stirring up dust clouds.



The brain behind it all: EMS's ATCD coordinates tags, radar, booms, and priorities – reliable underground performance, low maintenance, and scalable to your whole mine network.

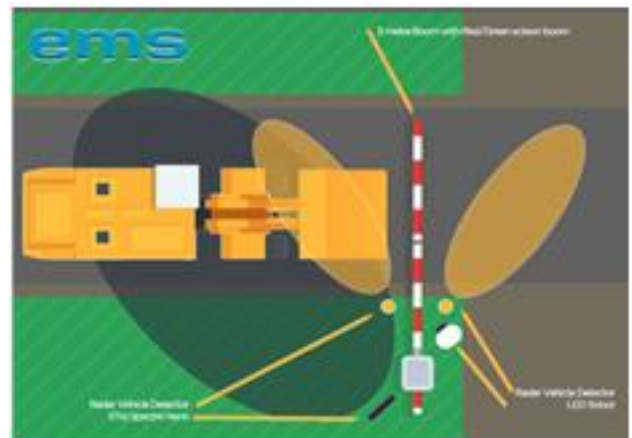
Introducing ATCD: Your Automated Traffic Controller

Key Features:

With Robots, Booms, readers and glowing Red/Green Booms, a solution in a Box delivered to your mine

Automated Traffic Control Director comprising

- 2 X 3m Genius Rapid Access Barrier M/S Housing P/C Grey with Silver Door C/W Control Logic & Boom Arm & Led Robot On Cabinet 24v Dc Incl Battery Back Up, Rapid Barrier Jack Knife Kit 90 Degrees - 3m-4.5m and high visibility barrier Led Red/Green lighting
- 4 X Single Beam Bluetooth Radar Detector
- 2 X Robot Head Red/Green Led with Mounting Bracket 12v/24v
- 2 X 50 x 2.5mm Hooped Collision Bollards (H) 900mm (L) 2m - M/S
- 4 X Radar Stands M/S (50mm Round Tube)
- 2 X Spectre Nano UHF & Bluetooth® Compact reader with 1 integrated antenna and orientable wall + pole mounting kit
- 1 x Two Door Ethernet Controller with 10 /100 /1000 Mbps Ethernet Connectivity, approximately 1000 tag holders and 100 000 buffered transactions, Lockable plastic enclosure, 5Amp 12V PSU and 7aH Battery included,
- 1 x Prebuild & Configuration in South Africa



Remote Access Software allows transaction log and event snapshot to show transits per day, shift, hour etc

Just add power and tags.

Also works with above ground haulage operations

Delivered ready to go - ATCD \$11,000 / Vehicle Tags \$19



Stop letting single-lane roads slow you down or put people at risk – automate tidal flow for safer, faster, more productive underground traffic.



Ready to make your mine roads work smarter?

Contact EMS today to learn more about the Automated Tidal Flow System with ATCD, UHF tags, and illuminated booms – and unlock efficient, hands-free traffic control underground.

Safer tunnels. Faster cycles. Zero operators. 

Contact us today to learn how Automated Tidal Flow can transform your underground (or Open Cast) mine operations!