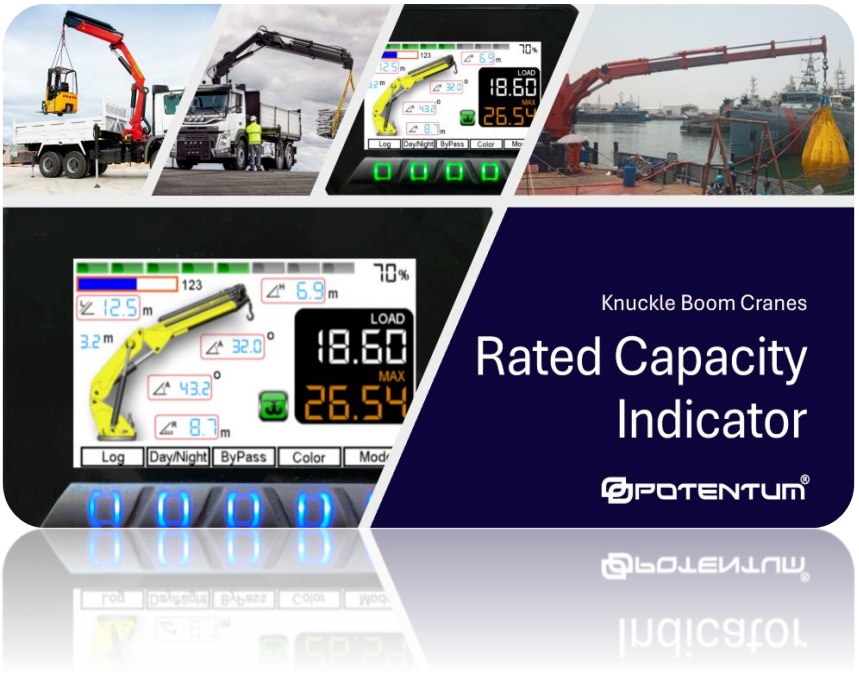
P O T E N T U M

R A T E D C A P A C I T Y I N D I C A T O R

RCI

Knuckle Boom Crane RCI & Stability Control System



Designed, integrated and tested by Potentum in the UK

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POTENTUM®

Innovative Control Solutions for a Safer Future

RCI & STABILITY CONTROL SYSTEM

Load Limiting | Vehicle Stability Control | Crane Travel Safety

Single ECU. Unified firmware. Designed for truck-mounted knuckle boom cranes. Compliant with UNI EN 12999:2018 and EN ISO 13849-1.

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AVD.043 CAN Bus Display

Patent Pending | UK Pat. App. GB2600868.0

PRODUCT OVERVIEW

The Potentum Stability Control System (SCS) integrates all mandatory safety functions for truck-mounted lifting cranes into a single ECU and a single firmware platform. Load Limiting, Vehicle Stability Control and Crane Travel Safety run independently within the same controller, eliminating separate units, inter-device wiring and protocol bridging. Compliant with **UNI EN 12999:2018** and **EN ISO 13849-1**.

LOAD LIMITING

Load Limiting

Dual hydraulic pressure sensors on the main lift cylinder. Proprietary Dual Learning Surface calibration. No load cell required. Deviation below 0.1% across the full operating envelope.

VEHICLE STABILITY CONTROL

Vehicle Stability Control

Dual-axis inclination monitoring via 3X Series MEMS sensor. Configurable tilt thresholds per application. Safety valve cut-off when vehicle tilt exceeds limit. Crane locked until stable condition restored.

CRANE TRAVEL SAFETY

Crane Travel Safety

Outrigger extension monitoring via ALX.050 / ALX.070 / ALX.150 sensor. Detects non-resting crane position before vehicle movement. Audible and visual warning. Optional motor interlock output.

KEY FEATURES

Single ECU Architecture

All three safety functions share one controller with independent firmware modules. No inter-unit communication delays or additional failure points.

Dual Pressure Sensor Technology

Two hydraulic pressure transducers on the main lift cylinder. Load derived from differential chamber pressure - no dedicated load cell required.

Dual Learning Surface Calibration

Proprietary adaptive algorithm builds a 3D load surface during calibration. Below 0.1% deviation across the full working envelope. UK patent application GB2600868.0 filed.

3X Series MEMS Inclination Sensor

Dual-axis MEMS sensor: 360 degree rotation and +60 degree biaxial tilt in a single IP67-rated unit. Direct CAN Bus output.

ALX.050 / ALX.070 / ALX.150

Extension Monitoring

Detects telescopic boom / outrigger extension state. Prevents vehicle movement when stabilizers are not correctly positioned. Integrated into ECU logic with Load Limiting and Vehicle Stability Control.

Encrypted Datalogger

All events, load cycles and fault conditions stored in an encrypted, tamper-proof log. Full audit trail for regulatory and insurance purposes. Not available in competing systems.

Real-Time Display — AVD.043

Standard with every kit. Potentum AVD.043 J1939 CAN Bus display shows boom angle, extension, hook height, outreach, current load and maximum permissible load in real time.

Banner TL50 Pro Tower Light

Optional Banner TL50 Pro Series RGB tower light with 93 dB audible alarm, 12-30 VDC, IP65. GREEN in normal operation, RED plus buzzer on overload or instability.

UNI EN 12999:2018 and EN ISO 13849-1 Aligned

System architecture and functional safety design aligned with the European standard for truck-mounted lifting cranes and the EU machinery safety standard for control systems.

Potentum LMI / RCI System with AVD.043 CAN Bus Displays

Real-World Deployment

The Potentum SCS platform is deployed in the field across multiple crane types. Each kit ships fully wired, configured and tested from our London facility. The AVD.043 display provides real-time boom geometry, hook position, current load and maximum permissible load.

The encrypted datalogger records every overload event, alarm and bypass action with a tamper-proof timestamp - providing a complete operational audit trail not available in competing systems.

SYSTEM COMPONENTS

Component	Model / Ref.	Function
Main ECU	Potentum SCS ECU	Central controller. Load Limiting, Vehicle Stability Control, Crane Travel Safety firmware
Pressure Sensor x2	Hydraulic transducer, IP67	Dual-chamber measurement on main lift cylinder. Load derivation without load cell
Inclination Sensor	3X Series MEMS	Dual-axis, 360 deg / +60 deg tilt, CAN Bus, IP67. Vehicle Stability Control function
Extension Sensor	ALX.050 / ALX.070 ALX.150 / ALX.200	Telescopic extension detection. Crane Travel Safety function
Safety Valve	Application specific	Hydraulic cut-off on overload or instability
Display	AVD.043 J1939 CAN Bus	Standard. Boom angle, extension, hook height, outreach, load, maximum load in real time
Tower Light (optional)	Banner TL50 Pro Series	RGB, 12-30 VDC, IP65, 93 dB audible. GREEN normal, RED+buzzer on fault

KEY SENSORS

3X Series MEMS Sensor

Dual-axis inclination and 360 deg rotation. CAN Bus. IP67. Vehicle Stability Control.

ALX.150 / ALX.200 Angle-Length Sensor

Cable-extension type. Boom angle and telescopic extension. CAN Bus. Crane Travel Safety.

ALX.050 / ALX.070 Angle-Length Sensor

Compact cable-extension type. Boom angle and length. CAN Bus. Crane Travel Safety.

Banner TL50 Pro Tower Light

RGB, 3 segment, 93 dB audible. 12-30 VDC. IP65.

GREEN normal,

AMBER warning,

RED+buzzer on fault.

COMPETITIVE COMPARISON

Feature	Potentum SCS	Typical Competitor
Load Limiting	YES	YES
Vehicle Stability Control	YES	ADD-ON / SEPARATE UNIT
Crane Travel Safety	YES	ADD-ON / SEPARATE UNIT
Single ECU - all functions	YES	SEPARATE UNITS
Dual pressure sensor (no load cell)	YES	Load cell typically required
Adaptive calibration algorithm	YES	Manual calibration
Real-time display (angle, length, outreach, height)	YES	Varies by model
Encrypted datalogger	YES	NO
UNI EN 12999:2018 alignment	YES	YES

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FIELD DEPLOYMENTS

The Potentum RCI system has been deployed across 100+ installations on multiple crane brands across multiple countries and markets.







Crane brands include: HIAB | Palfinger | Hyva | HS Marine | Locatelli | and others

FULLY WIRED. READY TO INSTALL.

Each kit ships pre-wired, configured and tested. Panel branding available on request.