

Precise
Reliable
Multifunctional

gSENS Geometric Measurement



Good Work is Measurable

➤ **gSENS Geometric Sensors from WIKA Mobile Control**



Benefits of the gSENS Sensors

- Precise and reliable length measurement
- Precise angle measurement (-180° to +180°)
- Suitable for harsh environments (-40°C to +70°C)
- Compact and robust design
- Long service life
- CE-compliant
- Customizable for any application

Special Feature: Precision

gSENS sensors detect geometric parameters such as an object's angle or length and convert them into electrical values. Based on captured loads, moments are calculated to meet compliance with safety regulations.

↗ Characteristics

Application:

- For all mobile machines
- Both rotational directions supported
- Left or right mounting

Quality

- Expert technical guidance
- Final check for 100 % of sensors
- Long-life cycle

Precise Length Measurement

- Telescoping lengths up to 55 meters
- Hysteresis-free
- Integrated cable guide
- Constant cable tension

Precise Angle Measurement

- Angle range: -180° to $+180^{\circ}$
- Accuracy: $< 0.2^{\circ}$

Signal Transmission

- Output signal: 4...20 mA, CANopen, CANopen Safety
- Up to 15 signal, data, and electrical transmission lines
- Gold-plated slipping contacts for reliable transmission
- Different drum-windable cable types

Service & Maintenance

- Compact design
- Easy mounting
- Zero-point adjustment via software
- Simple plug connection
- Spring module

Safety

- Ambient temperature range: -40°C to $+70^{\circ}\text{C}$
- IP66/67 die cast aluminum housing: sturdy, lightweight, robust
- Redundant design possible (EN 13849)
- All sensors CE-compliant

Customized Control Solution

➤ The gSENS Series and the iSCALE Control System

Benefits of using gSENS sensors in combination with the iSCALE Control System:

- Ideally adjustable via controls (cSCALE), consoles (vSCALE), sensors (xSENS), or SLI software (qSCALE)
- Modularity and scalability from one source: flexible system design, choice of components, wiring, final acceptance, and startup
- Flexibility meeting the needs of both OEMs and final users
- Wide controller performance range
- Customized software solutions for a wide range of applications
- Integrated diagnostic capabilities (e.g. to detect cable breaks, short circuits, etc.)
- Auto Configuration of replacement parts



gSENS LWG – Length Angle Sensors

gSENS LG – Length Sensors



➤ The Right Sensor for any Application

WIKA Mobile Control develops and produces several standard types of gSENS LWG. There is a variety of terms of cable reel size, internal mechanical design, and a number of cable wires leading to the tip of the crane.

➤ gSENS LWG 15x

- Sheet metal housing
- Up to 11 logical slip ring poles
- Telescoping length up to 32 meters

➤ gSENS LWG 2xx/3xx/5xx

- Die-cast aluminium housing
- Up to 11 logical slip ring poles
- Telescoping length up to 55 meters

➤ gSENS LWG 9xx

- Die-cast aluminum housing
- Standardized sensor elements
- High resolution and accuracy
- New cable guiding mechanism
- Simple connection, no need to open the device

➤ gSENS LWG 92x

- Especially suited for applications with limited space
- Up to 8 logical slip ring poles
- Telescoping length up to 15 meters

➤ gSENS LWG 95x

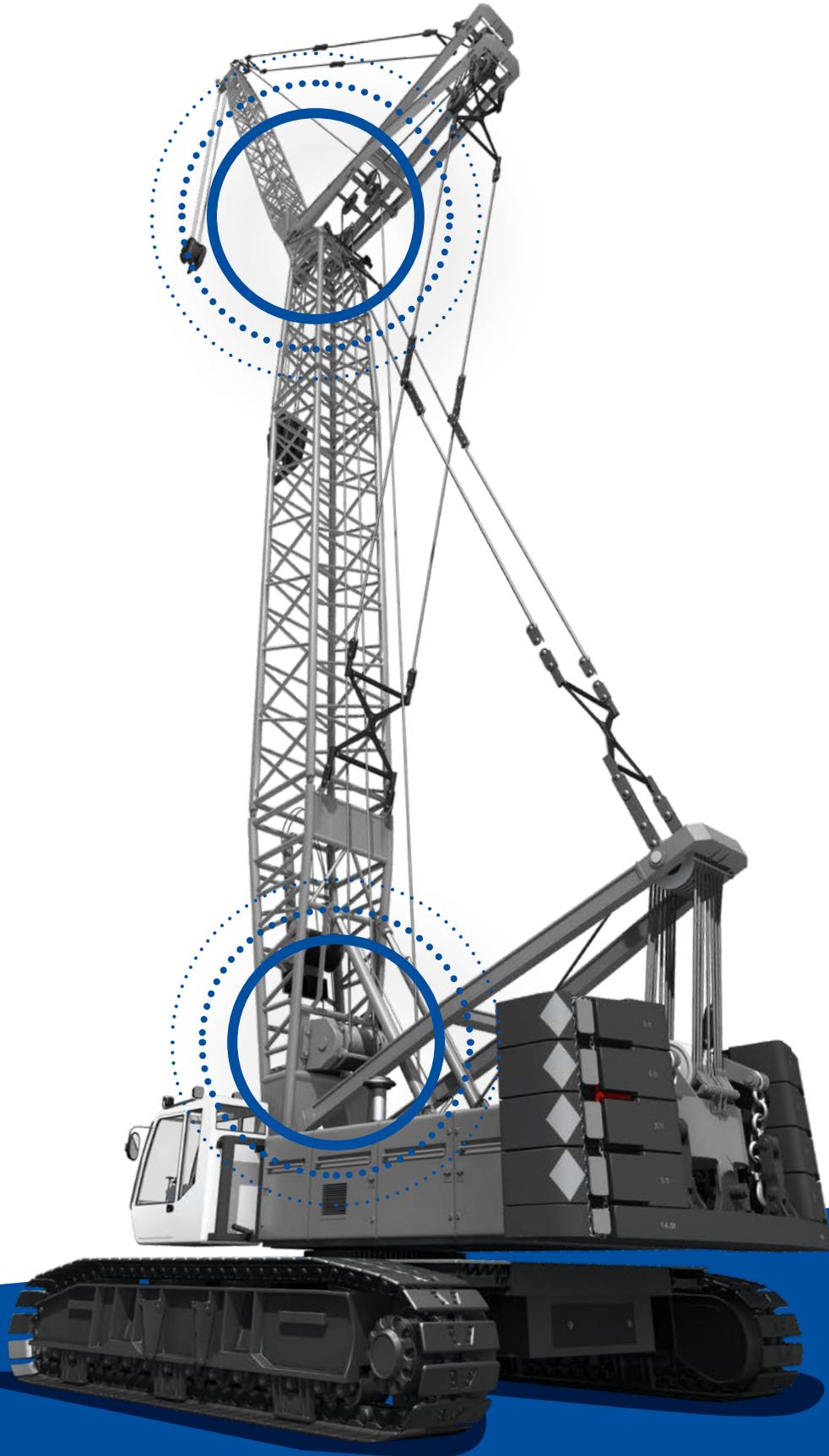
- Most in-demand geometric sensor for cranes in new and retrofit business
- Up to 8 logical slip ring poles
- Telescoping length up to 35 meters



➤ Technical Specifications

Description	gSENS LWG 15x 	gSENS LWG 2xx/3xx/5xx 	gSENS LWG 92x 	gSENS LWG 95x 
Angle range	-90° to +90°	-90° to +90°	-180° to +180°	-180° to +180°
Length range	8-32 meters	15-55 meters	15 meters	Analog: 34 meters CAN: 35 meters
Output signal	4...20 mA, CANopen	4...20 mA, CANopen	4...20 mA, CANopen	4...20 mA, CANopen
Supply voltage	9...36 V DC	9...36 V DC	Analog: 16...30 V DC CAN: 10...30 V DC	Analog: 16...30 V DC CAN: 10...30 V DC
Safety architecture	Single or redundant	1-channel, 2 channel	1-channel, 2 channel	1-channel, 2 channel
Temperature drift	0,1%/10°K	0,1%/10°K	0,1%/10°K	0,1%/10°K
Linearity (typical) length measurement	< 0,2% FS	< 0,2% FS	< 0,1%	< 0,1% FS
Hysteresis (typical) length measurement	< 0,1% FS	< 0,1% FS	0% FS	0% FS
Housing material	Sheet metal	Die-cast aluminium	Die-cast aluminium	Die-cast aluminium
Connector	M12, customer specific	M12, CANNON, customer specific	M12, M23, customer specific	M12, M23, customer specific
Life cycle	10 ⁶ cycles	10 ⁶ cycles	10 ⁷ cycles	10 ⁷ cycles
Number of slip rings	0-11	0-11	0-8	0-8
Protection type (IEC60529)	IP66	IP66	IP66/67	IP66/67
Surface temperature	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Ambient temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C

gSENS WGX – Inclination Sensors



↗ Precise ↗ Robust ↗ Compact

gSENS WGX inclination sensors can be used for all kinds of angle and position measurements on mobile machines.

- Absolute encoder
- Measuring via MEMS technology
- High operational reliability, also in extreme conditions
- Single- and two-axis configurations for measuring boom or jib angle as well as tilt angle of mobile machines
- Any zero-point setting via software
- Compact and robust design
- Long service life due to no mechanical wear
- Die-cast aluminium housing



↗ Technical Specifications

Description	gSENS WGX 360	gSENS WGX 160
Axes	1	2
(Measurement) technology	MEMS	MEMS
Measured angle	360°	± 80°
Output signal	4...20 mA/CANopen	4...20 mA/CANopen
Supply voltage	10...30 V DC	10...30 V DC
Resolution	± 0,01°	± 0,01°
Accuracy (sum)	± 0,1°	± 0,1°
Interface connection	M12 male	M12 male
Configuration interface	RS232	RS232
Protection rating	IP66/67 and IP69K	IP66/67 and IP69K
Temperature range	-40°C to +70°C	-40°C to +70°C

gSENS DWG – Rotary Encoder



Customizable

gSENS DWG geometric sensors are used to measure angles of rotation in harsh environmental conditions. They capture rotational changes and convert them into electrical signals.

- Absolute encoder
- Optical and magnetic measurement technology
- Single-turn version: measurement range from 0° to 360°
- Multi-turn version: detects number of revolutions

- Precise, high-resolution position measurement
- Compact design
- Easy to mount
- Adjustable to customer-specific installation conditions such as limited vertical space
- Attachment to front or back possible



Technical Specifications

Description	gSENS DWG 10	gSENS DWG 20	gSENS DWG 30
(Measurement) technology	Optical	Optical	Magnetic
Interface, galvanically isolated	x	x	x
Output signal	CANopen	CANopen	4...20 mA/CANopen
Supply voltage	10...30 V DC	10...30 V DC	Analog: 10...30 V DC CAN: 15...30 V DC
Resolution (single turn)/360°	13 bit/0,044°	13 bit/0,044°	12 bit/0,088°*
No. of cycles	CAN: 4096	CAN: 1	Analog: 4 bit resolution 8 bit resolution CAN: 4096
Measurement accuracy	± ½ LSB	± ½ LSB	± 0,35°
Interface connection	M12 male	M12 male	M12 male, JST
Protection rating	IP65	IP65	IP65
PL/SIL Level	-	-	-
Flange type	Synchro flange	Synchro flange / clamp flange	Clamp flange
Temperature range	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C

*Type relevant

LSB = least significant bit

Worldwide



We make lifting loads safer!

As an experienced specialist, we have spent many years providing reliable safety solutions for lifting loads, setting innovative standards in the process and ensuring dependable communication between machines and their operators, particularly in harsh environments.

By developing application software, mobile controllers and robust sensors, we ensure that our customers benefit from maximum safety and equipment uptime.

We are system integrators, supporting our customers through all project phases: from

analysis and concept evaluation, through system design and project planning to prototype testing and field launches. Our safety experts support certification processes and are available for seamless life cycle management.

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