WIO 400

Water in oil sensor

Datasheet Rev. 1.26

111881-921 Rev. 1.26 WIO400 Datasheet

Date: April 2026

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Technical data, Sensors



WIO Standard ¾” (ISO 228-1 G¾”), Short

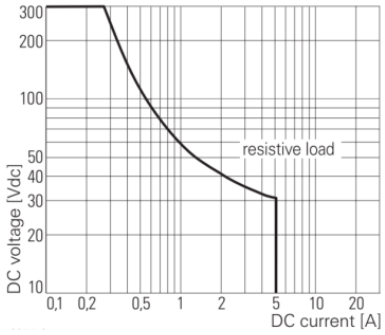


WIO Standard ½” (ISO 228-1 G½”), Short



WIO Ball Valve pipe, Long

Output	
Analogue output (galvanic isolated)	4 – 20 mA for a_w
Analogue output (galvanic isolated)	4 – 20 mA for temperature (0°C – 100°C)
Max. Load (analogue output)	< 500Ω
Measurement Range (4 – 20 mA)	0,01 – 1,00 a_w
Accuracy (0,05-0,95 a_w)	± 0,03 a_w
Accuracy (outside 0,05-0,95 a_w)	± 0,05 a_w
Resolution	< 0,004 a_w
Digital output	Communication RS485
Communication Protocol	Modbus RTU
Input	
Supply nominal voltage	24V DC ± 10%
Max. residual voltage ripple	10%
Maximum Load current	200 mA
Max. Power input	< 4,8 VA

Relays	
Contact arrangement	2 x Normally Closed (NC)
Rated voltage	60V
Rated current (40°C)	1A
Max. DC Load breaking capacity	
Relay 1	*„High Alarm"*
Relay 2	*„High High Alarm"*
Default High Alarm	0,50 a_w
Default High High Alarm	0,90 a_w

Socket specification	
Connector design	1x male socket, 1x female socket
Connector locking system	Screw-locking, M12x1
Wire gauge	0,25 mm^2
Contacts	8 Pol
Rated voltage	60V
Rated current (40°C)	1A
Cable specification	
Cable design	Multipair overall screened cable
Outlet diameter	9,9 mm
Voltage class	0,6/1kV
Wires	4x2 twisted pair
Wire gauge	0,75 mm^2
Media for measurement	
Lubrication oil	Grade SAE 30/TBN 5-10
Max. Oil temperature	90°C
Max. Oil pressure	Sensor mounting method in application: Ball valve mounted: Max. 10 Bar Thread mounted: Max. 20 Bar

Response times	
Delay before valid data from start-up	< 30 s
Delay before valid data from installation (first use)	10 minutes
Device Failure Indication	
Analogue output	< 2 mA
Manual test	
Press sensor test button for 5 seconds	High Alarm turns on for 5 seconds
Press sensor test button for 10 seconds	High Alarm turns off High High Alarm turns on for 5 seconds
Press sensor test button for 15 seconds	Normal operating and test button ignored
Miscellaneous	
Ambient Temperature, running / storage	0 - 90°C / -30 - +95°C
Relative humidity for running and storage	10% up to 95%, no condensation
Re calibration	Recommended with max 3 years interval
Warranty	1 year
Approvals	
Germanischer Loyd	Previous generations of WIO sensors were type approved by Germanischer Lloyd (2009) and by MAN Diesel for installation with all MAN B&W two-stroke diesel engines (2009).
Intended use	The WIO200B is not class-approved and is not intended for use in safety-critical or class-required shutdown systems. The sensor is intended for monitoring and advisory purposes only. Integration into control or safety systems is the responsibility of the system integrator.
Enclosure	
Weight for WIO standard	650 grams
Weight for WIO Ball valve pipe	790 grams
Connection (mechanical)	ISO 228-1 G ½" or ¾" thread 2 x 8-pole connectors, male and female, M12x1 thread
Enclosure material	Stainless Steel/Aluminum EN44100 (Former 4261)
Protective type	IP66

Technical Data, Terminal Boxes



Output	
Analogue output	See the specifications for sensor's analogue output
Digital output	See the specifications for sensor's digital output
Input	
Supply nominal voltage	24V DC ± 10%
Max. residual voltage ripple	10%
Maximum Load current	200 mA
Max. Power input	< 4,8 VA
Relays	
Contact arrangement	2 x Normally Open (NO)
Rated voltage	250 VAC
Max. switching voltage	400VAC
Rated current	2A
Breaking capacity max.	1250VA
Enclosure	
Weight	650 grams
Connection to sensor (mechanical)	2 x 8-pole connectors, male and female, M12x1 thread
Connection (mechanical)	2 x M20 gland, cable diameter 6 to 12 mm 1 x D-sub9, male
Enclosure material	Aluminum
Protective type	IP66
Warranty	1 year

Technical Data Terminal Display Box



Output	
Analogue output	See the specifications for sensor's analogue output
Digital output	See the specifications for sensor's digital output
Input	
Supply nominal voltage	24V DC ± 10%
Max. residual voltage ripple	10%
Maximum Load current	200 mA
Max. Power input	< 4,8 VA
Relays	
Contact arrangement	2 x Normally Open (NO)
Rated voltage	250 VAC
Max. switching voltage	400VAC
Rated current	2A
Breaking capacity max.	1250VA
Display version - a_w (water activity from 0,01 to 1,00**)**	
Accuracy (0,05-0,95 a_w)	± 0,03 a_w
Resolution	<0,004 a_w
Display version - PPM (H_20, temperature compensated)	
Accuracy (0,05-0,95 a_w)	±30% (±20% with PAJ Oil Analysis)
Resolution	1 PPM
Enclosure	
Weight	650 grams
Connection to sensor (mechanical)	2 x 8-pole connectors, male and female, M12x1 thread
Connection (mechanical)	2 x M20 gland, cable diameter 6 to 12 mm 1 x D-sub9, male
Enclosure material	Aluminum
Protective type	IP66
Warranty	1 year

Technical Data Terminal Box Alarm



Output	
Analogue output	See the specifications for sensor's analogue output
Digital output	See the specifications for sensor's digital output
Input	
Supply nominal voltage	24V DC ± 10%
Max. residual voltage ripple	10%
Maximum Load current	200 mA
Max. Power input	< 4,8 VA
Relays	
Contact arrangement	2 x Normally Open (NO)
Rated voltage	250 VAC
Max. switching voltage	400VAC
Rated current	2A
Breaking capacity max.	1250VA
Buzzer	
Oscillation frequency	3000±500 Hz
Sound pressure level	85db by open housing
Tone	pulsed
Button with LED	
Blink frequency	2 Hz
Color	RED
Enclosure	
Weight	530 grams
Connection to sensor (mechanical)	2 x 8-pole connectors, male and female, M12x1 thread
Connection (mechanical)	2 x M20 gland, cable diameter 6 to 12 mm 1 x D-sub9, male
Enclosure material	Aluminum
Protective type	IP66
Warranty	1 year

Technical Data Terminal Box Alarm Buzzer

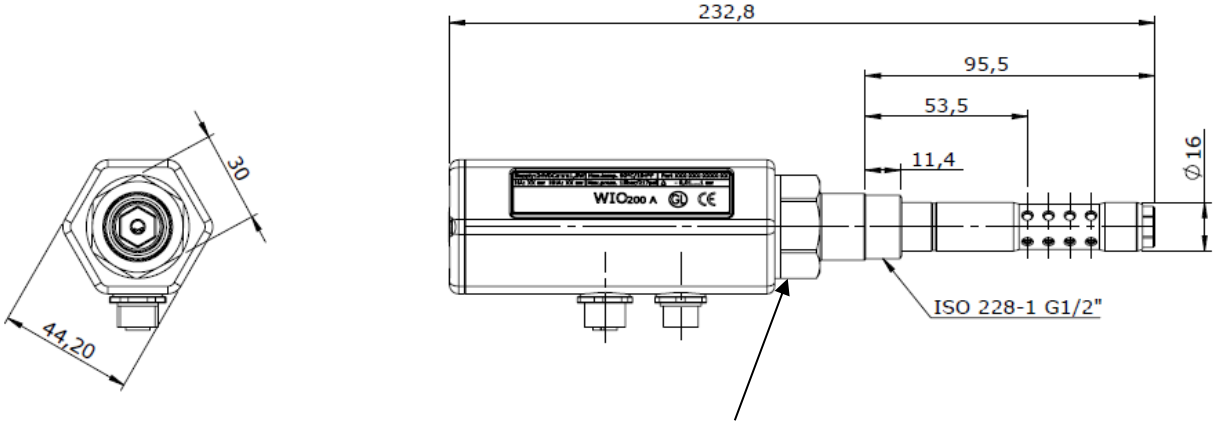


Output	
Analogue output	See the specifications for sensor's analogue output
Digital output	See the specifications for sensor's digital output
Input	
Supply nominal voltage	24V DC ± 10%
Max. residual voltage ripple	10%
Maximum Load current	200 mA
Max. Power input	< 4,8 VA
Relays	
Contact arrangement	2 x Normally Open (NO)
Rated voltage	250 VAC
Max. switching voltage	400VAC
Rated current	2A
Breaking capacity max.	1250VA
Display version - a_w (water activity from 0,01 to 1,00**)**	
Accuracy (0,05-0,95 a_w)	± 0,03 a_w
Resolution	<0,004 a_w
Display version - PPM (H_20, temperature compensated)	
Accuracy (0,05-0,95 a_w)	±30% (±20% with PAJ Oil Analysis)
Resolution	1 PPM
Buzzer	
Oscillation frequency	3000±500 Hz
Sound pressure level	85db by open housing
Tone	pulsed

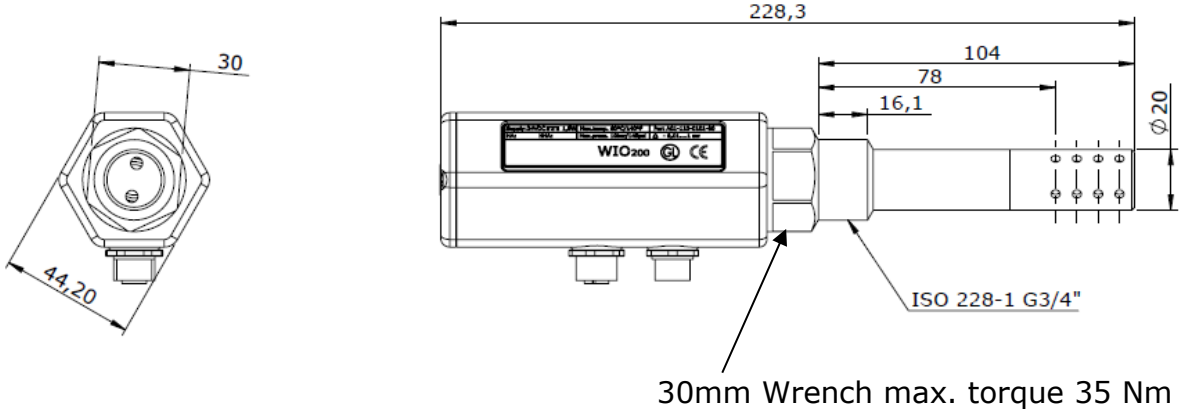
Button with LED	
Blink frequency	2 Hz
Color	RED
Enclosure	
Weight	650 grams
Connection to sensor (mechanical)	2 x 8-pole connectors, male and female, M12x1 thread
Connection (mechanical)	2 x M20 gland, cable diameter 6 to 12 mm 1 x D-sub9, male
Enclosure material	Aluminum
Protective type	IP66
Warranty	1 year

WIO Sensors, dimensions in mm

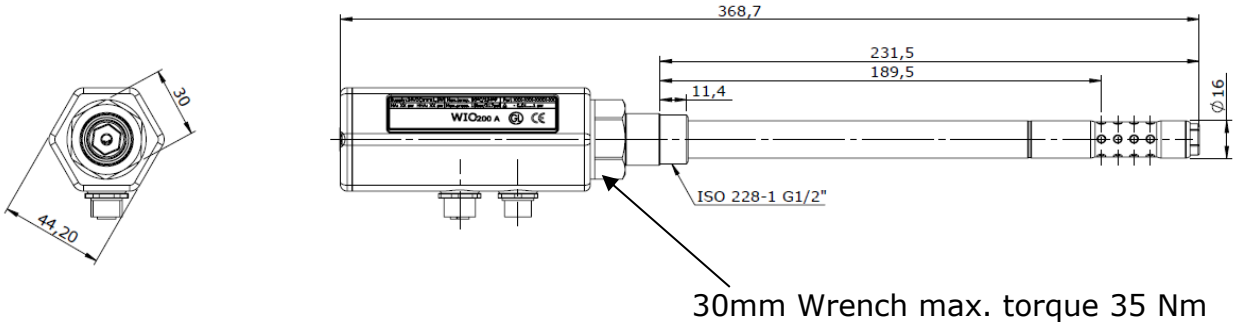
WIO Standard ½" thread Sensor, Short dimensions in mm:



WIO Standard ¾" thread Sensor, Short dimensions in mm:



WIO Ball Valve pipe ½" thread Sensor, Long dimensions in mm:



Terminal box, dimensions in mm

