

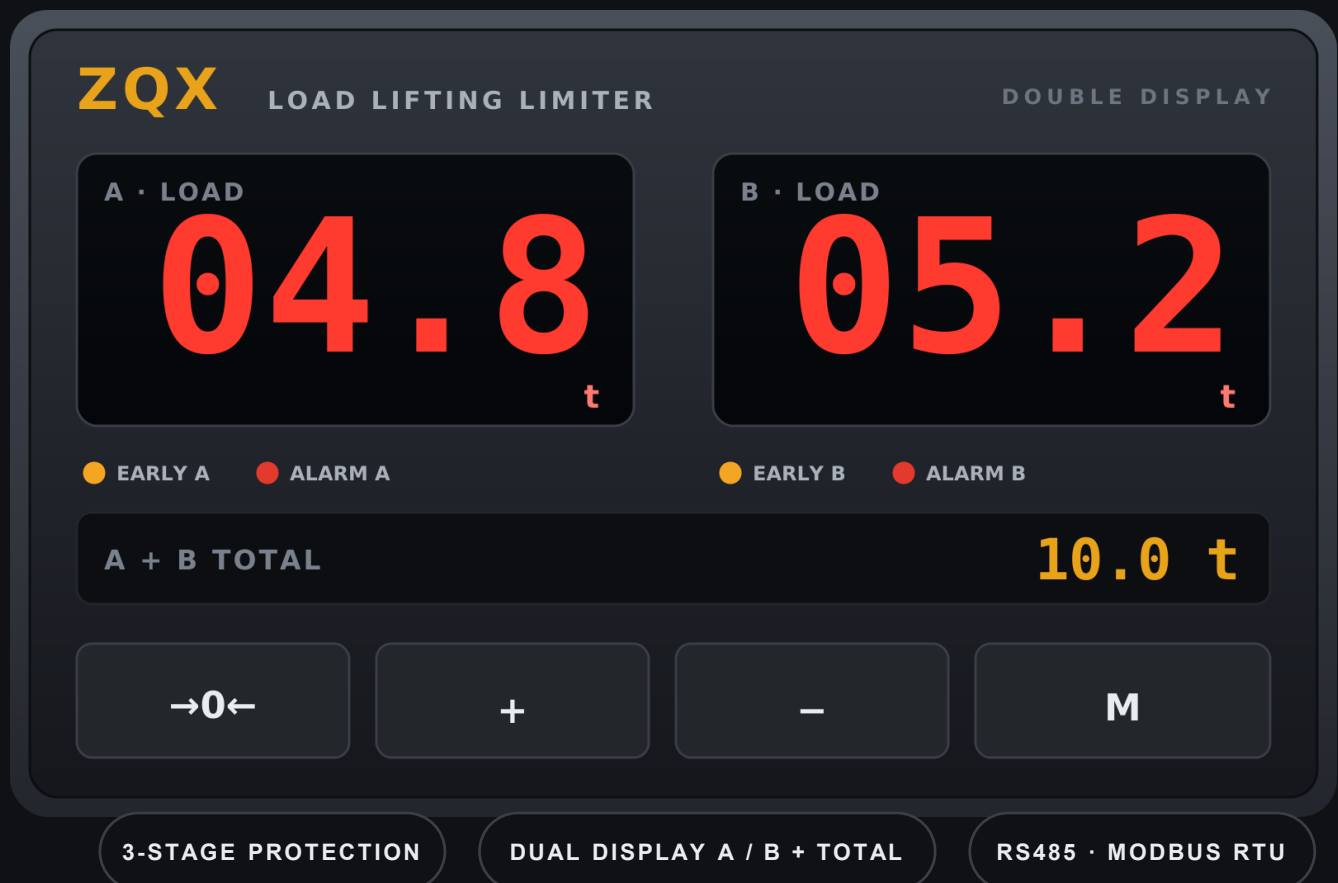


CRANE SAFETY · LOAD MONITORING

ZQX Load Lifting Limiter

Dual-Display Load-Sync System

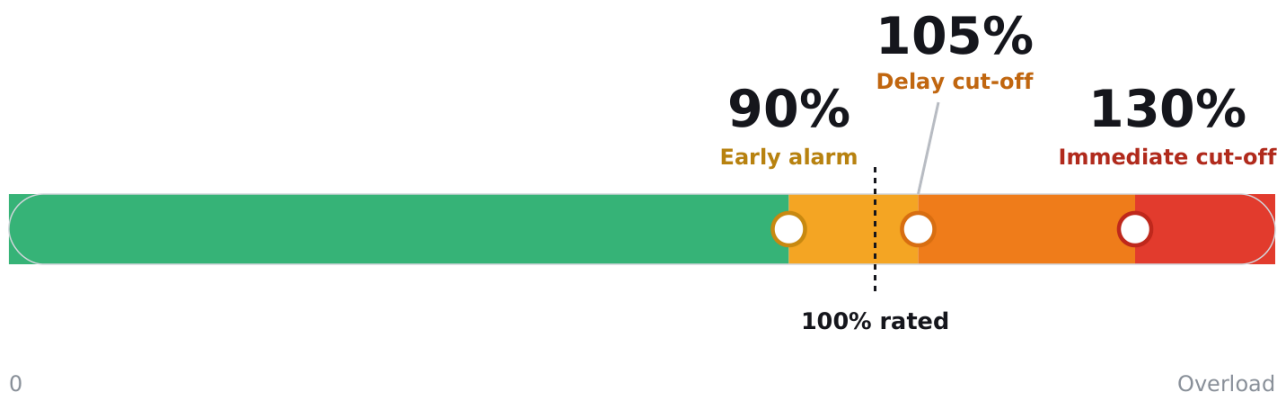
Three-stage overload protection with a double display that monitors the load on two lifting points — and the combined total — in real time. Pin-axis sensing, audible & visual alarms and automatic cut-off keep cranes, hoists and tandem lifts safe.



OVERLOAD PROTECTION, ENGINEERED IN

Stop overloads before they happen

The ZQX load lifting limiter continuously measures crane lifting load through a pin-axis (load-pin) sensor and protects the machine with a three-stage alarm and cut-off. Its double display shows the load on two lifting points — A and B — plus the combined total, so tandem and dual-hoist lifts stay balanced and within rated capacity.

**90%****EARLY ALARM**

Intermittent sound & light alarm. The operator is warned — the lifting circuit stays live so the lift can be eased back.

105%**DELAY CUT-OFF · 2S**

Continuous sound & light alarm; after a 2-second delay the lifting circuit is cut. Lowering the load is still allowed.

130%**IMMEDIATE CUT-OFF**

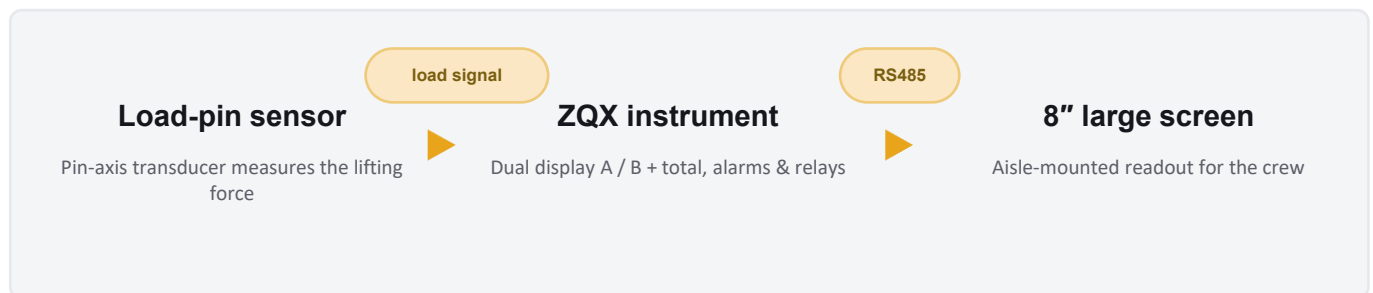
Continuous alarm and the lifting circuit is cut immediately, stopping any further hoisting.

Set to your crane. Alarm points are referenced to the crane's rated lifting capacity, configured at supply. The rated value can be downgraded but never increased — keeping protection aligned with the machine.

FROM THE PIN TO THE CONTACTOR

How the system works

The load-pin sensor feeds the ZQX instrument, which displays both loads and the total, drives the early / overload alarms, and switches a relay wired into the hoist control circuit. An optional 8-inch large-screen display repeats the reading for the crew over RS485.



Overload cut-off. The control relay is connected in series with the lifting contactor's coil loop, so an overload drops out hoisting while still allowing the load to be lowered to safety.



3-stage protection

Early (90%), delay cut-off (105% · 2s) and immediate cut-off (130%) — warn, then stop.



Dual-load A / B sync

Monitors two lifting points and the combined total for balanced tandem and dual-hoist lifts.



Load-pin sensor

Rugged pin-axis transducer drops into the sheave/shaft pin — no load cell platform required.



RS485 · Modbus RTU

Internal protocol or Modbus RTU (V3.02) to PLCs, SCADA and the large-screen display.



10 A relay cut-off

~250 V / 10 A relay wired in series with the hoist contactor coil interrupts lifting on overload.



-10 to +60 °C

Built for the cabinet and the crane bay, with humidity tolerance below 90% RH.

TECHNICAL DATA

Specifications

ZQX load lifting limiter — double display	
PARAMETER	SPECIFICATION
Product	ZQX load lifting limiter — double-display instrument
Instrument version	V2.04 / V3.02
Early alarm	90% rated — sound & light, no cut-off
Delay alarm	105% rated — continuous alarm, 2 s delay, cut lifting (descent ok)
Immediate alarm	130% rated — immediate alarm, cut lifting
Display	Dual A / B + total; optional 8" large screen
Sensor	Pin-axis (load-pin) transducer
Relay contact	~250 V, 10 A
Communication	RS485 — internal protocol or Modbus RTU (V3.02)
Sensor cable	RWP 4 × 0.5 / 0.75 mm ² shielded
Power — instrument	~48 V ±10%, 50 Hz
Power — large screen	~220 V ±10%, 50 Hz
Operating temperature	-10 °C to +60 °C
Humidity	< 90% RH
Accuracy check	Every 3–6 months (re-calibrate on drift)
Warranty	12 months from shipment

TYPICAL APPLICATIONS

Tandem & synchronised lifts · Dual-hoist & double-girder cranes
EOT bridge & gantry cranes · Electric hoists

COMMISSIONING

Installation & wiring

Mounting

- 1** Ease the load-pin sensor into the shaft hole — tap gently with a rubber/wooden mallet if tight. Never strike the sensor directly.
- 2** Set the sensor notch to the specified orientation (vertically up by default); fix with the card plate.
- 3** Mount the instrument in the control cabinet; the large screen mid-aisle for visibility.
- 4** Ensure all mountings are secure and stable against vibration.

Wiring

- ◆ Connect power to the cabinet terminal; wire the control line in series with the lifting contactor coil.
- ◆ Land the four sensor signal wires in sequence; use RWP 4×0.5/0.75 mm² shielded cable and ground the shield.
- ◆ Keep sensor signal lines away from motor power lines, or add isolation, to cut interference.
- ◆ Large screen: AC 220 V plus 485+ / 485– to the instrument's communication port.

High interference? With variable-frequency drives nearby, use RS485 standard cable / armoured twisted-pair shielded cable (ASTP-120 Ω, one pair, 18 AWG).

ON-SITE SET-UP

Calibration & setup

Calibrate (window A)

- 1** **Zero:** with the hook empty, hold →0← for 3 s until the reading returns to zero and flashes.
- 2** **Span:** lift a known weight off the ground (>50% rated). Hold + and – together until "P00.0" shows.
- 3** **Enter:** press + to set the lifted weight, then hold M for 3 s. The value flashes to confirm.

Window B calibrates the same way. Parameters are factory-set to order — normally only on-site calibration is required.

Fault codes. E-01 — signal too high at zero (check empty hook). E-03 — no signal change during span.

Key parameters (F00–F26)

ITEM	FUNCTION
F00	Rated lifting capacity (locked)
F01 / F02	Early 90% / warning 105%
F10	Factory reset (001 = initialise)
F11 / F15	Current weight / calibration value
F19	Total alarm value (0.0 = single display)
F20	Large-screen value (A or A+B)
F22–F26	Modbus address, baud, parity, stop, expander

Rated capacity. May be downgraded but never upgraded, and only by an administrator.

CONNECT & MAINTAIN

Communication & troubleshooting

RS485 · Modbus RTU (V3.02)

Modbus RTU slave; function codes 0x03 / 0x06 / 0x10; default 19200, E, 8, 1. Read up to 16 registers per poll at intervals of 100 ms or more. Set F22–F26 to match the master.

ADDRESS	REGISTER	NOTES
0x00	Weight A	16-bit, unit 10 kg
0x01	Weight B	16-bit, unit 10 kg
0x04	Weight A + B	16-bit, unit 10 kg
0x0C	Early-alarm status	bit 0 A · bit 1 B · bit 4 A+B
0x0D	Alarm status	bit 0 A · bit 1 B · bit 4 A+B
0x0E	Relay status	bit 1 A overload · bit 3 B overload

Common faults

SYMPTOM	LIKELY CAUSE	ACTION
No change under load	Damaged sensor/transmitter or not calibrated	Check/replace sensor; calibrate
Unstable display	Poor sensor-signal contact or damp instrument	Check wiring; dry and reseal
Inaccurate reading	Zero drift, not calibrated or sensor mis-fitted	Re-calibrate; refit sensor
No cut-off after alarm	Faulty relay/driver or control line not in loop	Replace relay; wire into contactor coil
No response at power-on	Wrong supply voltage	Confirm instrument / screen supply
Error code E-04	Sensor–instrument wiring or shield fault	Check wiring sequence and shielding

FOR AUSTRALIAN INDUSTRY

Specified, supplied & commissioned

Sorian Cranes supplies, configures and commissions the ZQX load limiter for overhead, gantry and tandem-lift cranes across Australia — sized to your crane's rated capacity and integrated with your controls.

Ordering. Specify the crane's rated capacity, instrument version, supply voltage, sensor notch orientation and connecting-cable length. This device provides overload protection and is not a trade weighing instrument.

Australian safety. Rated-capacity limiters support compliance with the AS 1418 crane series and site safety requirements. Sorian can advise on configuration and periodic re-calibration.

TALK TO AN ENGINEER

Protect your lift.

Phone 1300 767 426

Email enquiries@soriancranes.com.au

Web soriancranes.com.au

Office Unit 3, 45 Hunter Road, Derrimut VIC 3026

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