CLB

Crane Safety and Control Platform

MEASURE | PROTECT | MANAGE | RECORD

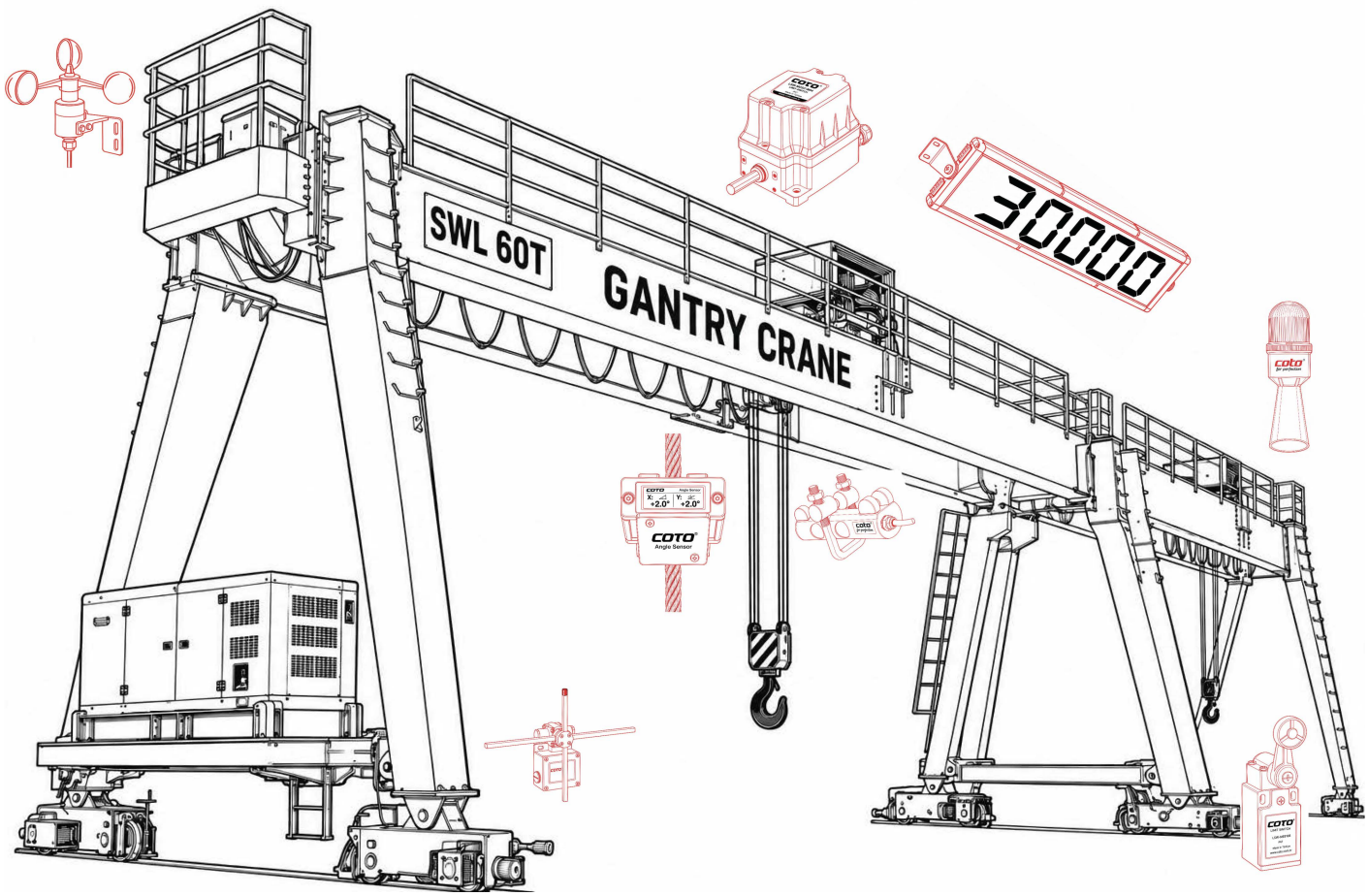


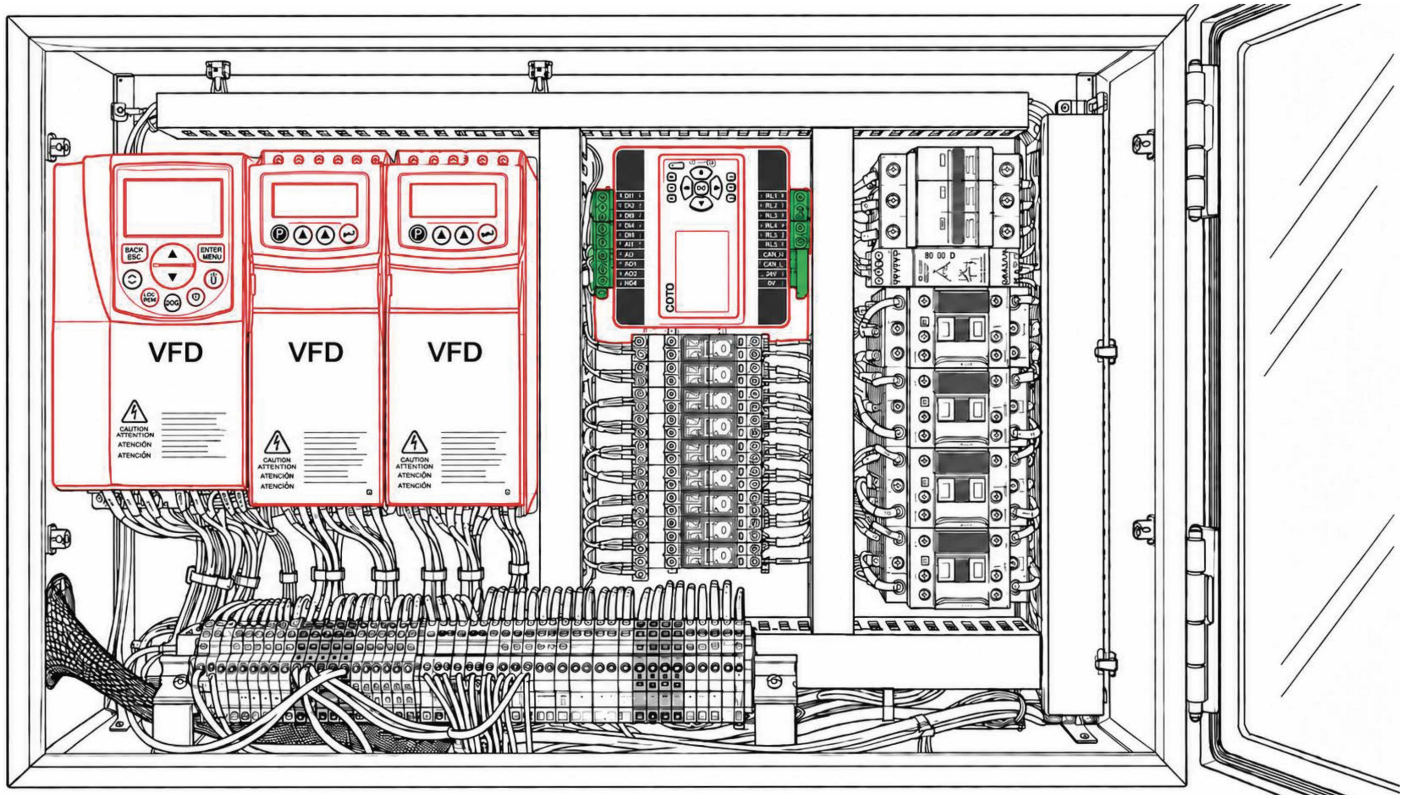
One Control Unit. Integrated Crane Management.

PRODUCT CATALOGUE / TECHNICAL BROCHURE

www.coto.com.tr

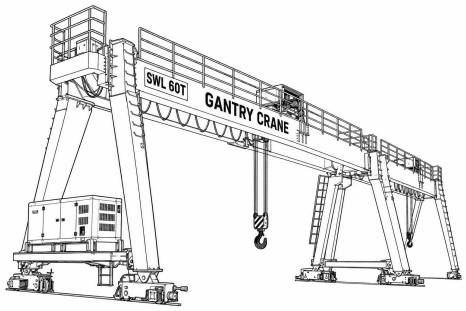
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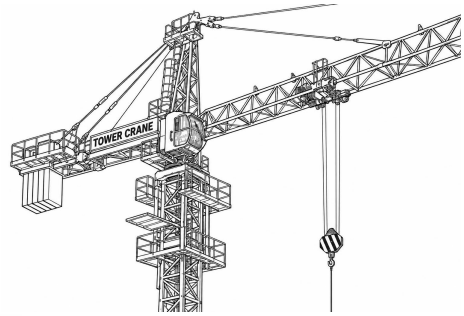

SWL 60T
GANTRY CRANE
30000
COTO
Angle Sensor

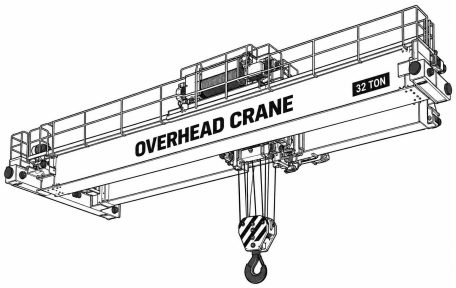

VFD
VFD
VFD
CAUTION
ATTENTION
ATENCIÓN
BACK
ESC
ENTER
MENU
COTO

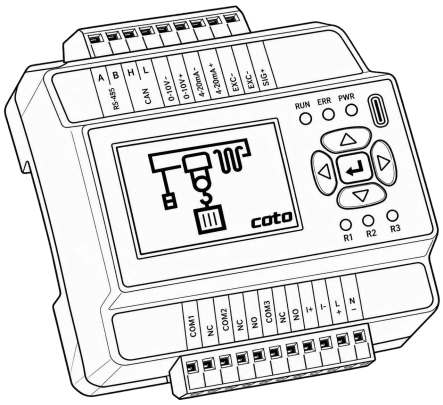
CLB Ecosystem - Overview

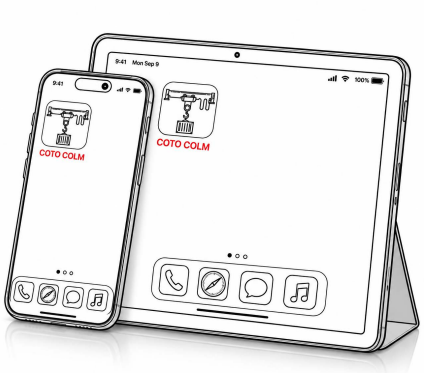
All sensor, control, communication and reporting functions











MEASURE

CWL and CLP sensors measure load, the CAS sensor measures rope angle, and the CWS sensor measures wind speed. This data and the digital/analog signals from the field are collected in the CLB central control unit for evaluation.

PROTECT & MANAGE

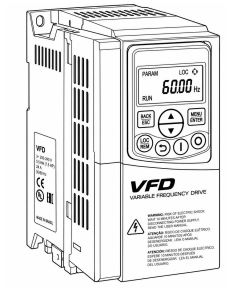
CLB monitors overload and Slack Rope conditions. Using data from the angle sensor, it supports Anti-Grab and Anti-Sway control. It provides load-dependent speed control, R1-R4 relay outputs and a 0-10 V analog speed output. It communicates with VFDs via Modbus and integrates with the COTO COLM application.

RECORD & REPORT

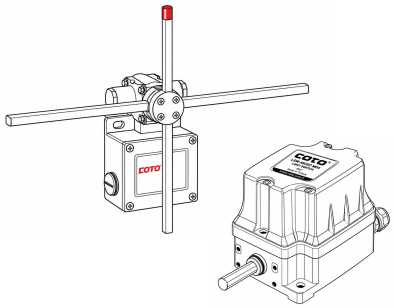
Black Box records overload, voltage and current values, as well as operating frequency and duration, with date and time information. Instant or total weighing data can be exported in PDF, CSV or Excel format; reports can be printed, transferred to the application or shared by e-mail.

System Architecture

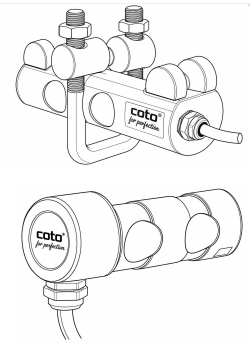
CLB-centered sensor, drive, display, mobile application and reporting ecosystem



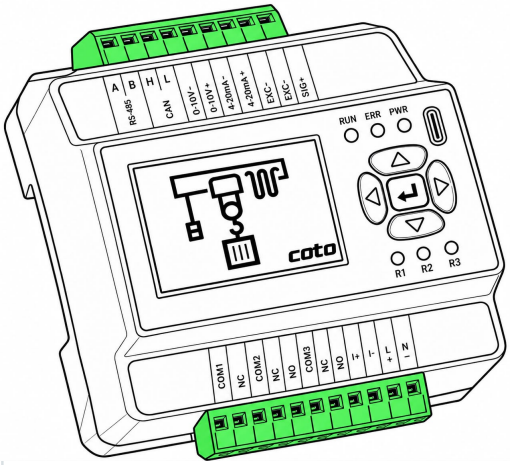
VFD Frequency Inverter

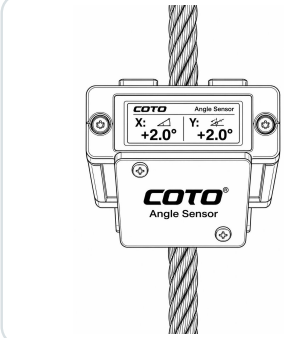


LSW / CTS Limit Switches

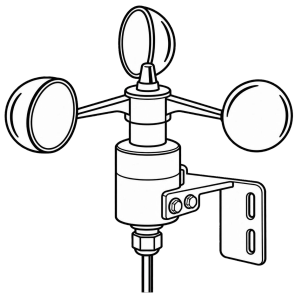


CWL/CLP Wire Rope Load Cell

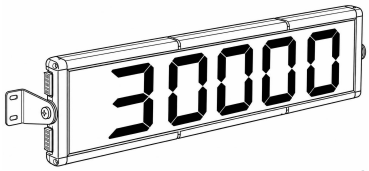




CAS Rope Angle Sensor



CWS Wind Sensor



CED External Display

CWS Wind | **VFD / Modbus** | **COTO COLM** | **Black Box** | **Reporting**

FIELD INPUTS

CWL/CLP: 2 independent load cell inputs: mV/V, 4-20 mA or 0-10 V
CAS: Modbus / Digital.
CWS: Wind speed. Modbus / 0-10 V / 4-20 mA
Start/Stop and status signals: digital / analog inputs.

OUTPUTS & COMMUNICATION

R1-R4 relay outputs;
0-10 V analog speed reference;
Modbus RTU (RS485) with VFD; RS485/RS232 with CED;
Bluetooth/RF option and mobile access.

CLB - Central Control Unit

Smart Crane Management + Overload Control



As a digital load limiter and transmitter, CLB combines load measurement, control outputs and communication functions on the crane in a single platform.

2 Independent load cell inputs

4 Relay outputs

2 Digital inputs

2+2
Selectable Analog Input / Output

TECHNICAL SUMMARY

Supply	24-250 VDC/VAC; 6 VA	**Relay outputs**	4 x 30 VDC / 250 VAC, 2 A
Load cell	2 x 350 Ω / 10 VDC	**Serial ports**	RS485 / RS232
A/D Converter	24 bit	**Baud rate**	1200 ... 115200 bit/s
Linearity	< 0.01% full scale	**Operating temperature**	-20 °C ... +55 °C

CALIBRATION

Field calibration enables measurement differences caused by the sensor and mounting arrangement to be checked against a reference load. Tare allows the weight of the hook or attachment to be excluded from the measurement so the operator can monitor the net load. Zero adjustment performed with no load helps manage zero drift that may occur over time. These functions support commissioning and maintenance operations directly from the device.

LOAD LIMITING

CLB monitors data from the connected load cells and allows separate pre-alarm and overload thresholds to be defined for each measurement channel and for the total load. When a threshold is exceeded, configured warning and control outputs can be activated. The integrity of the load cell connection is monitored and detectable connection faults can be reported to the operator.

The pre-alarm helps the operator notice the condition early as the load approaches the limit. Separate channel and total-load monitoring helps track load distribution in applications using multiple load cells. Connection-fault notification helps identify invalid measurement data and supports faster intervention by the maintenance team.

INSTALLATION AND MOBILE CONFIGURATION

CLB installation parameters and calibration operations can be managed using the device keypad or the COTO COLM mobile application available for Android and iOS.

Mobile access enables the technician to perform setting and calibration operations from a suitable position without having to work directly in front of the device. It is especially useful for devices mounted inside panels, simplifying commissioning and service operations.

Smart Safety and Motion Control

Combined evaluation of load, angle, wind and drive data

01 OVERLOAD PROTECTION

Load limiting with alarm and pre-alarm thresholds.

02 LOAD-DEPENDENT SPEED

Activation of the 3rd and 4th speed stages via relays under conditions below nominal load.

03 ROPE ANGLE CONTROL

Monitoring X/Y angle data with CAS and controlling the risk of side pull.

04 WIND MONITORING

Sensor integration area prepared for the CWS anemometer input. Final COTO technical values will be confirmed.

05 SLACK ROPE | PROTECTION

When the attachment contacts the ground, the load comes off the rope; however, the preset lower limit switch may not yet have activated. If lowering continues, the rope may pay out from the drum and wind unevenly or become tangled.

CLB continuously monitors the value from the load cell after tare calibration. When the attachment rests on the ground and the measured value reaches the defined negative load threshold, CLB stops the lowering command. This reduces the risk of slack rope and related rope entanglement before the lower limit switch activates.

06 VFD MONITORING

Monitoring drive operating status, phase, current and fault codes via Modbus.

07 ANTI-SWAY | LOAD SWING CONTROL

CLB transfers rope angle and position data via Modbus to the PLC or to a drive with PLC capability. Together with a suitable control algorithm, this data can be used in Anti-Sway applications to reduce load swing.

08 ANTI-GRAB | CONTROLLED LOAD LIFTING

At the start of lifting, Anti-Grab increases the drive frequency with a linear ramp instead of suddenly commanding the motor to 25 Hz. This reduces the sudden pulling force as the rope is tensioned and the load leaves the ground. Smoother load pickup limits impact loads on the gearbox, steel wire rope and hook, contributing to the service life of these components.

MEASURE **PROTECT** **MANAGE** **RECORD**

Integrated crane safety in a single control unit.

Sensor and Load Cell Integration

COTO product family





CWL-CLP

Wire Rope & loadpin Type Load Cell

1-200 ton • IP66 • Alloy / Stainless Steel • mV/V, 4-20 mA, 0-10 V, Modbus RTU



CWS

Wind Sensor

4-20 mA, 0-10 V or Modbus RTU output



CAS

Rope Angle Sensor

X / Y angle control • 2 relays • Modbus • real-time angle fault logging



LSW

Fork Switch

Continuous 360° rotation. 4 output contacts provide 5 electrical combinations.

CTS

Drum Turn Switch

2/3/4 contacts; ratio options from 1.6 to 1:200

Black Box and Operational Traceability

Real-time logging, event history and maintenance data

RECORDED EVENTS

Overload events, lifting cycles, weighing records and product type information can be logged in real time.

DRIVE DATA

Overvoltage, overcurrent, overheating and inverter fault codes can be logged via Modbus communication with the frequency inverter.

EVENT HISTORY - SAMPLE VIEW

10:24:08	Load	4765 kg	Normal
11:17:42	Overload	10750 kg	Recorded
13:05:16	VFD	Overcurrent	Recorded
14:02:31	Lifting	6780 kg	Normal

Excel **PDF** **Print** **E-mail**

Reporting the records creates a traceable database for service, maintenance and operational analyses.

CED and COTO COLM

Field visibility, mobile access and reporting



CED

External LED Display

3-inch and 4-inch options; 6-digit LED display. Can be integrated into the CLB system as a remote display via RS232 / RS485 communication.

CED-3X

3 inch • 6 x 76 mm LED • 620 x 150 x 100 mm

CED-4X

4 inch • 6 x 102 mm LED • 770 x 150 x 100 mm

COTO COLM

Remote control of CLB functions via Android and iOS applications; mobile access infrastructure for calibration, configuration, operational visibility and record management.

Connections and Integration Matrix

Core interfaces around CLB

Function	COTO / System	Interface / Signal
Load measurement	**CWL / CLP**	Load cell / mV/V
Angle monitoring	**CAS**	Modbus / Digital
Wind monitoring	**CWS**	Draft - technical values to be confirmed
Drive	**VFD**	Modbus RTU (RS485)
External display	**CED**	RS485 / RS232
Control outputs	**CLB**	4 relays / Modbus / Selectable Analog /
Digital input	**CLB**	2 optically isolated inputs
Analog I/O	**CLB**	2 inputs + 2 outputs
System communication	**CLB**	CANBUS / Modbus / Bluetooth / Wi-fi

SPEED CONTROL

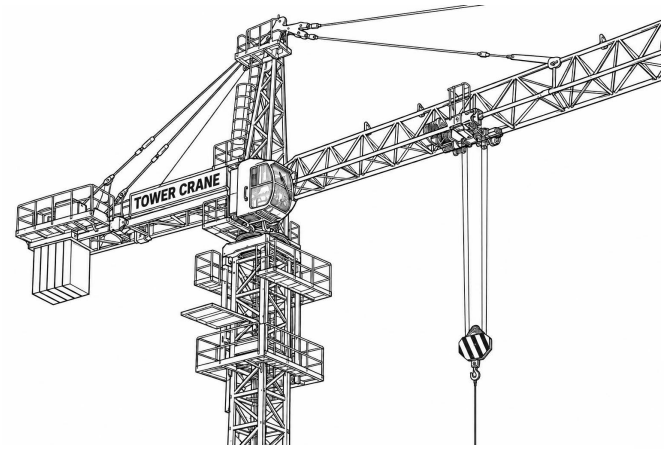
Load-based speed stages with relays 3 and 4; speed-reference scenarios using the analog output infrastructure.

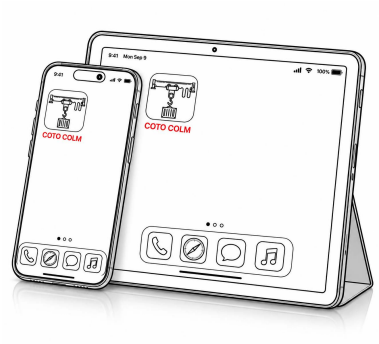
SYSTEM EXPANSION

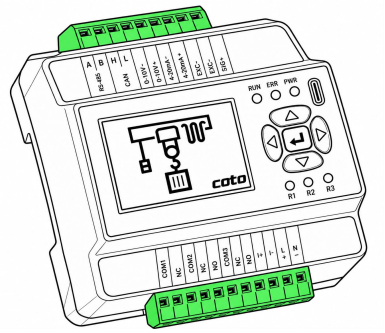
Multiple units can be connected for load limiting and summation functions; optional RF interface.

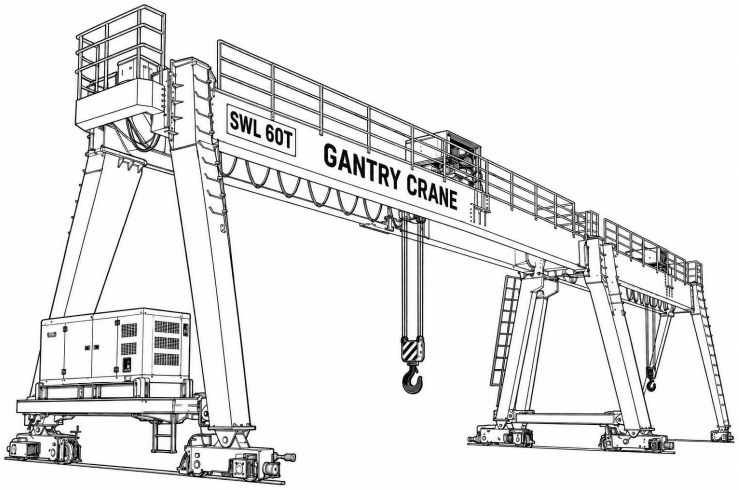
CWS Wind Monitoring and Field Signals

Integration of environmental and operational status information into the CLB platform on outdoor cranes



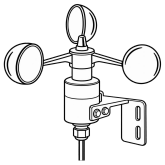






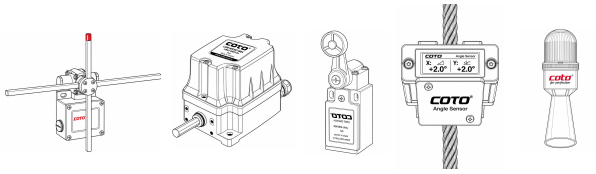
CWS - WIND SENSOR

Wind speed is monitored by CLB; this field sensor can be used in alarm and control scenarios based on threshold values. Analog / Digital integration information will be confirmed in the product revision.



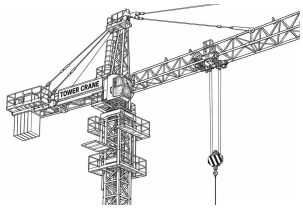
START / STOP & STATUS

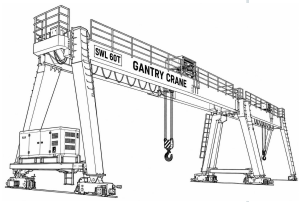
Field signals such as buttons, limits, operation enable and machine states are incorporated into the control logic via digital / analog inputs.



GANTRY & TOWER CRANES

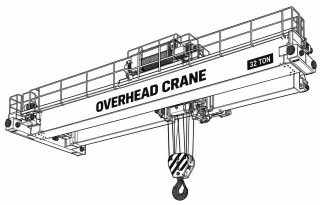
Wind data is used especially in outdoor gantry and tower crane applications to support operational decisions and monitor risky conditions.





OVERHEAD CRANES

For CWS, the exact measurement range, output type, supply and IP rating must be confirmed in the final revision using the COTO product datasheet. This version defines the system function.

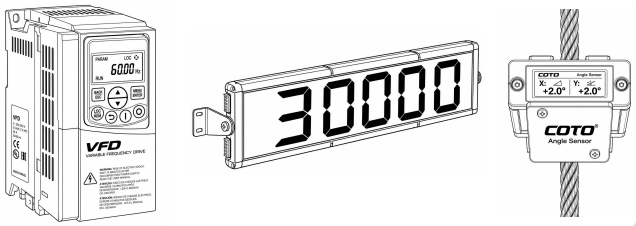


VFD Integration and Motion Control

Evaluation of load information and drive data within the same control architecture

Central monitoring of faults via Modbus.

Communication between CLB and the frequency inverter; central monitoring of drive operating status and fault information.



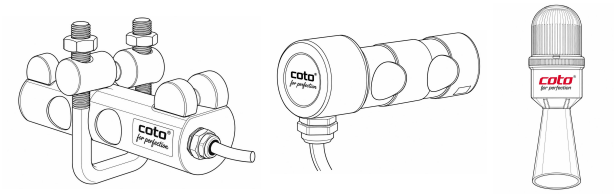
PHASE, CURRENT & FAULT CODES

Monitoring of current, operating status and fault codes on the drive side; the catalogue functions also define logging of overvoltage, overcurrent and overheating.



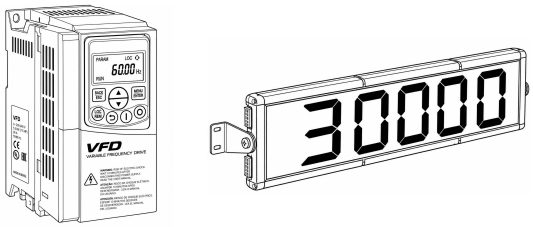
R1-R4 RELAY OUTPUTS

Four independent relay outputs for load, speed stages, alarm and auxiliary control scenarios. Relays 3 and 4 can be used for speed stages depending on the load condition.



0-10 V ANALOG OUTPUT

Analog output infrastructure for the speed-control reference; the application scenario is determined according to the drive and project configuration.





Purpose:
To provide a more controlled lifting operation by combining load measurement, safety limits and drive control information in the same decision chain.

Weighing, Totalization and Reporting

Data flow from field measurement to operational record

TOTAL WEIGHING

Recording date, time, weight and product type; monitoring individual or total weighings on an operational basis.

REPORT

Exporting records in PDF / CSV / Excel formats and using them in operational reports.

DISTRIBUTION

Sending weighing-slip / delivery-note type output to a printer or by e-mail.

TOTAL WEIGHING - EXAMPLE

Date	Time	Weight (kg)	Product	Status
16.09.2026	10:24	3250	Stainless Steel	Recorded
16.09.2026	11:17	1430	10 mm Sheet Metal	Recorded
16.09.2026	14:02	4640	Copper	Recorded

Printer **E-mail** **PDF** **CSV** **Excel**

* The reporting structure is intended to use weighing data for recording, sharing and operational tracking rather than only displaying it on screen.
** Not for use in commercial purchase / sale transactions.

Technical Specifications

CLB main technical data summary - source catalogue data

Supply voltage / power	24-250 VDC/VAC; 6 VA
Number of load cells / supply	2 x 350 Ω • 10 VDC
Linearity	< 0.01% full scale
Termal drift	< 0.002% full scale / °C
A/D converter	24 bit
Measurement range	±3.9 mV
Conversions / second	3
Digital filter	0.25-3 Hz
Relay outputs	4 x **24**VDC / 250 VAC, 2 A
Digital inputs	2 optik izole
Serial ports	RS485, RS232/ Type C
Baud rate	1200, 2400, 9600, 19200, 38400, 57600, 115200
Relative humidity	85% - non-condensing
Storage temperature	-30 °C ... +60 °C
Operating temperature	-20 °C ... +55 °C

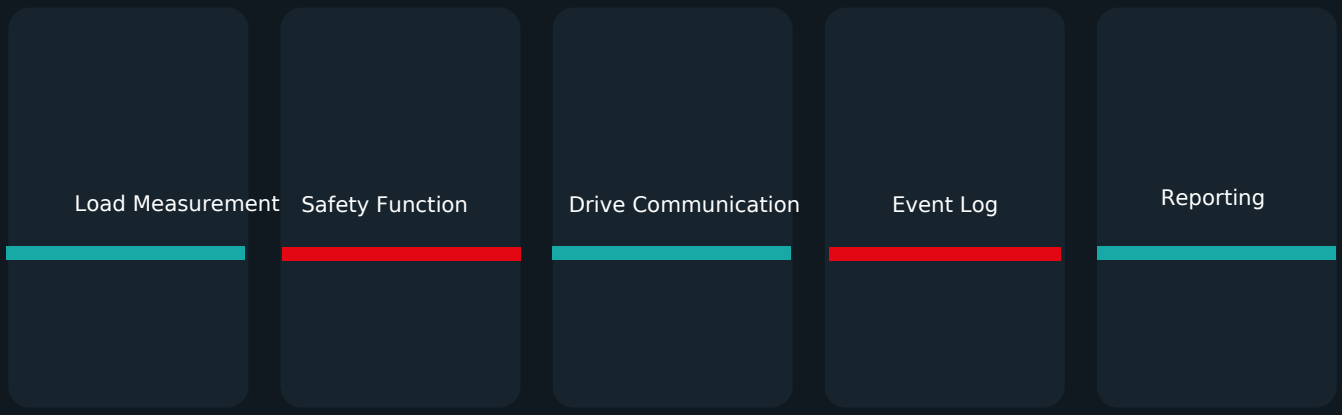
NOTE

The values used for the CWS wind sensor in this version are technical reference values. The final COTO product specification must be confirmed during the final review.

COTO

Your load under control ...

5 in 1 ...



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