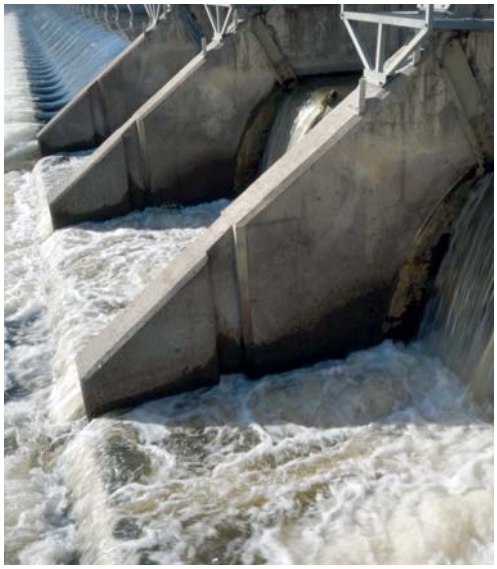
CAMILLE BAUER

Rely on us.

- High precision in all angle ranges
- Robust and compact design
- High resistance to aggressive media
- High degree of housing protection up to IP68 / IP69K
- Different output options
- Fast and easy assembly
- Easy parameterisation

Inclination Transmitters
Heavy Duty



Top-class inclination transmitter

In instrumentation, inclination transmitters are considered to be all-rounders. There is hardly any moveable object the position of which cannot be monitored by an inclination transmitter. The range of applications covers monitoring weirs, throttle flaps and locks through to the control of machines, automats, robots and solar plants including monitoring of ships, vehicles and aircraft.

Inclination transmitters acquire - similarly to a plumb line - the deviation from the horizontal or vertical within the reference point provided by the direction of the gravitational pull.

The robust, absolute inclination transmitters of Camille Bauer are precision instruments and suitable to the acquisition of almost any inclination. They serve the acquisition, processing and provision of measured values as electric output signals for a downstream device. The output signal is available either in the analogue form of 4...20 mA or digitally with bus interfaces.

Numerous features

Robust, compact design

The robust and compact design and the use of high-quality materials make the inclination transmitters resistant to high mechanical loads.

Easy parameterisation

Depending on the design, the instruments may be parameterised via a membrane keyboard, directly via the control line or via a bus defining zero point, maximum value and rotational direction.

Easy and fast assembly

Very easy assembly by synchro flange or assembly plate and the variety of variants of connection options offer the highest degree of flexibility in installation.

Parameterisation

All of the inclination transmitters may be parameterised by the user. The following parameters can be configured:

- Zero point / minimum value (0%)
- Measuring span / maximum value (100%)
- Zero point shift
- Rotational direction
- Resetting to factory setting

Depending on the design, the instruments may be parameterised via a membrane keyboard, directly via the control line or via a bus. This allows the measuring range to be exactly adjusted to the respective application.

High precision

Featuring a basic accuracy of ±0.2° and a 14bit resolution, the inclination transmitters convince customers wherever precision is required.

Different output options

The analogue and digital output options permit the highest possible degree of flexibility in application connection. 4...20mA, SSI interface and CANopen interface are available.

High degree of housing protection

The water and dustproof aluminium or stainless steel housings with a degree protection of up to IP68 / IP69K permit the use in extremely aggressive media and environments like seawater and detergent.

Solar thermal power plants

Parabolic trough tracking

Solar thermal power plants consist of many parallel curved parabolic collectors (mirrors and absorber tube) and a steam turbine, which is attached to a generator. The sunlight is focused via mirrors on the absorber pipe running in the focal line. The concentrated sun radiation is converted to heat and passed on to a circulating heat transfer medium which drives a downstream turbine. In order to achieve the best possible efficiency, the mirrors follow the position of the sun. Exact positioning is ensured by inclination sensors.

Water management

VAG-Armaturen GmbH, Mannheim, Germany

Drop weight throttle flap

Drop weight throttle flaps are arranged at the turbine intake to protect the turbine. In case of a sudden failure, the flaps close very quickly thus ensuring that the turbine does not run in overspeed. The exact position of the flap is monitored by inclination transmitters.

Water management

Weir position for inlet and outlet control

A Tainter gate is a controllable retaining weir regulating the inlet or outlet of a body of water. It consists of a plate and a support structure mounted on a trunnion. The plate is lowered into the water or drawn up by rods or chains. The pivot point of the plate may be above or below the weir. Inclination transmitters are used for exact positioning and monitoring of the opening angle of the weir gate.

Marine engineering

Cutter suction dredger

Cutter suction dredgers are used to increase fairway depth in waterways and to dig for minerals. A structure, which can be lowered and holds the cutter and the suction tube, is attached to the bow of the ship. The vacuum resulting at the suction orifice takes in the loosened rock and pumps it ashore. Inclination transmitters are used to monitor the exact position and depth of the structure.

Waterways

Position monitoring of a bascule bridge

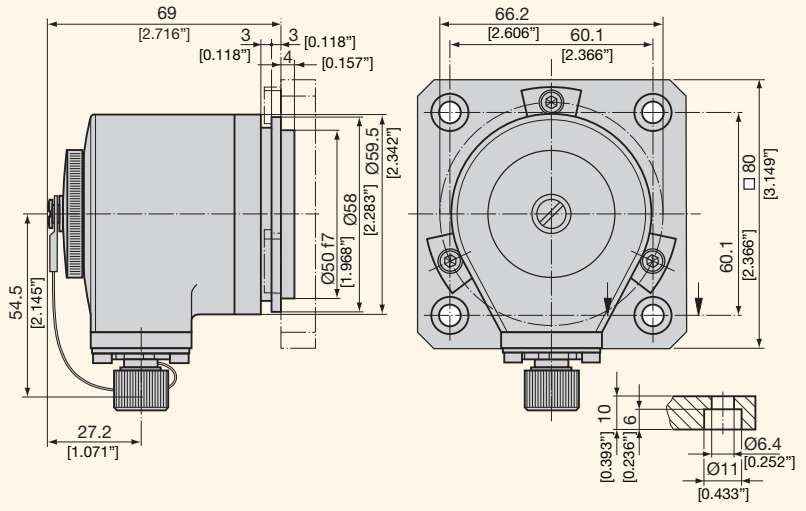
A bascule bridge is a moveable bridge crossing other traffic routes - frequently waterways - which require a larger clearance only occasionally. The moveable span rotates around a horizontal axis and is balanced by a counterweight under the firm part of the bridge. Inclination transmitters are used to measure the exact position of the parts of the bridge and to monitor whether the target position is exceeded or not reached.

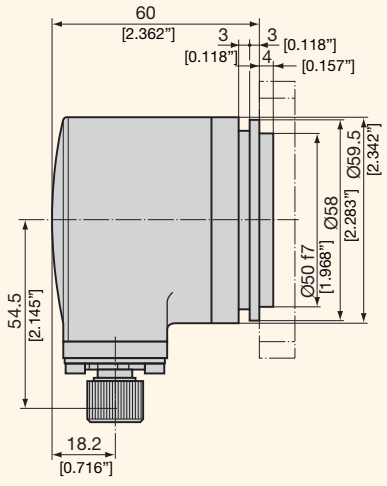
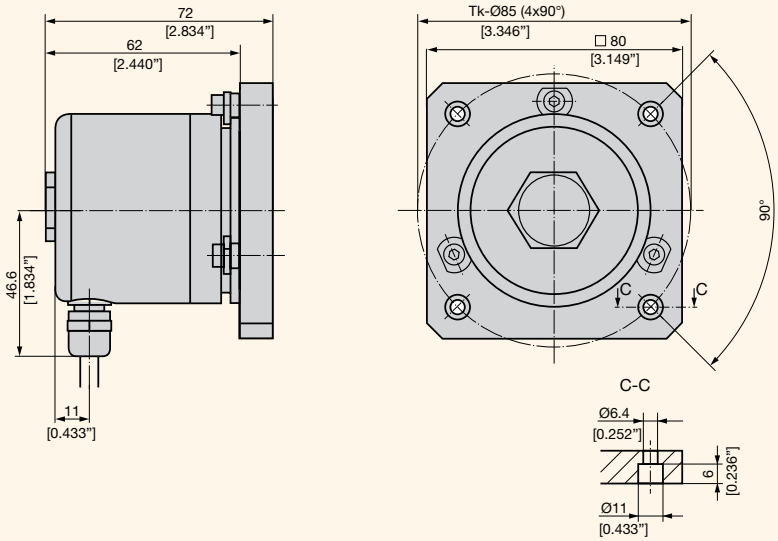
Oil and gas production

Alignment of the drilling head unit in a drilling rig

An offshore drilling rig is a detached steel framework equipped for the exploration of mineral oil or natural gas as well as water sources.
KINAX inclination sensors secure the desired alignment of the drilling unit in relation to the borehole and thus the smooth execution of the drilling operation.

Technical data

	KINAX N702	KINAX N702-SSI
		
Article No.	157 083	157 562
Type	1-axis	
Measuring principle	magnetic / hall-sensor	
Pendulum damping	silicon oil	
Measuring range	0 ... 360°	
Signal adjustment	programming by keys	
Basic accuracy	± 0,2°	
Resolution	12 Bit	14 Bit
Transient response	at 25° tilt < 1 sec.	
Output	4 ... 20 mA / 3-wire circuit	SSI / binary code / 6-wire circuit
Operating voltage	9 ... 36 VDC	9 ... 33 VDC
Temperature range	-30°C ... +70°C	
Temperature influence	0.1° / 10K (>100°)	
Housing protection (acc. to EN 60529)	IP 66	
Annual mean relative humidity	≤ 95%	
Housing material	aluminium coated	
Electrical connection	sensor plug M12x1, 5-pole	sensor plug M12x1, 8-pole
Reverse polarity protection	yes	
Test voltage	500 Veff., 50 Hz, 1 min.	
Emitted interference	EN 61 000-6-4	
Immunity to interference	EN 61 000-6-2	
Weight	approx. 0.3 kg	
Dimensions		

KINAX N702-CANopen	KINAX N702-INOX			
				
157 554	172 479	172 487	172 495	172 502
1-axis				
magnetic / hall-sensor				
silicon oil				
0 ... 360°				
preset sensitivity	programming via control line			
± 0.2°				
14 bit	12 Bit			
at 25° tilt < 1 sec.				
CANopen / 5-wire circuit	4 ... 20 mA / 2-wire circuit			
9 ... 33 VDC	8 ... 33 VDC			
-30°C ... +70°C				
0.1° / 10K (>100°)				
IP 66	IP 68 / IP 69K			
≤ 95%	≤ 100%			
aluminium coated	stainless steel INOX AiSi 316Ti (1.4571)			
sensor plug M12x1, 5-pole	Cable 1.5m	Cable 3.0m	Cable 5.0m	Cable 10.0m
yes				
500 Veff., 50 Hz, 1 min.				
EN 61 000-6-4				
EN 61 000-6-2				
approx. 0.3 kg	approx. 1.1 kg			
				

Accessories

Article No.	Item	Description
168 105	Plug connector M12x1 / 5-pole	For easy cable assembly on site
168 113	Plug connector M12x1 / 8-pole	
168 353	Kit mounting clamp N7xx	For direct assembly of the inclination transmitter on the object to be measured. At least three clamps are required.
172 619	Kit mounting clamp INOX	
168 379	Mounting plate N7xx	For direct assembly of the inclination transmitter on the object to be measured. Additional three clamps are required for assembly.
172 627	Mounting plate INOX	
169 757	Connecting cable for KINAX N702, plug connector M12x1/ 5-pole, cable length 3m	

168 105 / 168 113

168 353

168 379

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