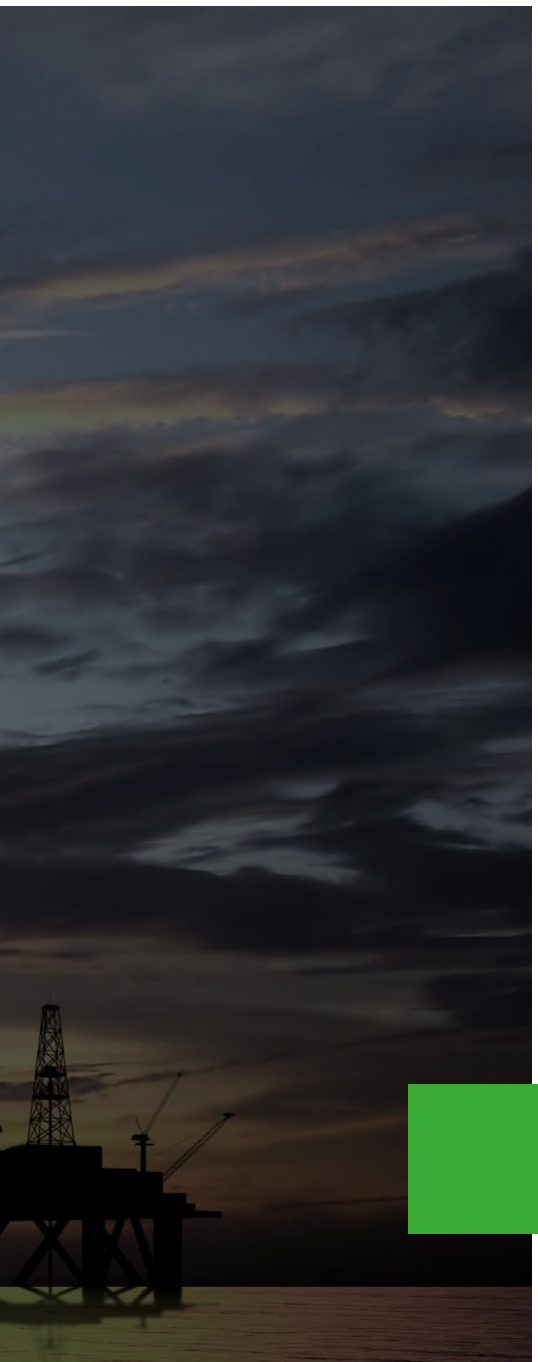
CAMILLE BAUER

POSITION SENSORS

TRANSMITTERS FOR ANGULAR POSITION AND INCLINATION TRANSMITTERS



ROBUST ▪ RELIABLE ▪ FLEXIBLE

The correct position decides

YOUR BENEFITS AT A GLANCE

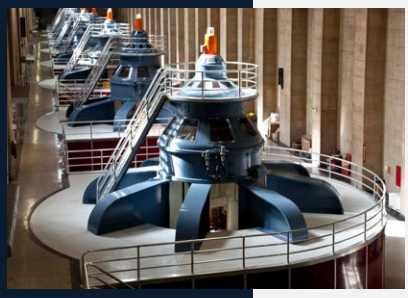
- RELIABLE OPERATION DUE TO ROBUST DESIGN AND HIGHEST PRECISION
- LOW INSTALLATION COSTS DUE TO EASY AND FAST ASSEMBLY
- TIME SAVINGS DUE TO THE INTEGRATION VIA STANDARD INTERFACES
- LOW LIFE CYCLE COSTS DUE TO THE HIGHEST USEFUL LIFE WITH CONSTANT MEASURING ACCURACY

CHEMICALS AND PETROCHEMICALS

AUTOMATION AND LOGISTICS

MACHINE AND PLANT CONSTRUCTION

ENERGY GENERATION AND DISTRIBUTION



OIL AND GAS

SHIPS AND TRANSPORT

Operating as a leading provider of high-quality instrumentation, we have pursued the goal of making electric engineering processes safer, more transparent and thus more efficient for more than 70 years.

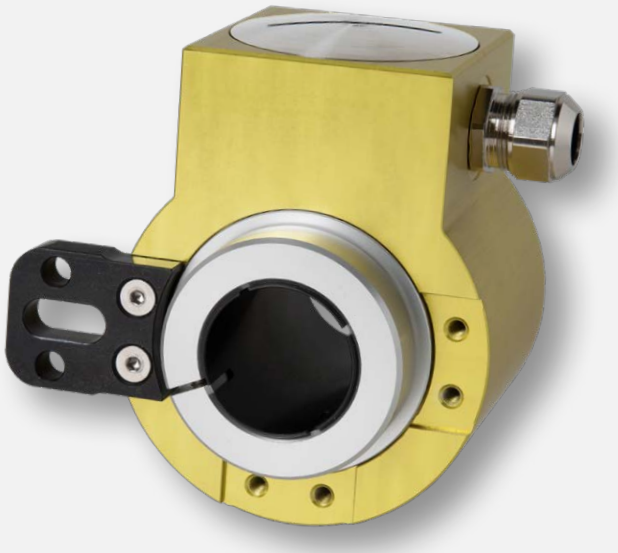
Our products are designed especially for industrial use and ensure the smooth operation of plants, production and processes due to their high quality in terms of accuracy, reliability and longevity.

Our **POSITION SENSOR** portfolio offers solutions for angle, position and inclination measurement. The program covers simple installation devices through to robust applications in rough conditions. The angle and inclination measuring systems serve as an important link between mechanical and control facilities.

WE KNOW ALL THE ANGLES
ABSOLUTE ANGULAR POSITION TRANSMITTERS

High reliability and safety requirements exist in all areas of machine and plant construction. Safety-related demands on positioning tasks are constantly increasing, particularly if failures can endanger people and the environment. To meet these demands, Camille Bauer Metrawatt offers a range of high-quality absolute angular position transmitters. They acquire a rotatory or translatory movement without contact and transform it into an electrical output signal. The devices excel with these attributes:

- **Unique, patented capacitive measuring method**
- **Absolute measured value is always available**
- **Time-consuming reference runs are not required**
- **Robust design for rough conditions**
- **On-site parameterisation**
- **Non-wearing and low maintenance**
- **Different versions and approvals are available**



Hollow-shaft transmitter KINAX HW730

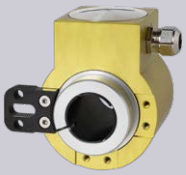
WE HAVE A NEW SLANT
ABSOLUTE INCLINATION TRANSMITTERS

Inclination transmitter
KINAX N702-INOX HART

Inclination transmitters are an excellent alternative to traditional angular position transmitters. There is hardly any moveable object the position of which cannot be determined by inclination transmitters. They acquire – similar to a plummet – the deviation from the horizontal or vertical line within the reference point provided by the direction of the earth's gravitational force. Compared to rotary encoders, inclination transmitters have the advantage of acquiring the inclination values directly while not requiring any mechanical coupling with the drive elements. They excel with these attributes:

- **One-dimensional inclination measurement with oil-damped pendulum system or with MEMS technology**
- **Absolute measured value is always available**
- **Time-consuming reference runs are not required**
- **High absolute accuracy**
- **Very robust design with high ingress protection of housing**
- **High-quality materials**
- **On-site parameterisation**
- **Different versions are available**

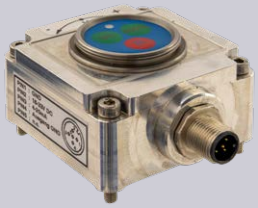
OVERVIEW TRANSMITTERS FOR ANGULAR POSITION

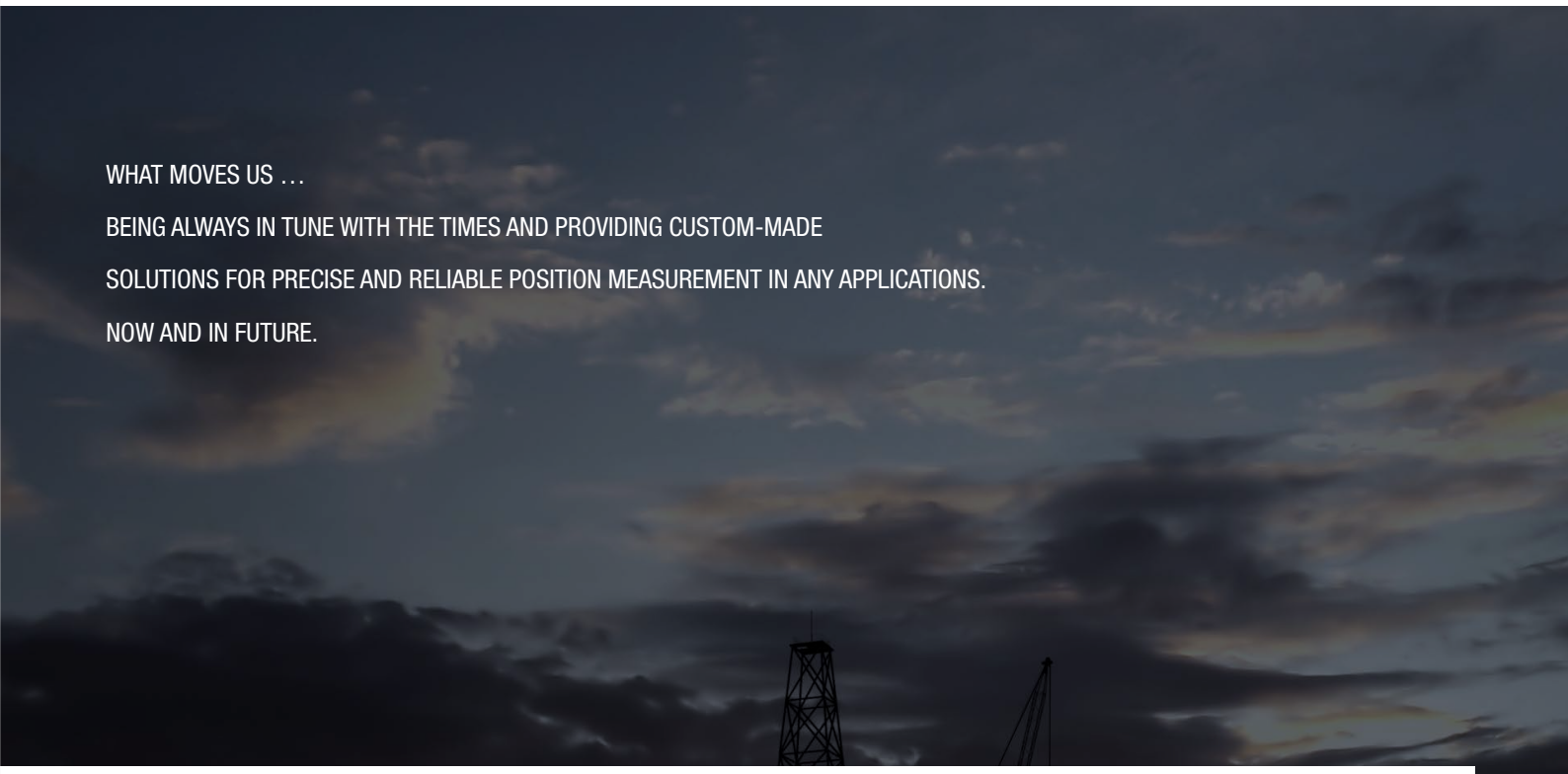
Type	WT720 THE INDUSTRIAL	WT720 WITH FLANGE ADAPTER THE ALTERNATIVE	HW730 THE FLEXIBLE
			
Features	• Robust industrial housing • High ingress protection • On-site parameterisation	• Alternative to WT707 / WT717, if on-site parameterisation	• Analogue and digital interface • No shaft adaption required • On-site parameterisation • Redundancy development possible
Measuring principle	capacitive	capacitive	capacitive
Housing design	ø 58 mm	ø 58 mm /ø 102 mm	ø 78 mm
Type of shaft	solid shaft	solid shaft	hollow-shaft
Shaft diameter	ø 10 mm	ø 19 mm	ø 10 mm ... ø 30 mm
Measuring range	singleturn 0...360°	singleturn 0...360°	singleturn 0...360°
Electrical interface	analogue 4...20mA	analogue 4...20mA	analogue 4...20mA MODBUS TCP
Operating voltage	12 … 30 VDC	12 … 30 VDC	12 … 30 VDC PoE with Modbus TCP
Linearity	±0.5%	±0.5%	±0.1% / ±0.04%
Reproducibility	0.1°	0.1°	0.1°
Premitted shaft load	max. 80 N radial max. 40 N axial	max. 80 N radial max. 40 N axial	– –
Mounting position	any	any	any
Housing material	anodized aluminum	anodized aluminum	anodized aluminum
Operating temperature	–40 … +85 °C	–40 … +85 °C	–40 … +85 °C
Protection	IP67 / IP69K	IP67 / IP69K	IP67 / IP69K
Approvals			
ATEX	yes	yes	yes (for analogue version)
IECEx	yes	yes	yes (for analogue version)
Maritime execution (formerly GL, Germanischer Lloyd)	yes	yes	yes (for analogue version)

WT707	WT717	3W2	2W2
THE ROBUST		THE COMPACT	
			
• Analogue • Suitable for rough conditions	• Parameterisation via software	• Almost infinite resolution • No wear and maintenance	• Parameterisation via software
capacitive	capacitive	capacitive	capacitive
ø 102 mm	ø 102 mm	ø 48 mm	ø 48 mm
solid shaft	solid shaft	solid shaft	solid shaft
ø 19 mm and ø 12 mm	ø 19 mm and ø 12 mm	ø 2 mm and ø 6 mm	ø 2 mm and ø 6 mm
singleturn 0...355° multiturn 1...1600 turns	singleturn 0...355° multiturn 1...1600 turns	singleturn 0...355°	singleturn 0...355°
analogue 0 / 4...20mA	analogue 4...20mA	analogue 0 / 4...20mA	analogue 4...20mA
12 … 30 V DC/AC 24...60 / 85...230 VDC	12 … 30 V DC/AC	12 … 30 V DC/AC	12 … 30 V DC/AC
≤0.5%	≤0.5%	≤0.5%	≤0.5%
0.1°	0.1°	0.1°	0.1°
max. 1000 N radial max. 500 N axial	max. 1000 N radial max. 500 N axial	max. 16 N radial max. 25 N axial	max. 16 N radial max. 25 N axial
any	any	any	any
Steel / stainless steel flange plastic / aluminium hood	Steel / stainless steel flange plastic / aluminium hood	aluminium	aluminium
–25 … +70 °C	–25 … +70 °C	–25 … +70 °C	–25 … +70 °C
IP 66	IP 66	IP 50	IP 50
yes yes yes	yes	yes yes yes	yes

OVERVIEW INCLINATION TRANSMITTERS

Type	N702 THE ANALOGUE	N702-SSI THE COMMUNICATIVE	N702-CANopen THE DIGITAL
			
Features	• Analogue interface 4...20 mA • Programmable on site via push-button	• Communication interface SSI • Programmable on site via push-button	• Digital interface CANopen • Programmable via CANopen interface
Measuring principle	magnetic with pendulum	magnetic with pendulum	magnetic with pendulum
Housing design	ø 60 mm	ø 60 mm	ø 60 mm
Measuring range	0 … 360°	0 … 360°	0 … 360°
Pendulum damping	at 25° tilt <1 sec.	at 25° tilt <1 sec.	at 25° tilt <1 sec.
Electrical interface	4...20 mA	SSI / binary	CANopen
Operating voltage	9...33 VDC	9...33 VDC	9...33 VDC
Linearity	0.05%	0.05%	0.05%
Resolution	14 Bit	14 Bit	14 Bit
Mounting position	Vertical to the measured object	Vertical to the measured object	Vertical to the measured object
Housing material	aluminium coated	aluminium coated	aluminium coated
Operating temperature	–30 to +70 °C	–30 to +70 °C	–30 to +70 °C
Protection	IP66	IP66	IP68
Connection	sensor plug M12	sensor plug M12	sensor plug M12

N702-INOX THE EXTREMELY ROBUST	N702-INOX HART THE EXTREMELY ROBUST	N705-MEMS 4...20mA THE ANALOGUE	N705-MEMS CANopen THE DIGITAL
			
• Seawater resistant stainless steel housing • Analogue interface 4...20 mA • Programmable via signal line	• Seawater resistant stainless steel housing • Digital HART interface • Programmable via HART interface	• Analogue interface 4...20 mA • Free on-site parameterization	• Digitale Schnittstelle CANopen • Über CANopen Schnittstelle programmierbar
magnetic with pendulum	magnetic with pendulum	Microelectromechanical capacitive tilt angle system	Microelectromechanical capacitive tilt angle system
ø 60 mm	ø 60 mm	60 x 60 x 30 mm	70 x 70 x 30 mm
0 … 360°	0 … 360°	0 … 360°	0 … 360°
at 25° tilt <1 sec.	at 25° tilt <1 sec.	–	–
4...20 mA	4...20 mA / HART	4...20 mA	CANopen
8...33 VDC	12...30 VDC	18...33 VDC	9...42 VDC
0.05%	0.05%	0.05%	0.05%
14 Bit	14 Bit	14 Bit	14 Bit
Vertical to the measured object	Vertical to the measured object	Perpendicular to the measurement object	Perpendicular to the measurement object
stainless steel INOX AiSi 316Ti (1.4571)	stainless steel INOX AiSi 316Ti (1.4571)	Aluminium	Aluminium
–30 to +70 °C	–30 to +70 °C	–30 to +70 °C	–40 to +70 °C
IP68	IP68	IP67	IP67
Threaded cable connection with fix connection cable	Threaded cable connection with fix connection cable	Connector M12	2 x Connector M12



WHAT MOVES US …

BEING ALWAYS IN TUNE WITH THE TIMES AND PROVIDING CUSTOM-MADE

SOLUTIONS FOR PRECISE AND RELIABLE POSITION MEASUREMENT IN ANY APPLICATIONS.

NOW AND IN FUTURE.

GMC INSTRUMENTS

GOSSEN METRAWATT

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