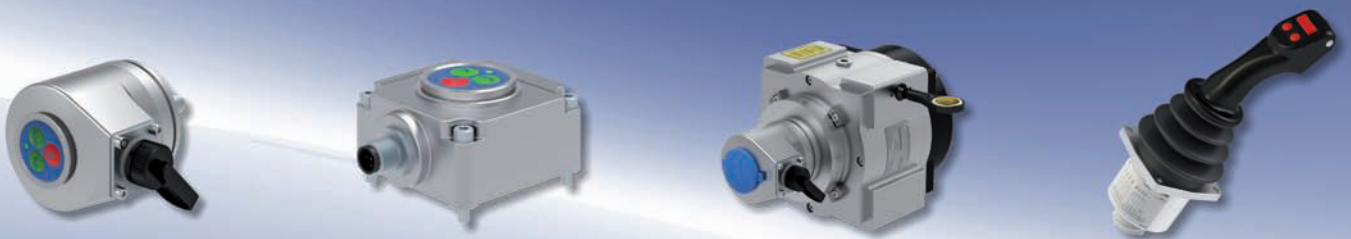


# Measurement and Sensor Systems



The company



## **FSG – Your partner for custom engineered system solutions in the field of industrial measuring and automatic control engineering.**

Since foundation in 1946 in Berlin the company has established to one of the leading suppliers in the range of measuring and sensor systems. The company develops and produces high-quality measuring transducers for applications in automation and safety engineering – and receive an incredible in-house production depth of 90 %.

Over the years, FSG enhanced its linear and angular transmitter systems with a large variety of user-friendly system solutions. Systems which determine measurement data and monitor and control processes are now available for virtually any industrial measurement and control application – a range of high performance and precision equipment for automation and safety engineering.

Each production step is watched and controlled by our own quality management according to the guidelines of DIN EN ISO 9001:2008.

300 staff members are employed in our factories at Berlin, Kablov and Heppenheim – roughly thirty percent of them work in development, sales and quality assurance.



## Development and production department

At the present time, there is a constant demand by customers for more complex solutions of automation problems, which have – with a short period of development – to be ready to go into production at short notice. Therefore, our development, research and EMC studies departments are provided with state-of-the-art computer aided instruments and equipment. There all the required functional testing can practical be carried out and tests for specifying EMC protective measures can be simulated.

With CAD workstations in the development department and drawing office and with CNC-machines in the sector of steel construction, production and assembly we are establishing the preconditions for short-term realization of products, ready to go into serial production. Automated testing devices are controlling and recording the guaranteed functional characteristics of every single device before delivery.



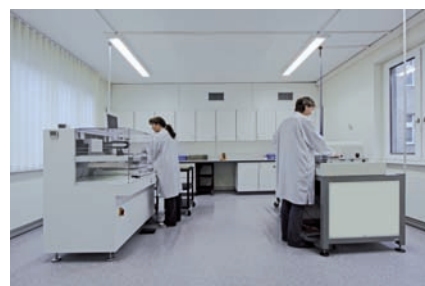
CNC assembly



electroplating shop for surface treatment



plastic feeder casting



clean room for resistor components



SMD-insertion machine



assembly area



final assembly



EMC test laboratory



## Cranes and excavators

Control and monitoring systems of that application range result in high demands on accuracy and power of endurance of all measuring components.

For mobile cranes, we are offering the example safety-engineering products like

- tilt angle transmitters
- rope length transmitters
- live ring transmitters
- cam-operated limit switches
- manually actuated and pedal actuated control transmitters



## Railway vehicles

As one of the most secure systems of transport, railway requires components for setting and indicating speed, which have to be unfailing:

- redundant potentiometric or coded angular position transmitters for cruise control and brake control
- driver's cab signal indicating devices for the display of theoretical speed  $V_{th}$  and actual speed  $V_{act}$



## Shipbuilding and offshore industries

The complexity of modern ship's management requires, together with reducing the deployment of personnel, an increasing level of automation. Our product spectrum includes in the field of navigation and piloting technology among other things.

- transducer systems for the determination of rudder angle or propeller position
- corresponding sloped case indicators
- signalling devices for cruise control and rudder angle control

### **Hauling plants and hoisting devices**

Utmost reliability and operating speed is essential for measuring and driving systems used on multi-level shelving racks, assembly lines, working platforms, suspension railway and also on stage platforms.

High precision length measurement is a precondition for accurate positioning. Such measurements are carried out mainly by means of draw wire systems, which provide analog or digital signal output.



### **Energy management facilities and water-supply and distribution**

In this connection, process parameters have to be picked up, transformed into electrical signals and transmitted to indicators, controllers and monitoring systems. Among other things, one makes use of

- transducer systems for remote indication of the position of variable speed drive on valves, weir gates and sector valves
- control room instruments as analog and digital indicators, set-point adjusters and signal conditioners



### **Renewable energies**

For efficient enhancement of energy generation robust and precise sensor components are used in wind and water-power plants.

- transducer and inclination systems for measuring and adjustment of wind-power plants
- transducer and inclination systems for setpoint tracing of solar panels and parabolic mirrors
- wind sensors for calculation of wind speed and wind direction



Our product range includes sensor systems for the determination of geometrical, mechanical and time-dependent measured quantities, together with appropriate signal converters and indicators. The following is just a selection of what we are offering – we would appreciate your request for product information.

Our products are generally deliverable with current certificates such as:



## Angular Position Transmitter

- potentiometric
- inductive
- magnetic or
- optoelectronic, as single gang, multiple-arrangement or multiturn design



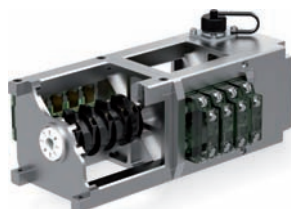
## Protective Casing

- adaptation gear
- limit switches
- remote indication systems; degree of protection IP 40 to IP 68 and Exd3nG5



## Camshaft Gear

- adaptation gear
- limit switches
- remote indication systems; degree of protection IP 65 to IP 68



## Tilt Angle Sensors

- inductive
- magnetic or
- MEMS as single axis or dual axis pendulum system with analog or digital signal output



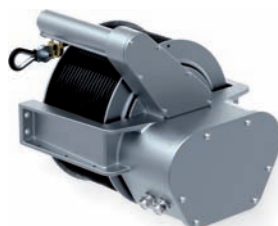
## Rope Length Transmitter

- high precision
- analog or
- digital measuring systems with ranges from 500 mm up to 50.000 mm



## Spring Cable Reel

- displacement transducer and
- angular position encoder, for the application range of crane related measuring methods, measuring lengths up to 60 m



## Linear Displacement Transmitter

- potentiometric or inductive with measuring ranges from 5 mm up to 1.000 mm
- magnetic tape sensor with analog or digital signal output up to 5.000 mm



## Joystick

- with ergonomic multifunction grip
- with redundant inductive control systems
- with analog or digital control signals



## Pedal Transmitter

- with universal, flat ground plate for all pedals
- with redundant magnetic control systems
- with analog or digital control signals



## Wind Sensor

- with DC-tachometer or
- magnetic measuring system for wind speed up to 50 m/sec and wind direction measuring
- with analog or digital control signals



## Set-point Adjuster

- presetting by hand or
- motor driven: flush mounting or surface-type casing with analog or digital output



## Signal Converter

- for signal matching and monitoring, available as
- standard series eurocard or
  - rail mount casing



## Signal Indication

- analog indicators with
- motor-driven potentiometer
  - rotary magnet system or
  - LED bar graph displays as flush mounting instruments



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