



Real-time
access to live
production
data and
reporting



Loadscan's Advanced Mining Solutions are satisfying growing global demand for reliable and accurate load measurement across a range of increasingly challenging surface and underground mining operations.



**Mine Payload
Technologies®**

powered by **LOADSCAN®**





Conveyor Volume Scanner (CVS)

Manage and optimise material flow with the mine-specific Conveyor Volume Scanner (CVS). It's a viable measurement alternative to traditional weight-based systems, and with a measurement accuracy better than 98.5%, the CVS enables accurate real-time inventory tracking and reporting.

A proximity sensor ensures reliable non-contact speed measurement, eliminating the need for regular and costly recalibration. Real-time access to live production data is available with digital and analogue integration into most mine management and SCADA systems. Built-in 2.4 or 5 GHz WiFi allows password-secured remote access via tablet, smartphone, laptop or company network.

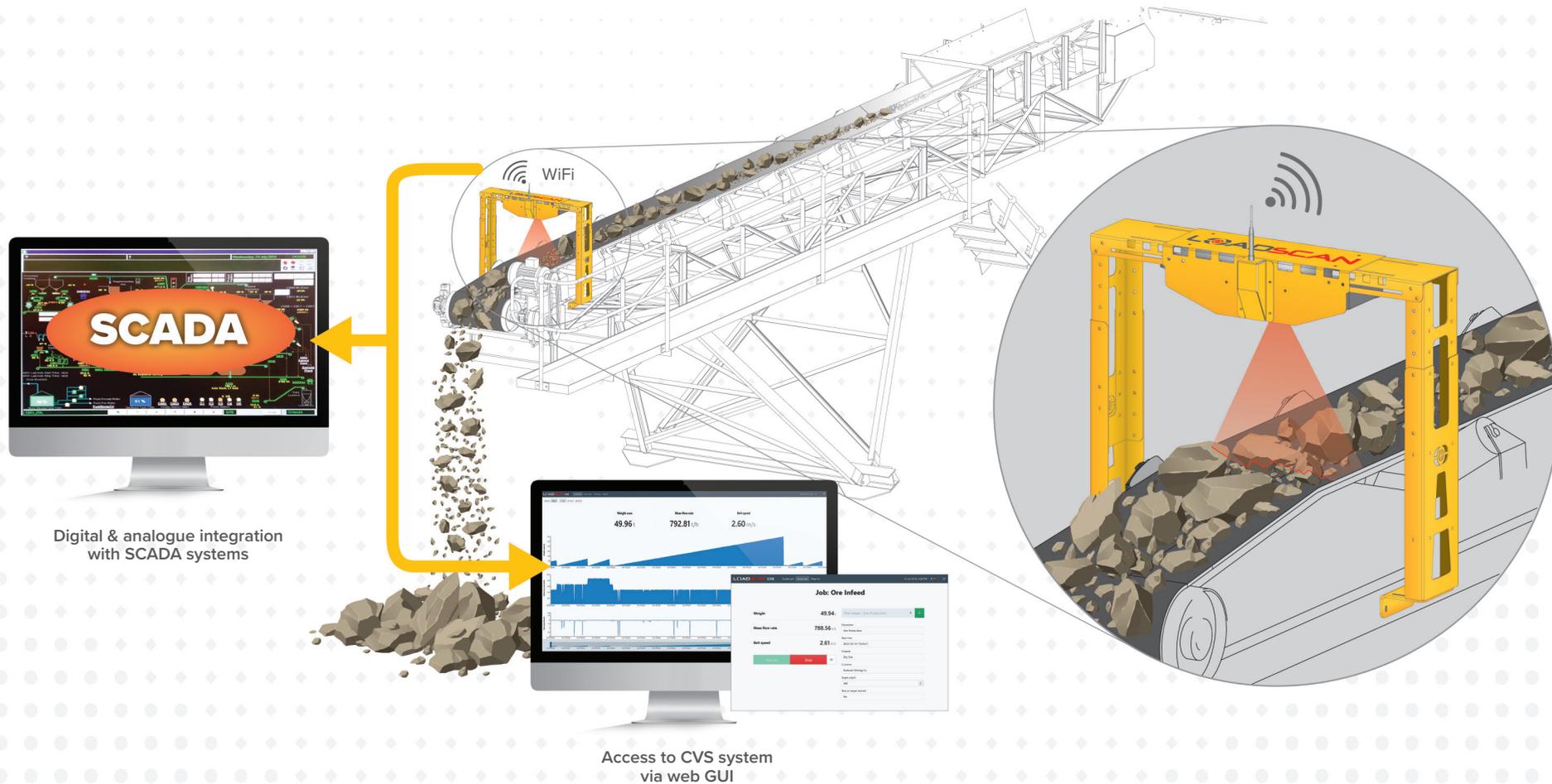
Available in three sizes, the CVS mining conveyor scanner can be adjusted to mount easily on a variety of belt sizes, providing maximum flexibility to suit your conveyor system. The user-friendly operator interface ensures simple implementation and delivers powerful operational reporting.

If you want to more effectively understand your production flow rate, the CVS is the perfect solution.



Live production data at your fingertips

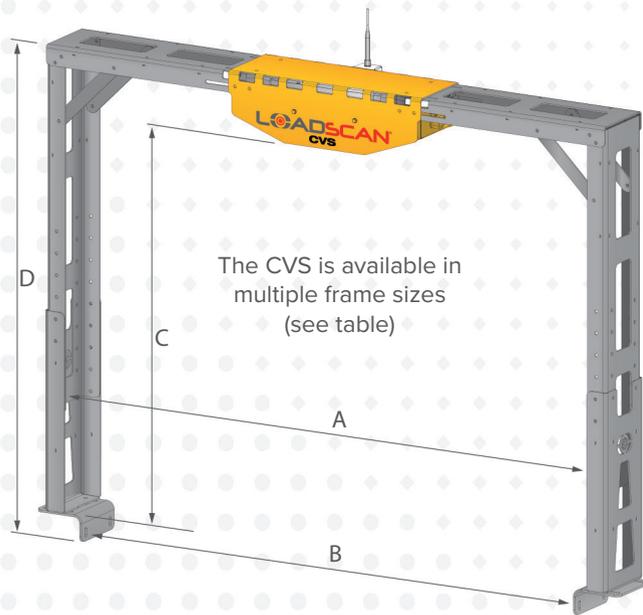
With digital data input and output to external mine management or SCADA/PLC systems, the CVS allows for real-time inventory tracking and reporting. The system includes onboard Modbus TCP Server with full configuration interface, RESTful API option to communicate with external control systems, and an optional add-on I/O allowing external analogue (4-20mA) communication. Throughput can be tracked and reported by volume or weight*.



*NOTE: The CVS is NOT a scale. Weight measurements are derived from the scanned volume and are calculated based on your own bulk conversion factors.

Load height measurement output

Identify large rocks and monitor load height on the belt (height/depth of the load material above the belt).
Two measurement methods are supported:



A range of frame sizes to fit most conveyor belts

In most cases your scan head will be attached to one of our expandable standard frames for a secure fit to your conveyor belt. The CVS system can be used with shallow and deep 'V' conveyor belt set-ups.

Dimension	Small frame		Medium frame		Large frame		
	mm [inch]	Min	max	min	max	min	max
A		735 [28.94]	1185 [46.65]	1320 [51.97]	1770 [69.69]	1760 [69.29]	2210 [87.01]
B		495 [19.49]	1105 [43.50]	1080 [42.52]	1720 [67.72]	1520 [59.84]	2160 [85.04]
C		560 [22.05]	1010 [39.76]	790 [31.10]	1320 [51.97]	1090 [42.91]	1615 [63.58]
D		870 [34.25]	1320 [51.97]	1100 [43.31]	1630 [64.17]	1400 [55.12]	1925 [75.79]

NOTE:

- Small, Medium and Large frame extenders can be interchanged to produce extra high or extra wide variations for large belts up to 3000mm (118in) wide.
- All frame sizes are available in a Wide Temperature Range option (-40C to 60C / -40F to 140F).

Key product features of the Conveyor Volume Scanner



Real-time volume
measurement



Eye safe LIDAR laser



Adjustable mounting bracket
for various belt sizes



Built in WiFi
2.4 or 5GHz



User-friendly
operator interface



WiFi and network
remote control



Onboard RESTful API
for direct data access



Digital and analogue
input/output

Benefits of conveyor volume scanning with the CVS

- 🎯 Real-time access to live production data with digital and analogue integration into mine management and SCADA systems
- 🎯 Manage and optimise material flow in real-time
- 🎯 A viable measurement alternative to traditional weight-based systems
- 🎯 Eliminates the need for regular and costly scale recalibration
- 🎯 Better manage your equipment and accurately control your throughput



Excavation and material loading



MPS scans large dumpers



BENEFITS

- ▶ Measure volume
- ▶ Optimise loading
- ▶ Reduce carryback
- ▶ Identify off-centre loading
- ▶ Maximise asset usage

MPS scans underground truck in portal



BENEFITS

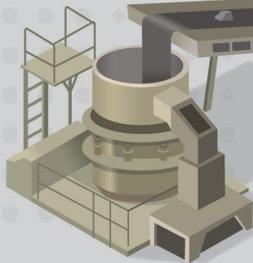
- ▶ Measure volume
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3D scans assist in training and coaching loader operators



3D scans produced for every load

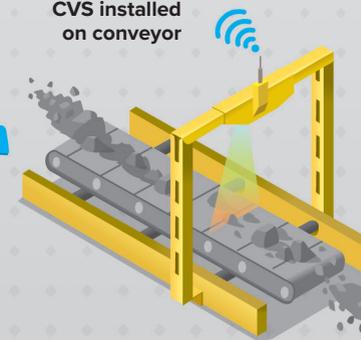
Manage flow rate into processing plant



CVS installed on conveyor



CVS installed on conveyor



Accurate stockpile inventory (known bulking and compaction factors)



Loadscan's Integrated Mining System

CVS Scanhead Technical Specifications

Laser

Ingress Protection	IP67
Ambient operating temperature	-30 to +50° C (-22 to 122°F), or -40 to +60°C (-40 to 140°F) for heavy duty variant
Power	19.2v to 28.8v DC
Class 1 eye-safe infrared-light laser diode	
Certification	Certified according to UL 60950-1:2007, designed and checked according to EN 60950-1 (2006-04) and EN 60950-1/A11 (2009-03). Vibration resistance: As per EN 60068-2-6 (2008-10), 5g RMS between 10 to 150Hz. Shock resistance: As per EN 60068-2-27 (2009-05), EN 60068-2-29 (1995-03). Single shock: 15g, 11ms. Continuous shock: 10g, 16ms

Wi-Fi

Ambient operating temperature	-40 to +70°C (-40 to 158°F)
Power	9-30VDC PoE
Wireless standards	802.11b/g/n, 802.11a/n/ac
Operating Frequency	2.4 or 5GHz band and region software selectable (2400-2500MHz or 4900-5920MHz)
Certifications	Safety: CE, FCC, IC, EAC, ROHS

Embedded Single Board Computer

Power	9 to 36VDC
Ambient operating temperature	-40 to +85°C (-40 to 185°F)
Processor	Intel® Celeron® 3955U Processor – 3.4Ghz
Operating System	Custom embedded Linux distribution
Operating System Drive	32Gb SSD
Certification	Safety: ROHS. EMC: CE, FCC.

Internal DC-DC convertor

Power	Input: 9 to 36VDC. Output: 24VDC.
Operating temperature	-40 to +70°C (-40 to 158°F)
Certification	Safety: IEC 62368-1, UL 62368-1, AS/NZS 62368-1, EAC TP TC 004 approved. EMC emission: EN55032, EN55032, EN6100-3-2, EN6100-3-3. EMC immunity: EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6. Vibration resistance: 10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: compliance to IEC61373

Peripheral equipment

Speed sensor

Proximity sensor	Ingress Protection: IP68. Power: 10 to 30VDC. Ambient operating temperature: -40 to +100°C (-40 to 212°F). Safe sensing range: 6.48mm (0.255in), (8mm max (0.315in)). Switching output: PNP. EMC: According to EN 60947-5-2.
Cable	Connectors: Amphenol male 7pin C16 connector / female M12, 4-pin connector. Conduit: 13mm corrugated PVC plastic.

Mounting frame

Metal Work	Powder coated 5052-H32 aluminium
Mounting width	500 to 2000mm. (small, medium, and large frame sizes)

External power supply

Ingress Protection	IP67
Power	Input: 90 to 305VAC, 47 to 63Hz. NZ standard single phase 3 pin power plug. Output: 24VDC
Operating temperature	-40 to +90°C (-40 to 194°F). Shut down over protection, recovers automatically after temperature goes down
Certification	Safety: UL8750 (type "HL"), CSA C22.2 No. 250.0-08; EN/AS/NZS 61347-1, EN/AS/NZS 61347-2-13 independent; GB19510.1, GB19510.14; KC61347-1, KC61347-2-13 (except for D-type) approved. EMC emission: Compliance to EN55015, EN55032 (CISPR32) Class B, EN61000-3-2 Class C (@ load ≥ 60%); EN61000-3-3, GB17743 and GB17625.1, EAC TP TC 020. EMC immunity: Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, EN61547, EN55024, light industry level (surge immunity Line-Earth 4KV, Line-Line 2KV), EAC TP TC 020. Vibration resistance: 10 to 500Hz, 5G 12min./1cycle, 72min. each along X, Y, Z axes.

Optional extras

I/O box

Enclosure ingress Protection	IP65
Digital I/O module	Power: 10 to 30VDC. Ambient operating temperature: -25 to +75°C (-13 to 167°F). EMC: ESD (IEC 61000-4-2) 4 kV Contact for Each Terminal. EFT (IEC 61000-4-4) +/- 2 kV for Power.
Digital Switching Outputs	Number of outputs: 4. Type: Form A solid-state relay (bipolar). Maximum load voltage: 60VDC/VAC. Maximum load current: 0.7A @ 60V. Isolation voltage: 3000Vrms.
Digital Switching Inputs	Number of inputs: 2. Type: Wet contact (bipolar sink/source). ON voltage: 10 to 50VDC. OFF voltage: 0 to 4VDC. Input impedance: 10kΩ. Overvoltage protection: 70VDC. Isolation voltage: 3000Vrms. Minimum pulse width (for reset signal): 50ms.
Analog I/O module	Power: 12 to 48VDC. Ambient operating temperature: -25 to +75°C (-13 to 167°F). EMC: ESD (IEC 61000-4-2) ±4 kV Contact for Each Terminal and ±8 kV Air for Random Point. EFT (IEC 61000-4-4) ±2 kV for Power Line. Surge (IEC 61000-4-5) ±2 kV for Power Line.
4-20 mA current loop outputs	Number of outputs: 4. Current load resistance: 400Ω. Isolation voltage: 2500VDC.
4-20 mA current loop inputs	Number of inputs: 2. Overvoltage protection: 240Vrms. Overcurrent protection: 50mA max. at 110VDC/VAC max. Input impedance: 125Ω. Isolation voltage: 2500VDC.

We're obsessed with accuracy!

Mine Payload Technologies is the specialist mining division of Loadscan Ltd. Our business is about improving the profitability of our global customers across the mining sector.

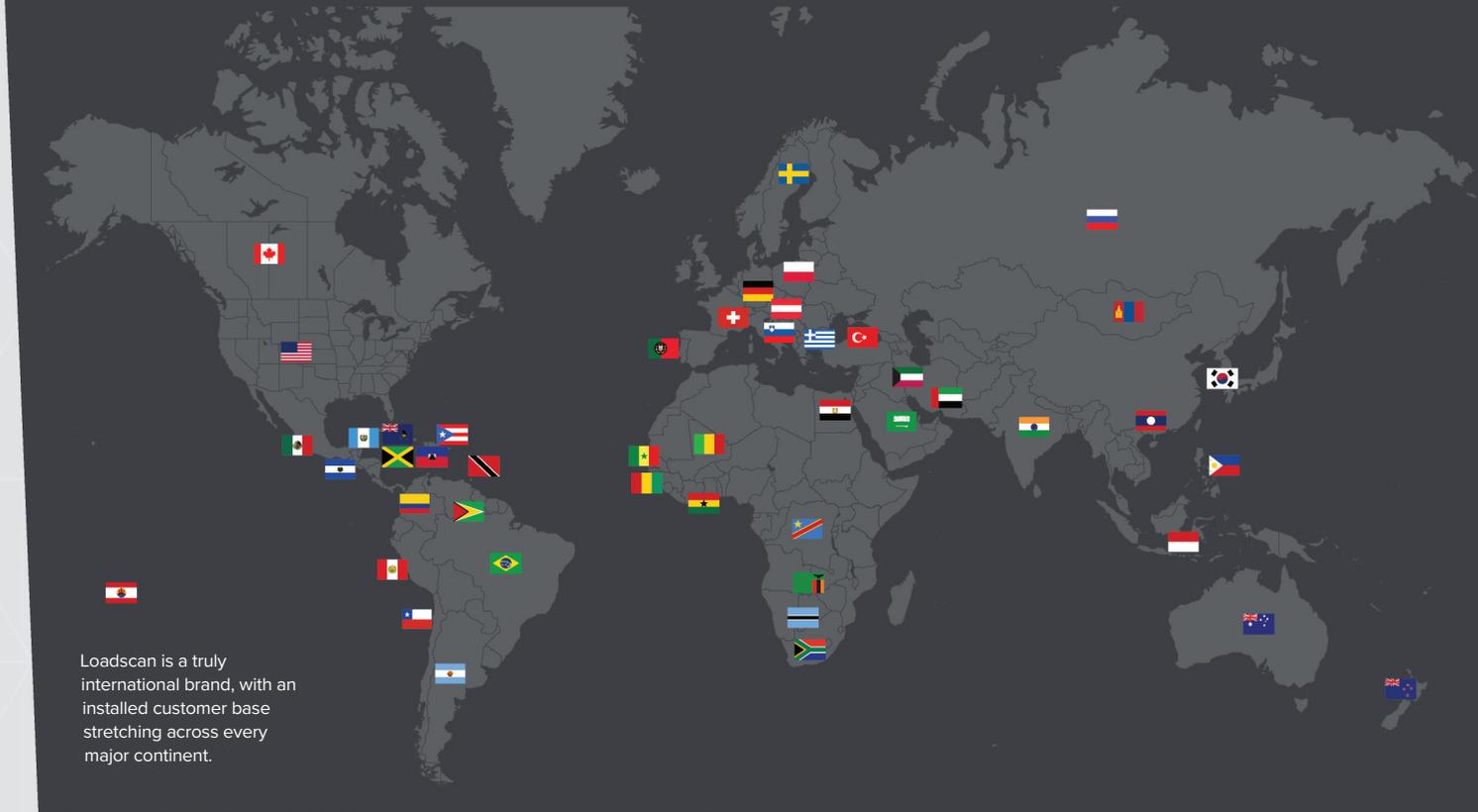
Over 25 years ago we invented and patented the original load volume scanner. Since then, we've been the market leader in providing accurate and reliable load information across the world, with our load volume scanners measuring to an accuracy of +/-1%.

Our advanced volume scanning and measurement systems provide the detailed insights necessary for you to optimise your production loading and throughput. Loadscan technology is enabling substantially improved operational and financial performance for forward-thinking companies across the world.

We've sold our systems globally into 47 countries, and that's growing fast!

If you have loads to be measured, no matter where you are, you can rely on Loadscan. **Because no-one does it more accurately than us.**

Contact us today to find out how we can transform your operational performance.



Loadscan is a truly international brand, with an installed customer base stretching across every major continent.



In 2020 Loadscan invested in a new purpose-built head office and assembly facility in Hamilton, New Zealand.



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Loadscan is the only load volume scanning company worldwide to have achieved trade certification approval for truck volume measurement. Our LVS-3 system is certified for trade in New Zealand under Trade Approval Certificate 1556 (MAPPs NZ) and in Australia under pattern approval Certificate 13/1/15 (NMI AUS). The MPS shares a common scan engine and measurement algorithms with the LVS and delivers the same level of accuracy. The MPS is sold as 'Monitor Only' and 'Not Legal for Trade Use', however it will still perform to the same high level of accuracy as required by the Trade certificates in New Zealand and Australia.

Partner:

Loadscan.au

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