



360° Analogue indicator with stepper motor principle

Features

- Indication of, e. g. propeller position, propeller pitch or rudder angle of ships by 360° scale
- Bright, uniform LED scale illumination for optimum reading
- Direct connection of all standard measuring signals
- Compact and robust design in various sizes with glass fibre reinforced plastic casing and a high resistance against salt spray for harsh ambient conditions
- Customer-specific scales possible
- Fulfil the requirements of all common ship classification societies



The measuring principle

A high resolution motor without a mechanical stop is used in 360° indicators to enable continuous rotation of the dial. As the motor in this indicator has no mechanical stop, the zero point is found by laser scanning of a position marker on the underside of the dial.

The gear backlash of the stepper motor is virtually eliminated by a special motor controller. This method enables pinpoint positioning accuracy of the dial in both directions. In addition the indicator corrects the gear backlash every second when the dial is stationary. The reading is corrected if it deviates from the correct value (within the gear backlash) due to an impact or vibration.

Benefits of analogue indication

- ✓ Optimal readability even at large distance and sharp angles, regardless of daytime or direct sunlight
- ✓ Higher life cycle compared to displays
- ✓ Direct connection without the need of any additional measuring transducers
- ✓ No complex parameterization needed
- ✓ Cost advantage during the whole period of use

Technical data (extract)

Design	Square
Sizes	Square: 72x72 mm, 96x96 mm, 144x144 mm
Input signals	Current: 0 ... 20 mA; 4 ... 20 mA; -20 ... +20 mA Voltage: 0 ... 10 VDC; 2 ... 10 VDC; -10... +10 VDC Other input signals on request
Accuracy class	EN 60051 and IEC 51-1: better than 0.5 % referred to the measuring range
Operating temperature	IEC 60068-2-1/2: -25 °C ... +70 °C
Protection class	DIN EN 60529: Casing front IP66, IP67 and IP68

