

# FLEET MANAGEMENT MADE EASY ANY TIME, ANYWHERE



LIGHT VEHICLE  
MONITORING

# Light vehicle fleet management and machine monitoring systems are playing an increasingly vital role in optimizing operations, reducing the unplanned maintenance costs and improving operator safety for mining companies.

The innovative solution provides relevant, customized information to management at every level of the operation. The system can be installed on a diverse range of vehicles, regardless of make or model.

EarthTrack™ Light Vehicle Monitoring can be used to deliver machine and operator data from multiple light vehicles across a fleet.

It empowers management with information about machine and operator activity, resulting in improving light vehicle operations.



 <p>Lower maintenance costs from damage and operator abuse.</p>	 <p>Less unplanned maintenance.</p>	 <p>Safer operation by encouraging better driving habits.</p>
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<b>OPERATOR ACCESS CONTROL</b> Only licensed operators will be able to use the equipment via card reader or keypad. It also identifies license information, expiry dates and training requirements.	<b>PRE-START AND POST-START CHECKLIST</b> Checklists can be customized to suit specific vehicle and operational requirements.	<b>ENGINE MONITORING</b> Alerts the operators and captures engine-related events: oil pressure, temperature, coolant level and over-speed violation.	<b>GROUND SPEED MONITORING</b> The ability to report ground speed violations through Geofenced areas/zones.
<b>VEHICLE IMPACT MONITORING</b> Captures vehicle impact events across three configurable thresholds: low, medium and high.	<b>GROUND SPEED ZONING</b> Intended to be used in conjunction with a Muirhead™ Speed Limiter to physically limit the maximum vehicle speeds through Geofenced areas/zones.	<b>CRITICAL OUTPUT</b> Voltage-free NO/NC contacts available to interface with machine and accessories activated by critical events such as checklist, events and impacts.	<b>SUMMARY REPORTING</b> Daily, weekly and monthly summary reporting provides an overview of all violations and events across the light vehicle fleet.
<b>CONNECTIVITY</b> Cellular/Mobile or Wi-Fi network communications.	<b>BATTERY VOLTAGE</b> Reports on battery voltage and provides the operator warnings for low battery.	<b>SEAT BELT MONITORING</b> Alerts and reports when the seat belt is not worn.	<b>SCALABLE</b> Highlight desired outcomes to reveal specific data.
<b>SERVICE SCHEDULER</b> Provide alerts around servicing times, which can be programmed around machine hours or a time-based schedule.	<b>AUTOMATED REPORTING</b> Summary reports outlining daily information, with drill down for more detailed information around specific events.	<b>OUT-OF-SERVICE</b> Allows operators or maintenance personnel to place the machine into “out-of-service” if there is an issue with the vehicle. It is an electronic version of the paper tag system.	<b>EXPORT DATA</b> Export information in multiple formats including CSV, PDF, PNG image or scalable SVG web graphic.

# PRE-START AND POST-START CHECKLISTS

- ▶ Eliminates paper checklists and data input requirements, reduces administration time.
- ▶ Customized checklists can be assigned based on different machine types and operator requirements.
- ▶ Supports multiple shifts with adjustable start times and operator changes.
- ▶ Checklist questions can activate maintenance and critical alerts triggering email notifications to relevant authorized people.
- ▶ Critical alerts may be configured to place the machine into “out-of-service”. It provides complete customization based on user preferences.
- ▶ All completed checklists can be sent via email to a specific individual or group.
- ▶ Checklists preferences can be altered easily at any time.
- ▶ Checklists questions can be constantly reordered ensuring operator engagement with the questions.



**OUT OF SERVICE DETAILS**

FleetNumber	Department(s)	Category			
KMT1-1 WM	WASTE MGMT	LV026			
Operator	Reason	Time Set	Impact Level	Supervisor	Time Cleared
Muhamad Sharfuddin Bin Zainal	Emergency Stop	5/04/2019 3:58:18 PM	1.5	Gaidin bin Yahya	5/04/2019 4:31:52 PM

Comments: Enter your comments

# VEHICLE AND ENGINE SPEED MONITORING

THE INFORMATION PROVIDED:

- ▶ The machine ground speed and engine RPM is displayed on the screen for the operator to view.
- ▶ When an operator exceeds a pre-set speed, there will be a warning and alarm on the EarthTrack™ display. Reporting is available for all speed violations with details of the operator and duration of the offence.
- ▶ Separate ground speed thresholds may be applied for Underground or Surface applications and hazardous or high pedestrian traffic areas by the incorporation of Geofences.



# OUT-OF-SERVICE

Out-of-Service feature allows machines to be locked out of general use, still allowing supervisors or maintenance personnel to move the equipment.

This is to prevent operation of machines which maybe damaged/unsafe due to “unplanned reasons”. This feature can also prevent operation of machines for “planned reasons” such as scheduled services.

Key benefits:

- ▶ Eliminated paper tags results in reduced administration costs.
- ▶ System limits machine access to authorized people.
- ▶ Out-of-Service may be automatically applied when a critical event occurs.
- ▶ Prevents use of machines that are due for schedule maintenance.



Discover more: [rct-global.com](http://rct-global.com)

[sales@rct-global.com](mailto:sales@rct-global.com)

AUSTRALIA: +61 8 9353 6577  
 AFRICA: +27 83 292 4246  
 CANADA: +1 705 590 4001  
 RUSSIA / CIS: +7 910 411 1174  
 SOUTH AMERICA: +56 3 5229 9409  
 USA: +1 801 938 9214

Reliable Industries  
 RCT Distributor

5739 G Street  
 Harahan LA 70123 USA

Office +1 (504) 738-9644  
 Web [www.reliableindustries.com](http://www.reliableindustries.com)

Amanda Landry International Sales Representative  
 +1 (504) 273-8708 / [alandry@reliableindustries.com](mailto:alandry@reliableindustries.com)

Christopher Callow Technical Sales Engineer / International Sales Manager  
 +1 (330) 360-5783 / [ccallow@reliableindustries.com](mailto:ccallow@reliableindustries.com)

# TECHNICAL SPECIFICATIONS

## SYSTEM OVERVIEW

Web Portal Requirements - Internet Access:	An internet connection is required
Web Portal Requirements - Browser Version:	We recommend Chrome, Firefox or Edge for the best user experience Internet Explorer is not recommended Internet Explorer 9 or below is not supported
Web Portal Requirements - Browser Plugins:	EarthTrack™ does not require any plugins
Data:	Data is stored in secure, encrypted cloud infrastructure
Security:	Access is secured with SSL certificates and 256bit SHA encryption
Data Integrity:	Dual backups are employed with hourly, daily and weekly backup policies
Access Control:	Tested to 1000 users (pin number and card access)
Checklist - Maximum Questions:	Total of 40 in any Category. Categories are created by users - e.g. Gas Forklift, Battery Forklift, Diesel Forklift
Checklist - Run Times:	Configurable to run up to three times per day
EarthTrack™ - Number of Users:	Unlimited
EarthTrack™ - Reports:	Available for Daily, Weekly, and Monthly email delivery; or run manually at any time
EarthTrack™ - Alerts:	Immediate email delivery
Supported Languages - Website:	Chinese, English, French, German, Russian, Spanish
Supported Languages - Operator Display:	Arabic, Chinese, English, Estonian, Filipino, French, German, Hindi, Indonesian, Khmer, Korean, Latvian, Russian, Spanish, Thai, Ukrainian, Vietnamese

## OPERATOR DISPLAY

Type:	LCD TFT, 480 x 272 pixels
Dimensions:	Length: 142mm (5.6")   Width: 98mm (3.85")   Height: 49mm (1.9")
Weight:	430g (0.95lbs)
Operating Temperature Range:	-30°C (-22°F) to 60°C (140°F)
Connection Types:	Industrial M12 / 5Pin
IP Rating:	IP65

## CONTROL UNIT

Dimensions:	Length: 135mm (5.3")   Width: 115mm (4.5")   Height: 35mm (1.4")
Weight:	300g (0.66lbs)
IP Rating:	IP65
Mounting:	Attachment via two 7mm mounting holes
Input Voltage:	Operating 12-48V
Standby Current Draw:	0.5mA
Operating Current Draw:	6A Max
Operating Temperature Range:	-30°C (-22°F) to 60°C (140°F)
Connection Types:	AMP Superseal 1.0mm Deutsch DT and DTM
Number of Inputs:	8 Digital / Frequency / Analogue
Number of Outputs:	8 Digital outputs 12V @ 400mA
Circuit Protection:	Short circuit and over-current protected