



Collision Avoidance &
Traffic Awareness Solutions
For All Vehicles in
Surface Mining

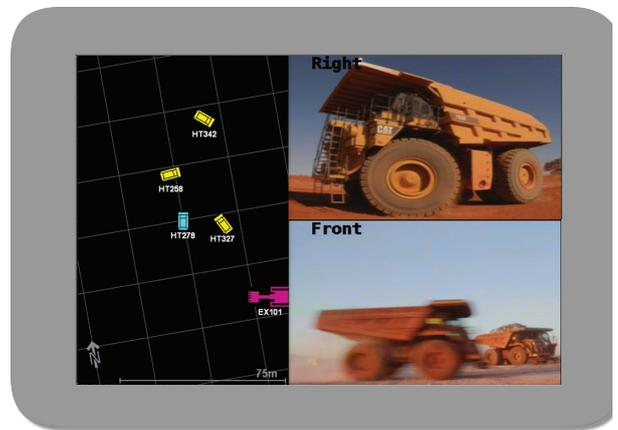
SafetyCentre System*

*Too many displays in the cab?
Too many and alarms for the operator ?
Introducing the world's first all-in-one operator interface for surface
mine vehicle safety (pat. pend.)*

Features

- Fully configurable and modular All-In-One Advanced Collision Avoidance System**.
- Integrates 3 technologies on one screen: SAFEMine CAS***, cameras, radar.
- Situation dependent screen layout switching, the operator sees what is currently important.
- Parallel multi-camera video and situation recording for incident analysis
- Sophisticated sensor data fusion.
- 100% compatible with >14,000 vehicles worldwide protected by SAFEMine.
- Can integrate fatigue monitoring and personnel protection, and can interface with mine management systems.
- Simple installation, efficient maintenance through WiFi.
- Live tracking/monitoring/alerting using SAFEMine TRACK.

*Example of an SCS screen:
TopView (left) and 2 cameras
(right).
Depending on situation, 2 of
any cameras can be shown.
Configurable rules for dynamic
camera switching, according to
mines' requirements.*



Finally, a **single operator interface** for all information pertaining to **traffic safety** is available: the SAFEMine SafetyCentre System (SCS) enhances SAFEMine installations by integrating data provided by the SAFEMine MainUnit (presented in TopView format) with up to 6 cameras (including FLIR) and typically 4 radars shown one single color touch-screen in the cabin.

Sophisticated algorithms provide sensor fusion between data from the SAFEMine peer-to-peer network, radar, and cameras, they provide situation specific smart alarms, detect movements in images, find soiled camera lenses, and much more.

To assure the operators' focus stays on the road and on safety relevant information in every situation, at a configurable speed (e.g. < 8km/h) the SCS screen displays both the TopView screen and camera views, while at higher speeds the SCS screen switches to TopView only. In case of an alarm, video content of up to 4 cameras is suitably recorded along with further data for subsequent analysis and replay. The SCS is fully configurable to fit your operational requirements.

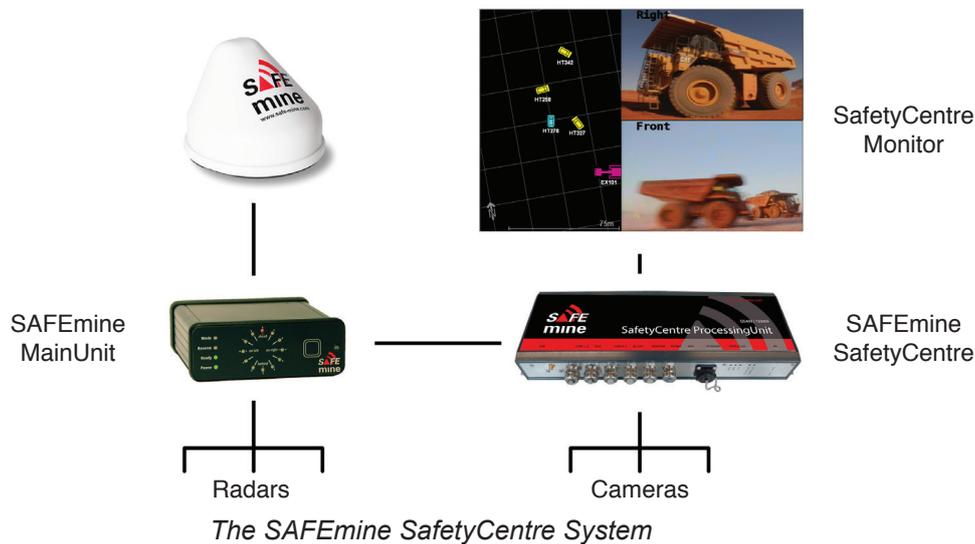
Main Applications

- Haul Trucks
- Shovels, Excavators
- Loaders, Dozers

* Winner of the Anglo American Innovation Applaud Award 2012.

** Developed in cooperation with Anglo American's Sishen Iron Ore mine and with Trysome, South Africa.

*** SAFEMine is a world standard Traffic Awareness and Collision Avoidance System (CAS), suitable for all vehicles operating in surface mines. Providing visual and audible proximity information and warnings of possible collisions, it improves operator traffic awareness, particularly in blind spots around the vehicle.



Benefits

- enhances existing camera and/or radar installations with SAFEmine CAS, protecting investments
- de-clutters vehicle cabin by providing a single, integrated operator interface for vehicle safety
- assists operators by providing the right vehicle safety related information at the right time
- assists shovel operators by showing surrounding vehicles and nearby haul trucks with vehicle ID

Capabilities of Basic Edition

- surrounding vehicles and equipment shown with vehicle identification numbers
- graphical representation of speed limits, speeding, collision alerts, etc.
- shows fixed hazards (e.g. overhead power lines, stop signs), geofences, etc. Optional mine map.
- automatic switching of cameras depending on situation, configurable
- automatic video and data recording allows analysis of incidents and near-misses for training purposes
- shows, records, and reacts on driver ID, safety belt, door, handbrake
- can integrate SAFEmine Fatigue Monitoring, SAFEmine Personnel Protection, SAFEmine Driver ID, SAFEmine Key Control (optional)

Additional Capabilities of Pro/Shovel Edition

- automatic movement and soiled lens detection, cable/camera failure recognition
- training material/videos can be uploaded and used during standstill times and before startup
- audio annunciation enabled
- pre-shift checklists can be managed and transferred to central server
- central server based messaging to cabin
- can interface with mine management and dispatch systems

Technical Data	
video	up to 6 cameras (max. 4 concurrent), composite video (PAL, mini-DIN), can accommodate FLIR
radars	typically 3 (any number possible), CAN bus of QC2xx MainUnit, Preco Preview Xtreme ¹⁾ compatible
monitor out	VGA interface, touch-screen enabled (RS232). Please enquire.
interfaces	WiFi, Ethernet, USB, and 4x serial interfaces
power	operates on 12VDC and 24VDC systems
form factor	ruggedized, compact size, weight 4kg (8.8 lb), easy to install, cabin friendly
compatibility	100% compatible with SAFEmine QC240/250 MainUnits and with SAFEmine TRACK (for use with QC23x please enquire)

¹⁾ Preco and Xtreme Preview are trademarks of Preco Electronics Inc., USA

All information without warranty and subject to change

DISCLAIMER

The system is not a substitute for safe driving procedures. A vehicle equipped with the SAFEmine System should be operated in the same safe manner as if the SAFEmine System was not installed. The SAFEmine System will provide no warning for some hazards, such as vehicles, obstacles, and other objects not equipped with properly operating SAFEmine devices. SAFEmine products are intended as an additional tool in determining potential traffic threats, supporting an alert and conscientious driver.

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