VDO

Let's turn ideas into success

VDO Ocean Line
Engine monitoring

At home on the oceans

State-of-the-art products for more than 50 years
The name VDO represents top quality, reliability, precision, and innovative technologies and easy operation. As the world's largest independent instrument manufacturer with more than 50 years of experience, we can guarantee this – thanks to the research, development, design, manufacturing and quality assurance carried out on our own premises. VDO marine instruments have proved their worth excellently all over the world. They fulfil the demanding requirements of Original Equipment Manufacturers and are ideally suitable for retrofitting any pleasure boat.

Up to any weather
The extreme environmental conditions at sea cause heavy corrosion especially to these electronic instruments. That's why VDO technology has to undergo severest quality checks. The instrument's later physical conditions of use are taken into consideration consistently right from the word go. That leads to precision in DIN ISO 9001 quality and to certification of the complete range of Ocean Line instruments for engine monitoring according to GL (Germanic Lloyd) 12276, 77 – 98 HH.

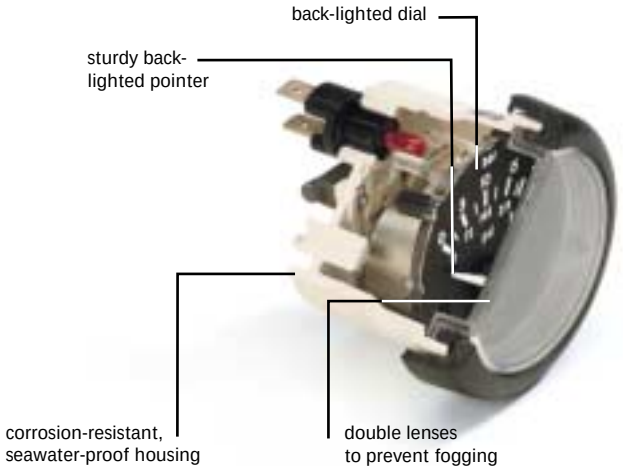
All VDO instrument housings are hermetically sealed at the front, corrosion-free and fitted with double lenses made of impact-resistant plastic. This as good as eliminates disturbing reflections when taking readings, reliably prevents instrument fogging and guarantees seawater-proofness. The domed design also minimises annoying light reflection and allows the water to run off quickly when it is installed in a horizontal position. It goes without saying that all VDO instruments comply with CE regulations.

The attractive dials are illuminated using back light technology, which means they are illuminated from behind. This always guarantees excellent readability and improves the optical attractiveness of the product.

Power under control
The engine is the heart of any motor yacht. Controlled engine operation is a matter of course for every responsible skipper. VDO supplies a whole range of instruments for engine monitoring – in the Ocean Line series. These guarantee that the "actual condition" of the engine is known all the time.

Extremely precise VDO engine monitoring instruments have been convincing important shipbuilders for a long time. Leading shipyards place their trust in VDO instruments as original equipment. And during harsh conditions in sea rescue lifeboats VDO's marine instruments prove their reliability time and time again.

VDO Ocean Line



Safety from the bow to the stern

OCEAN LINE BLACK

OCEAN LINE WHITE

OCEAN LINE CHROME

OEM-SOLUTIONS

ACCESSORIES

TECHNICAL DATA

ORDER DATA

The VDO Ocean Line instruments temperature display, pressure indicator, voltmeter, fuel gauge, fresh water supply gauge and waste water display can all be optionally fitted with a warning lamp.

The **VDO Ocean Line temperature gauge** determines sudden increases in temperature in the cooling cycle as they happen, thus avoiding serious damage to the engine.

The reliable **VDO Ocean Line pressure gauge** immediately recognises irregularities in the oil pressure in the engine and gear oil cycles and in the charging pressure in the turbocharger.

The tried-and-trusted **VDO Ocean Line voltmeter** recognises the condition of the generator, the battery and the load situation and indicates this on the voltage display. Even possible deep discharging can be detected and values exceeding the usual charging voltages can be exactly monitored.

With the **VDO Ocean Line fuel gauge** you always know for sure how much fuel is still in the tank. A lever-type sensor is used in the common flat tanks. For tank depths between 220 mm and 1050 mm as well as for use on sea-going yachts, VDO offers an extensive series of particularly tubular sensors.

To the responsible skipper, the **VDO Ocean Line fresh water gauge** is not a luxury but rather a necessity. The VDO sensor determines the filling level capacitively. It can easily be adapted to any tank depth and is absolutely wear-free.

The **VDO Ocean Line waste water gauge** indicates the filling level of the soiled water tank. The different waterproof capacitive sensors can be mounted in tanks up to 1500 mm deep thanks to a screw-on flange.

The **VDO Ocean Line ammeter** enables you to keep a check on the complete electrical household. Current extraction and charging current are displayed exactly. The shunt, a measuring resistor, is inserted into the measuring position in next to no time. Thin measuring leads connect the shunt to the display, are easy to lay and require little space.

The **VDO Ocean Line pyrometer** determines the exhaust air temperature (up to 900°C) at the end of the exhaust accumulator. The temperature of the exhaust air in relation to the highest permissible exhaust air temperature shows how effective the engine combustion is at the given load. Increasing exhaust air temperature is thus an important warning signal.

With the **VDO Ocean Line hour meter** it's easy to keep necessary service and maintenance deadlines. It only runs when the engine is switched on so that only the actual working hours of the machine are recorded.

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The **VDO Ocean Line quartz clock** ideally matches the Ocean Line series. Every cockpit which has this clock retains the standard attractive VDO – outstanding thanks to its maximum clarity.

The **VDO Ocean Line acoustic warning device** draws attention to danger at a penetrating 85 dB. It can be connected to all sensors with warning contacts.

Precision for ship and crew

Each of the easy-to-install devices has been individually checked to our high quality standards

The **VDO Ocean Line rudder position gauge Ø 85 mm** helps to manoeuvre wheel-steered yachts more easily from their resting position in the harbour or through locks, since the position of the rudder can be read off from the display at all times. The display is available in the diameters 85 mm and 52 mm.

VDO Ocean Line rudder position gauge Ø 52 mm

The **VDO Ocean Line tachometer without engine hourcounter Ø 85 mm** is available in two different versions: for 12 V or 24 V current supplies. Connection to terminal W or terminal 1 possible.

The **VDO Ocean Line tachometer without engine hourcounter Ø 52 mm** only works with a 12 V current supply.

VDO Ocean Line tachometer without engine hourcounter Ø 52 mm

The **VDO Ocean Line tachometer with engine hourcounter Ø 85 mm** is a must for checking the engine performance under normal load conditions and at nominal speed, the propeller synchronisation and the motorisation. It can be operated at both 12 and 24 Volts, is suitable for connection to terminal W or terminal 1 and for inductive sensors and has an integrated electronic hours counter (EBZ).

It quite simply fits

Ocean Line White

Ocean Line Chrome

All VDO display instruments look very attractive and can be read easily. As well as the series Ocean Line Black illustrated previously you also have the choice between two further design versions: Ocean Line White and Ocean Line Chrome. Or you can use screw-on chrome bezels to quickly add a special styling touch to Ocean Line Black and Ocean Line White devices. The advantages: the chrome look is then available with double lenses and a white or black dial as required. Our variable design possibilities means it's no problem to use our instruments as original equipment.

Ocean Line front bezels, different design versions

Our references: excellent OEM solutions

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Siemens VDO is the top address for engine and on-board mains monitoring in vehicles. It's not for nothing that you'll find VDO instruments in the cockpit of all well-known vehicle manufacturers such as Mercedes Benz, Volkswagen, BMW and many others. In the segment of motor boats and light commercial ships the Original Equipment Manufacturers (OEM) of drive units have decided in favour of VDO engine and on-board monitoring equipment.

Siemens VDO supplies the world market leader, Mercury, manufacturer of inboard and outboard engines for power boats, with a complete range of BUS-capable instruments for the "Mercury Smart Craft" system and the monitoring system "System View".

For the world's leading supplier of diesel and petrol inboard engines, Volvo Penta, Siemens VDO manufactures the complete range of display and monitoring systems for the driving gear used in yachts. As for MAN, MTU, Nanni, Iveco Ifo, Yanmar and many others.

OEM customers also include the industrial engine manufacturer Deutz. Here Siemens VDO supplies the instrument panel system P1/P3 which is fitted with a data bus system and used in the engine series 1013/15.

Not only engine suppliers from the marine segment but also the manufacturers of power boats and yachts rely on the case-proven engine and on-board monitoring devices from Siemens VDO. They have realised how sensible it is to design the "cockpit" of a power boat in a similar way to that of a motor vehicle.

Marine OEM Key Accounts

Mercury "Smart Craft" instruments

Volkswagen Marine:
Instrument panel with multi-function tachometer and Ocean Line instruments

Volvo Penta:
Instruments for boat engines

Deutz instrument panel P2 for the engine generation 1013/1015

To round things off: accessories from VDO

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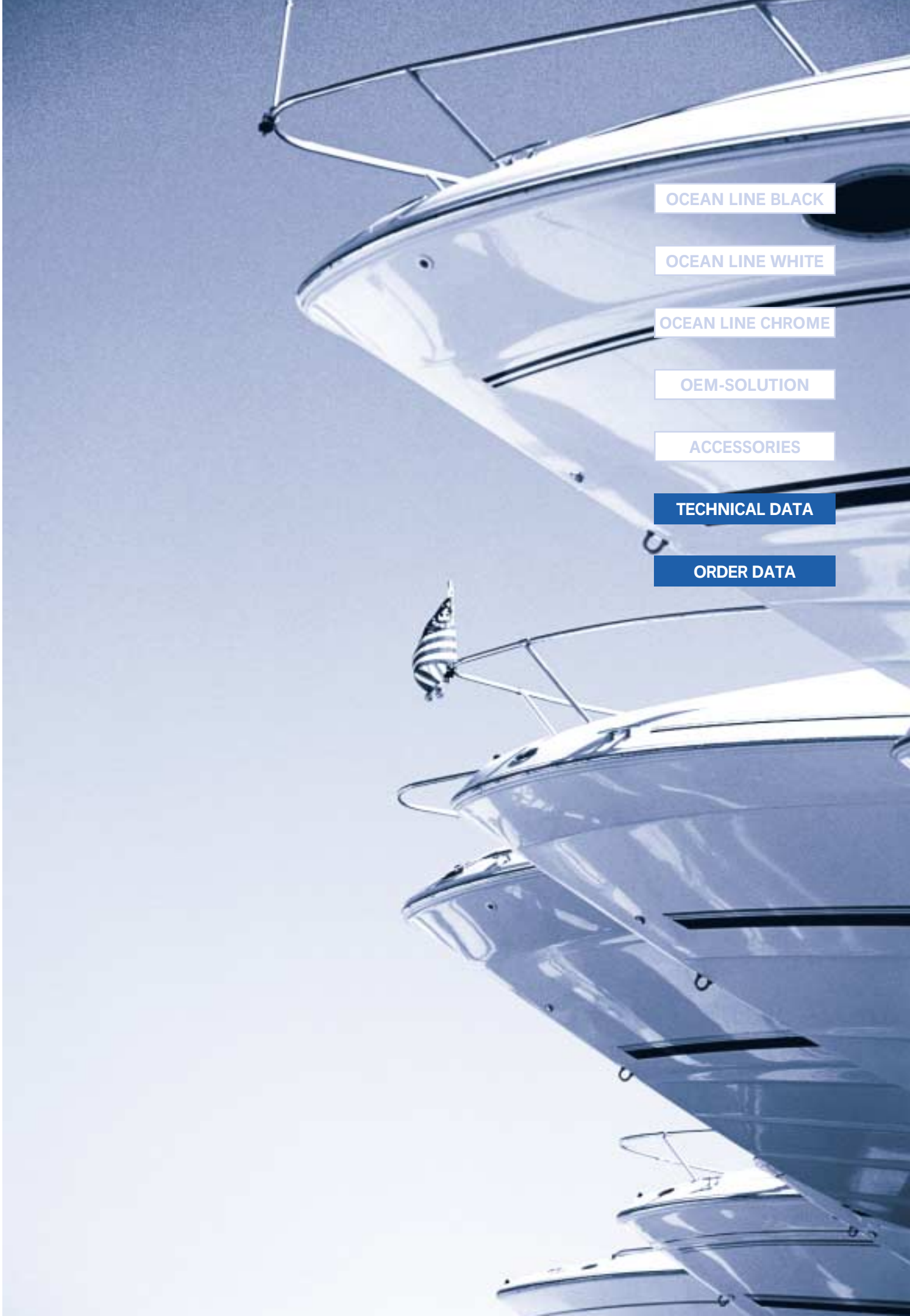
Siemens VDO engine monitoring instruments of the current Ocean Line generation are compatible with devices from previous series – as a result of tried-and-trusted basic design elements. Front bezels and rings from the standard range of the Logic and Ocean Line series can all be used together. In addition, we can supply the front bezels in white, black or chrome. This makes it possible to always generate a standardised appearance using front bezels or front plates from the extensive range of accessories. We offer a wide range of different installation possibilities with our accessories: “flush”, which means without a front bezel and flush with the cockpit surface, and “classic”, which means with front bezel.

The VDO makepoint switch, here illustrated for example with the VDO Ocean Line temperature gauge.

With the aid of the VDO makepoint switch, sensors without a warning contact and earth return sensors can be supplemented by a freely adjustable warning contact. This is ideal for tank, temperature, pressure and rudder position sensors. Even sensors which are not from the VDO range can be used in connection with the makepoint switch with appropriate resistor values.

The Ocean Line warning makepoint switch is quickly mounted: simply insert it onto the VDO instrument, connect the optional warning lamp and VDO acoustic warning device if necessary and insert the sensor cable on the setter. The warning contact can be set individually as required.

An optical warning field in the display of the VDO warning limit setter can of course also be triggered by the Ocean Line engine monitoring instruments.



Order data

Instrument type	Measuring range	Voltage	Ocean Line Black	Ocean Line White	Ocean Line Chrome	Ocean Line general
Thermometers (Ø 52 mm)						
Indicator	120°C / 250°F	12 V	N02 321 612	N02 321 602	N02 322 302	
Indicator	120°C / 250°F	24 V	N02 321 712	N02 321 702	N02 322 402	
Indicator	150°C / 300°F	12 V	N02 321 616	N02 321 606	N02 322 306	
Indicator	150°C / 300°F	24 V	N02 321 716	N02 321 706	N02 322 406	
Indicator, 4–20 mA	120°C / 250°F		N02 321 812	N02 321 802	N02 322 502	
Indicator, 4–20 mA	150°C / 300°F		N02 321 816	N02 321 806	N02 322 506	
Outside temperature gauge	–25° bis +40°C	12 V	N02 321 512	N02 321 502	N02 322 202	
Outside temperature sensor						323 809 010 005
Pressure gauges (Ø 52 mm)						
Indicator	2bar / 28psi	12 V	N02 124 122	N02 124 102	N02 125 402	
Indicator	2bar / 28psi	24 V	N02 124 522	N02 124 502	N02 125 502	
Indicator	5bar / 72psi	12 V	N02 124 126	N02 124 106	N02 125 406	
Indicator	5bar / 72psi	24 V	N02 124 526	N02 124 506	N02 125 506	
Indicator	10bar / 145psi	12 V	N02 124 130	N02 124 110	N02 125 410	
Indicator	10bar / 145psi	24 V	N02 124 530	N02 124 510	N02 125 510	
Indicator	25bar / 360psi	12 V	N02 124 134	N02 124 114	N02 125 414	
Indicator	25bar / 360psi	24 V	N02 124 534	N02 124 514	N02 125 514	
Indicator	30bar / 435psi	12 V	N02 124 138	N02 124 118	N02 125 418	
Indicator	30bar / 435psi	24 V	N02 124 538	N02 124 518	N02 125 518	
Indicator, 4–20 mA	2bar / 28psi		N02 124 732	N02 124 702	N02 125 602	
Indicator, 4–20 mA	2,5bar / 35psi		N02 124 736	N02 124 706	N02 125 606	
Indicator, 4–20 mA	5bar / 72psi		N02 124 740	N02 124 710	N02 125 610	
Indicator, 4–20 mA	10bar / 145psi		N02 124 744	N02 124 714	N02 125 614	
Indicator, 4–20 mA	25bar / 360psi		N02 124 748	N02 124 718	N02 125 618	
Indicator, 4–20 mA	30bar / 435psi		N02 124 752	N02 124 722	N02 125 622	
Voltmeter (Ø 52 mm)						
Voltmeter	8–16 V	12 V	N02 410 812	N02 410 802	N02 411 202	
Voltmeter	18–32 V	24 V	N02 410 912	N02 410 902	N02 411 302	
Fuel gauge (Ø 52 mm)						
Indicator lever-type sensor		12 V	N02 222 112	N02 222 102	N02 222 802	
Indicator lever-type sensor		24 V	N02 222 312	N02 222 302	N02 222 902	
Indicator tubular sensor		12 V	N02 222 512	N02 222 502	N02 223 202	
Indicator tubular sensor		24 V	N02 222 712	N02 222 702	N02 223 302	
Fresh water level gauges (Ø 52 mm)						
System	80–600 mm	12 / 24 V	N02 200 320	N02 200 308	N02 200 314	
System	600–1200 mm	12 / 24 V	N02 200 322	N02 200 310	N02 200 316	
System	1200–1500 mm	12 / 24 V	N02 200 324	N02 200 312	N02 200 318	
Capacitive sensor	80–600 mm	12 / 24 V				N02 240 402
Capacitive sensor	600–1200 mm	12 / 24 V				N02 240 404
Capacitive sensor	1200–1500 mm	12 / 24 V				N02 240 406
Indicator		12 / 24 V	N02 230 612	N02 230 602	N02 230 902	
Indicator with reed contact		12 V	N02 230 712	N02 230 702	N02 231 002	
Indicator with reed contact		24 V	N02 230 812	N02 230 802	N02 231 102	
Reed contact sensor	0–350 mm					X10.224 000 002
Reed contact sensor	0–500 mm					X10.224 000 003
Flange						X10.224 000 007

Order data

Instrument type	Measuring range	Voltage	Ocean Line Black	Ocean Line White	Ocean Line Chrome	Ocean Line general
Black water indicator system (Ø 52 mm)						
System	80–600 mm	12 / 24 V	N02 200 524	N02 200 520	N02 200 522	
Sensor (warning contact) capacitive, galvanic separation	80–600 mm	12 / 24 V				N02 240 902
Sensor (warning contact) capacitive, galvanic separation	600–1200 mm	12 / 24 V				N02 240 904
Sensor (warning contact) capacitive, galvanic separation	1200–1500 mm	12 / 24 V				N02 240 906
Indicator		12 / 24 V	N02 230 626	N02 230 622	N02 230 912	
Rudder – angle indicator (Ø 52 mm)						
System		12 V	N03 200 514	N03 200 510	N03 200 512	
System		24 V	N03 200 414	N03 200 410	N03 200 412	
Sensor		12 / 24 V				440 102 001 001
Sensor (dual station reading)		12 / 24 V				440 102 002 001
Indicator		12 V	N03 211 412	N03 211 402	N03 211 602	
Indicator		24 V	N03 211 512	N03 211 502	N03 211 702	
Rudder – angle indicator (Ø 85 mm)						
System		12 / 24 V	N03 200 620	N03 200 616	N03 200 618	
Sensor		12 / 24 V				440 102 001 001
Sensor (dual station reading)		12 / 24 V				440 102 002 001
Indicator		12 V	N03 211 206	N03 211 202	N03 211 302	
Ammeter (Ø 52 mm)						
System	80–0–80 A	12 V	N02 400 310	N02 400 306	N02 400 308	
System	140–0–140 A	12 V	N02 400 312			
Shunt	80–0–80 A					N03 330 116
Indicator	80–0–80 A	12 V	N02 420 712	N02 420 702	N02 420 802	
Pyrometer (Ø 52 mm)						
System	100°–900°C	12 V	N02 300 616	N02 300 608	N02 300 612	
System	250°–1650°F	12 V	N02 300 618	N02 300 610	N02 300 614	
Sensor						N03 320 264
Indicator	100°–900°C	12 V	N02 340 712	N02 340 702	N02 340 802	
Indicator	250°–1650°F	12 V	N02 340 714	N02 340 704	N02 340 804	
Connection cable (6 m)					N03 320 268	
Engine hour counter (Ø 52 mm)						
Engine hour counter		12 / 24 V	N03 110 412	N03 110 402	N03 110 502	
Quartz clock						
Quartz clock		12 V	N03 270 612	N03 270 602	---	
Tachometers (Ø 52 mm)						
tachometer, terminal W	1800 rpm	12 V	N02 011 112	N02 011 102	N02 011 202	
tachometer, terminal 1	3000 rpm	12 V	N02 011 114	N02 011 104	N02 011 204	
tachometer, terminal 1	4000 rpm	12 V	N02 011 116	N02 011 106	N02 011 206	
tachometer, terminal 1	6000 rpm	12 V	N02 011 118	N02 011 108	N02 011 208	

Order data

Instrument type	Measuring range	Voltage	Ocean Line Black	Ocean Line White	Ocean Line Chrome	Ocean Line general
Tachometer (Ø 85 mm) (EHM = Electronic engine hourmeter)						
Tachometer, term. W	1800 rpm	12 V	N02 012 422	N02 012 402	N02 012 502	
Tachometer, term. W	1800 rpm	24 V	N02 012 722	N02 012 702	N02 012 802	
Tachometer, term. W	3000 rpm	12 V	N02 012 426	N02 012 406	N02 012 506	
Tachometer, term. W	3000 rpm	24 V	N02 012 726	N02 012 706	N02 012 806	
Tachometer, term. W	4000 rpm	12 V	N02 012 430	N02 012 410	N02 012 510	
Tachometer, term. W	4000 rpm	24 V	N02 012 730	N02 012 710	N02 012 810	
Tachometer, term. W, term.1	6000 rpm	12 V	N02 012 434	N02 012 414	N02 012 514	
Tachometer, term. W, term.1	6000 rpm	24 V	N02 012 734	N02 012 714	N02 012 814	
Tachometer, EHM, Term. W / Ind	1800 rpm	12 / 24 V	N02 012 142	N02 012 102	N02 012 202	
Tachometer, EHM, Term. W / Ind	3000 rpm	12 / 24 V	N02 012 146	N02 012 106	N02 012 206	
Tachometer, EHM, Term. W / Ind	4000 rpm	12 / 24 V	N02 012 150	N02 012 110	N02 012 210	
Tachometer, EHM, Term. W / Ind	5000 rpm	12 / 24 V	N02 012 154	N02 012 114	N02 012 214	
Tachometer, EHM, Term. 1	5000 rpm	12 / 24 V	N02 012 158	N02 012 118	N02 012 218	
Tachometer, EHM, Term. 1	6000 rpm	12 / 24 V	N02 012 162	N02 012 122	N02 012 222	
Acoustic warning device (Ø 52 mm)						
Acoustic warning device		12 / 24 V				N03 230 702
Dimmer		12 / 24 V				N03 320 802

Order data for accessories

Accessories	
Front bezel, standard, black 62.5 x 62.5 mm	N05 800 222
Front bezel, LOGIC 62.5 x 62.5 mm	N05 800 496
Add. parts set 52 mm Ocean Line Chrome	N05 800 696
Warning lamp 12V W5/1.2W red; Ocean Line	N05 800 762
Warning lamp 24V W5/1.2W red; Ocean Line	N05 800 764
Add. parts set, 52 mm short housing; Ocean Line	N05 800 766
Front bezel Ø 52 mm; Ocean Line Black	N05 800 774
Add. parts set, 52 mm long housing; Ocean Line	N05 800 782
Add. parts set, 85mm; Ocean Line	N05 800 792
Front bezel standard, Ø 52 mm black	N05 801 110
Front bezel Ø 85mm; Ocean Line Black	N05 801 562
Front bezel Ø 52mm; Ocean Line White	N05 801 788
Front bezel Ø 85mm; Ocean Line White	N05 801 790
Makepoint switch	X10.719 002 037
Front bezel Ø 52 mm; Chrome (plastic)	X11.719 000 022
Front bezel Ø 85mm; Chrome (plastic)	X11.719 000 023

Technical data

VDO Ocean Line, Ø 52 mm
Ammeter, outside temperature gauge, engine hours meter, tachometer, pressure gauge, pyrometer, quartz clock, rudder position indicator, waste water system, temperature gauge, fuel gauge, freshwater gauge, voltmeter

	Ocean Line Black	Ocean Line White	Ocean Line Chrome
Dial:	Translucent, black	Translucent, white	Translucent, black
Pointer:	Translucent, white	Translucent, red	red, frontlighting
Front bezel:	Plastic, black	Plastic, white	Chrome-plated brass
Cover lens:	Double lens system	Double lens system	Single lens system
Illumination:	red, 1.2 W, W5/2 socket	white	red
Housing:	Plastic, flame resistant		
Connections:	Flat plug 6.3 x 0.8 mm		
Attachment:	Spinlock housing nut, locking height 0-15 mm, option: bracket mounting kit (see accessories), clamping height 0-12 mm		
Operating voltage:	12 or 24 V (EHM 12-24 V)		
Current consumption indicator:	max. 130 mA		
Nominal position:	0-90°		
Operating temperature:	–20°C to +70°C (at operating voltage)		
Storage temperature:	–30°C to +85°C		
EMC:	used standards EN 50082-1, EN 50081-1, complies with EMC guideline 89/336/EC		
Vibration resistance:	max. 1g eff. 25 Hz-500 Hz (for 8 hour period)		
Shock:	15 g, 1.5 ms semi-sinus		
Protection:	IP 65 on the front, as per IEC 529 in an installed position		
Option:	Warning lamp (see accessories)		
Installation diameter:	Ø 52.5 mm bore hole		
Germanic Lloyd:	Certificate no.: 12-276-98 H		

VDO Ocean Line, Ø 85 mm
Tachometer, rudder position indicator

	Ocean Line Black	Ocean Line White	Ocean Line Chrome
Dial:	Translucent, black	Translucent, white	Translucent, black
Needle:	Translucent, white	Translucent, red	red, frontlighting
Front bezel:	Plastic, black	Plastic, white	Chrome-plated brass
Cover lens:	Double lens system	Double lens system	Single lens system
Illumination:	2 x bulb, 1.2 W, coloured red, LCD permanently lit (green)	2 x bulb, 1.2 W coloured red, LCD permanently lit (green)	2 x bulb, 1.2 W coloured red, LCD permanently lit (green)
Housing:	Plastic, flame resistant		
Connections:	Flat plug 6.3 x 0.8 mm		
Attachment:	Spinlock housing nut, locking height 0-16.5 mm, option: bracket mounting kit (see accessories)		
Operating voltage:	12 or 24 V		
Current consumption indicator:	max. 90 mA (without lighting)		
Nominal position:	0-90°		
Operating temperature:	–20°C to +70°C (at operating voltage)		
Storage temperature:	–30°C to +85°C		
EMC:	used standards EN 50082-1, EN 50081-1, complies with CE		
Vibration resistance:	max. 1g eff. 25 Hz-500 Hz (for 8 hour period)		
Shock:	15 g, 1.5 ms semi-sinus		
Protection rating:	IP 65 on the front, as per IEC 529 in an installed positio		
Installation diameter:	Ø 85.5 mm bore hole		
Germanic Lloyd:	Certificate no.: 12-276-98 H		

VDO Ocean Line,
Makepoint switch

Voltage supply:	10.8 – 32 Volts
Current consumption:	< 10 mA (warning lamp off)
Operating temperature:	-25°C to +70°C
Input:	Resistor sensor (pressure, temperature, supply levels)
Output:	Switch output, max. 300 mA (not short-circuit-protected)

GL

VDO

Let's turn ideas into success

And when can we do something with your ideas?

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