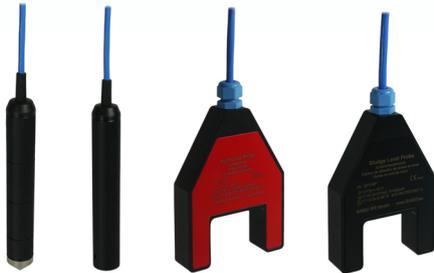
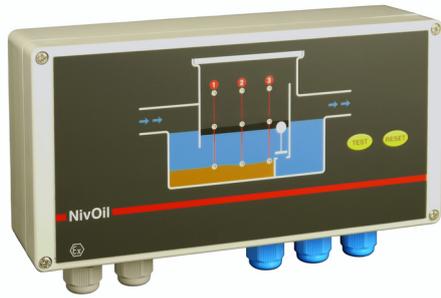


OIL/LIGHT LIQUID SEPARATOR MONITORING

NivOil® / 230 V AC



- Status and alarm signalling
- Automatic probe recognition
- 3x alarm relay output
- Audible alarm signalling
- EU type-examination tested

APPLICATIONS

- Monitoring of oil/light liquid separators

DESCRIPTION

The NivOil monitoring system is used with oil/light liquid separators. It is used to monitor the level of the accumulating oil/light liquid layer, the maximum accumulation level in case of blockage of the drainage system and, if applicable, the sludge layer settling on the bottom.

Up to a maximum of three monitoring probes can be connected to the sensor power supply unit - type: NivOil CU (BVS 07 ATEX E 090).

The oil probe - type: NivOil OP (BVS 07 ATEX E 091 X) detects the oil/light liquid layer floating on the water.

The high level probe - type: NivOil HP (BVS 07 ATEX E 092 X) detects a blockage of the drainage system. This alarm can inform that drainage is blocked.

The alternative high level probe - type: NivOil HPS (BVS 09 ATEX E 021 X) detects a blockage of the drainage system. An alarm signal is triggered as soon as the inflowing water has reached a level that is too high.

The sludge level probe - type: NivOil SP (BVS 09 ATEX E 021 X) detects whether a sludge layer has grown on the bottom of the separator. As soon as the sludge level has reached the too high level an alarm signal is triggered.

All probe inputs are self-configuring.

Therefore, one of the three different intrinsically safe probe types can be connected to each of the three intrinsically safe channels of the power supply unit (NivOil CU). The unit detects which intrinsically safe probe type is connected to which channel and activates the corresponding LED on the front panel. If a channel is not assigned, its LEDs also remain switched off during operation. The unit has a built-in horn. If necessary, it can be deactivated with DIP switch 1.

CE mark: The device fulfils the legal requirements of the applicable EU directives (see associated EU declaration of conformity).

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SEPARATOR MONITORING
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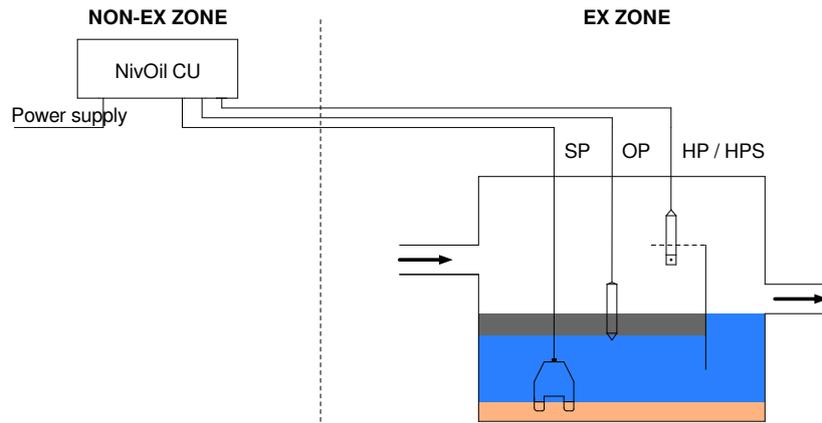
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DESCRIPTION (continued)

Always mount the sensor supply unit (NivOil CU) outside the potentially explosive areas ("safe area").



TECHNICAL FEATURES

Sensor Supply Unit / Control Unit (NivOil CU)

Operating voltage	230V AC 50...60Hz
Safety-related maximum voltage	Um = 250V AC
Power consumption	9W / 11 VA (if 3 probes are connected)
Wall-mounted housing	240x120x70mm
Protection	IP65
Ambient temperature	-20...+60 °C
EU Type Examination Certificate	BVS 07 ATEX E 090
Ex loop impedance	The maximum permissible values (U_0 , I_0 , P_0 and C_0 , L_0) of the intrinsically safe measuring circuits were taken from the type examination certificate/type plate for each channel and in combination with the NivOil probes.
Ex marking	Ⓔ II (1)G [Ex ia Ga] IIB/IIA (associated electrical equipment)
Probe inputs	3 universal inputs, self-configuring for probes of the types: - NivOil OP - NivOil HP / HPS - NivOil SP
Monitoring	The probes are monitored for cable breakage and short circuit
Display and signals	Per channel: 1x green LED each for operating and 1x red LED each for alarm message Alarm horn integrated, can be switched off via DIP switch
Front panel, interface	Foil push-button for test and horn acknowledgement internal 4-fold DIP switch
Alarm relay	3 output relays, 230V AC, 3A, each measuring channel is assigned a potential-free changeover contact

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TECHNICAL FEATURES (continued)**Relay contact circuits**

Current type	AC					DC		
Voltage	250V	250V	24V	110V	220V	24V	110V	220V
Current	5A	3A	6A	0,5A	0,3A	1,5A	0,22A	0,14A
Power	100VA	-	144W	55W	66W	20W	20W	20W
Cos	-	≥0,7	-					
L/R						≤40ms		

Intrinsically safe circuits

Version	Sensor supply unit (NivOil CU)		
Circuit parameters	per channel	Total	
Channel designation	E1, E2, E3	E1 + E2 + E3	
Terminals	Terminal (+), Terminal (-)	Terminal (+), Terminal (-)	
Voltage U _o	17,8V	17,8V	
Current I _o	156mA	468,5mA	
Power P _o	695mW	2084mW	
Max. external capacity C _o (no mixed parameters)	IIB	1,84μF	1,84μF
	IIA	7,9μF	7,9μF
Max. external inductance L _o (no mixed parameters)	IIB	5,8mH	648μH
	IIA	11,6mH	1296μH
Max. Inductance resistance ratio L _o /R _o	IIB	204,6μH/Ω	68,2μH/Ω
	IIA	409,3μH/Ω	136,4μH/Ω
Characteristic	linear		



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TECHNICAL FEATURES (continued)

Oil Probe (NivOil OP)

For connection to the sensor power supply unit (NivOil CU)!

Probe material	PE-EL with stainless steel sensor
Cable	Standardmäßig mit 10m öl-/benzinfestem Kabel 2x1mm ² other cable lengths on request, Maximum permissible cable length: 300m [C] line ≤ 200 nF/km and [L] line ≤ 1 mH/km
Cable colour	blue
Dimensions	Approximately Ø32x250mm, including cable guide with 5 cm markings for height adjustment
Protection	IP68
Detection principle	Capacitive detection, high frequency
Ambient temperature	-20...+60 °C
EU Type Examination Certificate	BVS 07 ATEX E 091 X
Ex loop impedance	
Maximum input voltage U _i	17,9V DC
Maximum input current I _i	157mA
Maximum input power P _i	695mW
Maximum internal capacity C _i	60nF (no mixed parameters)
Maximum internal inductance L _i	0,3mH (no mixed parameters)
Ex marking	Ⓔ II 1G Ex ia IIB T4 Ga (intrinsically safe electrical equipment)
Interconnection	Sensor supply unit (NivOil CU) with oil probe (NivOil OP)



High Level Probe (NivOil HP)

Exclusively for connection to the sensor power supply unit (NivOil CU)!

Probe material	PE-EL with PTC stainless steel sensor
Cable	Standard with 10m oil/petrol resistant cable 2x1mm ² . Other cable lengths on request Maximum permissible cable length: 300m [C] line ≤ 200 nF/km and [L] line ≤ 1 mH/km
Cable colour	blue
Dimensions	approx. Ø32x230mm incl. cable grommet
Protection	IP68
Detection principle	PTC sensor, heated
Ambient temperature	-20 ... +60 °C
EC type-examination certificate	BVS 07 ATEX E 092 X
Ex loop impedance	
Maximum input voltage U _i	17,9V DC
Maximum input current I _i	157mA
Maximum input power P _i	695mW
Maximum internal capacity C _i	60nF (no mixed parameters)
Maximum internal inductance L _i	0,3mH (no mixed parameters)
EX marking	Ⓔ II 1G Ex ia IIB T3 (intrinsically safe electrical equipment)
Interconnection	Sensor supply unit (NivOil CU) with high level probe (NivOil HP)



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TECHNICAL DATA (continuation)

High Level Probe (NivOil HPS)

Exclusively for connection to the sensor power supply unit (NivOil CU)!

Probe material	PVC
Cable	Standard with 10m oil/petrol resistant cable 2x1mm ² . Other cable lengths on request Maximum permissible cable length: 300m [C] line ≤ 200 nF/km and [L] line ≤ 1 mH/km
Cable colour	blue
Dimensions	About 145 x 90 x 25 mm
Protection	IP68
Detection principle	Ultrasonic sensor
Ambient temperature	-20 ... +60 °C
EU Type Examination Certificate	BVS 09 ATEX E 021 X
Ex loop impedance	
Maximum input voltage U _i	17,9V DC
Maximum input current I _i	157mA
Maximum input power P _i	695mW
Maximum internal capacity C _i	0,14nF/m (no mixed parameters)
Maximum internal inductance L _i	70µH/m (no mixed parameters)
Ex marking	⊕ II 1G Ex ia IIB T4 Ga (intrinsically safe electrical equipment)
Interconnection	Sensor supply unit (NivOil CU) with high level probe (NivOil HPS)



Note!

Use only in stagnant or slow-flowing media.

Strong mechanical impacts on the probe housing must be avoided during installation, maintenance work and operation.

Clean only with a damp cloth, avoid electrostatic charges.

Sludge Level Probe (NivOil SP)

Exclusively for connection to the sensor power supply unit (NivOil CU)!

Probe material	PVC
Cable	Standard with 10m oil/petrol resistant cable 2x1mm ² . Other cable lengths on request Maximum permissible cable length: 300m [C] _{Leitung} ≤ 200nF/km und [L] _{Leitung} ≤ 1mH/km
Cable colour	blue
Dimensions	approx. 145x90x25mm
Protection	IP68
Measuring principle	Ultrasound
Ambient temperature	-20...+60°C
EU Type Examination Certificate	BVS 09 ATEX E 021 X
Ex-maximum values	
Maximum input voltage U _i	17,9V DC
Maximum input current I _i	157mA
Maximum input power P _i	695mW
Maximum internal capacity C _i	0,14nF/m (no mixed parameters)
Maximum internal inductance L _i	70µH/m (no mixed parameters)
Ex marking	⊕ II 1G Ex ia IIB T4 Ga (intrinsically safe electrical equipment)
Interconnection	Sensor supply unit (NivOil CU) with sludge level sensor (NivOil SP)



Note!

Use only in stagnant or slow-flowing media.

Strong mechanical impacts on the probe housing must be avoided during installation, maintenance work and operation.

Clean only with a damp cloth, avoid electrostatic charges.

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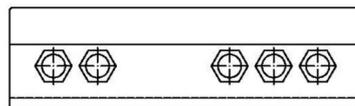
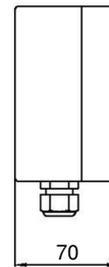
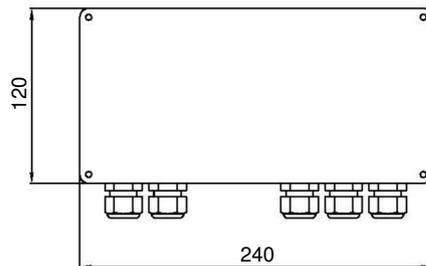
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CODE NUMBERS AND REFERENCES

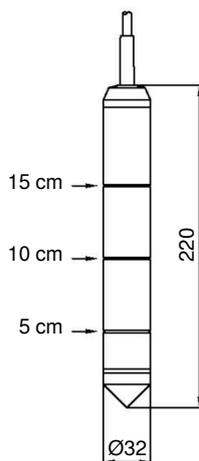
Code	Reference	Description
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531 102	NivOil-OP/10	Oil layer thickness probe with 10m cable
531 200	NivOil-HP/10	High level probe with 10m cable
531 205	NivOil-HPS/10	High level probe with 10m cable
531 301	NivOil-SP/10	Schlammpegelsonde mit 10m Kabel
531 553	CET03	Coupler for cable extension
531 502	SK-PVC-2x1	oil/petrol resistant cable 2x1mm ² , blue

Other versions: on request

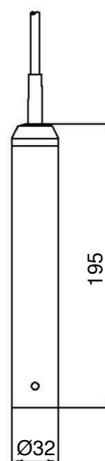
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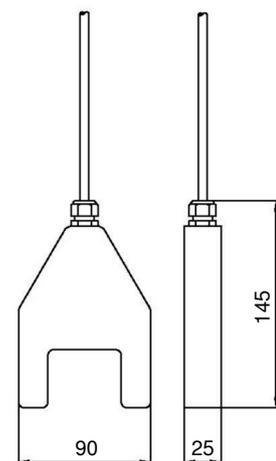
NivOil CU/220



NivOil OP/...



NivOil HP/...



NivOil HPS/... NivOil SP/10

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