



KONGSBERG

WATER IN OIL MONITORING

TECHNICAL DATA

- Measures oil temperature in a scale from 0 to 100°C
- Measures water activity (aw) in a scale from 0..1
- Water activity presents the oils margin to saturation where 1 means the oil is fully saturated.
- Provides real-time measurement of the water activity level and is well suited for leak detection from e.g. coolers.
- Outputs: 2 x 4-20 mA
- Marine type approved
- LEDs indicate status
 - Green: OK
 - Yellow: Pre-alarm
 - Red: Main alarm
- Available with a ball-valve solution which allows the sensor to be replaced while the engine is running.



WATER IN OIL SENSOR

MARINE APPROVED

REAL TIME MONITORING

GP100 AND GP101

WATER IN OIL SENSORS

Avoid wear and corrosion in engine bearings by monitoring the water content of the lubrication oil in real time. The Water in Oil sensors GP100 and GP101 will detect slowly increased water content from the oils long term exposure to humid air as well as in-rush water contamination from a leaky cooler.

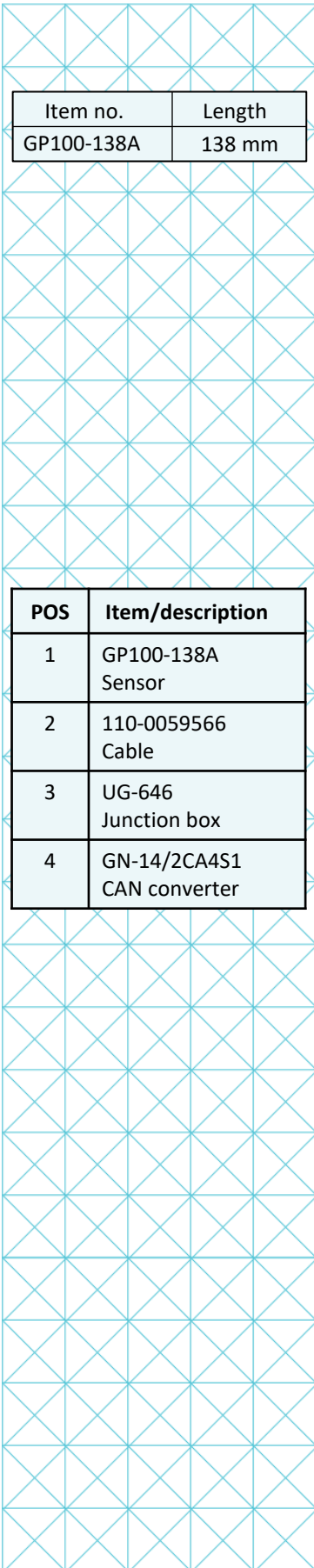
The KONGSBERG GP100/101 Water-In-Oil sensor is designed to be mounted directly on the engines main supply pipe for lubrication oil. Water in Oil measurements are standard on most large bore crosshead engines, but the GP100/101 can be used on any engine type. The calibration is independent from oil quality/type and age.

The sensor is made in rugged stainless steel for long time service and are produced for KONGSBERG by Dr. E. HORN GmbH & Co KG, Germany.

WORKING PRINCIPLE

Oil can absorb a certain amount of water until it reaches the saturation point when free water is formed. The saturation point varies with oil type, quality, age, contaminations (e.g. from combustion process) and temperature.

The GP100/101 utilizes a capacitive sensor element to measure the content of absorbed water. This is called water activity (aw) and follow a scale from 0..1 where 1 means the oil is fully saturated. Pre-alarm is set to 0.5 aw. Alarm is set at 0.9 aw. The alarm state is presented visually by LEDs on the sensor body.

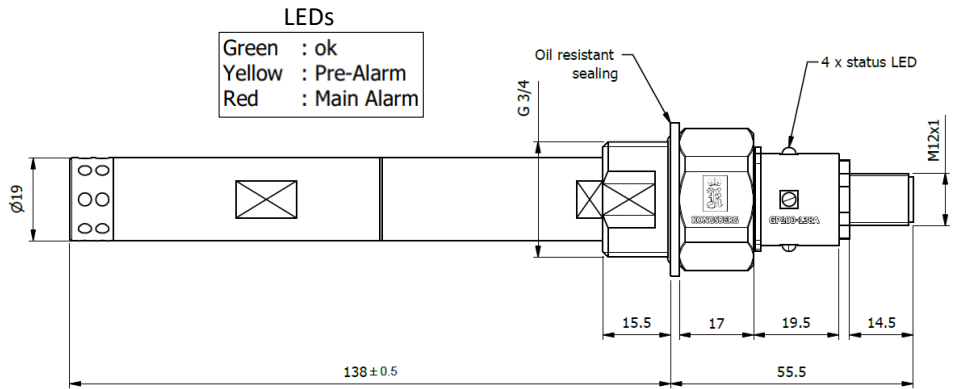


Item no.	Length
GP100-138A	138 mm

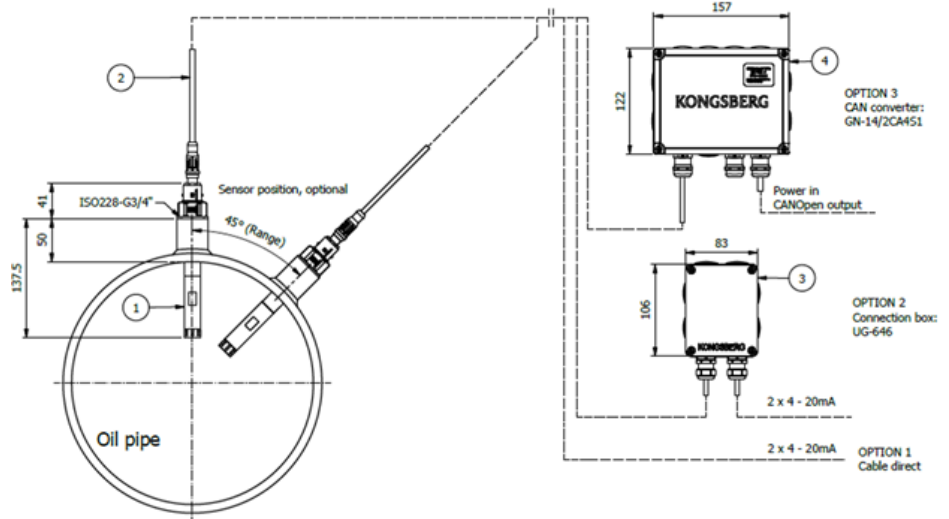
POS	Item/description
1	GP100-138A Sensor
2	110-0059566 Cable
3	UG-646 Junction box
4	GN-14/2CA4S1 CAN converter

GP100-138A OUTLINE

The GP100-138A is delivered with a 3/4" BSP male adapter. Length is 138mm.



GP100 INSTALLATION EXAMPLE



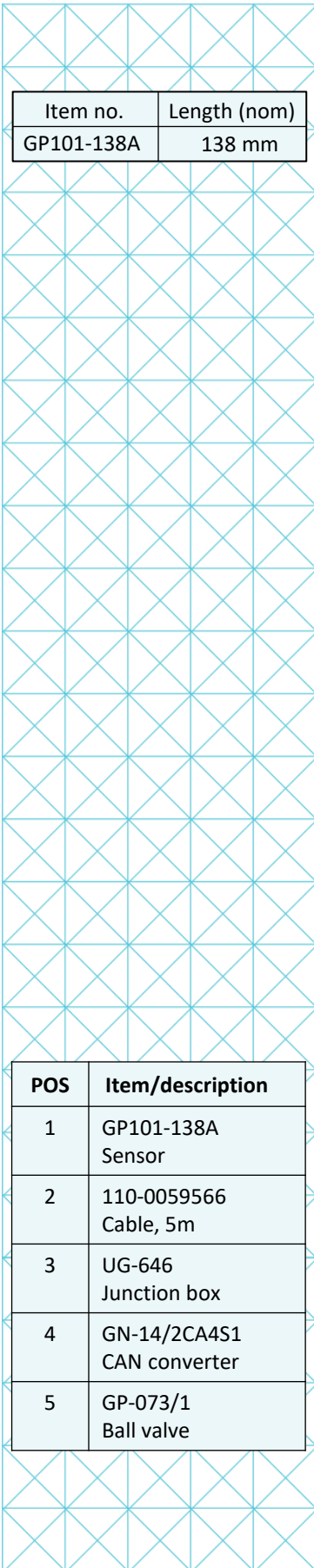
GP100 AND GP101 OUTPUT AND TECHNICAL DATA

OUTPUTS

Output	Function	Value	Signal
Temp	Temperature	0 ... 100°C	4 ... 20mA
aw	Water activity	0 ... 1aw	4 ... 20mA

TECHNICAL DATA

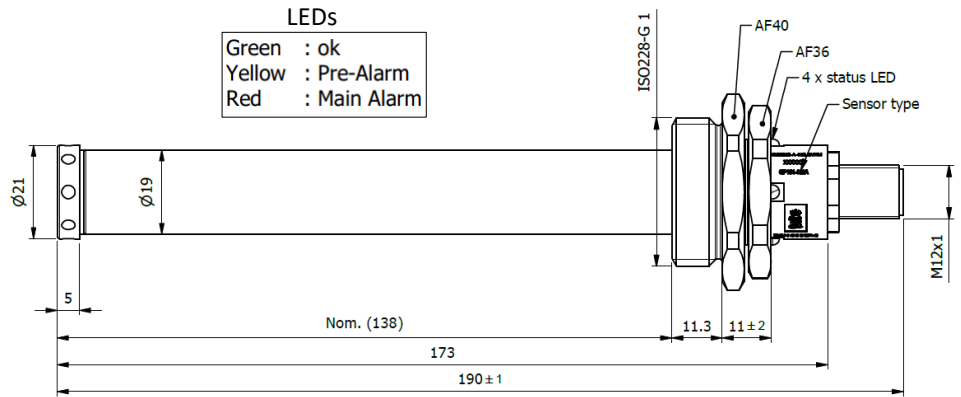
Power supply: +24 VDC
 Current consumption: < 50 mA
 Rload Aout: Max. 500 Ω
 Wrong Polarity Protection: Yes
 Short Circuit Protection SCP: Yes
 Pre-Alarm Value (PAV): 0,5 aw
 Main Alarm Value (MAV): 0,9 aw
 Operating temperature: -25...+85 °C
 Protection class (outside oil pipe): IP 68 DIN EN 60529
 Pressure resistance: 10 bar
 Housing material: Steinaless Steel
 Weight:..... 0.33 kg
 Reference, Marin type approval: DNV Cert.no. TAA00002R6



Item no.	Length (nom)
GP101-138A	138 mm

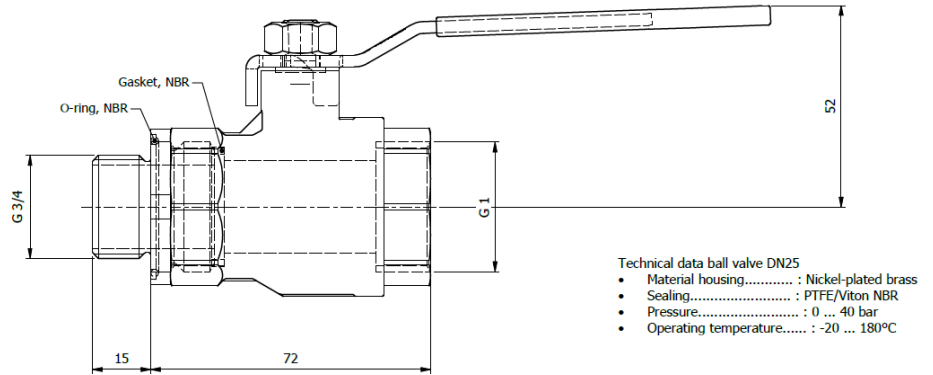
GP101-138A OUTLINE

The GP101-138A is designed for use with ball valve assembly GP-073/1.



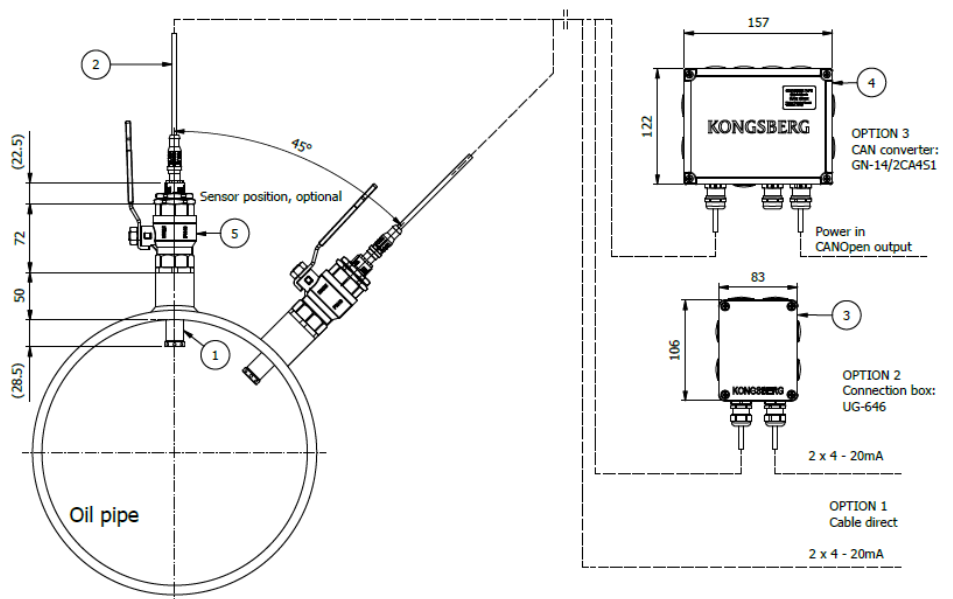
GP-073/1 BALL VALVE ASSEMBLY

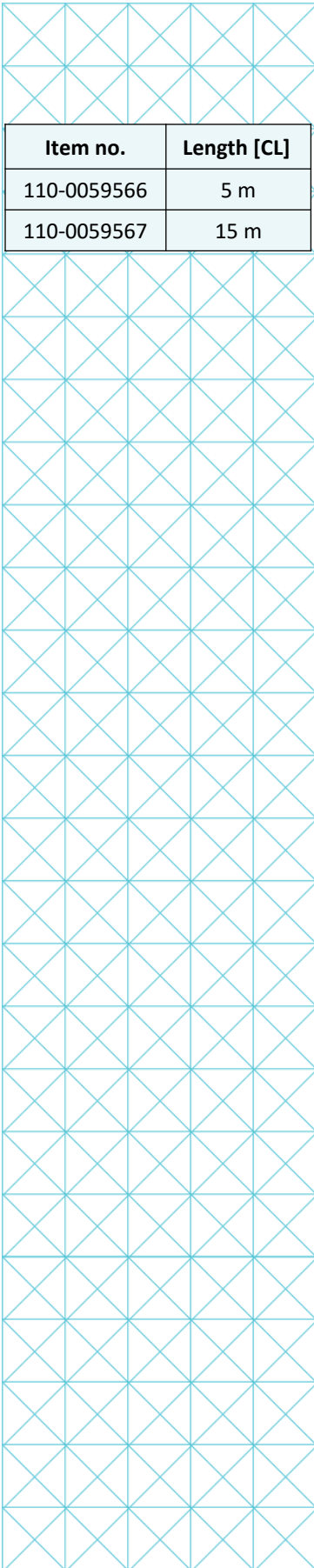
The GP101 can only be installed together with the ball valve assembly GP-073/1



GP101 INSTALLATION EXAMPLE

POS	Item/description
1	GP101-138A Sensor
2	110-0059566 Cable, 5m
3	UG-646 Junction box
4	GN-14/2CA4S1 CAN converter
5	GP-073/1 Ball valve

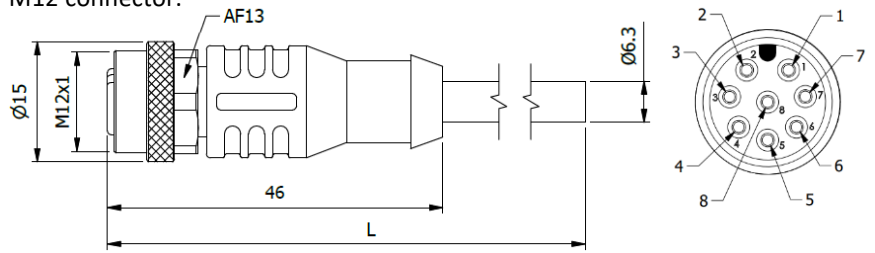




Item no.	Length [CL]
110-0059566	5 m
110-0059567	15 m

CABLE AND CONNECTIONS

The connection to GP100 and GP101 is made by a PUR cable with an 8-pin M12 connector.



Cable color codes

(White) WH	1	+24VDC
(Brown) BN	2	aw S
(Green) GN	3	0V
(Yellow) YE	4	Temp S
(Gray) (GY)	5	
(Pink) (PK)	6	Temp +
(Blue) BU	7	aw +
(Red) RD	8	

Connection

Sensor connector	Output
Pin 1	+24VDC
Pin 2	aw S
Pin 3	0V
Pin 4	Temp S
Pin 7	Temp +
Pin 8	aw +

Technical data, body

Connector.....	female, M12x1
Number of pins.....	8
Coding.....	A
Rated voltage.....	30 V
Current load per pin (at 40°C)	2 A
Resistance.....	≤5 mΩ
Insulation resistance.....	≥10 ⁸ Ω
Temperature range.....	-30 °C ... +90 °C (fixed mounting)
Contact material.....	Metall, CuZn, gold-plated
Grip body material.....	Plastic, TPU, BK
Coupling nut material.....	Metal, CuZn, nickel-plated
Sealing material.....	FPM/FKM
Standards.....	IEC 61076-2-101
Degree of protection (mounted)	IP67
Mechanical life-cycle.....	>100 mating cycles
Cable end assembly.....	open cable end

Technical data, cable

Material.....	PUR
Jacket color.....	BK, similar RAL 9005
Wire cross-section.....	8 x 0,25 mm ²
Wire insulation material.....	PP
Conductor structure.....	32 x 0,10 mm
Bending radius (fixed).....	5 x Ø-cable
Bending radius (repeated)	12 x Ø-cable
Temperature range (fixed)	-40 °C ... +90 °C
Halogen-free.....	yes
Torsion.....	±180 °/m, ≥0,5 Mio. cycles
Rated voltage cable.....	≤300 V
Shielding.....	yes
Weight.....	60g/m
Special features.....	flame retardand, LABS free, seawater-, ozone-, UV-, torsion-, oil- resistant, RoHs compliant, silicone free, hydrolysis proof, UL10493/20549, cULus