


SENSOR SOLUTIONS

for the construction machinery industry

JOYSTICKS 

FOOT PEDALS 

WIND SENSORS 

CABLE DRUMS 

DRAW-WIRE SENSORS 

ROTARY ENCODERS
AND MORE 

OUR PRODUCT PORTFOLIO KNOWS NO LIMITS, ONLY POSSIBILITIES.

AS VERSATILE AS YOUR REQUIREMENTS – OUR PRODUCT PORTFOLIO

Do you have any questions about our extensive product portfolio or are you looking for a solution for a special application?

No problem – all our product groups can be easily combined with each other and together with our technical support we will develop the optimal solution specifically for your application.

info@fsg-sensors.de



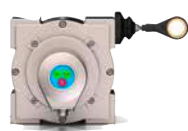
Rotary Encoders



Potentiometers



Inclination Sensors



Draw-Wire Sensors



Cable Drums



Joysticks



Foot Pedals



Wind Sensors

INDUSTRY SOLUTIONS

ANYONE DEVELOPING FOR THE INDUSTRY MUST LEARN FROM THE INDUSTRY.

Every industrial sector has its own language and its own requirements, so there is no one-size-fits-all solution. It is therefore important to us to work with our customers to develop solutions for their individual needs, regardless of which industry they come from. As a result, FSG has been able to develop trust and expertise in all key industries over the decades. Thanks to unconventional approaches, we have often been able to set standards that many industrial sectors cannot be imagined without to this day. Today our components are trademarks for quality and innovation in many branches of industry.

THE RIGHT SOLUTION FOR EVERY INDUSTRY.



Construction machine



Ship



Rails



Logistics



Offshore



Medicine



Industry



Energy



Transport



Automation



Agricultural



Mining



A small selection of our Industry opportunities

We feel at home in every industry.

Therefore, we can answer any question about our products and together we will find solutions to your ideas.

Contact us!

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JOYSTICKS

Joysticks for control of e. g. slewing or hoisting gears in cranes or position of hinged arm and shovel on excavators and wheel loaders. For control signal output wearfree non-contact inductive or magnetic systems are used. They are available as uniaxial, dual axis or triaxial transmitters with spring return to center position and additional pressure point. Joysticks with force-feedback function provide an additional tactile feedback.

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COMPACT-SERIES



ST-MH-II-y-GS38

Actuating direction: **y-Axis**
Signal output:
2x 0.5–4.5 V (ratiometric)



ST-MH-II-xy-GS40

Actuating direction: **x/y-Axis**
Signal output:
2x 0.5–4.5 V (ratiometric)
2x 4–20 mA



ST-MH-II-xyz-GS40

Actuating direction: **x/y/z-Axis**
Signal output:
3x 0.5–4.5 V (ratiometric)



ST-MH-xy-GS60

Actuating direction: **x/y-Axis**
Signal output: 4–20 mA

STEERING JOYSTICK



LPR-2515

The new steering joystick - more comfortable, compact and intuitive than any steering wheel.

- Perfect operator ergonomics ensure longer operations
- Less movement required for operation saves time and energy
- Force feedback functionality supports intuitive control

NEW

JOYSTICKS (SELECT)

The FSG joysticks are available with the following signal outputs:
4–20 mA / 0–10 V
CANopen / CANopen-safety
J13397 / Profinet



ST-W-xy-GS78

- Deflection angle: $\pm 20^\circ$ (x/y)
- Housing size: $\varnothing 78$ mm
- Installation depth: ca. 90 mm
- Weight: 2.000 g



ST-MHT-GS85 **NEW**

- Deflection angle: $\pm 15,3^\circ$ (x/y)
- Housing size: $\varnothing 85$ mm
- Installation depth: ca. 65 mm
- Weight: 1.600 g

MULTIFUNCTION HANDLES

- Ergonomically optimized
- Control panels in the handle head top and/or front
- Equipment freely configurable

Due to standardized fastening elements, the multifunction handles are suitable for mounting on any commercially available joystick.

NEW



ST2025-LCD

- with LCD display and signal ring
- optional with touch function
- Vibrator



ST2020

- as right or left version
- optionally with mini joystick
- Capacitive sensor in the handle



ST2010

- as right or left version
- dead man's button in the front of the handle
- Vibrator



ST2005 Ball handle

- with 4 buttons and vibrator
- Protection against dust and liquid by bellows



ST2000

- for left and right handers
- Deadman function: capacitive the handle or deadman button the front handle
- Vibrator



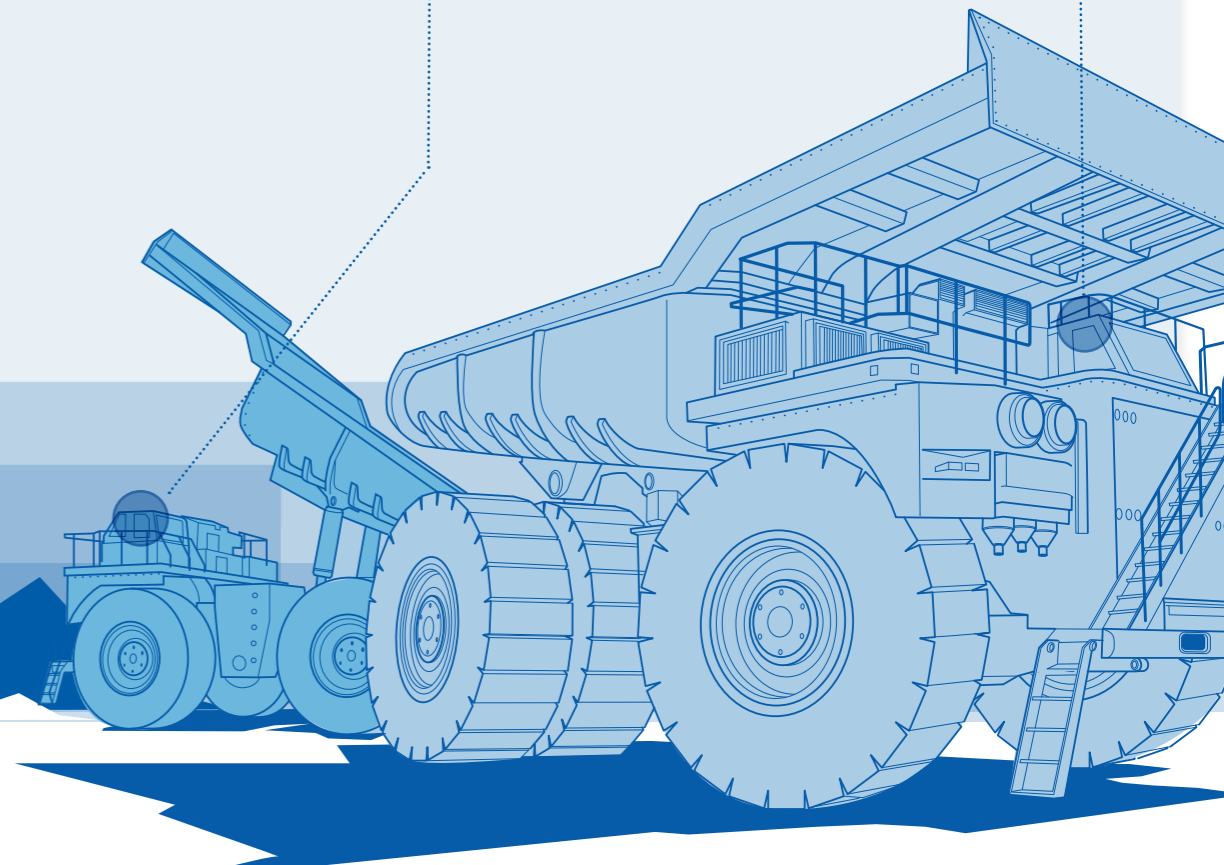
FOOT PEDALS

Pedal actuated control transmitters with non-contact inductive or magnetic systems are used e.g. as throttle control transmitters, slewing gear brakes and for similar applications in almost every construction machinery. Especially for these applications – under consideration of extreme operating conditions – pedal activated transmitters of Series FS were designed for. They allow the output of electrical control signals according to the pedal move.

- Robust metal housing with high IP protection rating
- Flat design for low installation depth
- Redundant measuring system, suitable for safety-relevant applications

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SINGLE PEDALS

Our FSG foot pedals are available with the following signal outputs:
4-20 mA / 0-10 V
CAN / CANopen / CANopen-safety



FS-P-L

Pedal angle: 18°
Actuating force: 20 – 42 N
Housing protection: IP67



FS-P

Pedal angle: 20°
Actuating force: 15 – 45 N
Housing protection: IP67



FS-S

Pedal angle: 12°
Actuating force: 20 – 34 N
Housing protection: IP67

ROCKER PEDALS



FS-W

Pedal angle: ±16°
Actuating force: 18 – 47 N
Housing protection: IP67



FS-W1

Pedal angle: ±16°
Actuating force: 22 – 41 N
Housing protection: IP67



FS-G(KD)

Pedal angle: 20°
Actuating force: 11 – 29 N
Housing protection: IP67



FS-G-ZF

Pedal angle: 20°
Actuating force: 50 – 160 N
Housing protection: IP67

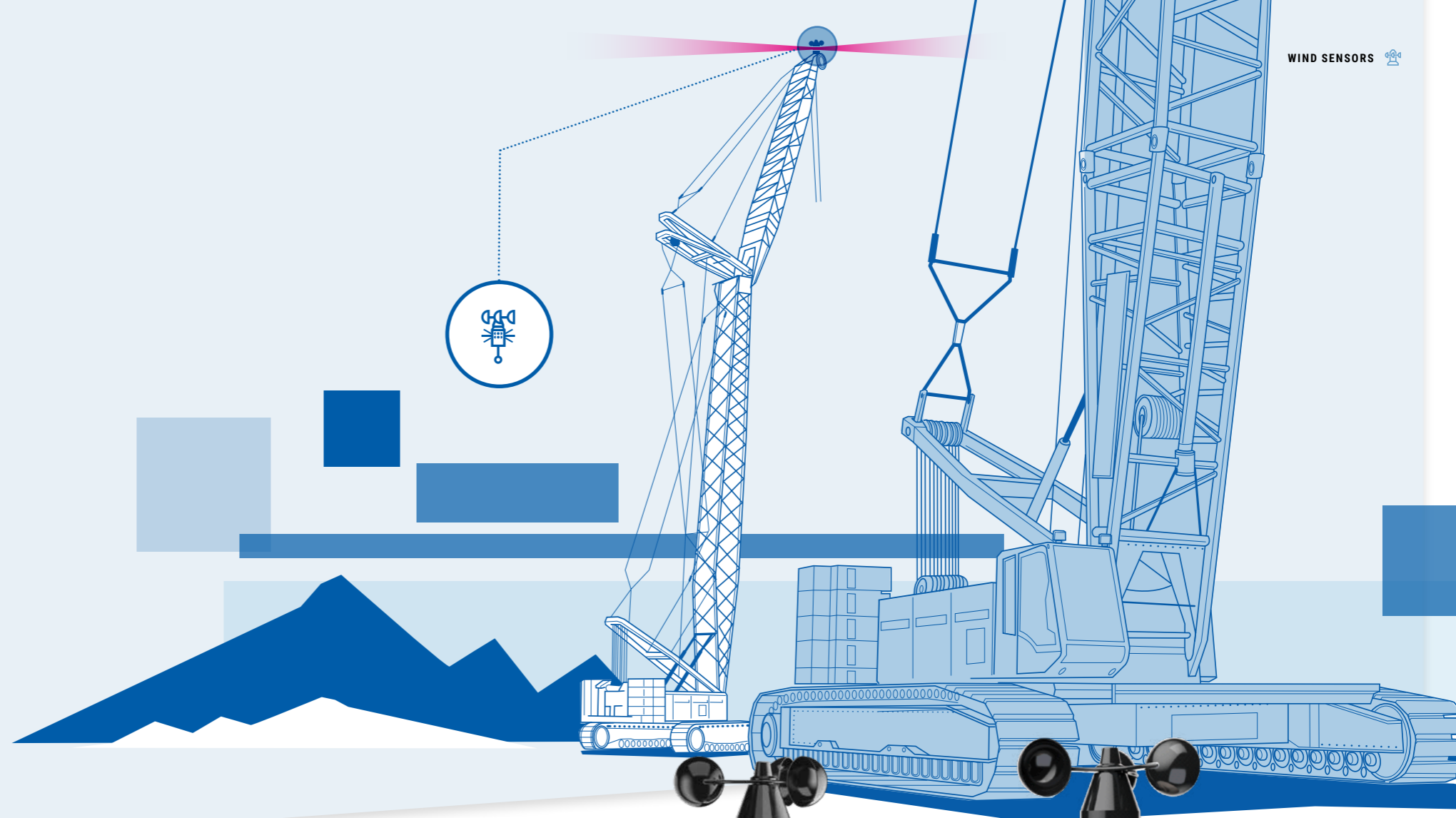
WIND SENSORS

They are used for detecting and, in connection with the appropriate indicator, monitoring a maximum wind speed. Wind warning systems are mainly used in safety and control systems of cranes and excavators, on ski-lifts and cablecars, wind turbines as well as meteorological stations.

- Protection class: IP65 (with vertical orientation)
- Measuring system magnetic, contactless
- central mounting / pendulum design

OPTIONAL

- Explosion protection ATEX / IECEx
- Measuring range up to 50 m/s
- Seawater protection coating
- Reed contact
- Calibration certificate



WIND SENSORS



AN-60-Z-MH

Version Central mounting

Signal outputs: 4-20 mA
2-3-Conductor tech.
0-10 V
CAN-Bus
Profinet



AN-60-P-MH

Pendulum version

Signal outputs: 4-20 mA
2-3-Conductor tech.
0-10 V
CAN-Bus
Profinet

WIND DIRECTION METER



WR-Z-MH

Version Central mounting

Signal outputs: 4-20 mA
2-3-Conductor tech.
0-10 V
CAN-Bus
Profinet



WR-P-MH

Pendulum version

Signal outputs: 4-20 mA
2-3-Conductor tech.
0-10 V
CAN-Bus
Profinet

WIND SENSORS with integrated light signals

- Optimum measurement results due to lack of wind shading
- Reduced maintenance costs and installation time
- Accurate positioning ensures reduced light pollution



AN-60-HF

Wind sensors With integrated obstruction light

Illuminant: 2x LED-Array
Minimum light intensity: 10 cd (red) / 32 cd (red)
Power consumption: 5,6 W without heating
Lifetime (LM80 (17 K)): > 36.000 h (LED)

Special feature: Corrections of the vertical position after vibrations are made by means of pendulum



NEW

AN-60-GF

Wind sensors with integrated hazard light

Illuminant: 3x 2 LED-Array
Minimum light intensity: 2000 cd
Power consumption: 30 W
Lifetime (LM80 (17 K)): > 100.000 h (LED)

Special feature: Reliable 100% vertical position due to new motorized leveling

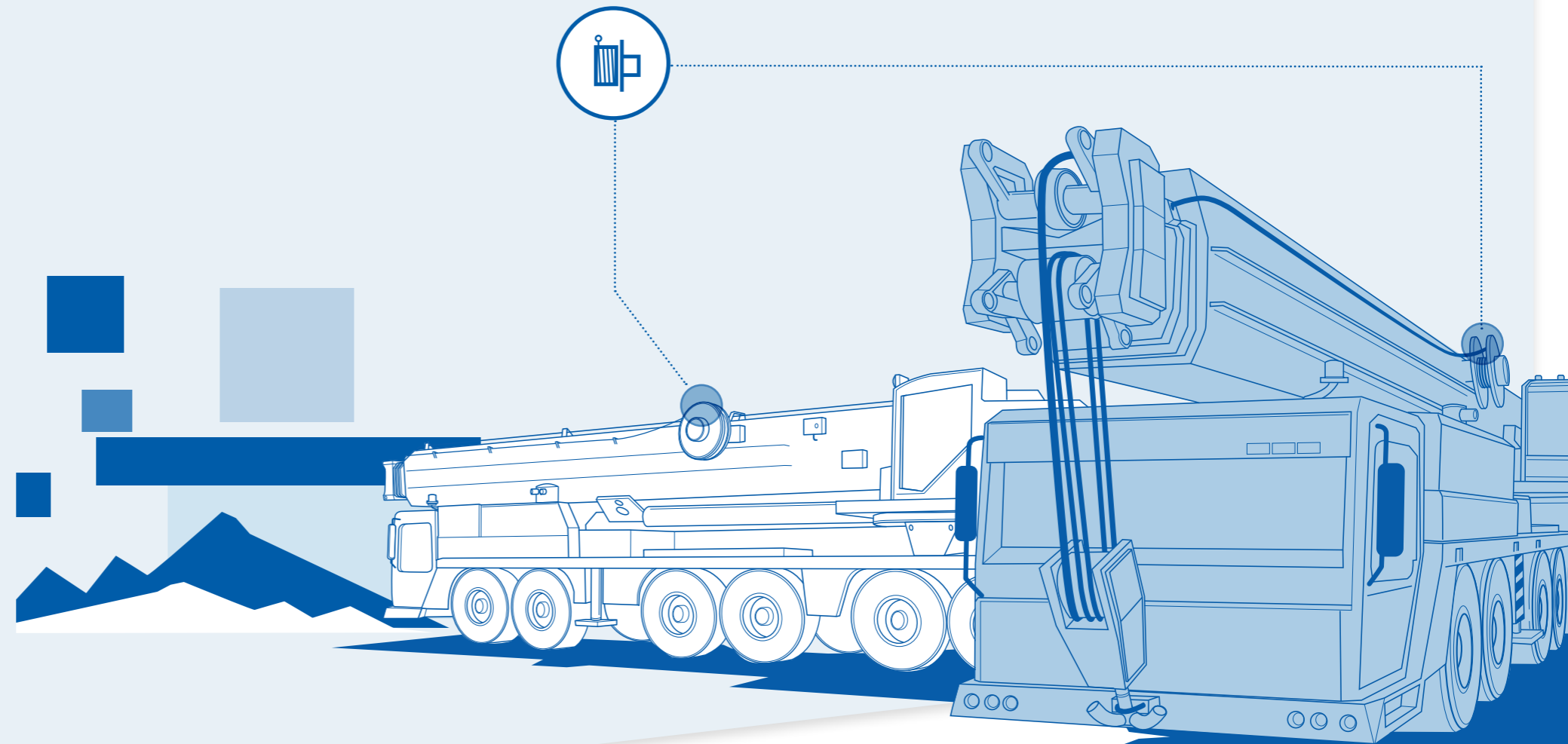
CABLE DRUMS

Cable Drums with inclination and displacement transducer as well as multipole collector ring body for transmission of cable signals. Measuring ranges up to 100 m. Signal is usually output via magnetic sensors with redundant measuring systems. Depending on the type, robust casings in protection IP 65 are equipped with additional layer winder for high-precision length measurement.

- Measuring length up to 100 meters
- High accuracy due to defined position guidance
- Pull-off speed 1 m/s
- Slip ring hard gold plated
- Optional: length output / angle output

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CABLE DRUMS for length measurement and signal transmission

These FSG-Cable Drums are available with the following signal outputs:
4-20 mA / 0-10 V / CAN / CANopen / CANopen-safety

- Other special features:**
- Length recording according to the cable pull principle with multi-core measuring cable
 - High length accuracy due to single-layer cable winding



L03
Measuring length: **max. 3 m**
Slip ring: **max. 4-pole**
Initial force / final force: **40 N / 65 N**



L010
Measuring length: **max. 10 m**
Slip ring: **max. 5-pole**
Initial force / final force: **30 N / 55 N**



L015
Measuring length: **max. 15 m**
Slip ring: **max. 5-pole**
Initial force / final force: **80 N / 160 N**



L015-2
Measuring length: **max. 15 m**
Slip ring: **max. 26-pole**
Initial force / final force: **30 N / 50 N**



WL20
Measuring length: **max. 20 m**
Slip ring: **max. 8-pole**
Initial force / final force: **30 N / 65 N**



WL56
Measuring length: **max. 56 m**
Slip ring: **max. 12-pole**
Initial force / final force: **36 N / 70 N**



WL60-CAN-T330
Measuring length: **max. 60 m**
Slip ring: **max. 12-pole**
Initial force / final force: **36 N / 70 N**

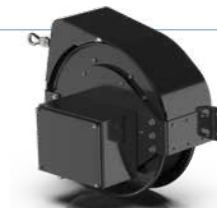


KT0096-T350
Measuring length: **max. 96 m**
Slip ring: **max. 12-pole**
Initial force / final force: **36 N / 70 N**

CABLE DRUMS Length, angle measurement and signal transmission

These FSG-Cable Drums are available with the following signal outputs:
4-20 mA / 0-10 V / CAN / CANopen / CANopen-safety

- Other special features:**
- Angle recording by high-resolution micro-electromechanical inclination measuring system
 - Length recording according to the draw-wire principle with multi-wire measuring cable
 - High accuracy even with multi-layer cable winding due to spindle roller guide, which is used to wind exactly layer to layer



WL0025
Measuring length: **max. 25 m**
Slip ring: **max. 12-pole**
Initial force / final force: **30 N / 90 N**

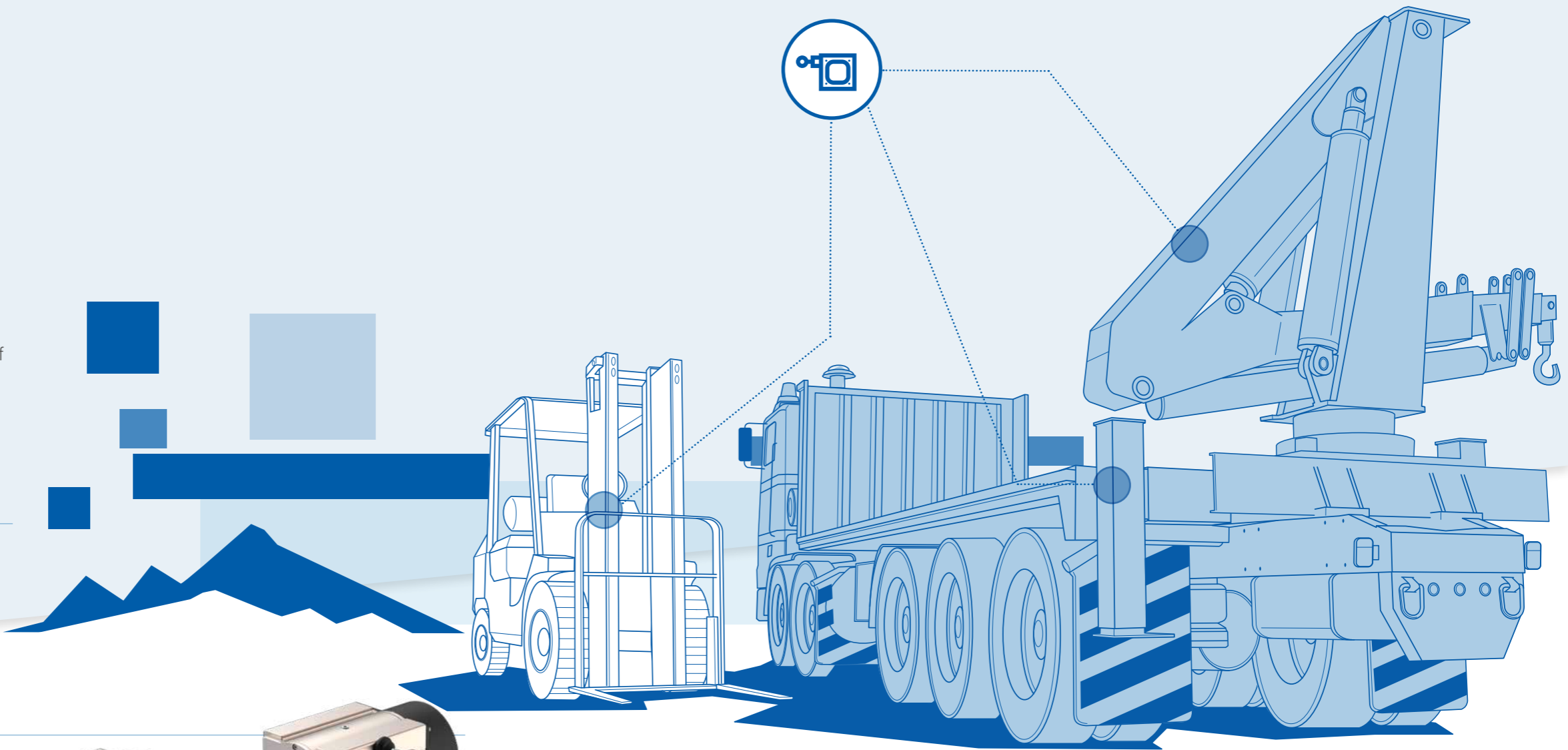


WL0042
Measuring length: **max. 42 m**
Slip ring: **max. 6-pole**
Initial force / final force: **30 N / 90 N**

DRAW-WIRE SENSORS

Rugged and reliable rope length transmitters with stable spring pull-back mechanism and single-layer wire winding. With measuring ranges from up to 50 m for measurement of e. g. telescope jib length, length of the telescoped jack, fork height at fork-lift trucks as well as working platforms of scissors platforms. Customized versions, e. g. in robust and open design with integrated rope brake are available.

- Robust construction for extreme environment
- High accuracy by means of threaded spindle



DRAW-WIRE SENSORS PREMIUM-Series

Available with the following signal outputs:

4–20 mA / 0–10 V
CAN / CANopen / CANopen-safety

Other special features:

- High operational reliability and measuring accuracy
- Extensive accessories
- V4A version available
- Winding takes place in a single layer
- Robust, highly flexible steel cables
- Drum with threaded spindle for measuring lengths up to 60 m



SL3000-GS80
PREMIUM-Series
Measuring length: up to 3 m



SL3000-GS130
PREMIUM-Series
Measuring length: up to 30 m



SL3000-GS190
PREMIUM-Series
Measuring length: up to 60 m

DRAW-WIRE SENSORS Special-Version / Heavy Duty



SL0-GS125
Special-Version
Measuring length: up to 10 m



SL04-GS160
Special version with rope brake
Measuring length: max. 4 m

DRAW-WIRE SENSOR Robust and flexible

NEW

SL00R-GS80
Measuring length: up to 3 m



DRAW-WIRE SENSORS BASIC-Series



SL001250-GS55
BASIC-Series
Measuring length: up to 1,25 m



SL003000-GS80
BASIC-Series
Measuring length: up to 3 m



SL005000-GS130
BASIC-Series
Measuring length: up to 5 m



SL0010-GS190
BASIC-Series
Measuring length: up to 10 m



SL004-GS-170
Special-Version
Measuring length: max. 12 m



SL5-20-GS190
HEAVY DUTY
Measuring length: up to 20 m

Special features:

- thicker measuring rope (0.81mm instead of 0.55mm for BASIC-Series)
- 50% higher retraction force (compared to BASIC-Series)
- Robust metal housing
- Variable construction concept Rope exit possible from both sides of the housing (realization of right or left version)
- Flexible mounting of standard encoders possible
- variable mounting by additional pulleys horizontal / vertical

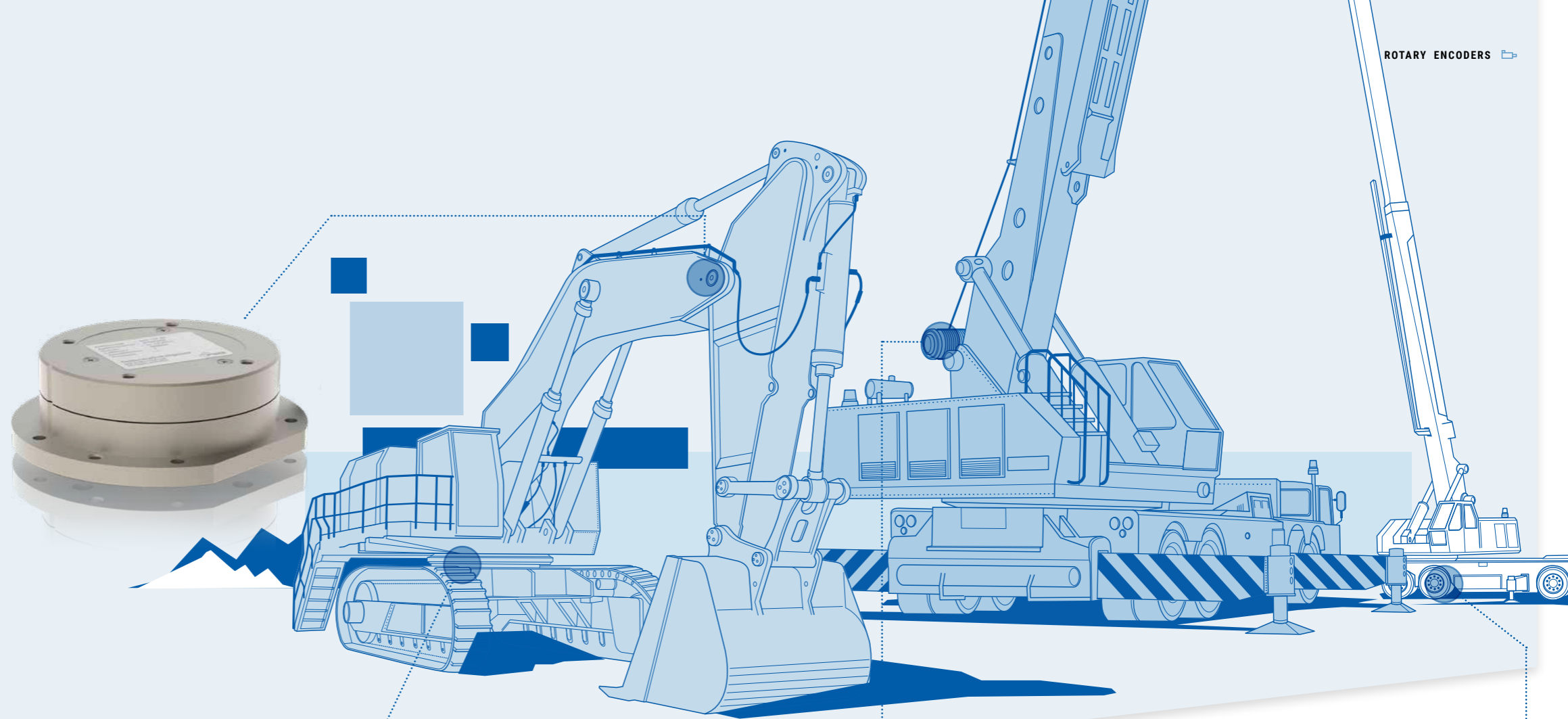
PIVOT ANGLE TRANSMITTER

Angle measurement at loading boom, articulated arm and bucket of excavators requires the use of extremely robust, hermetically encapsulated, magnetic angular sensors in protection IP 68.

The flat sensor casing, without primary shaft, is provided with a redundant magnetic measuring system. Analogue or digitally coded signal output in two-channels.

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SLEWING RING TRANSMITTER

Slewing ring transmitter with mechanical gearing. To detect pivoting angle and the slew rate of the telescope jib with outer spring gear-wheel (free from backlash). High-precision angle measurement at construction machinery and elevating platform. The very robust casing design provides protection up to IP 67, depending on version. Magnetic and redundant signal recording and conversion to analogue or digitally coded output signals.

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MH1024-CAN-GS125

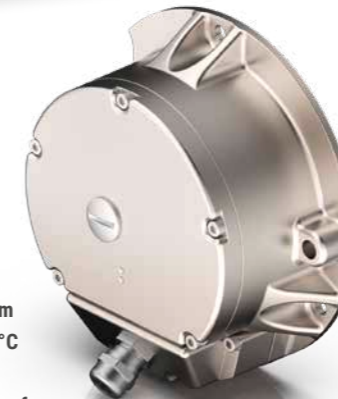
Suitable for safety-relevant application according to SIL-2

Measuring system: **Magnetic Hall sensors, redundant**
 Temperature range: **-30° – 70°C**
 Power consumption: **30 W**
 Signal output: **CANopen**

MH10-GS125

Robust and flat design

Housing material: **Aluminium**
 Temperature range: **-40° – 80°C**
 Protection class: **IP65**
 Special feature: **Position-safe**



WINCH SPEED SENSOR

The winch speed sensor serves to detect position of suspension rope. The two-channel, absolute multi-turn encoder enables a wear-free measurement of 1024 revolutions. Bus signals provide length of suspension rope, direction of suspension rope, speed of suspension rope and limit signals for safety systems at drum end. At the same time more than 75 wind parameters are stored thus enabling the sensor to be used for many different winches.

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STEERING ANGLE

TÜV-approved, redundant magnetic encoder for detecting the position of steering axles in construction machinery or commercial vehicles.

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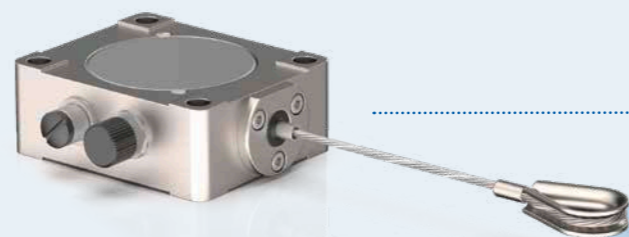


LIFTING LIMIT SWITCH

Inductive lifting limit switch for security switch-off of track cable winding at the bottom of the telescope jib inside a robust and splash-proof alu casing.

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HEADLIGHT CONTROL UNIT

Motor headlights control unit with position feedback for manual adjustment or autolevel of headlights to load hook. By means of the headlight control system working area is illuminated at any time for the user, without being affected by any change of the tilt of the vehicle.

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SLIP RING-TRANSMITTER

The slip ring transmitter serves for simultaneous data transmission and power supply between upper and lower trolleys, mainly in mobile cranes. Via 4 slip ring transmitters upper trolley is completely fed by lower trolley so that an additional motor in upper trolley can be omitted. Additional slip rings enable the transmission of a maximum of 26 data signals from upper trolley to the central control unit in lower trolley. The robust casing in protection IP 66 is equipped with a hollow shaft thus to ensure aggregates in upper trolley to be driven by a cardan shaft. Optionally, the slip ring transmitter can be equipped with an angular sensor to measure the tilt position of upper trolley.

SR-HW-GS450
Slip ring transmitter for data and current transfer between upper and lower carriage

- Encoder mounting
- Small current collectors: 36 x 10A / 48 x 1A
- Large current collectors: 4 x 80A
- Ethernet / CANBus / High voltage (800V, 20A, with HVIL)

TILT ANGLE SENSORS

Single and dual axis tilt angle sensors for the detection of inclination of jib or lifting cages and inclination of a trucks platform respectively for levelling purposes. These transmitters contain, inside a robust and splash-proof alu casing in protection IP 65 up to IP69k, e. g. either oil-damped pendulum systems mainly with magnetic measuring systems or redundant MEMS sensors. For use in vehicles with strong vibrations and to compensate shock stress gyro sensors are simultaneously used to record signals.

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QUALITY & RELIABILITY 

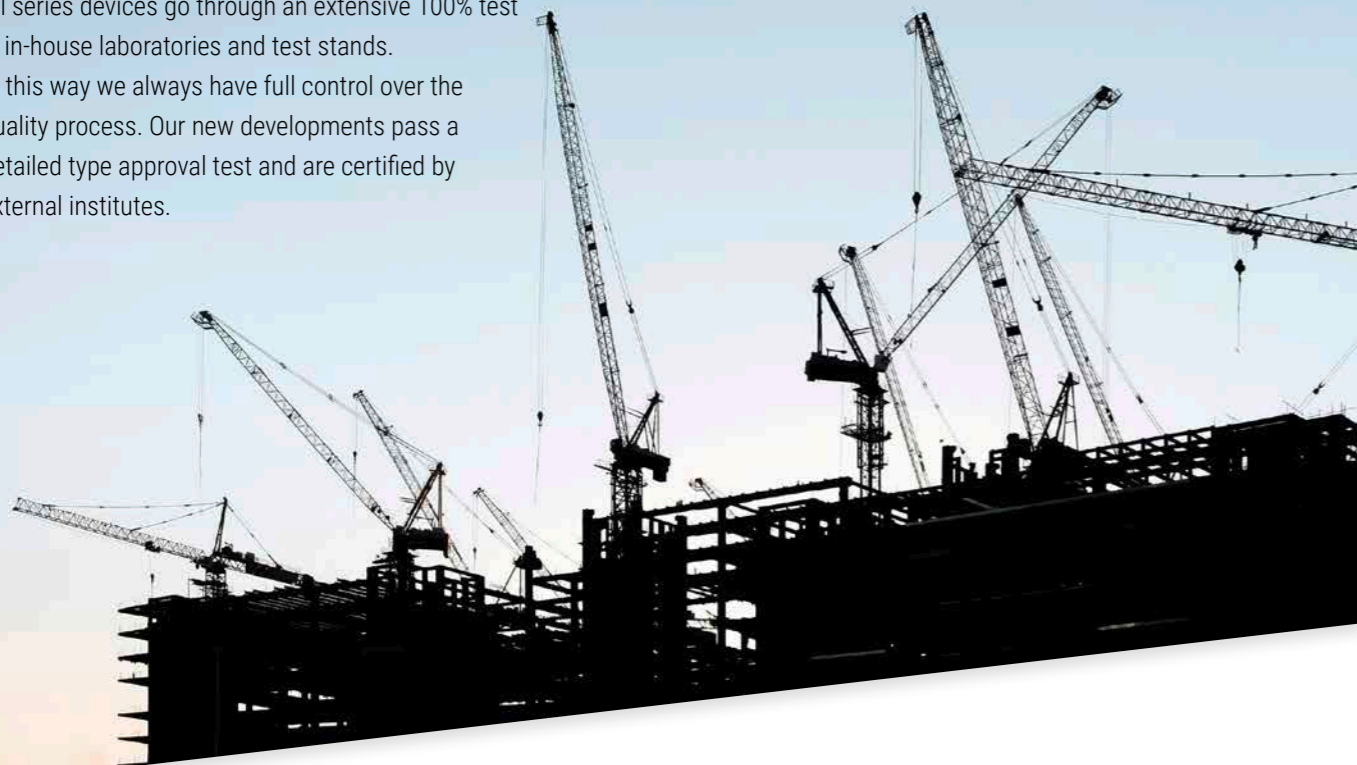
WE LEAVE NOTHING TO CHANCE.

When it comes to quality, there are no compromises for FSG – regardless of when and where our devices are in use worldwide. Maximum reliability and seamless readiness for action are our top priority.

We will develop and manufacture all of our products for a long sensor life for every condition.

All series devices go through an extensive 100% test in in-house laboratories and test stands.

In this way we always have full control over the quality process. Our new developments pass a detailed type approval test and are certified by external institutes.



With us you are always on the safe side through:



OUR DAY-TO-DAY BUSINESS: MAKING A DIFFERENCE.

OUR FIVEFOLD PROMISE OF PERFORMANCE

90% depth of production,
100% passion



Due to 90% vertical integration, we can customize our products 100% to your needs.

4 plants, one location:
Germany



Every day, over 470 employees ensure that you are satisfied and that „Made in Germany“ continues to stand for quality.

Our standard:
customization



FSG products are not only excellent, they are always perfectly designed and customized for your requirements.

75 years of innovation
is tradition



We will develop measurement sensors that are reliable and perfectly matched to their intended use. Our solutions often become industry innovations – and have been for 75 years.

Always where our
customers are



FSG is represented internationally and we guarantee you the best support, no matter when and where you need us.



Our competence – for your satisfaction.

Together we will find the sensor solution that is specially tailored to your needs.

I look forward to your ideas and visions.

S. KÖNIG SALES MANAGER

info@fsg-sensors.de



MANUFACTURING & PRODUCTION

Nowadays, there is a constant demand by customers for more complex solutions of automation problems which have to go into serial production at short notice. With CAD workstations in the development department and drafting offices and with CNC machines in use in steel construction, production, and in assembly, we have established the necessary conditions for rapid product realization ready to go into serial production. Each step of production is watched and controlled by our own quality management according to the guidelines of DIN EN ISO 9001:2015.



PAINTWORK

SCIENTIFIC & RESEARCH

Having its focus of development at the heart of Berlin, FSG has two additional locations in Königs Wusterhausen near Berlin. Specific customer requirements and requests are realized at all sites. Forward-looking tendencies and developments were analysed and regarding their feasibility be examined and tested.



TEST LAB & QUALITY MANAGEMENT

Our development, test and EMC departments are equipped with state of the art computer-aided technical equipment and facilities. Related and required functional tests can be carried out practise-orientated and tests to ensure compliance with EMC goals be simulated. Automated test stations are used to control and record the guaranteed functional characteristics of every single device before delivery. In the process we never lose sight of customer requirements as well as statutory standards and safety guidelines. The results of each final inspection are saved and archived electronically.



CALIBRATION LABORATORY



TEST BENCH

DISTRIBUTION NETWORK

DISTRIBUTION MEANS TRUST. THAT'S WHY WE ONLY TRUST THE BEST.

Through the international orientation of our company and the consistent expansion of new sales structures and opportunities, we offer our global customers a presence close to the market of specialists for measurement and sensor technology from FSG Fernsteuergeräte.

EUROPE

Germany - Headquarters

FERNSTEUERGERÄTE Kurt Oelsch GmbH

+49 30 6291-1
sales@fsg-sensors.de
www.fsg-sensors.de

Finland

FISEG Oy

+358 50 5726268
aki.luukkainen@fiseg.fi
www.fiseg.fi

France

ICA systèmes Motion

+33 390 226683
info@icacontact.fr
www.icacontact.fr

Italy

MILEXIA ITALIA S.p.A.

+39 24 81900
info@milexia.it
www.milexia.com

Netherlands / BEL / LUX

Batenburg Applied Technologies

+31 10 2928787
controllers-sensors@batenburg.nl
www.batenburg-appliedtechnologies.nl

Norway

Elteco AS

+47 35 562070
ci@elteco.no
www.elteco.no

Sweden

Emcomp International AB | Pulsteknik Branch

+46 702277811
andreas.anselmus@pulsteknik.se
www.emcomp.se
www.pulsteknik.se

Switzerland

Omni Ray AG

+41 44 8022737
m.leemann@omniray.ch
www.omniray.ch

Spain

Electromediciones Kainos, S.A.U.

+34 93 4742333
sballus@kainos.es
www.kainos.es

Czech Republic

SCHMACHTL CZ spol. s r.o.

+420 244 001 500
office@schmactl.cz
www.schmactl.cz

Austria

Schmactl GmbH

+43 732 7646-0
j.petschl@schmactl.at
www.schmactl.at

INTERNATIONAL

North and South America

FSG Sensors Inc.

+1 207 480-3173
sales@fsg-sensors.com
www.fsg-sensors.com

South Africa

Mecosa (Pty) Ltd.

+27 11 257-6100
measure@mecosa.co.za
www.mecosa.co.za

India

Manglam Electricals

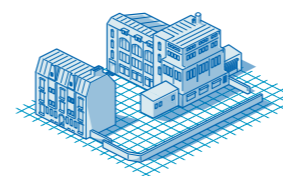
+91 11 23942222
karn.shanker@manglamelectricals.com
www.manglamelectricals.com

OUR LOCATIONS

EVERYTHING A QUESTION OF THE LOCATION

Our employees are the DNA of our success. Spread over 4 locations, they are responsible for FSG developing individual and professional solutions and products for its customers. To ensure that this path to success is not interrupted, we promote our employees and invest heavily in our machinery. This is the only way to guarantee that we will still be where we are today - **always at the top.**

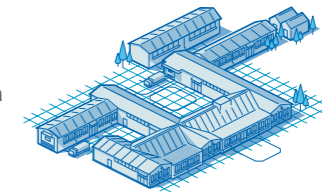
YOU CAN FIND US AT THE FOLLOWING LOCATIONS



BERLIN

Headquarters

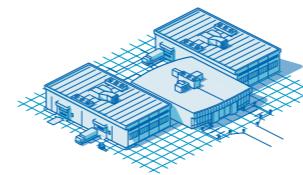
- founded in 1946
- approx. 3,500 m² production area
- approx. 200 employees
- Management and sales,
- design and development,
- production and assembly



KABLOW/ BRANDENBURG

Development, production and assembly

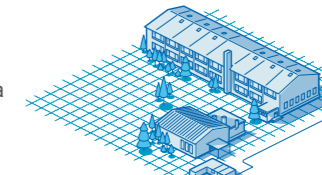
- founded in 1992
- approx. 5.000 m² production area
- approx. 150 employees
- development, construction and assembly



ZERNSDORF/ BRANDENBURG

production and training center

- founded in 2017
- approx. 4.300 m² production area
- approx. 90 employees
- Training center
- Production



HEPPENHEIM/ HESSEN

Fertigung und Montage

- founded in 1961
- approx. 2.500 m² production area
- approx. 40 employees
- production and assembly

IMPRINT

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Carsten Schulz (gemäß § 18 Abs. 2 MStV)

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Guarantee

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WE
MEASURE
CONTROL
REGULATE
IT

 **BERLIN (HQ)**

Fernsteuergeräte
Kurt Oelsch GmbH
Jahnstraße 68 + 70
12347 Berlin

fon +49 30 6291-1
fax +49 30 6291-277

info@fsg-sensors.de
www.fsg-sensors.de

