



SENSOR SOLUTIONS

for agricultural technology



ROTARY ENCODERS 

POTENTIOMETERS 

INCLINATION SENSORS 

DRAW-WIRE SENSORS 

JOYSTICKS 

FOOT PEDALS 

WIND SENSORS 
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



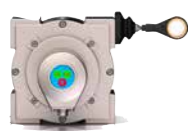
Rotary Encoders



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!

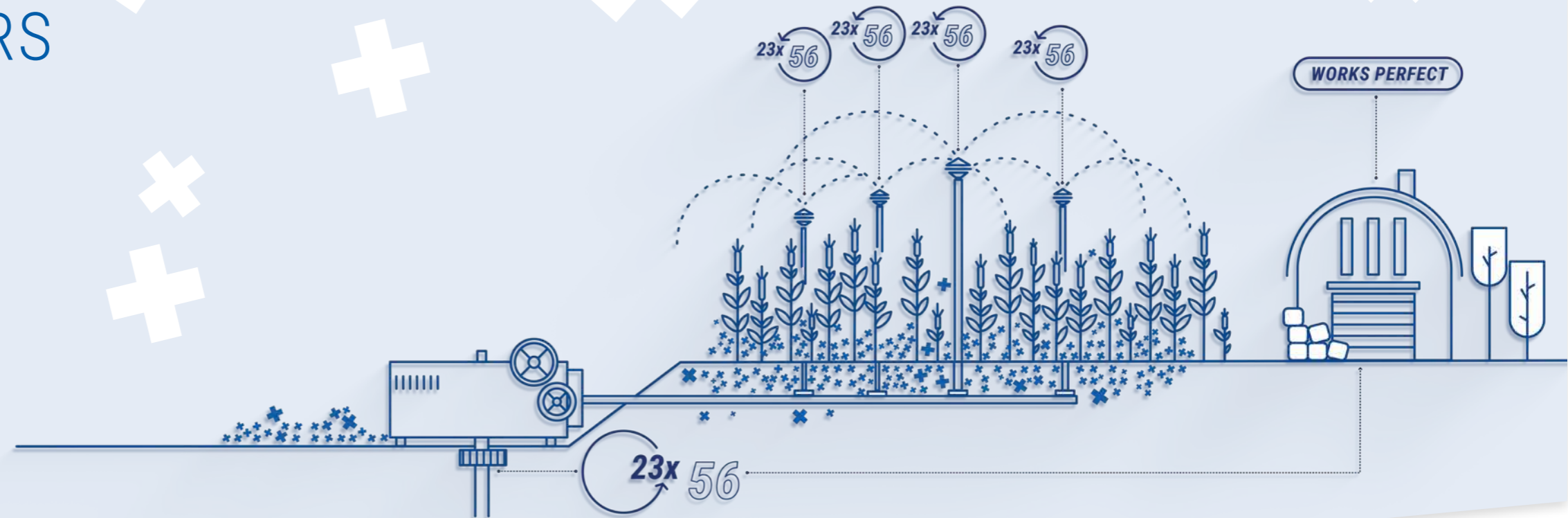
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ROTARY ENCODERS

FSG rotary encoders make a significant contribution to the automation of workflows in agricultural engineering by enabling the conversion of mechanical rotational movements into electrical signals, which are essential for precise control and monitoring of agricultural machinery.

With diverse product lines, analog or digital signal outputs, and redundant measuring systems, they provide flexible solutions for all application areas. Due to high safety standards and decades of experience in the development of custom sensors, FSG rotary encoders are a reliable choice for advanced control options of agricultural equipment.

- Housing diameter: 22 mm–100 mm
- Housing: Anodized aluminum / Stainless steel
- IP protection: up to IP69k
- Connector or cable connection



ROTARY ENCODER Series

Available with the following signal outputs:
4–20 mA / 0,5 V–4,5 V / 0–10 V
CAN / CANopen / CANopen-safety
J1939



MH609
Redundant miniature encoder series
Diameter: 22.2 mm
Singleturn



MH613
Programmable encoder series
the compact class
Diameter: 36.5 mm
Singleturn / Multiturn



MH620
Redundant rotary encoder series
in the compact class
Diameter: 50.8 mm
Singleturn



MH1023
Robust all-rounder
encoder series
Diameter: 60 mm
Singleturn / Multiturn



MH1023-MU-Ex
Robust all-rounder encoder series for
explosion-proof applications
Diameter: 60 mm
Singleturn / Multiturn



MH-II-GS60
Inexpensive safety
encoder series
Diameter: 59.5 mm
Singleturn



MH605-II-MU
Miniature encoder without
drive shaft
Diameter: 13 mm
Singleturn



MH8-II-MU-i-GS63
Robust safety rotary encoder for
potentially explosive areas
Diameter: 63 mm
Multiturn



MH-II-CAN-MEMS-GS60
Compact safety rotary encoder with
additional inclination measurement
Diameter: 65 mm
Singleturn / Multiturn



MH670-MU-i
Magnetic rotary encoder in
2-wire technology
Diameter: 70 mm
Singleturn



MH-680 III-MU-i
Triple rotary encoder with additional
angle display via scale and pointer
Diameter: 85 mm
Singleturn



MH14-12-CAN-GS125
Robust multiturn slewing
ring encoder
Diameter: 125 mm
Multiturn

ROTARY ENCODER special versions

ROTARY ENCODER freely programmable

NEU

MH609-P
Diameter: 22.2 mm



Special features:

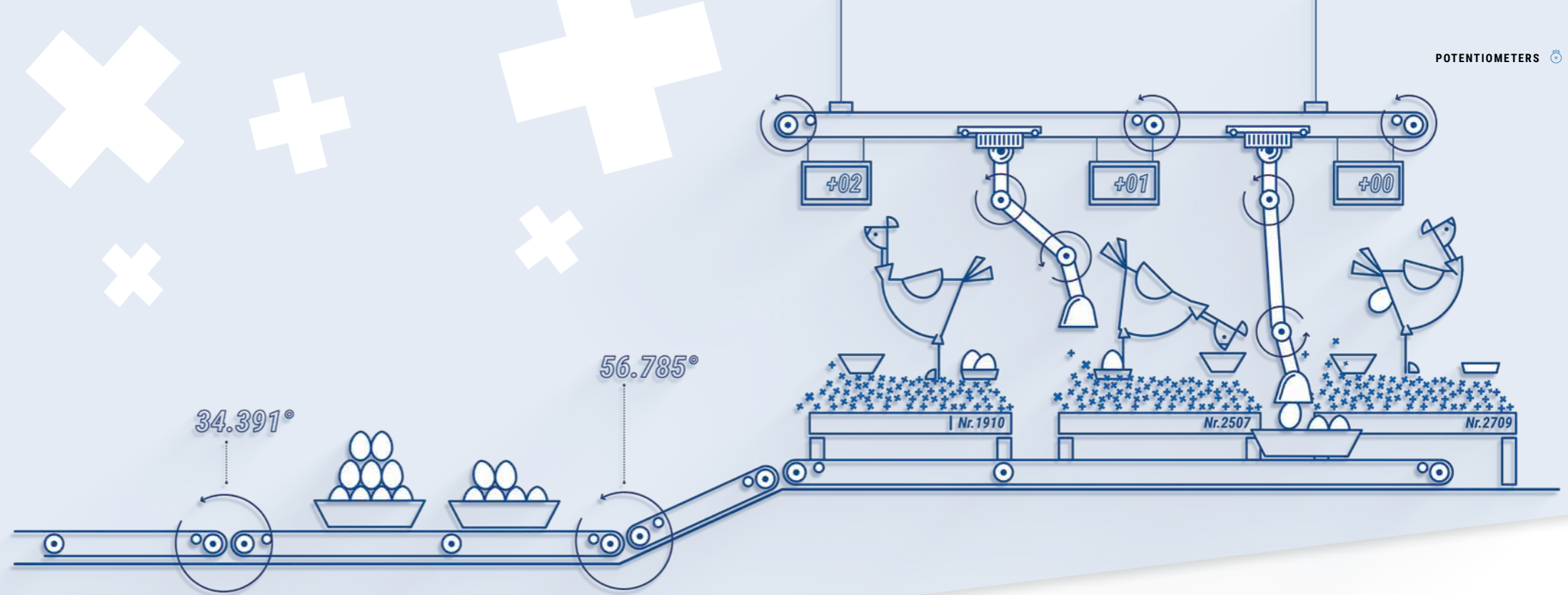
- Miniature rotary encoder (analog) with redundant Hall sensor
- Detectable angle ranges 0–360°
- Rotation angle freely programmable by the user up to 360°
- Ideal for position detection in joysticks, command transmitters or travel switches
- Interface for signal output either 4–20 mA, 0.5–4.5 V or CANopen
- The compact dimensions enable installation in the tightest of spaces

POTENTIOMETERS

FSG potentiometers are indispensable sensors in agricultural engineering for optimizing workflows by converting mechanical changes into electrical signals required for the regulation and control of machine applications.

Through precise capture of angular positions or length changes, they enable improved control over agricultural equipment. In controlling agricultural machinery, they contribute to precision and open up possibilities for more efficient operational processes.

- Wire winding / conductive plastic element
- Angle limitation or spinning
- Multiple versions possible
- Any angle range up to a maximum of 360°



POTENTIOMETER WITH WIRE WINDING in synchro design

Other special features:

- Any angle range up to a maximum of 360°
- Resistance value up to max. 20 kΩ
- Special circuits available
- Clamp or central fastening

PW611
Precision wire-wound potentiometer
Diameter: 28 mm
Synchro size 11

PW620
Precision wire-wound potentiometer
Diameter: 50.8 mm
Synchro size 20

PW609dy
Precision wire-wound potentiometer
Diameter: 22.2 mm
Synchro size 9

PW613
Precision wire-wound potentiometer
Diameter: 36,5 mm
Synchro size 13

PW1023d
Robust precision wire-wound potentiometer
Diameter: 60 mm
Synchro size 23

POTENTIOMETERS WITH WIRE WINDING in FSG design

Other special features:

- Any angle range up to a maximum of 360°
- Resistance value up to max. 500 kΩ
- Special circuits available
- Clamp or central fastening

PW0045y
Cost-effective precision potentiometer
Diameter: 45 mm

PW45
Precision wire-wound potentiometer
Diameter: 45 mm

PW45W
3-10 turn precision potentiometer
Diameter: 45 mm

PW55-01
Precision potentiometer in flat design
Diameter: 55 mm

PW70
Precision wire-wound potentiometer
Diameter: 70 mm

POTENTIOMETER WITH CONDUCTIVE PLASTIC in synchro design

Other special features:

- Angle range up to max. 355°
- Resistance value up to 10 kΩ
- Clamp fastening via synchro flange

PK309
Miniature potentiometer with conductive plastic resistor
Diameter: 22.2 mm
Synchro size 9

PK611-15d
Precision potentiometer with conductive plastic
Diameter: 28 mm
Synchro size 11

PK620
Precision potentiometer with conductive plastic
Diameter: 50.8 mm
Synchro size 20

PK613
Precision potentiometer with conductive plastic
Diameter: 36.5 mm
Synchro size 13

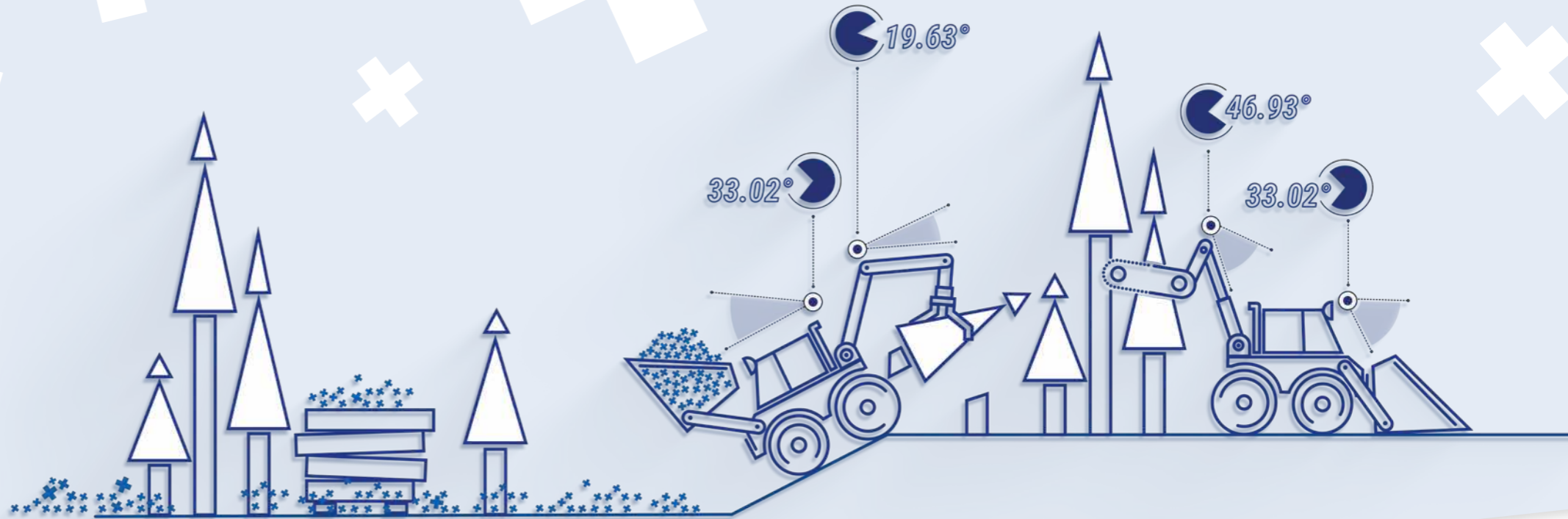
PK1023d
Robust precision potentiometer
Diameter: 60 mm
Synchro size 23

INCLINATION SENSORS

FSG incline sensors impress with diverse signal outputs, functional safety, and contactless measurement data capture. Versions with additional gyro sensors allow accurate inclination detection even during dynamic movements of agricultural machines and vehicles.

FSG sensors contribute to the enhancement of safety and effectiveness in agricultural work processes.

- Non-contact measurement recording
- Measuring systems: Hall, MEMS, Gyro
- Redundant signal acquisition
- Signal adjustment by user



INCLINATION SENSORS with MEMS measuring system

With the following signal outputs available:

4–20 mA / 0,5 V–4,5 V / 0–10 V
CAN / CANopen / CANopen-safety
J1939

Other special features:

- Analog & digital
- additional shock compensation through gyro sensors
- Functional safety: SIL/PL, DNV



PE-MEMS-X-CAN-GS70
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor



PE-MEMS-XY-CAN-GS70
PREMIUM-Series
Tilt angle: ±60°
Dual axis sensors



PE-MEMS-X-i-GS60L
BASIC-Series
Tilt angle: 0–360°
Single axis sensor



PE-MEMS-X-MU-GS60
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor



PE-MEMS-XY-MU-GS60
PREMIUM-Series
Tilt angle: ±60°
Dual axis sensors



PE-MEMS-XY-2i-GS85
PREMIUM-Series
Tilt angle: ±60°
Dual axis sensors



PE-MEMS-XY-i-GS60L
BASIC-Series
Tilt angle: ±60°
Dual axis sensors

INCLINATION SENSORS with MEMS + Gyro measuring system

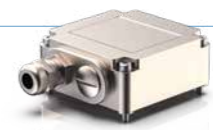
Available with the following signal outputs:
CAN / CANopen / CANopen-safety

Other special features:

- Shock compensation through gyro sensors
- Functional safety: SIL / PL



PE-MEMS-X-CAN-G-GS70
PREMIUM-Series
Tilt angle: 0–360°
Dual axis sensors



PE-MEMS-XY-CAN-G-GS70
PREMIUM-Series
Tilt angle: ±60°
Dual axis sensors

INCLINATION SENSORS with pendulum and magnetic measuring system

Available with the following signal outputs:
4–10 V, 4–20 mA
CAN / CANopen / CANopen-safety
J1939

Other special features:

- Magnetic measuring system
- Analog & digital
- Vibration compensation through oil damping
- Functional safety: Ex / IECEx / SIL / PL



PE-MH1023-MU
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor



PE-MH1023-CAN
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor



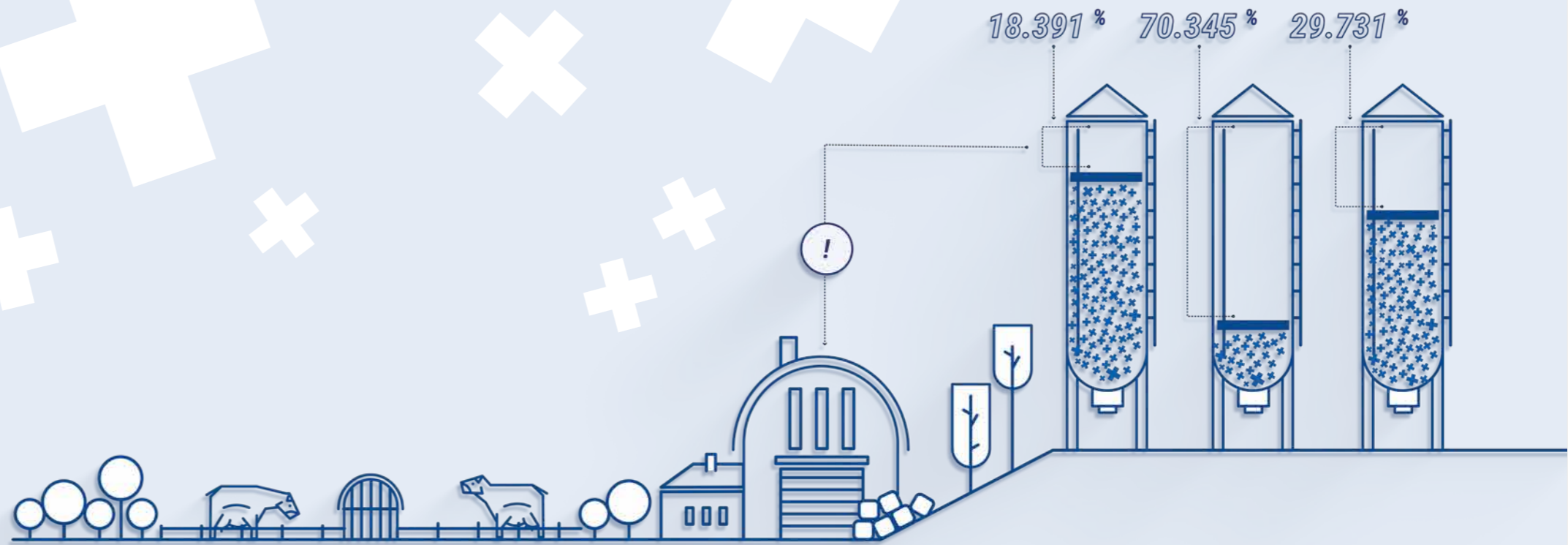
PE-MH1023-II-MU-i-IECEx
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor

DRAW-WIRE SENSORS

For length measurements in agricultural machines or vehicles, FSG cable-pull sensors are of great importance. With their robust construction, single-layer cable winding, and stable spring retraction, they meet all the requirements for reliable and long-lasting data acquisition.

With measuring ranges from 0–100 mm up to 30 m, their usage enables precise measurement and ensures higher work efficiency and improved safety in all agricultural operations.

- Robust construction for extreme environments
- High accuracy using threaded spindle



DRAW-WIRE SENSORS PREMIUM-Series

Available with the following signal outputs:

4–20 mA / 0–10 V
CAN / CANopen / CANopen-safety
J1939

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 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

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: up to 4 m



SL004-GS-170
Special-Version
Measuring length: up to 12 m



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

DRAW-WIRE SENSOR Robust and flexible

NEW

SL00R-GS80
Measuring length: up to 3 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

JOYSTICKS

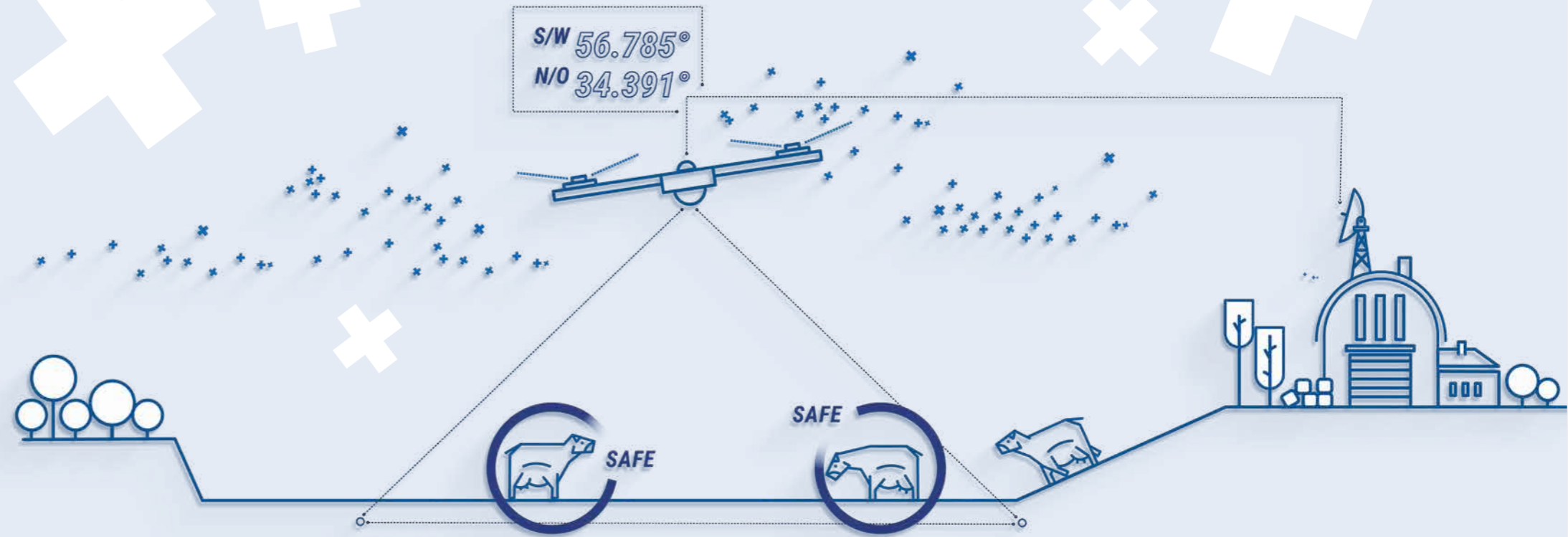
Joysticks can be used for controlling, for instance, lifting and tilting functions on combine harvesters or the positioning of ploughs and seeding machines in the tractor and harvesting machinery sector.

Wear-free, contactless inductive or magnetic systems are employed as measuring systems.

They are available as single, dual, or three-axis transducers with spring return to center position and with additional pressure points. Moreover, joysticks with force-feedback function provide the machine operator with tactile feedback.

PL
EN 13849

SIL
IEC 61508



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: approx. 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: approx. 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 in the handle or deadman button in the front handle
- Vibrator



FOOT PEDALS

FSG foot pedal transducers are characterized by a modular, extremely robust, and notably flat design.

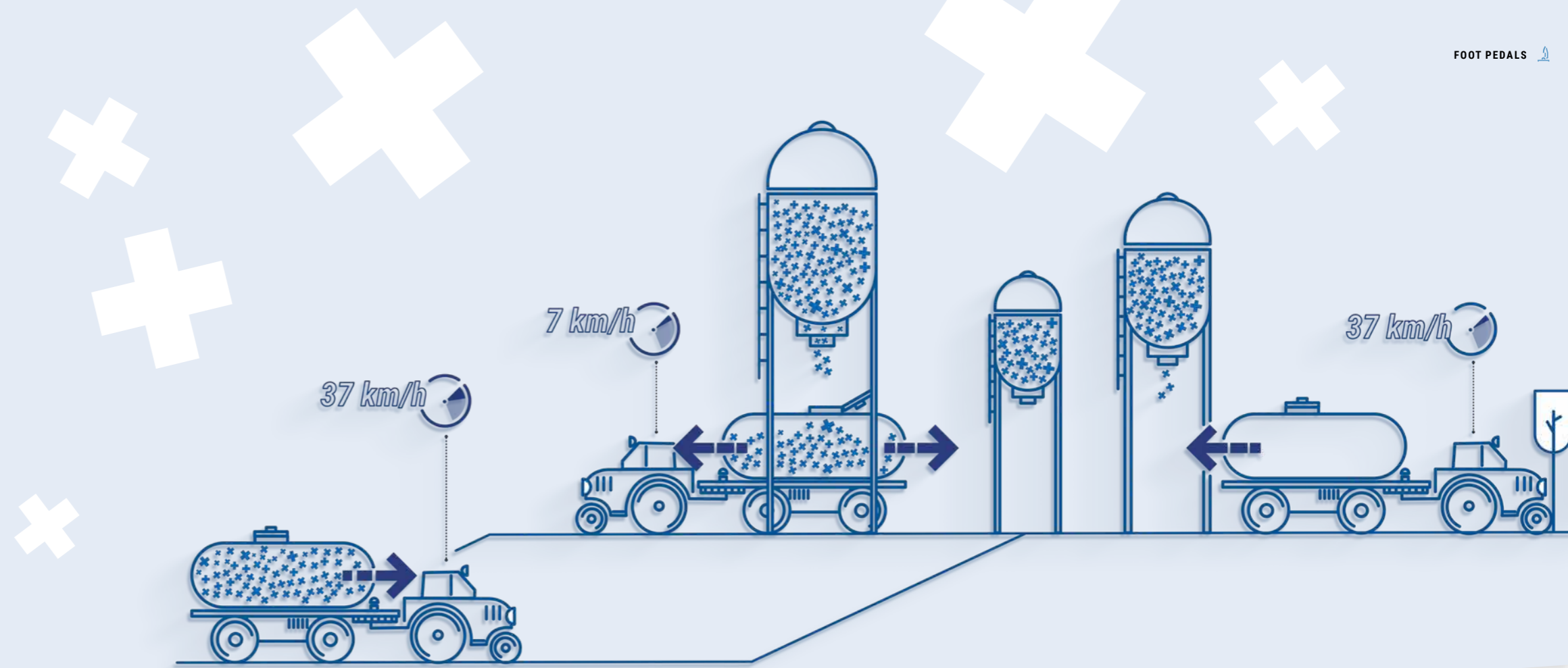
For analog or digital signal output, wear-free magnetic measuring systems are utilized, which are redundantly designed for safety-critical applications.

Thus, FSG foot pedals are particularly suitable for use in agricultural machinery and vehicles.

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

PL
EN 13849

SIL
IEC 61508



SINGLE PEDALS

Our FSG foot pedals are available with the following signal outputs:
4–20 mA / 0–10 V
CAN / CANopen / CANopen-safety
J1939



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

ACCELERATOR PEDALS



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

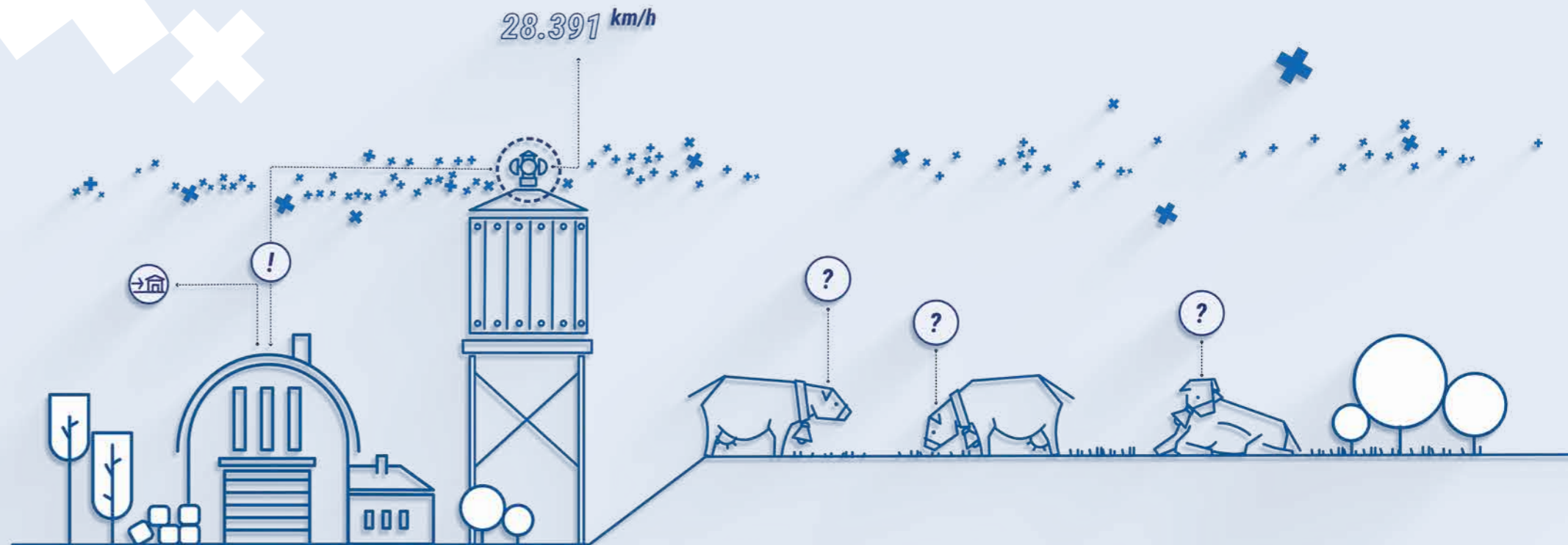
FSG anemometers serve for the capture and monitoring of wind speed and direction.

In robust versions with central mounting or pendulum setup, they are utilized for the optimization and control of agricultural activities, assistance in plant protection measures, and as an essential component of modern agricultural weather stations. If needed, they can be used with integrated obstacle lighting.

- 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

Version 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

Version 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

QUALITÄT & ZUVERLÄSSIGKEIT 

WIR ÜBERLASSEN NICHTS DEM ZUFALL.

Beim Thema Qualität gibt es für FSG keine Kompromisse – egal wann und wo unsere Geräte weltweit im Einsatz sind. Maximale Zuverlässigkeit und lückenlose Einsatzbereitschaft stehen bei uns an erster Stelle.

Wir entwickeln und fertigen alle unsere Produkte für ein langes Sensorleben für jede Bedingung. Alle Seriengeräte durchlaufen eine aufwendige 100%-Prüfung in hauseigenen Laboren und Prüfständen.

So haben wir immer die volle Kontrolle über den Qualitätsprozess.

Unsere Neuentwicklungen absolvieren eine ausführliche Baumusterprüfung und werden von externen Instituten zertifiziert.



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.

With us you are always
on the safe side through:



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



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.



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.



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

Pulsteknik AB

+46 702277811
andreas.anselmus@pulsteknik.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@schmachtl.cz
www.schmachtl.cz

Austria

Schmachtl GmbH

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

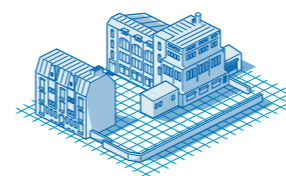
+91 11 23942222
karn.shanker@manglamelectricals.com
www.manglamelectricals.com

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.**

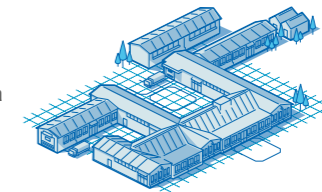
YOU CAN FIND US AT THE FOLLOWING LOCATIONS



BERLIN

Headquarters

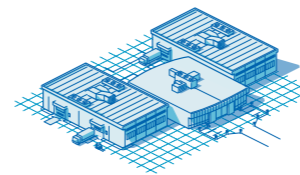
- founded in 1946
- approx. 3,500 m² production area
- approx. 200 employees
- Management and sales,
- design and development,
- production and assembly



KABLOW/ BRANDENBURG

Development, production and assembly

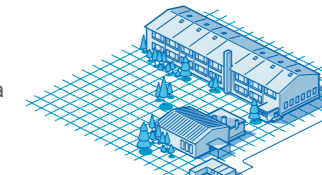
- founded in 1992
- approx. 5.000 m² production area
- approx. 150 employees
- development, construction and assembly



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

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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!

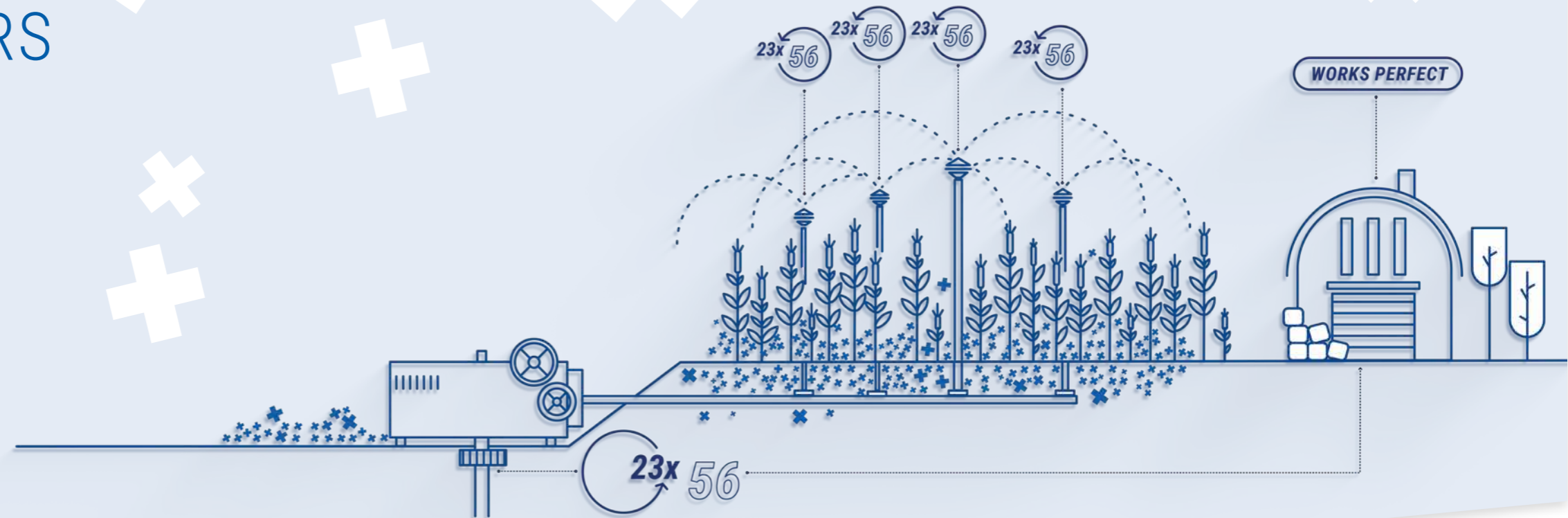
info@fsg-sensors.de

ROTARY ENCODERS

FSG rotary encoders make a significant contribution to the automation of workflows in agricultural engineering by enabling the conversion of mechanical rotational movements into electrical signals, which are essential for precise control and monitoring of agricultural machinery.

With diverse product lines, analog or digital signal outputs, and redundant measuring systems, they provide flexible solutions for all application areas. Due to high safety standards and decades of experience in the development of custom sensors, FSG rotary encoders are a reliable choice for advanced control options of agricultural equipment.

- Housing diameter: 22 mm–100 mm
- Housing: Anodized aluminum / Stainless steel
- IP protection: up to IP69k
- Connector or cable connection



ROTARY ENCODER Series

Available with the following signal outputs:
 4–20 mA / 0,5 V–4,5 V / 0–10 V
 CAN / CANopen / CANopen-safety
 J1939



MH609
 Redundant miniature encoder series
 Diameter: 22.2 mm
 Singleturn



MH613
 Programmable encoder series
 the compact class
 Diameter: 36.5 mm
 Singleturn / Multiturn



MH620
 Redundant rotary encoder series
 in the compact class
 Diameter: 50.8 mm
 Singleturn



MH1023
 Robust all-rounder
 encoder series
 Diameter: 60 mm
 Singleturn / Multiturn



MH1023-MU-Ex
 Robust all-rounder encoder series for
 explosion-proof applications
 Diameter: 60 mm
 Singleturn / Multiturn



MH-II-GS60
 Inexpensive safety
 encoder series
 Diameter: 59.5 mm
 Singleturn



MH605-II-MU
 Miniature encoder without
 drive shaft
 Diameter: 13 mm
 Singleturn



MH8-II-MU-i-GS63
 Robust safety rotary encoder for
 potentially explosive areas
 Diameter: 63 mm
 Multiturn



MH-II-CAN-MEMS-GS60
 Compact safety rotary encoder with
 additional inclination measurement
 Diameter: 65 mm
 Singleturn / Multiturn



MH670-MU-i
 Magnetic rotary encoder in
 2-wire technology
 Diameter: 70 mm
 Singleturn



MH-680 III-MU-i
 Triple rotary encoder with additional
 angle display via scale and pointer
 Diameter: 85 mm
 Singleturn



MH14-12-CAN-GS125
 Robust multiturn slewing
 ring encoder
 Diameter: 125 mm
 Multiturn

ROTARY ENCODER special versions

ROTARY ENCODER freely programmable

NEU

MH609-P
 Diameter: 22.2 mm



Special features:

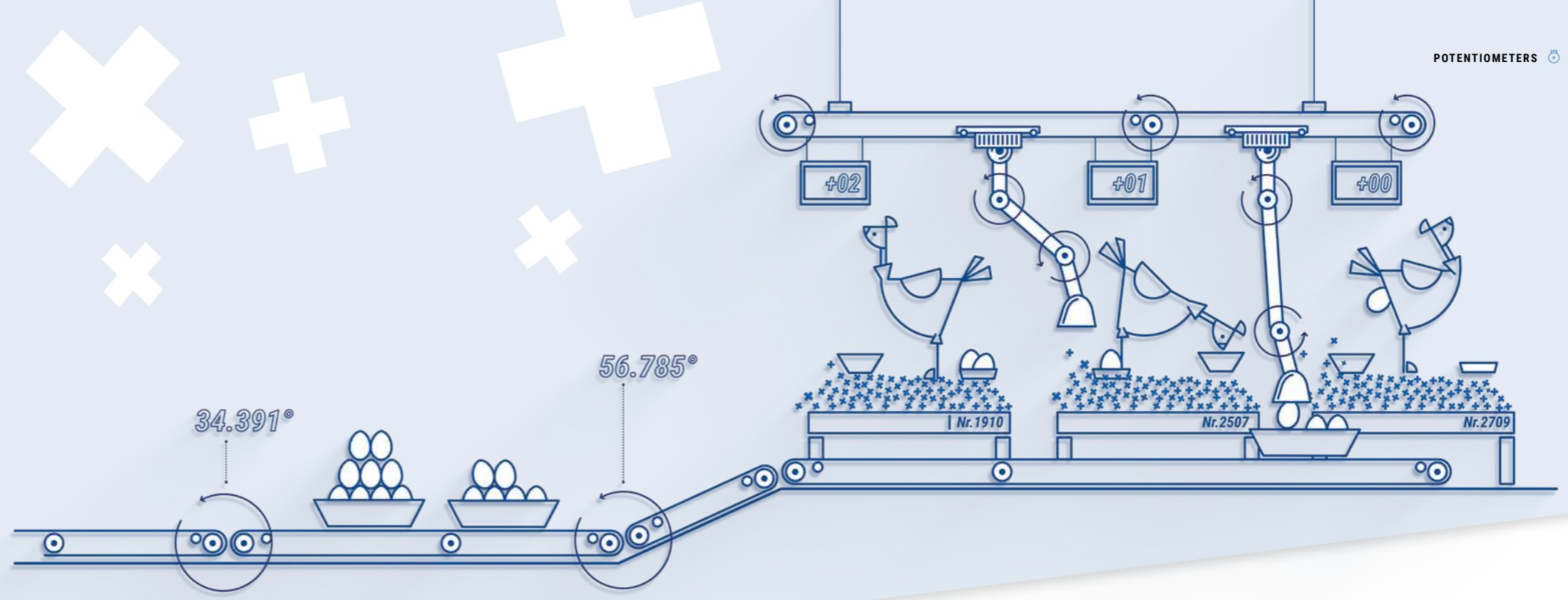
- Miniature rotary encoder (analog) with redundant Hall sensor
- Detectable angle ranges 0–360°
- Rotation angle freely programmable by the user up to 360°
- Ideal for position detection in joysticks, command transmitters or travel switches
- Interface for signal output either 4–20 mA, 0.5–4.5 V or CANopen
- The compact dimensions enable installation in the tightest of spaces

POTENTIOMETERS

FSG potentiometers are indispensable sensors in agricultural engineering for optimizing workflows by converting mechanical changes into electrical signals required for the regulation and control of machine applications.

Through precise capture of angular positions or length changes, they enable improved control over agricultural equipment. In controlling agricultural machinery, they contribute to precision and open up possibilities for more efficient operational processes.

- Wire winding / conductive plastic element
- Angle limitation or spinning
- Multiple versions possible
- Any angle range up to a maximum of 360°



POTENTIOMETER WITH WIRE WINDING in synchro design

Other special features:

- Any angle range up to a maximum of 360°
- Resistance value up to max. 20 kΩ
- Special circuits available
- Clamp or central fastening

PW611
Precision wire-wound potentiometer
Diameter: 28 mm
Synchro size 11

PW620
Precision wire-wound potentiometer
Diameter: 50.8 mm
Synchro size 20

PW609dy
Precision wire-wound potentiometer
Diameter: 22.2 mm
Synchro size 9

PW613
Precision wire-wound potentiometer
Diameter: 36,5 mm
Synchro size 13

PW1023d
Robust precision wire-wound potentiometer
Diameter: 60 mm
Synchro size 23

POTENTIOMETERS WITH WIRE WINDING in FSG design

Other special features:

- Any angle range up to a maximum of 360°
- Resistance value up to max. 500 kΩ
- Special circuits available
- Clamp or central fastening

PW0045y
Cost-effective precision potentiometer
Diameter: 45 mm

PW45
Precision wire-wound potentiometer
Diameter: 45 mm

PW45W
3-10 turn precision potentiometer
Diameter: 45 mm

PW55-01
Precision potentiometer in flat design
Diameter: 55 mm

PW70
Precision wire-wound potentiometer
Diameter: 70 mm

POTENTIOMETER WITH CONDUCTIVE PLASTIC in synchro design

Other special features:

- Angle range up to max. 355°
- Resistance value up to 10 kΩ
- Clamp fastening via synchro flange

PK309
Miniature potentiometer with conductive plastic resistor
Diameter: 22.2 mm
Synchro size 9

PK611-15d
Precision potentiometer with conductive plastic
Diameter: 28 mm
Synchro size 11

PK620
Precision potentiometer with conductive plastic
Diameter: 50.8 mm
Synchro size 20

PK613
Precision potentiometer with conductive plastic
Diameter: 36.5 mm
Synchro size 13

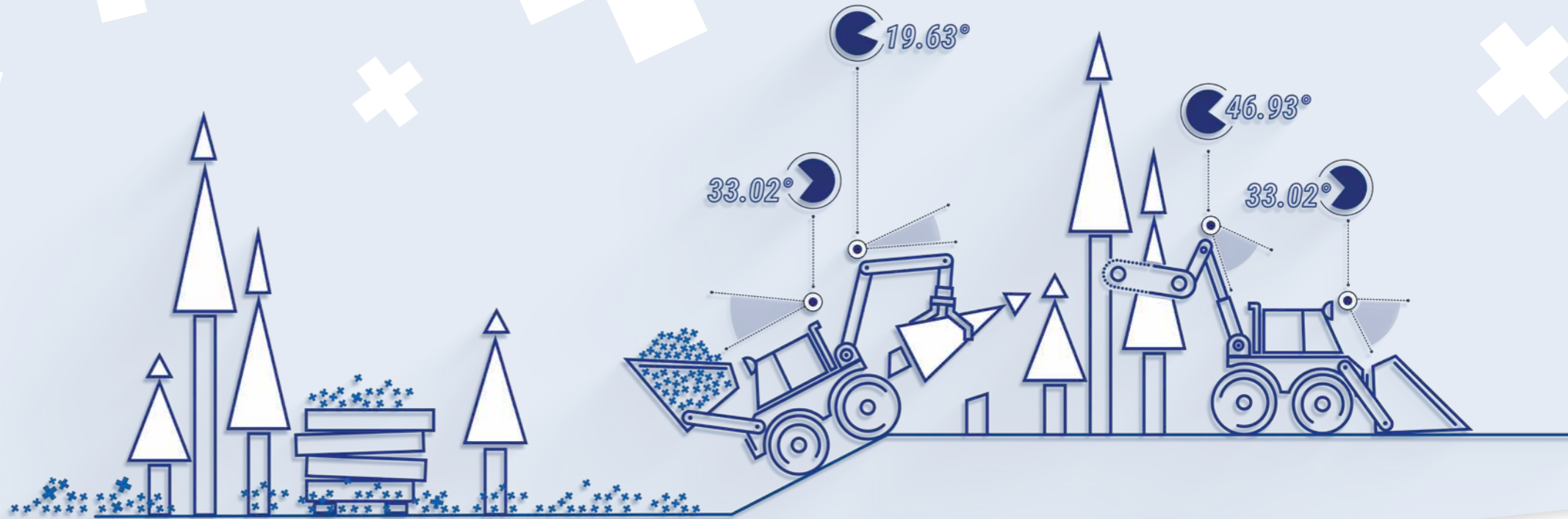
PK1023d
Robust precision potentiometer
Diameter: 60 mm
Synchro size 23

INCLINATION SENSORS

FSG incline sensors impress with diverse signal outputs, functional safety, and contactless measurement data capture. Versions with additional gyro sensors allow accurate inclination detection even during dynamic movements of agricultural machines and vehicles.

FSG sensors contribute to the enhancement of safety and effectiveness in agricultural work processes.

- Non-contact measurement recording
- Measuring systems: Hall, MEMS, Gyro
- Redundant signal acquisition
- Signal adjustment by user



INCLINATION SENSORS with MEMS measuring system

With the following signal outputs available:

4–20 mA / 0,5 V–4,5 V / 0–10 V
CAN / CANopen / CANopen-safety
J1939

Other special features:

- Analog & digital
- additional shock compensation through gyro sensors
- Functional safety: SIL/PL, DNV



PE-MEMS-X-CAN-GS70
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor



PE-MEMS-XY-CAN-GS70
PREMIUM-Series
Tilt angle: ±60°
Dual axis sensors



PE-MEMS-X-i-GS60L
BASIC-Series
Tilt angle: 0–360°
Single axis sensor



PE-MEMS-X-MU-GS60
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor



PE-MEMS-XY-MU-GS60
PREMIUM-Series
Tilt angle: ±60°
Dual axis sensors



PE-MEMS-XY-2i-GS85
PREMIUM-Series
Tilt angle: ±60°
Dual axis sensors



PE-MEMS-XY-i-GS60L
BASIC-Series
Tilt angle: ±60°
Dual axis sensors

INCLINATION SENSORS with MEMS + Gyro measuring system

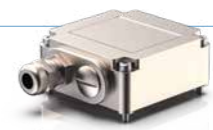
Available with the following signal outputs:
CAN / CANopen / CANopen-safety

Other special features:

- Shock compensation through gyro sensors
- Functional safety: SIL / PL



PE-MEMS-X-CAN-G-GS70
PREMIUM-Series
Tilt angle: 0–360°
Dual axis sensors



PE-MEMS-XY-CAN-G-GS70
PREMIUM-Series
Tilt angle: ±60°
Dual axis sensors

INCLINATION SENSORS with pendulum and magnetic measuring system

Available with the following signal outputs:
4–10 V, 4–20 mA
CAN / CANopen / CANopen-safety
J1939

Other special features:

- Magnetic measuring system
- Analog & digital
- Vibration compensation through oil damping
- Functional safety: Ex / IECEx / SIL / PL



PE-MH1023-MU
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor



PE-MH1023-CAN
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor



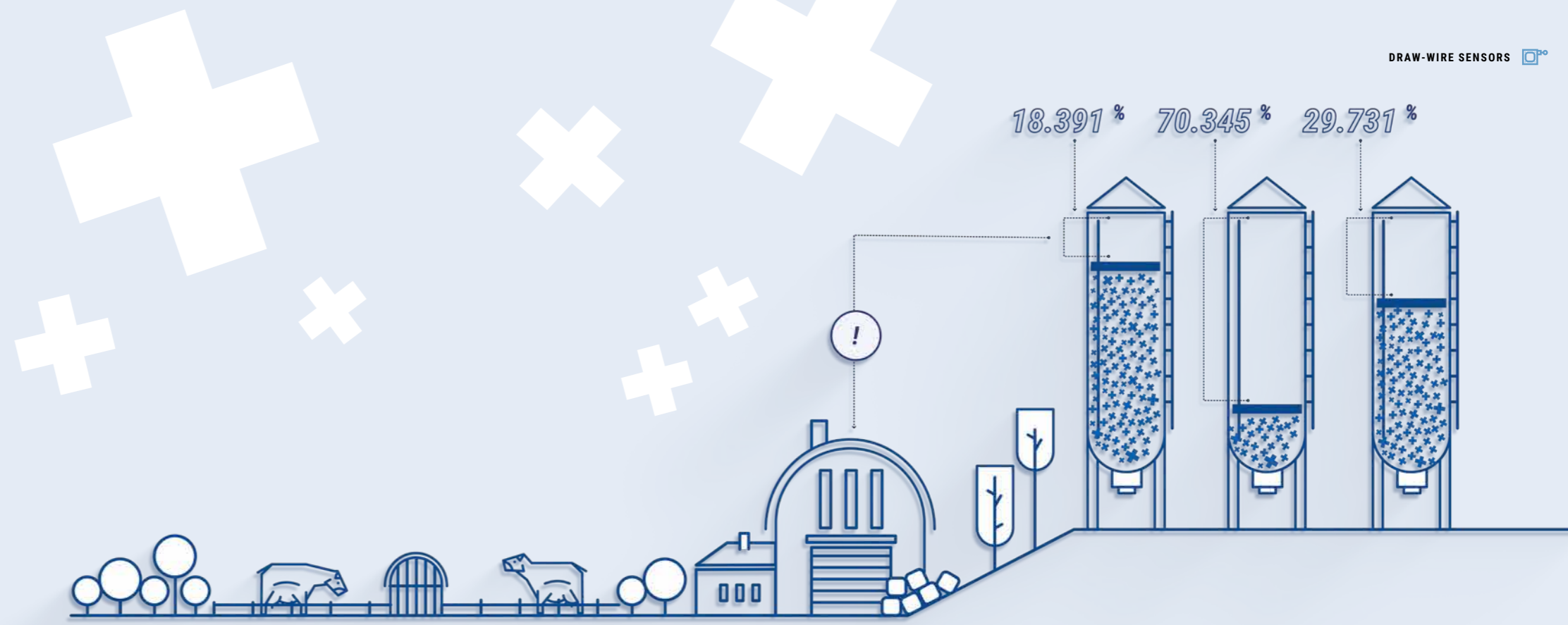
PE-MH1023-II-MU-i-IECEx
PREMIUM-Series
Tilt angle: 0–360°
Single axis sensor

DRAW-WIRE SENSORS

For length measurements in agricultural machines or vehicles, FSG cable-pull sensors are of great importance. With their robust construction, single-layer cable winding, and stable spring retraction, they meet all the requirements for reliable and long-lasting data acquisition.

With measuring ranges from 0–100 mm up to 30 m, their usage enables precise measurement and ensures higher work efficiency and improved safety in all agricultural operations.

- Robust construction for extreme environments
- High accuracy using threaded spindle



DRAW-WIRE SENSORS PREMIUM-Series

Available with the following signal outputs:

4–20 mA / 0–10 V
CAN / CANopen / CANopen-safety
J1939

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 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

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: up to 4 m



SL004-GS-170
Special-Version
Measuring length: up to 12 m



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

DRAW-WIRE SENSOR Robust and flexible

NEW

SL00R-GS80
Measuring length: up to 3 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

JOYSTICKS

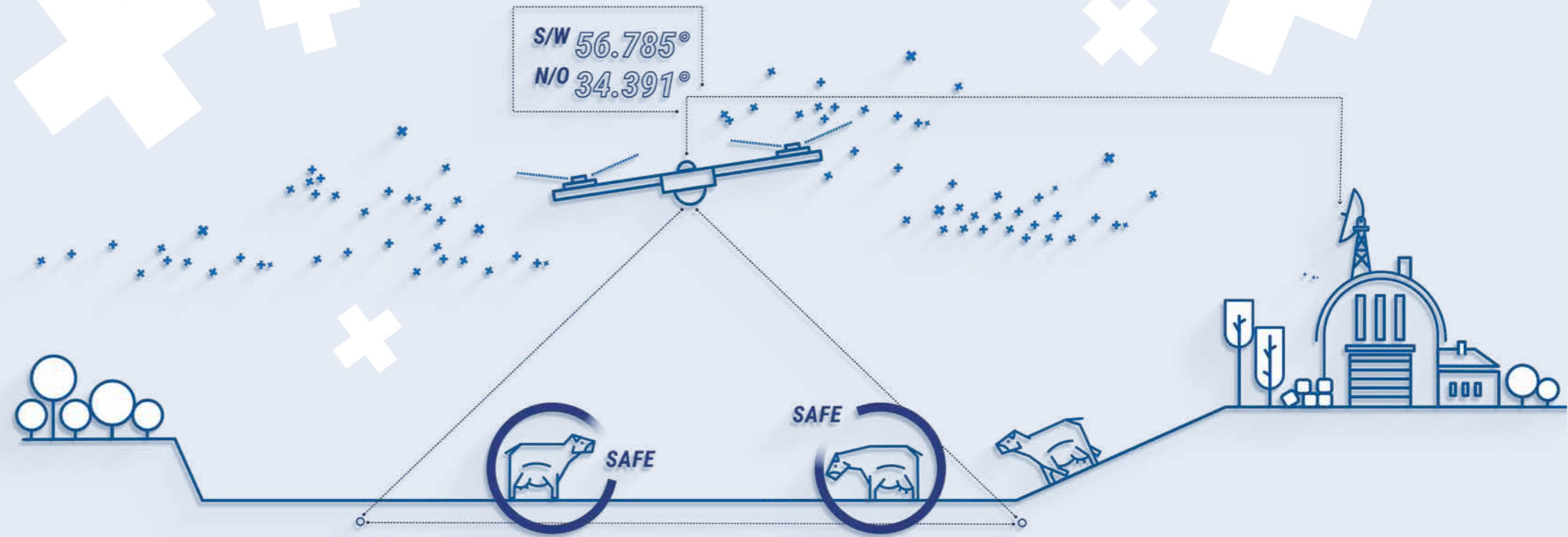
Joysticks can be used for controlling, for instance, lifting and tilting functions on combine harvesters or the positioning of ploughs and seeding machines in the tractor and harvesting machinery sector.

Wear-free, contactless inductive or magnetic systems are employed as measuring systems.

They are available as single, dual, or three-axis transducers with spring return to center position and with additional pressure points. Moreover, joysticks with force-feedback function provide the machine operator with tactile feedback.

PL
EN 13849

SIL
IEC 61508



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: approx. 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: approx. 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 in the handle or deadman button in the front handle
- Vibrator



FOOT PEDALS

FSG foot pedal transducers are characterized by a modular, extremely robust, and notably flat design.

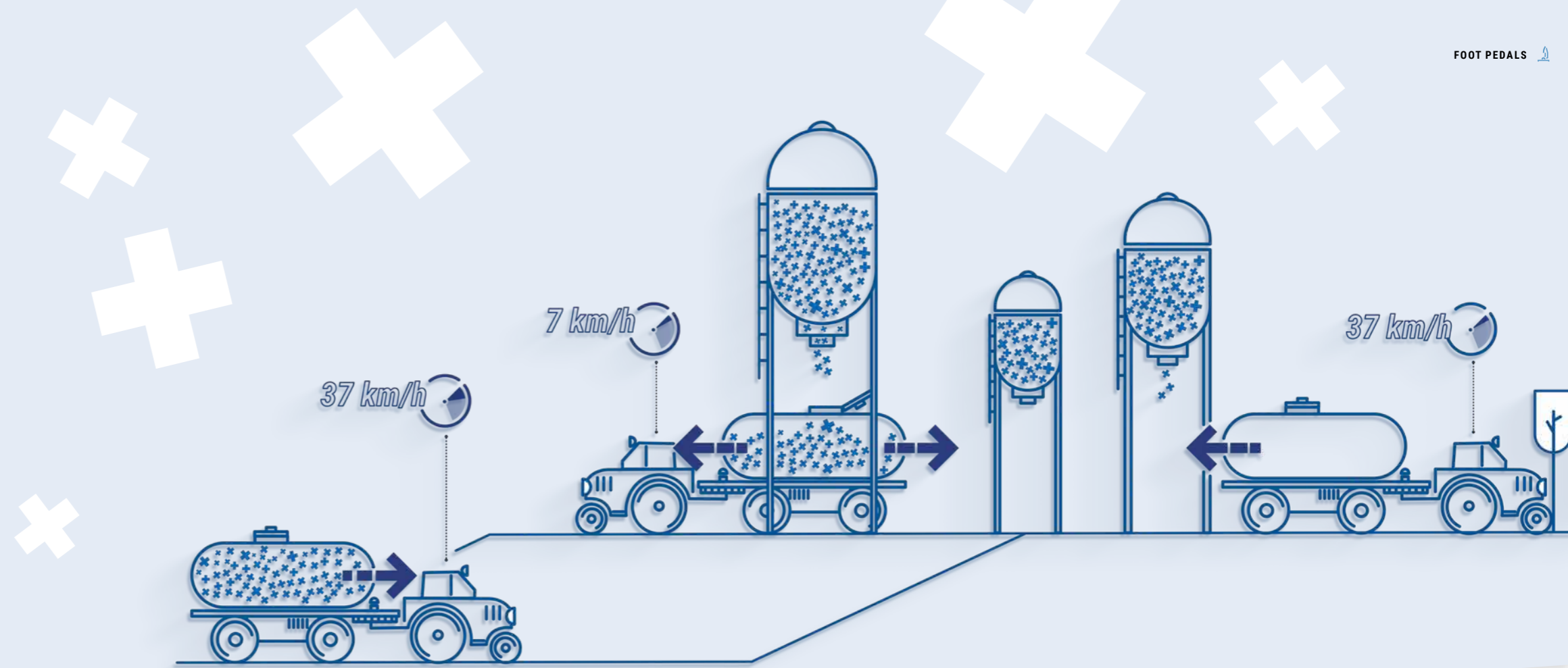
For analog or digital signal output, wear-free magnetic measuring systems are utilized, which are redundantly designed for safety-critical applications.

Thus, FSG foot pedals are particularly suitable for use in agricultural machinery and vehicles.

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

PL
EN 13849

SIL
IEC 61508



SINGLE PEDALS

Our FSG foot pedals are available with the following signal outputs:
4–20 mA / 0–10 V
CAN / CANopen / CANopen-safety
J1939



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

ACCELERATOR PEDALS



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

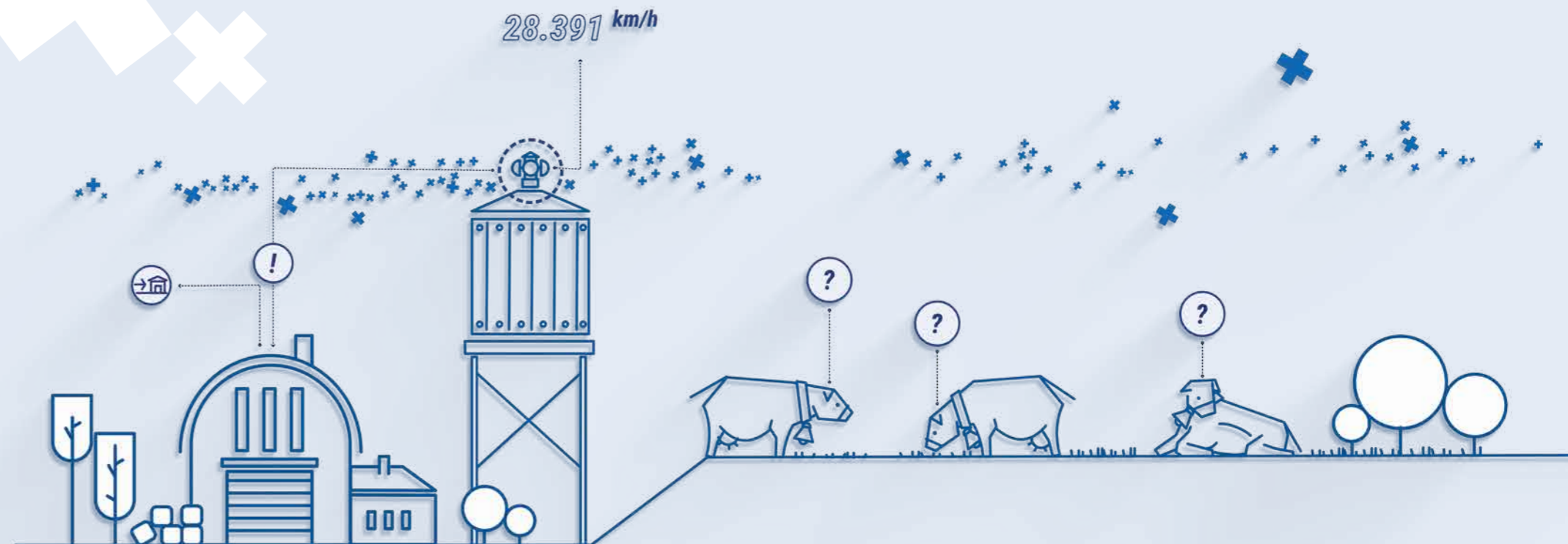
FSG anemometers serve for the capture and monitoring of wind speed and direction.

In robust versions with central mounting or pendulum setup, they are utilized for the optimization and control of agricultural activities, assistance in plant protection measures, and as an essential component of modern agricultural weather stations. If needed, they can be used with integrated obstacle lighting.

- 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

Version 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

Version 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

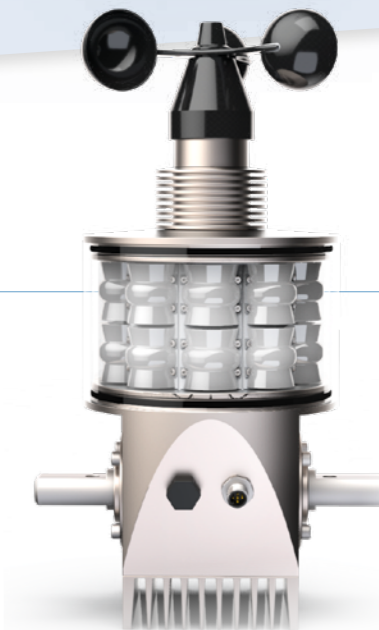


AN-60-HF

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

QUALITÄT & ZUVERLÄSSIGKEIT 

WIR ÜBERLASSEN NICHTS DEM ZUFALL.

Beim Thema Qualität gibt es für FSG keine Kompromisse – egal wann und wo unsere Geräte weltweit im Einsatz sind. Maximale Zuverlässigkeit und lückenlose Einsatzbereitschaft stehen bei uns an erster Stelle.

Wir entwickeln und fertigen alle unsere Produkte für ein langes Sensorleben für jede Bedingung. Alle Seriengeräte durchlaufen eine aufwendige 100%-Prüfung in hauseigenen Laboren und Prüfständen.

So haben wir immer die volle Kontrolle über den Qualitätsprozess.

Unsere Neuentwicklungen absolvieren eine ausführliche Baumusterprüfung und werden von externen Instituten zertifiziert.



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.

With us you are always
on the safe side through:



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



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.



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.



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

Pulsteknik AB

+46 702277811
andreas.anselmus@pulsteknik.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@schmachtl.cz
www.schmachtl.cz

Austria

Schmachtl GmbH

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

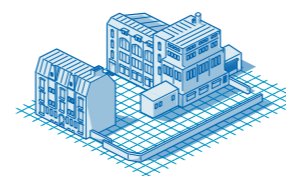
+91 11 23942222
karn.shanker@manglamelectricals.com
www.manglamelectricals.com

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.**

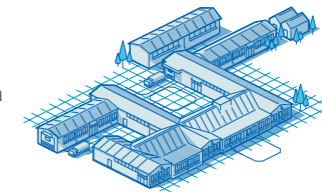
YOU CAN FIND US AT THE FOLLOWING LOCATIONS



BERLIN

Headquarters

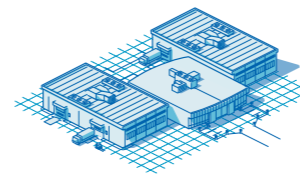
- founded in 1946
- approx. 3,500 m² production area
- approx. 200 employees
- Management and sales,
- design and development,
- production and assembly



KABLOW/ BRANDENBURG

Development, production and assembly

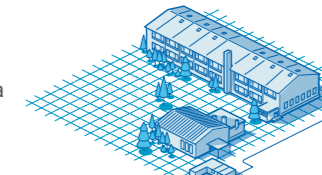
- founded in 1992
- approx. 5.000 m² production area
- approx. 150 employees
- development, construction and assembly



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

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 **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

