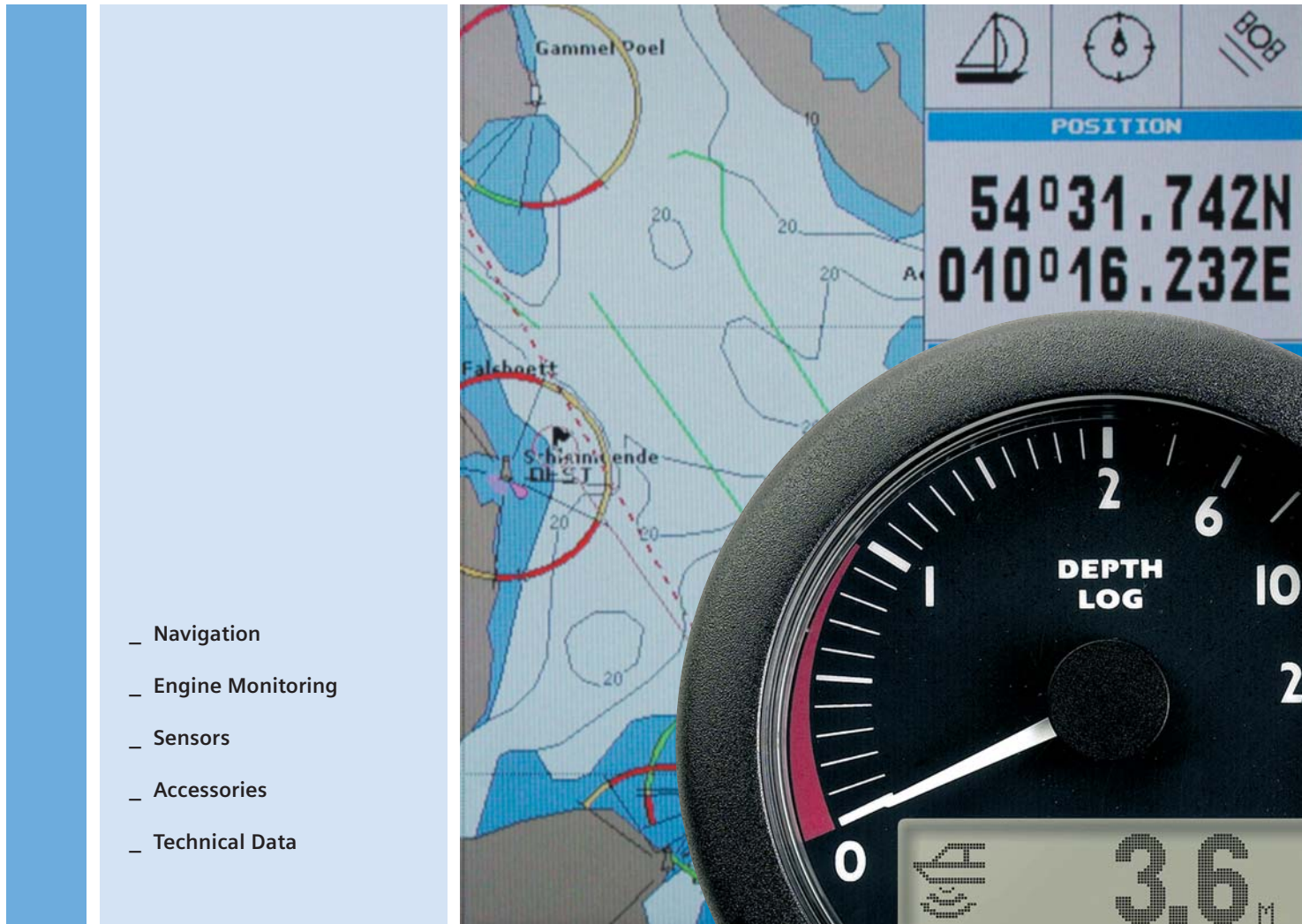


Marine Instruments Catalogue

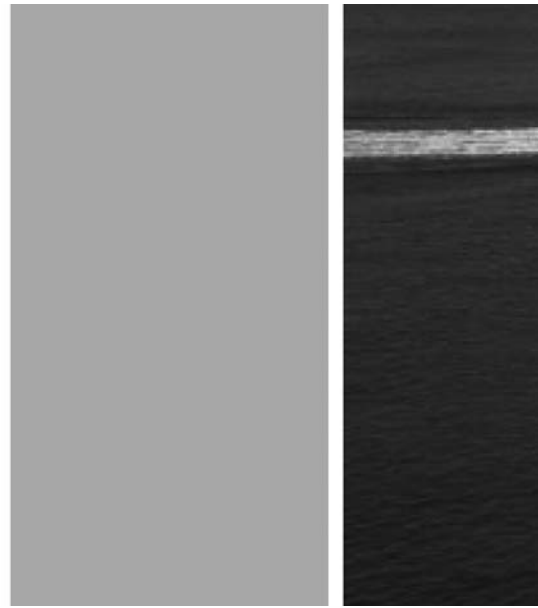
2007/2008



- _ Navigation
- _ Engine Monitoring
- _ Sensors
- _ Accessories
- _ Technical Data

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SIEMENS VDO





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1.1 VDO Chart Plotters



MAP 11cse



MAP 7w



MAP 7v



MAP 7v

MAP 11

MAP 11cse (sunlight) with Engine Data
(incl. Smart GPS Sensor)

X10-719-002-053

MAP 7

MAP 7w (sunlight)
Transflective TFT colour display
(incl. GPS Smart Sensor)

X10-719-002-050

MAP 7wi (sunlight)
Transflective TFT colour display
(integrated GPS receiver)

X10-719-002-051

MAP 7v
Transflective TFT colour display (integrated GPS receiver)

X10-719-002-055

For further information see Catalogue Chart Plotters

Accessories see Page 31

Technical Data see Page 35

1.2 VDO Ocean Line Navigation, black

VDO Ocean Line Combi (Log/Depth) Ø 85 mm

VDO Ocean Line Combi System

Including: Indicator, NMEA Sensor system, adapter cable
12-24 V

| | |
|-------------------------|-----------------|
| Transom Mount sensor: | X11 719 000 067 |
| Thru-Hull Mount sensor: | X11 719 000 065 |

Components

| | | |
|--|---------|-----------------|
| Indicator | 12-24 V | N01 612 002 |
| Triducer® NMEA Sensor kit, Transom Mount | | X11 719 000 053 |
| Triducer® NMEA Sensor kit, Thru-Hull Mount | | X11 719 000 058 |

Triducer® is registered trade mark of the Airmar Technology Corporation

VDO Ocean Line Sumlog® Ø 85 mm

VDO Ocean Line Sumlog® complete system,

Including: Indicator, Sensor, 10 m Cable, Illumination 12 V

| | | |
|----------------------------|---------|-------------|
| 12 (kn, km/h, mph) | 12-24 V | N01 100 858 |
| 30 (kn, km/h, mph) | 12-24 V | N01 100 860 |
| 50 (kn, km/h, mph) | 12-24 V | N01 100 862 |
| 50 (kn, mph); Double scale | 12-24 V | N01 100 864 |

Components

| | | |
|--------------------------------------|---------|-------------------|
| Indicator 12 (kn, km/h, mph) | 12-24 V | N01 113 022 |
| Indicator 30 (kn, km/h, mph) | 12-24 V | N01 113 026 |
| Indicator 50 (kn, km/h, mph) | 12-24 V | N01 113 030 |
| Indicator 50 (kn, mph); Double scale | 12-24 V | N01 113 034 |
| 10 m Sensor cable | | N05 801 842 |
| 20 m Sensor cable | | N05 801 848 |
| Sensor System | | N01 140 302 |
| Thru-Hull fitting (30 kn) | | 270 023 005 010 X |



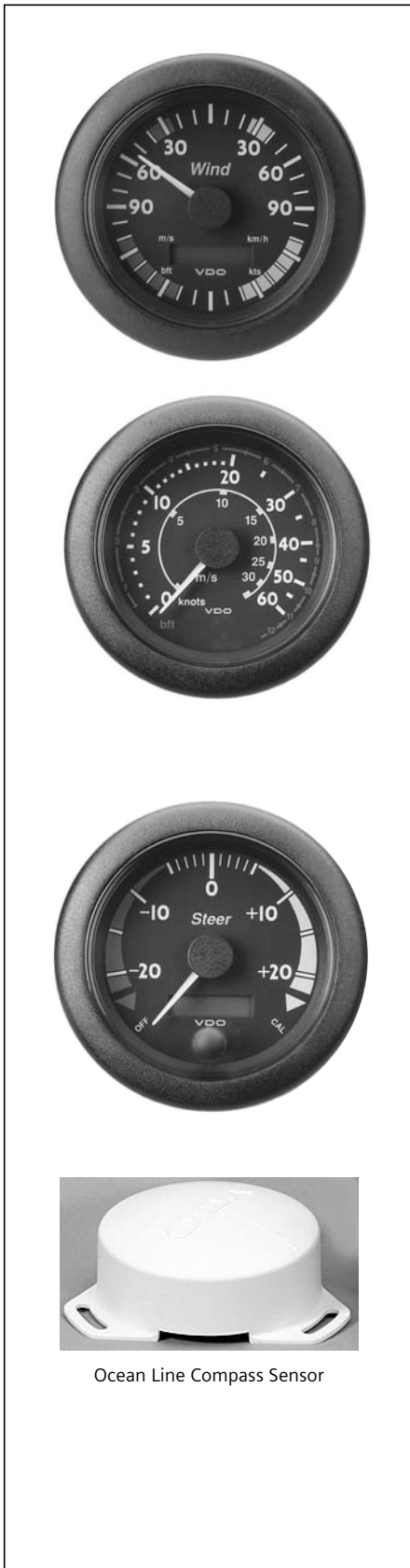
Triducer® NMEA



Sumlog Sensor
with Thru-Hull Mount and Nut

Technical Data see Page 37

1.2 VDO Ocean Line Navigation, black



Ocean Line Compass Sensor

VDO Ocean Line Wind Measuring System Ø 85 mm

VDO Ocean Line Wind Measuring System, complete system

Including: Indicator, Sensor, 30 m Cable

| | | |
|--------|---------|-------------|
| System | 12-24 V | N01 300 208 |
|--------|---------|-------------|

Components

| | | |
|--------------------------|---------|-------------|
| Wind direction indicator | 12-24 V | N01 320 712 |
|--------------------------|---------|-------------|

Wind speed indicator
(only in combination with Wind direction indicator)

| | |
|---------|-------------|
| 12-24 V | N01 310 612 |
|---------|-------------|

| | |
|----------------|-------------|
| Mast head unit | N01 340 602 |
|----------------|-------------|

| | |
|------------|-------------|
| Cable 30 m | N05 801 542 |
|------------|-------------|

VDO Ocean Line Fluxgate Compass Ø 85 mm

VDO Ocean Line Fluxgate Compass complete system

Including: Indicator, Sensor, 10 m Cable

| | | |
|--------|---------|-------------|
| System | 12-24 V | N01 500 116 |
|--------|---------|-------------|

Components

| | | |
|--------|---------|-------------|
| Sensor | 12-24 V | N01 530 302 |
|--------|---------|-------------|

| | |
|-------------------|-------------|
| 10 m Sensor cable | N05 801 844 |
|-------------------|-------------|

Accessories see Page 32

Technical Data see Page 37

1.3 VDO Ocean Line Navigation, white

VDO Ocean Line Combi (Log/Echolot) Ø 85 mm

VDO Ocean Line Combi System

Including: Indicator, NMEA Sensor system, adapter cable
12-24 V

| | |
|-------------------------|-----------------|
| Transom Mount sensor: | X11 719 000 068 |
| Thru-Hull Mount sensor: | X11 719 000 066 |

Components

| | | |
|--|---------|-----------------|
| Indicator | 12-24 V | N01 612 006 |
| Triducer® NMEA Sensor kit, Transom Mount | | X11 719 000 053 |
| Triducer® NMEA Sensor kit, Thru-Hull Mount | | X11 719 000 058 |

Triducer® is registered trade mark of the Airmar Technology Corporation

VDO Ocean Line Sumlog® Ø 85 mm

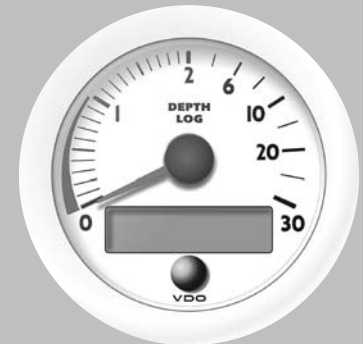
VDO Ocean Line Sumlog® complete system

Including: Indicator, Sensor, 10 m Cable, Illumination 12 V

| | | |
|----------------------------|---------|-------------|
| 12 (kn, km/h, mph) | 12-24 V | N01 100 828 |
| 30 (kn, km/h, mph) | 12-24 V | N01 100 830 |
| 50 (kn, km/h, mph) | 12-24 V | N01 100 832 |
| 50 (kn, mph); Double scale | 12-24 V | N01 100 834 |

Components

| | | |
|--------------------------------------|---------|-----------------|
| Indicator 50 (kn, mph); Double scale | 12-24 V | N01 113 014 |
| Sensorcable 10 m | | N05 801 842 |
| Sensorcable 20 m | | N05 801 848 |
| Sensor System | | N01 140 302 |
| Thru-Hull fitting | | 270 023 005 010 |

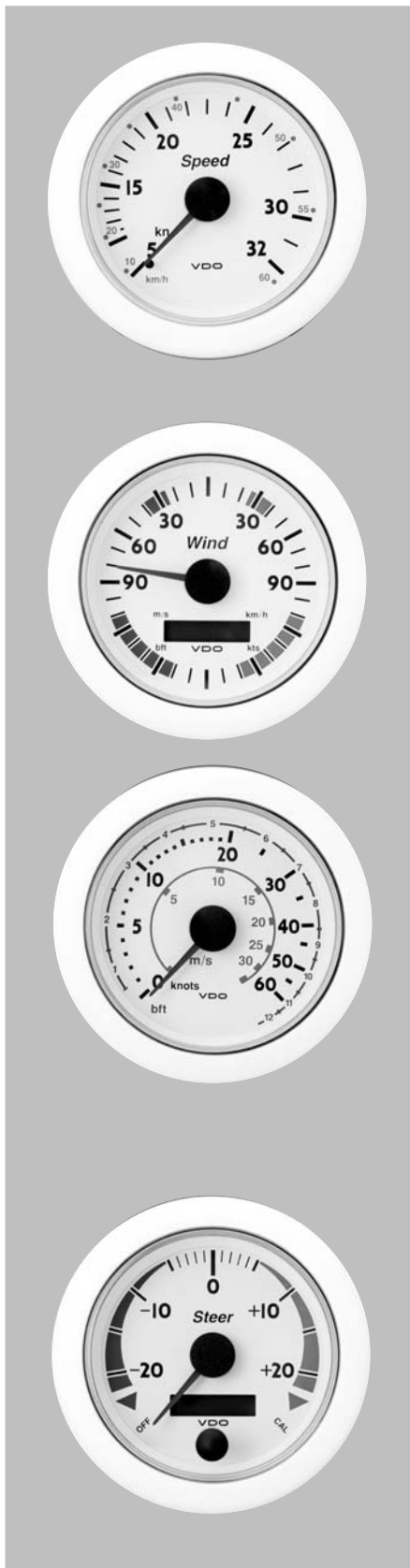


Triducer® NMEA



Technical Data see Page 37

1.3 VDO Ocean Line Navigation, white



VDO Ocean Line White Pitot-Tube Speedometer Ø 85 mm

VDO Ocean Line White Pitot-Tube Speedometer complete system,
Including: Indicator, Sensor, 6 m Tube, 12 V Illumination

| | |
|-----------------|-------------|
| 32 kn, 60 km/h | N01 100 866 |
| 43 kn, 80 km/h | N01 100 868 |
| 65 kn, 120 km/h | N01 100 870 |
| 65 kn, 75 mph | N01 100 872 |

Components

| | |
|--------------------------|-------------|
| Indicator 32 kn, 60 km/h | N01 114 102 |
| Indicator 65 kn, 75 mph | N01 114 114 |

VDO Ocean Line White Wind Measuring System Ø 85 mm

VDO Ocean Line White Wind Measuring System, complete system
Including: Indicator, Sensor, 30 m Cable

| | | |
|--|---------|-------------|
| System | 12-24 V | N01 300 206 |
| Wind direction indicator | 12-24 V | N01 320 702 |
| Wind speed indicator (only in Combination with Wind direction indicator) | 12-24 V | N01 310 602 |
| Mast head unit | | N01 340 602 |
| Cable 30 m | | N05 801 542 |

VDO Ocean Line White Fluxgate Compass Ø 85 mm

VDO Ocean Line White Fluxgate Compass, complete system
Including: Indicator, Sensor, 10 m Cable

| | | |
|-------------------|---------|-------------|
| | 12-24 V | N01 500 112 |
| Components | | |
| Indicator | 12-24 V | N01 512 202 |
| Sensor | 12-24 V | N01 530 302 |
| Sensorcable 10 m | | N05 801 844 |

Accessories see Page 32

Technical Data see Page 37

2.1 VDO Ocean Line Engine Monitoring, black

VDO Ocean Line Tachometer Ø 85 mm

VDO Ocean Line Tachometer Ø 85 mm

| | | | |
|-----------------|-----|---------|-------------|
| 0-1800 rpm | ● | 12 V | N02 012 422 |
| 0-1800 rpm | ● | 24 V | N02 012 722 |
| 0-3000 rpm | ● | 12 V | N02 012 426 |
| 0-3000 rpm | ● | 24 V | N02 012 726 |
| 0-4000 rpm | ● | 12 V | N02 012 430 |
| 0-4000 rpm | ● | 24 V | N02 012 730 |
| 0-6000 rpm | ■ | 12 V | N02 012 434 |
| 0-6000 rpm | ■ | 24 V | N02 012 734 |
| 0-1800 rpm, EBZ | ●/▲ | 12-24 V | N02 012 142 |
| 0-3000 rpm, EBZ | ●/▲ | 12-24 V | N02 012 146 |
| 0-4000 rpm, EBZ | ●/▲ | 12-24 V | N02 012 150 |
| 0-5000 rpm, EBZ | ●/▲ | 12-24 V | N02 012 154 |
| 0-5000 rpm, EBZ | ■ | 12-24 V | N02 012 158 |
| 0-6000 rpm, EBZ | ■ | 12-24 V | N02 012 162 |

EHM = electronic engine hourmeter,

Tachometer with 12-24 V with 12 V Illumination

Connection:

● Terminal W, ■ Terminal 1, ▲ Inductive (specification upon request)

VDO Ocean Line Rudder Angle Indicator Ø 85 mm

VDO Ocean Line Rudder Angle Indicator Ø 85 mm, system complete,

Including: Indicator, Sensor, Illumination 12 V

| | | |
|--------|---------|-------------|
| System | 12-24 V | N03 200 620 |
|--------|---------|-------------|

Components

| | | |
|----------------------------------|---------|-------------------|
| Indicator | 12-24 V | N03 211 206 |
| Sensor | 12-24 V | 440 102 001 001 D |
| Sensor for Dual-station readings | 12-24 V | 440 102 002 001 D |



Rudder-angle Sensor

Technical Data see Page 40

2.1 VDO Ocean Line Engine Monitoring, black



VDO Ocean Line Tachometer Ø 52 mm

VDO Ocean Line Tachometer Ø 52 mm

| | | | |
|------------|-----|------|-------------|
| 0-1800 rpm | ● | 12 V | N02 011 112 |
| 0-3000 rpm | ●/■ | 12 V | N02 011 114 |
| 0-4000 rpm | ●/■ | 12 V | N02 011 116 |
| 0-6000 rpm | ●/■ | 12 V | N02 011 118 |

Connection:

● Terminal W, ■ Terminal 1



VDO Ocean Line Rudder Angle Indicator Ø 52 mm

VDO Ocean Line Rudder Angle Indicator Ø 52 mm, complete system, Including: Indicator, Sensor

| | | |
|--------|------|-------------|
| System | 12 V | N03 200 514 |
| System | 24 V | N03 200 414 |



Rudder-angle sensor

Components

| | | |
|----------------------------------|---------|-------------------|
| Indicator | 12 V | N03 211 412 |
| Indicator | 24 V | N03 211 512 |
| Sensor | 12-24 V | 440 102 001 001 D |
| Sensor for Dual-station readings | 12-24 V | 440 102 002 001 D |



VDO Ocean Trim Gauge Ø 52 mm

VDO Ocean Line Trim Gauge Ø 52 mm, Including: Indicator

| | | |
|--------------------------------------|------|-------------|
| For Mercury Trimsensor (Bravo Drive) | 12 V | N01 211 022 |
|--------------------------------------|------|-------------|

Technical Data see Page 39

2.1 VDO Ocean Line Engine Monitoring, black

VDO Ocean Line Pyrometer Ø 52 mm

VDO Ocean Line Pyrometer (Exhaust-gas temperature)

| | | |
|----------------------|------|-------------|
| Indicator 100-900°C | 12 V | N02 340 712 |
| System 100-900°C | 12 V | N02 300 616 |
| Indicator 250-1650°F | 12 V | N02 340 714 |
| System 250-1650°F | 12 V | N02 300 618 |
| Sensor | | N03 320 264 |
| Sensorcable 4 m | | N03 320 268 |
| Weld boss | | N03 320 266 |

VDO Ocean Line Thermometers Ø 52 mm

VDO Ocean Line Thermometers

| | | | |
|-----------|-------------|---------|-------------|
| Indicator | 120°C/250°F | 12 V | N02 321 612 |
| Indicator | 120°C/250°F | 24 V | N02 321 712 |
| Indicator | 150°C/300°F | 12 V | N02 321 616 |
| Indicator | 150°C/300°F | 24 V | N02 321 716 |
| Indicator | 120°C/250°F | 4-20 mA | N02 321 812 |
| Indicator | 150°C/300°F | 4-20 mA | N02 321 816 |

Sensors: Page 26

VDO Ocean Line Outside Temp. Ø 52 mm

VDO Ocean Line Outside temperature

| | | |
|--------------------------|------|-------------------|
| Indicator -25°C to +60°C | 12 V | N02 321 512 |
| Sensor | | 323 809 010 005 C |

VDO Ocean Line Quarz clock Ø 52 mm

VDO Ocean Line Quarz clock

| | | |
|--------------------|---------|-------------|
| electr. adjustable | 12-24 V | N03 270 612 |
|--------------------|---------|-------------|



Technical Data see Page 39

2.1 VDO Ocean Line Engine Monitoring, black



VDO Ocean Line Engine Hours Counter Ø 52 mm

| | | |
|--|---------|-------------|
| VDO Ocean Line Electronic engine hours counter | 12-24 V | N03 110 412 |
|--|---------|-------------|

VDO Ocean Line Level gauges Ø 52 mm

VDO Ocean Line Fuel Gauge

| | | |
|--------------------------------|------|-------------|
| Indicator Lever 0-4/4 | 12 V | N02 222 112 |
| Indicator Lever 0-4/4 | 24 V | N02 222 312 |
| Indicator Tubular sensor 0-4/4 | 12 V | N02 222 512 |
| Indicator Tubular sensor 0-4/4 | 24 V | N02 222 712 |

Sensors: Page 28

VDO Ocean Line Fresh water gauge

| | | |
|-----------------------------------|---------|-------------|
| Indicator, capacitive 0-4/4 | 4-20 mA | N02 230 612 |
| System (80-600 mm), capacitive | 4-20 mA | N02 200 320 |
| System (600-1200 mm), capacitive | 4-20 mA | N02 200 322 |
| System (1200-1500 mm), capacitive | 4-20 mA | N02 200 324 |
| Indicator (Reedcontact Sensor) | 12 V | N02 230 712 |
| Indicator (Reedcontact Sensor) | 24 V | N02 230 812 |

Sensors: Page 29

Note Sensor capacitive:

- Sensor can be cut individually
- Sensor not for alluminic tank
- Sensor recommended for freshwater only

VDO Ocean Line Blackwater System Ø 52 mm

Usage in different tank materials like, steel, aluminium, plastic with galvanic separation and for all conductive liquids like water, greywater, wastewater with adjustable make point

Including: Indicator, Sensor (600 mm)

| | | |
|--------|---------|-------------|
| System | 12-24 V | N02 200 524 |
|--------|---------|-------------|

Components

| | | |
|---|--------------|-------------|
| Indicator, 0-4/4 | 12-24 V | N02 230 626 |
| Sensor, with galvanic separation, 2 adjustable make point | | |
| Sensor | 200-600 mm | N02 240 902 |
| Sensor | 600-1200 mm | N02 240 904 |
| Sensor | 1200-1500 mm | N02 240 906 |

Technical Data see Page 39

2.1 VDO Ocean Line Engine Monitoring, black

VDO Ocean Line Pressure gauge Ø 52 mm

VDO Ocean Line Pressure gauge

| | | | |
|-----------|----------------|---------|-------------|
| Indicator | 2 bar/28 psi | 12 V | N02 124 122 |
| Indicator | 2 bar/28 psi | 24 V | N02 124 522 |
| Indicator | 5 bar/72 psi | 12 V | N02 124 126 |
| Indicator | 5 bar/72 psi | 24 V | N02 124 526 |
| Indicator | 10 bar/145 psi | 12 V | N02 124 130 |
| Indicator | 10 bar/145 psi | 24 V | N02 124 530 |
| Indicator | 25 bar/360 psi | 12 V | N02 124 134 |
| Indicator | 25 bar/360 psi | 24 V | N02 124 534 |
| Indicator | 30 bar/435 psi | 12 V | N02 124 138 |
| Indicator | 30 bar/435 psi | 24 V | N02 124 538 |
| Indicator | 2 bar/28 psi | 4-20 mA | N02 124 732 |
| Indicator | 2,5 bar/35 psi | 4-20 mA | N02 124 736 |
| Indicator | 5 bar/72 psi | 4-20 mA | N02 124 740 |
| Indicator | 10 bar/145 psi | 4-20 mA | N02 124 744 |
| Indicator | 25 bar/360 psi | 4-20 mA | N02 124 748 |
| Indicator | 30 bar/435 psi | 4-20 mA | N02 124 752 |

Sensors: Page 24

Note: - The 30 bar Pressure gauge (12 V, 24 V) has to be used with a VDO 25 bar Pressure sensor.

VDO Ocean Line Buzzer Ø 52 mm

| | | |
|-----------------------|---------|-------------|
| VDO Ocean Line Buzzer | 12-24 V | N03 230 702 |
|-----------------------|---------|-------------|

VDO Ocean Line Voltmeter Ø 52 mm

VDO Ocean Line Voltmeter

| | | | |
|-----------|----------------|------|-------------|
| Indicator | Range: 8-16 V | 12 V | N02 410 812 |
| Indicator | Range: 18-32 V | 24 V | N02 410 912 |

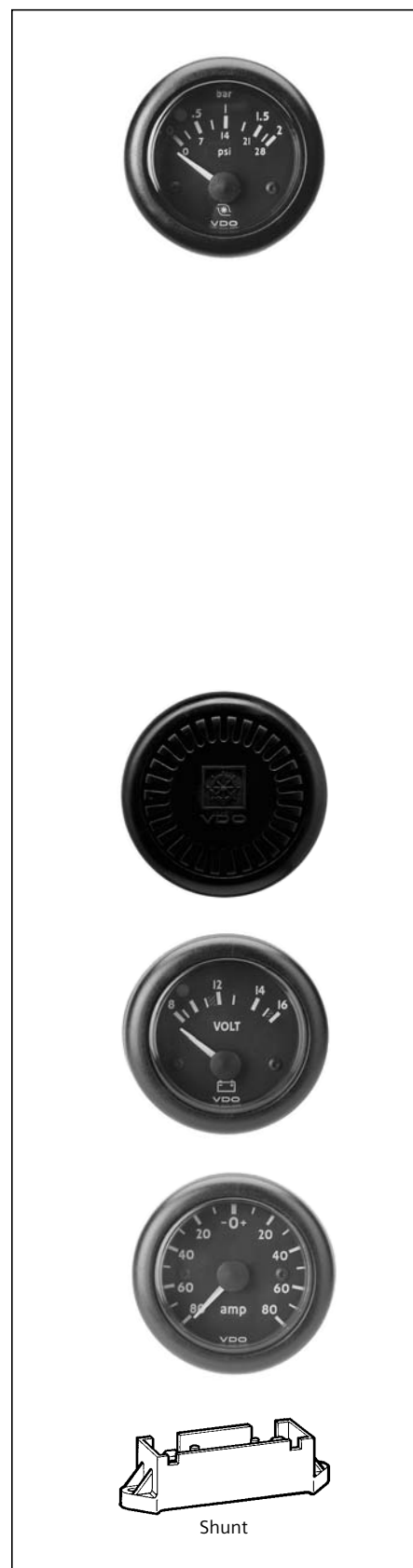
VDO Ocean Line Ammeter Ø 52 mm

VDO Ocean Line Ammeter

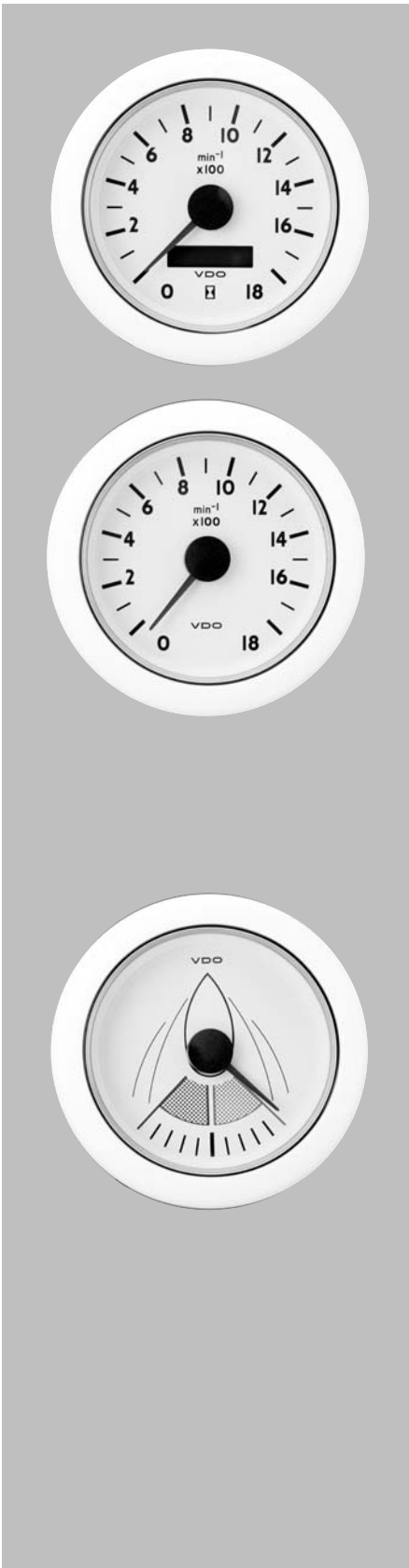
| | | | |
|-------------------|-------------|------|-------------|
| System with Shunt | 80-0-80 A | 12 V | N02 400 310 |
| Indicator | 80-0-80 A | 12 V | N02 420 712 |
| Shunt | 80 A | | N03 330 116 |
| System with Shunt | 140-0-140 A | 12 V | N02 400 312 |
| Indicator | 140-0-140 A | 12 V | N02 420 714 |

Accessories see Page 32

Technical Data see Page 39



2.2 VDO Ocean Line Engine Monitoring, white



VDO Ocean Line Tachometer Ø 85 mm

VDO Ocean Line Tachometer Ø 85 mm

| | | | |
|-----------------|-----|---------|-------------|
| 0-1800 rpm | ● | 12 V | N02 012 402 |
| 0-1800 rpm | ● | 24 V | N02 012 702 |
| 0-3000 rpm | ● | 12 V | N02 012 406 |
| 0-3000 rpm | ● | 24 V | N02 012 706 |
| 0-4000 rpm | ● | 12 V | N02 012 410 |
| 0-4000 rpm | ● | 24 V | N02 012 710 |
| 0-6000 rpm | ■ | 12 V | N02 012 414 |
| 0-6000 rpm | ● | 24 V | N02 012 714 |
| 0-1800 rpm, EBZ | ●/▲ | 12-24 V | N02 012 102 |
| 0-3000 rpm, EBZ | ●/▲ | 12-24 V | N02 012 106 |
| 0-4000 rpm, EBZ | ●/▲ | 12-24 V | N02 012 110 |
| 0-5000 rpm, EBZ | ●/▲ | 12-24 V | N02 012 114 |
| 0-5000 rpm, EBZ | ■ | 12-24 V | N02 012 118 |
| 0-6000 rpm, EBZ | ■ | 12-24 V | N02 012 122 |

EHM = electronic engine hourmeter,
Tachometer 12-24 V with 12 V Illumination

Connection:

● Terminal W, ■ Terminal 1, ▲ Inductive (specification upon request)

VDO Ocean Line Rudder Angle Indicator Ø 85 mm

VDO Ocean Line Rudder Angle Indicator Ø 85 mm, complete system

Including: Indicator, Sensor, Illumination 12 V

| | | |
|--------|---------|-------------|
| System | 12-24 V | N03 200 616 |
|--------|---------|-------------|

Components

| | | |
|----------------------------------|---------|-------------------|
| Indicator | 12-24 V | N03 211 202 |
| Sensor | 12-24 V | 440 102 001 001 D |
| Sensor for Dual-station readings | 12-24 V | 440 102 002 001 D |

Technical Data see Page 40

2.2 VDO Ocean Line Engine Monitoring, white

VDO Ocean Line Rudder Angle Indicator Ø 52 mm

VDO Ocean Line Rudder Angle Indicator Ø 52 mm, complete system

Including: Indicator, Sensor

| | | |
|--------|------|-------------|
| System | 12 V | N03 200 510 |
| System | 24 V | N03 200 410 |

Components

| | | |
|----------------------------------|---------|-------------------|
| Indicator | 12 V | N03 211 402 |
| Indicator | 24 V | N03 211 502 |
| Sensor | 12-24 V | 440 102 001 001 K |
| Sensor for Dual-station readings | 12-24 V | 440 102 002 001 K |

VDO Ocean Line Trim gauge Ø 52 mm

VDO Ocean Line Trim gauge Ø 52 mm

Including: Indicator

| | | |
|--------------------------------------|------|-------------|
| For Mercury Trimsensor (Bravo Drive) | 12 V | N01 211 002 |
|--------------------------------------|------|-------------|

VDO Ocean Line Pyrometer (Exhaust-gas temperature) Ø 52 mm

VDO Ocean Line Pyrometer

| | | |
|---------------------|------|-------------|
| Indicator 100-900°C | 12 V | N02 340 702 |
| System 100-900°C | 12 V | N02 300 608 |
| Sensor | | N03 320 264 |
| Sensorcable 4 m | | N03 320 268 |
| Weld boss | | N03 320 266 |

VDO Ocean Line Thermometers Ø 52 mm

VDO Ocean Line Thermometers

| | | | |
|-----------|---------------|---------|-------------|
| Indicator | 120°C / 250°F | 12 V | N02 321 602 |
| Indicator | 120°C / 250°F | 24 V | N02 321 702 |
| Indicator | 150°C / 300°F | 12 V | N02 321 606 |
| Indicator | 150°C / 300°F | 24 V | N02 321 706 |
| Indicator | 120°C / 250°F | 4-20 mA | N02 321 802 |

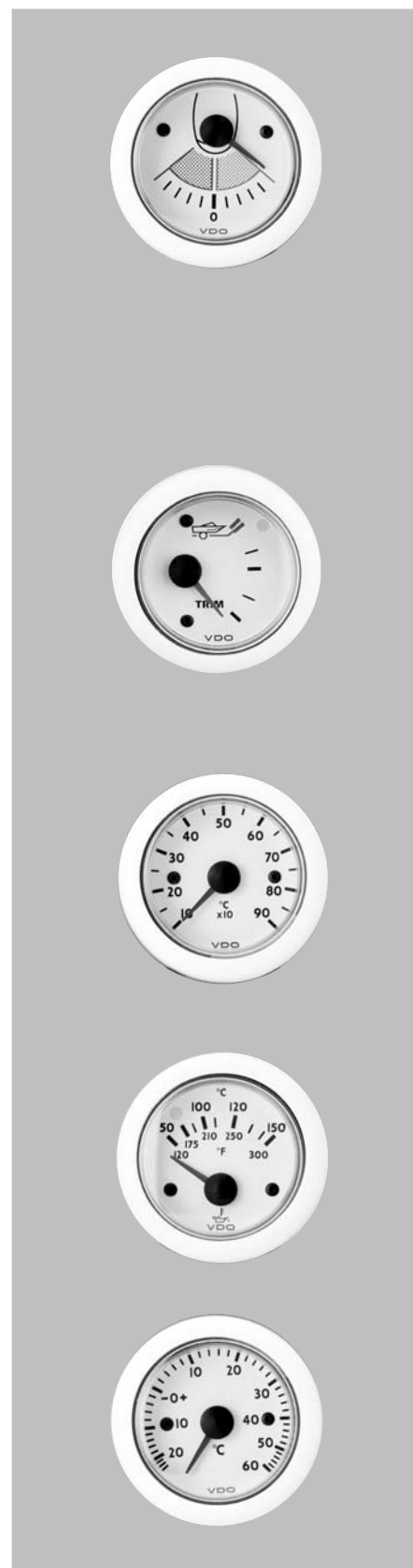
Sensors: Page 26

VDO Ocean Line Outside Temp. Ø 52 mm

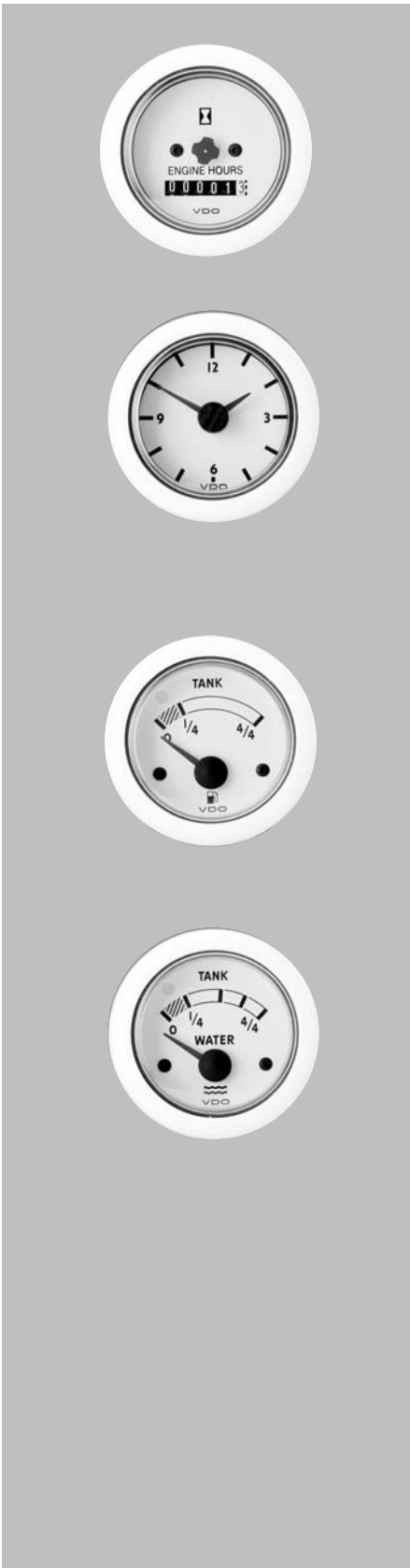
VDO Ocean Line Outside Temperature

| | | |
|--------------------------|------|-------------------|
| Indicator -25°C to +60°C | 12 V | N02 321 502 |
| Sensor | | 323 809 010 005 C |

Technical Data see Page 39



2.2 VDO Ocean Line Engine Monitoring, white



VDO Ocean Line Engine Hours Counter Ø 52 mm

| | | |
|-------------------------------------|---------|-------------|
| VDO Ocean Line Engine Hours counter | 12-24 V | N03 110 402 |
|-------------------------------------|---------|-------------|

VDO Ocean Line Quarz Clock Ø 52 mm

| | | |
|--|---------|-------------|
| VDO Ocean Line Quarz clock electr. adjustable | 12-24 V | N03 270 602 |
|--|---------|-------------|

VDO Ocean Line Level gauges Ø 52 mm

VDO Ocean Line Fresh Water gauge

| | | |
|--------------------------------|------|-------------|
| Indicator Lever 0-4/4 | 12 V | N02 222 102 |
| Indicator Lever 0-4/4 | 24 V | N02 222 302 |
| Indicator Tubular sensor 0-4/4 | 12 V | N02 222 502 |
| Indicator Tubular sensor 0-4/4 | 24 V | N02 222 702 |

Sensors: Page 28

VDO Ocean Line Fresh Water gauge

| | | |
|----------------------------------|---------|-------------|
| Indicator, capacitive 0-4/4 | 4-20 mA | N02 230 602 |
| System (80-600 mm), capacitive | 4-20 mA | N02 200 308 |
| System (600-1200 mm), capacitive | 4-20 mA | N02 200 310 |
| Indicator (Reedcontact Sensor) | 12 V | N02 230 702 |
| Indicator (Reedcontact Sensor) | 24 V | N02 230 802 |

Sensors: Page 29

Note Sensor capacitive:

- Sensor can be cut individually
- Sensor not for alluminic tank
- Sensor recommended for freshwater only

Technical Data see Page 39

2.2 VDO Ocean Line Engine Monitoring, white

VDO Ocean Line Black water System Ø 52 mm

Usage in different tank materials like, steel, aluminium, plastic with galvanic separation and for all conductive liquids like water, greywater, wastewater with adjustable make point

Including: Indicator, Sensor (600 mm)

| | | |
|--------|---------|-------------|
| System | 12-24 V | N02 200 520 |
|--------|---------|-------------|

Components

| | | |
|------------------|---------|-------------|
| Indicator, 0-4/4 | 12-24 V | N02 230 622 |
|------------------|---------|-------------|

Sensor, with galvanic separation, 2 adjustable make point

| | | |
|--------|------------|-------------|
| Sensor | 200-600 mm | N02 240 902 |
|--------|------------|-------------|

| | | |
|--------|-------------|-------------|
| Sensor | 600-1200 mm | N02 240 904 |
|--------|-------------|-------------|

| | | |
|--------|--------------|-------------|
| Sensor | 1200-1500 mm | N02 240 906 |
|--------|--------------|-------------|

VDO Ocean Line Pressure gauge Ø 52 mm

VDO Ocean Line Pressure gauge

| | | | |
|-----------|--------------|------|-------------|
| Indicator | 2 bar/28 psi | 12 V | N02 124 102 |
|-----------|--------------|------|-------------|

| | | | |
|-----------|--------------|------|-------------|
| Indicator | 2 bar/28 psi | 24 V | N02 124 502 |
|-----------|--------------|------|-------------|

| | | | |
|-----------|--------------|------|-------------|
| Indicator | 5 bar/72 psi | 12 V | N02 124 106 |
|-----------|--------------|------|-------------|

| | | | |
|-----------|--------------|------|-------------|
| Indicator | 5 bar/72 psi | 24 V | N02 124 506 |
|-----------|--------------|------|-------------|

| | | | |
|-----------|----------------|------|-------------|
| Indicator | 10 bar/145 psi | 12 V | N02 124 110 |
|-----------|----------------|------|-------------|

| | | | |
|-----------|----------------|------|-------------|
| Indicator | 10 bar/145 psi | 24 V | N02 124 510 |
|-----------|----------------|------|-------------|

| | | | |
|-----------|----------------|------|-------------|
| Indicator | 25 bar/360 psi | 12 V | N02 124 114 |
|-----------|----------------|------|-------------|

| | | | |
|-----------|----------------|------|-------------|
| Indicator | 25 bar/360 psi | 24 V | N02 124 514 |
|-----------|----------------|------|-------------|

| | | | |
|-----------|----------------|------|-------------|
| Indicator | 30 bar/435 psi | 12 V | N02 124 118 |
|-----------|----------------|------|-------------|

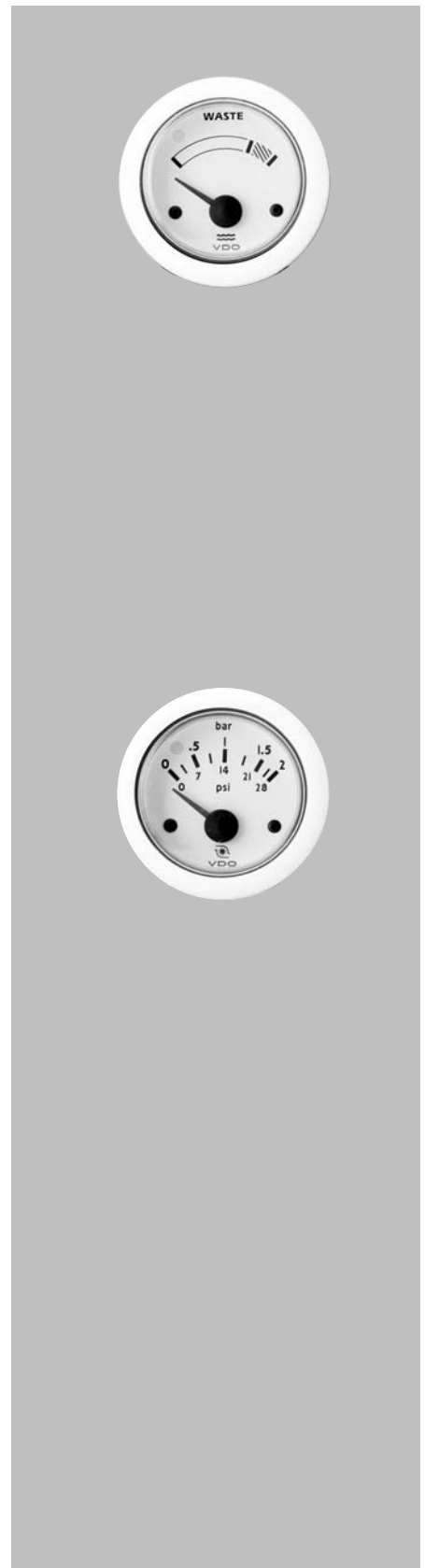
| | | | |
|-----------|----------------|------|-------------|
| Indicator | 30 bar/435 psi | 24 V | N02 124 518 |
|-----------|----------------|------|-------------|

| | | | |
|-----------|----------------|---------|-------------|
| Indicator | 30 bar/435 psi | 4-20 mA | N02 124 722 |
|-----------|----------------|---------|-------------|

Sensors: Page 24

Note: - The 30 bar Pressure gauge (12 V, 24 V) has to be used with a VDO 25 bar sensor.

Technical Data see Page 39



2.2 VDO Ocean Line Engine Monitoring, white



VDO Ocean Line Buzzer Ø 52 mm

| | | |
|-----------------------|---------|-------------|
| VDO Ocean Line Buzzer | 12-24 V | N03 230 704 |
|-----------------------|---------|-------------|

VDO Ocean Line Voltmeter Ø 52 mm

VDO Ocean Line Voltmeter

| | | | |
|-----------|----------------|------|-------------|
| Indicator | Range: 8-16 V | 12 V | N02 410 802 |
| Indicator | Range: 18-32 V | 24 V | N02 410 902 |

VDO Ocean Line Ammeter Ø 52 mm

VDO Ocean Line Ammeter

| | | | |
|-------------------|-----------|------|-------------|
| System with Shunt | 80-0-80 A | 12 V | N02 400 306 |
| Indicator | 80-0-80 A | 12 V | N02 420 702 |
| Shunt | 80 A | | N03 330 116 |

Accessories see page 32

Technical Data see page 39

2.3 VDO Ocean Line Engine Monitoring, chrome

VDO Ocean Line Tachometer Ø 85 mm

VDO Ocean Line Tachometer Ø 85 mm

| | | | |
|-----------------|-----|---------|-------------|
| 0-3000 rpm | ● | 12 V | N02 012 506 |
| 0-3000 rpm | ● | 24 V | N02 012 806 |
| 0-4000 rpm | ● | 12 V | N02 012 510 |
| 0-4000 rpm | ● | 24 V | N02 012 810 |
| 0-6000 rpm | ■ | 12 V | N02 012 514 |
| 0-3000 rpm, EBZ | ●/▲ | 12-24 V | N02 012 206 |
| 0-4000 rpm, EBZ | ●/▲ | 12-24 V | N02 012 210 |
| 0-6000 rpm, EBZ | ■ | 12-24 V | N02 012 222 |
| 0-5000 rpm, EBZ | ●/▲ | 12-24 V | N02 012 214 |

EHM = electronic engine hourmeter,
Tachometer 12-24 V with 12 V Illumination

Connection:

● Terminal W, ■ Terminal 1, ▲ Inductive (specification upon request)

VDO Ocean Line Rudder Angle Indicator Ø 85 mm

VDO Ocean Line Rudder Angle Indicator Ø 85 mm, complete system

Including: Indicator, Sensor, 12 V Illumination

| | | |
|--------|---------|-------------|
| System | 12-24 V | N03 200 618 |
|--------|---------|-------------|

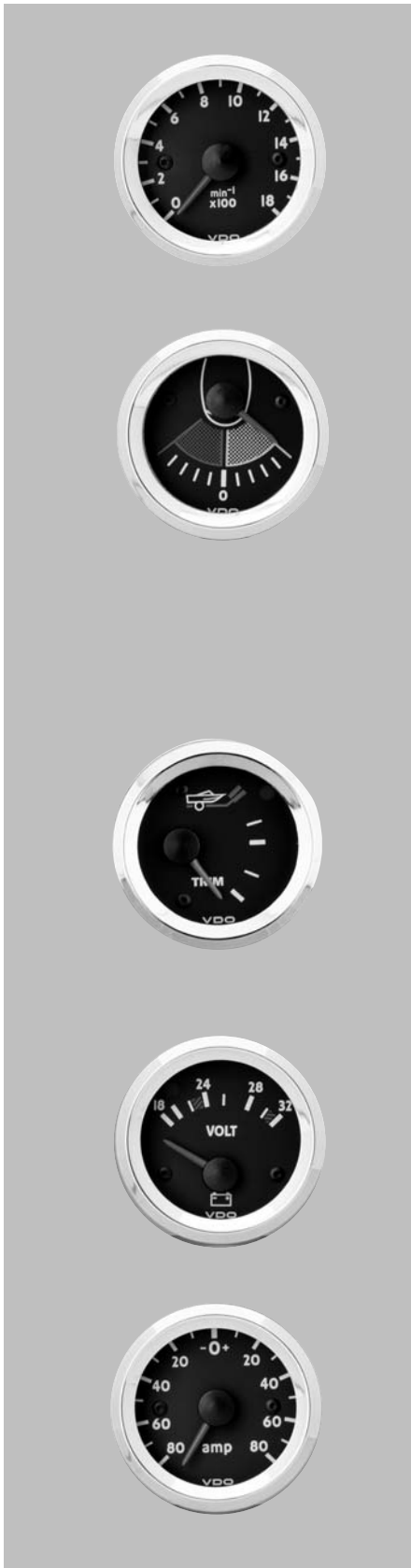
Components

| | | |
|----------------------------------|---------|-------------------|
| Indicator | 12-24 V | N03 211 302 |
| Sensor | 12-24 V | 440 102 001 001 K |
| Sensor for Dual-station readings | 12-24 V | 440 102 002 001 K |



Technical Data see Page 40

2.3 VDO Ocean Line Engine Monitoring chrome



VDO Ocean Line Tachometer Ø 52 mm

VDO Ocean Line Tachometer Ø 52 mm

| | | | |
|------------|-----|------|-------------|
| 0-4000 rpm | ●/■ | 12 V | N02 011 206 |
|------------|-----|------|-------------|

Connection:

● Terminal W, ■ Terminal 1

VDO Ocean Line Rudder Angle Indicator Ø 52 mm

VDO Ocean Line Rudder Angle Indicator Ø 52 mm, complete system,

Including: Indicator, Sensor

| | | |
|--------|------|-------------|
| System | 12 V | N03 200 512 |
| System | 24 V | N03 200 412 |

Components

| | | |
|----------------------------------|---------|-------------------|
| Indicator | 12 V | N03 211 602 |
| Indicator | 24 V | N03 211 702 |
| Sensor | 12-24 V | 440 102 001 001 K |
| Sensor for Dual-station readings | 12-24 V | 440 102 002 001 K |

VDO Ocean Line Trim gauge Ø 52 mm

VDO Ocean Line Trim gauge Ø 52 mm

Including: Indicator

| | | |
|--------------------------------------|------|-------------|
| For Mercury Trimsensor (Bravo Drive) | 12 V | N01 211 102 |
|--------------------------------------|------|-------------|

VDO Ocean Line Voltmeter Ø 52 mm

VDO Ocean Line Voltmeter

| | | | |
|-----------|----------------|------|-------------|
| Indicator | Range: 8-16 V | 12 V | N02 411 202 |
| Indicator | Range: 18-32 V | 24 V | N02 411 302 |

VDO Ocean Line Ammeter Ø 52 mm

VDO Ocean Line Ammeter

| | | | |
|-------------------|-----------|------|-------------|
| System with Shunt | 80-0-80 A | 12 V | N02 400 308 |
| Indicator | 80-0-80 A | 12 V | N02 420 802 |
| Shunt | 80 A | | N03 330 116 |

Accessories see page 32

Technical Data see page 39

2.3 VDO Ocean Line Engine Monitoring, chrome

VDO Ocean Line Pyrometer Ø 52 mm

VDO Ocean Line Pyrometer (Exhaust-gas temperature)

| | | |
|---------------------|------|-------------|
| Indicator 100-900°C | 12 V | N02 340 802 |
| System 100-900°C | 12 V | N02 300 612 |
| Sensorcable 4m | | N03 320 268 |
| Weld boss | | N03 320 266 |

VDO Ocean Line Thermometers Ø 52 mm

VDO Ocean Line Thermometers

| | | | |
|-----------|-------------|------|-------------|
| Indicator | 120°C/250°F | 12 V | N02 322 302 |
| Indicator | 120°C/250°F | 24 V | N02 322 402 |
| Indicator | 150°C/300°F | 12 V | N02 322 306 |

Sensors: Page 26

VDO Ocean Line Engine hours counter Ø 52 mm

| | | |
|-------------------------------------|----------|-------------|
| VDO Ocean Line Engine hours counter | 12 -24 V | N03 110 502 |
|-------------------------------------|----------|-------------|

VDO Ocean Line Level Gauges Ø 52 mm

VDO Ocean Line Fuel Gauge

| | | |
|--------------------------------|------|-------------|
| Indicator Lever 0-4/4 | 12 V | N02 222 802 |
| Indicator Lever 0-4/4 | 24 V | N02 222 902 |
| Indicator Tubular sensor 0-4/4 | 12 V | N02 223 202 |
| Indicator Tubular sensor 0-4/4 | 24 V | N02 223 302 |

Sensors: Page 28

VDO Ocean Line Fresh Water Gauges

| | | |
|-----------------------------|---------|-------------|
| Indicator, capacitive 0-4/4 | 4-20 mA | N02 230 902 |
|-----------------------------|---------|-------------|

Sensors: Page 29

Note Sensor capacitive:

- Sensor can be cut individually
- Sensor not for alluminic tank
- Sensor recommended for freshwater only

Technical Data see page 39



2.3 VDO Ocean Line Engine Monitoring, chrome



VDO Ocean Line Blackwater System Ø 52 mm

Usage in different tank materials like:
 steel, aluminium, plastic with galvanic separation and
 for all conductive liquids like water, greywater,
 wastewater with adjustable make point

Including: Indicator, Sensor (600 mm)

| | | |
|--------|---------|-------------|
| System | 12-24 V | N02 200 522 |
|--------|---------|-------------|

Components

| | | |
|--|--------------|-------------|
| Indicator, 0-4/4 | 12-24 V | N02 230 912 |
| Sensor, with galvanic separation, 2 adjustable make point | | |
| Sensor | 200-600 mm | N02 240 902 |
| Sensor | 600-1200 mm | N02 240 904 |
| Sensor | 1200-1500 mm | N02 240 906 |



VDO Ocean Line Pressure Gauge Ø 52 mm

VDO Ocean Line Pressure Gauge

| | | | |
|-----------|----------------|------|-------------|
| Indicator | 5 bar/72 psi | 12 V | N02 125 406 |
| Indicator | 10 bar/145 psi | 12 V | N02 125 410 |
| Indicator | 10 bar/145 psi | 24 V | N02 125 510 |
| Indicator | 25 bar/360 psi | 12 V | N02 125 414 |
| Indicator | 25 bar/360 psi | 24 V | N02 125 514 |
| Indicator | 30 bar/435 psi | 12 V | N02 125 418 |

Sensors: Page 24

Note: - The 30 bar Pressure gauge (12 V, 24 V) has to be used with a
 VDO 25 bar Pressure sensor

Technical Data see page 39

2.4 VDO Ocean Link Engine Monitoring

CAN SAE J 1939

Master tachometer, Ø 85 mm, dial black / bezel black

| | | |
|-------------------|------------------------|-------------|
| Master Tachometer | 3000 min ⁻¹ | N02 012 920 |
| Master Tachometer | 4000 min ⁻¹ | N02 012 922 |

Master Tachometer, white dial / chrombezel

| | | |
|------------|----------|-------------|
| Tachometer | 3000 rpm | N02 012 928 |
| Tachometer | 4000 rpm | N02 012 930 |

Slave, Ø 52 mm, dial black / bezel black

| | | |
|------------------------------------|---------------|-------------|
| Gearbox oil pressure gauge | 25 bar | N02 140 154 |
| Engine oil pressure gauge | 10 bar | N02 140 156 |
| Boost pressure gauge | 3 bar | N02 140 508 |
| Engine oil pressure gauge | 150 psi | N02 140 512 |
| Gearbox pressure gauge | 360 psi | N02 140 516 |
| Fuel tank gauge | 4/4 | N02 224 080 |
| Engine load | 0 - 100% | N02 226 002 |
| Fuel flow gauge | 80 l/h | N02 270 040 |
| Engine oil temperature gauge | 50 - 150°C | N02 311 054 |
| Engine coolant temperature gauge | 40 - 120°C | N02 311 056 |
| Gearbox oil temperature gauge | 50 - 150°C | N02 311 536 |
| Exhaust gas temperature gauge | 100 - 900°C | N02 311 540 |
| Gearbox oil temperature gauge | 120 - 300 °F | N02 311 544 |
| Exhaust gas temperature gauge | 200 - 1700 °F | N02 311 546 |
| Exhaust gas temperature, Turbine A | 200 - 1700 °F | N02 311 548 |
| Exhaust gas temperature, Turbine B | 200 - 1700 °F | N02 311 550 |
| Engine coolant temperature gauge | 100 - 250 °F | N02 311 552 |
| Exhaust gas temperature, Turbine A | 100 - 900 °C | N02 311 554 |
| Exhaust gas temperature, Turbine B | 100 - 900 °C | N02 311 556 |
| Voltmeter | 18 - 32 V | N02 413 058 |
| Voltmeter | 8 - 16 V | N02 413 066 |
| Engine oil temperature gauge | 100 - 300 °F | N02 311 542 |

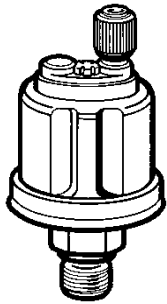
Slave, Ø 52mm, dial white / bezel chrom

| | | |
|----------------------------------|----------------|-------------|
| Gearbox oil pressure gauge | 25bar / 360psi | N02 140 158 |
| Engine oil pressure gauge | 10bar / 145psi | N02 140 160 |
| Fuel tank gauge | 0-4/4 | N02 224 082 |
| Engine oil temperature gauge | 150°C / 300° | N02 311 058 |
| Engine coolant temperature gauge | 120°C / 250°F | N02 311 060 |
| Voltmeter | 18-32 V | N02 413 060 |
| Voltmeter | 8-16 V | N02 413 074 |

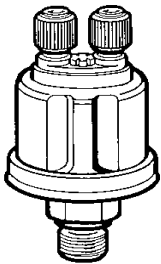


Technical Data see page 41

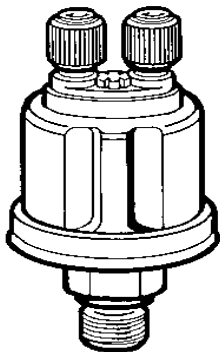
3.1 VDO Pressure Sensors



Pressure sensor Earth Return, without switch



Pressure sensor insulated return



Pressure sensor Earth Return, with switch

VDO Pressure sensor

Pressure sensor Type- 1 (not for Water pressure) Earth Return

| | | | | |
|-------|---------|---------|-------------|-------------------|
| Range | 5 bar, | 75 psi | 1/8-27 NPTF | 360 081 029 004 C |
| Range | 10 bar, | 150 psi | M 10x1 k | 360 081 029 010 K |
| Range | 10 bar, | 150 psi | 1/8-27 NPTF | 360 081 029 012 K |

Pressure sensor Type- 2 (not for Water pressure) insulated return

| | | | | |
|-------|---------|---------|-------------|-------------------|
| Range | 2 bar, | 30 psi | M 12x1,5 k | 360 081 032 011 C |
| Range | 2 bar, | 30 psi | 1/8-27 NPTF | 360 081 032 025 C |
| Range | 5 bar, | 75 psi | M 10x1 k | 360 081 032 002 C |
| Range | 5 bar, | 75 psi | 1/8-27 NPTF | 360 081 032 001 C |
| Range | 10 bar, | 150 psi | M 10x1 k | 360 081 032 003 C |
| Range | 10 bar, | 150 psi | M 14x1,5 | 360 081 032 006 C |
| Range | 10 bar, | 150 psi | 1/8-27 NPTF | 360 081 032 014 C |
| Range | 25 bar, | 350 psi | M 14x1,5 | 360 081 038 001 C |
| Range | 25 bar, | 350 psi | 1/8-27 NPTF | 360 081 038 003 C |
| Range | 25 bar, | 350 psi | 3/8-18 NPTF | 360 081 038 002 C |

Pressure sensor Type- 3, Earth Return, with switch (not for Water pressure) Range 5 bar, 75 psi

| | | | | |
|------------|-----------|----------|-------------|-------------------|
| Make point | 0,25 bar, | 3,5 psi | M10x1 k | 360 081 030 001 K |
| Make point | 0,5 bar, | 7,0 psi | M10x1 k | 360 081 030 002 K |
| Make point | 0,5 bar, | 7,0 psi | M14x1,5 | 360 081 030 028 K |
| Make point | 0,5 bar, | 7,0 psi | 1/8-27 NPTF | 360 081 030 049 K |
| Make point | 0,6 bar, | 8,5 psi | M10x1 k | 360 081 030 014 C |
| Make point | 1,4 bar | 11,5 psi | 1/8-27 NPTF | 360 081 030 010 C |

Pressure sensor Type- 3, Earth Return, with switch (not for Water pressure) Range 80 psi

| | | | |
|------------|-------|-------------|-------------------|
| Make point | 7 psi | 1/8-27 NPTF | 360 081 030 023 C |
|------------|-------|-------------|-------------------|

3.1 VDO Pressure Sensors

Pressure sensor Type- 3, with switch, Earth Return (not for Water pressure) Range 10 bar, 150 psi

| | | | | |
|------------|-----------|----------|-------------|-------------------|
| Make point | 0,5 bar, | 7,0 psi | M10x1 k | 360 081 030 009 K |
| Make point | 0,5 bar, | 7,0 psi | M12x1,5 | 360 081 030 022 C |
| Make point | 0,5 bar, | 7,0 psi | 1/8-27 NPTF | 360 081 030 052 C |
| Make point | 0,75 bar, | 10,7 psi | M10x1 k | 360 081 030 039 C |
| Make point | 0,8 bar, | 11,5 psi | 1/8-27 NPTF | 360 081 030 015 C |
| Make point | 0,9 bar, | 12,0 psi | M10x1 k | 360 081 030 017 C |

Pressure sensor Type- 4 for Dual-Station Reading (not for Water pressure)

| | | | | |
|-----------------------------|-------------------------|---------|--|-------------------|
| Range (insulated return) | 5 bar, 1/8-27 NPTF | 75 psi | | 362 081 001 001 K |
| Range (insulated return) | 10 bar, K1/8-27 NPTF | 150 psi | | 362 081 001 002 K |
| Range (Earth Return) | 10 bar, 1/8-27 NPTF | 150 psi | | 362 081 003 002 K |
| Range (insulated return) | 25 bar, 1/8-27 NPTF | 350 psi | | 362 081 002 001 K |
| Range (Earth Return) | 25 bar, 1/8-27 NPTF | 350 psi | | 362 081 004 001 C |

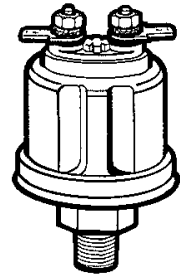
Pressure sensor Type- 5 with switch (not for Water pressure) insulated return, 3 Connections, Thread 1/8-27 NPTF

| | | | | |
|------------|----------|----------|--|-------------------|
| Range | 5 bar, | 75 psi, | | |
| Make point | 0,8 bar, | 11,5 psi | | 360 081 039 002 C |
| Range | 5 bar, | 80 psi, | | |
| Make point | | 10,0 psi | | 360 081 039 004 C |
| Range | 10 bar, | 150 psi, | | |
| Make point | 0,8 bar, | 11,5 psi | | 360 081 039 003 C |

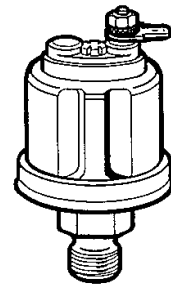
VDO Generator senders

Generator senders for elek. Tachometer and Engine Synchronizer (Diesel) insulated return

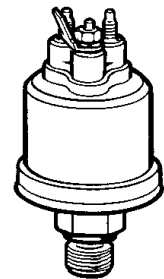
| | | |
|------------------------|---------|-------------------|
| 3000 min ⁻¹ | M22x1,5 | 340 808 001 002 C |
| 3000 min ⁻¹ | 7/8-18 | 340 808 001 004 G |



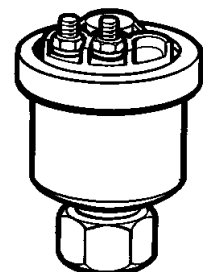
Pressure sensor earth return
for Dual-Station Readings



Pressure sensor
earth return for
Dual-Station Readings

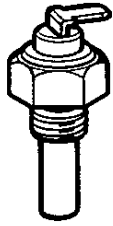


Pressure sensor with switch,
insulated return 3 Connections

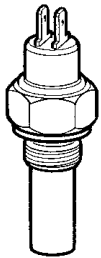


Generator senders
insulated return

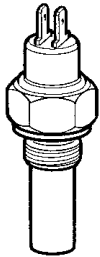
3.2 VDO Temperature Sensors



Temperature sensors
earth return



Temperature sensors, insulated return
for Dual-Station Readings



Temperature sensors,
insulated return



Temperature sensors
earth return

VDO Temperature sensors

Temperature sensors Type- 1, Earth Return 70-120°C and 158-250° F, Terminal Type: Flat plug

| | |
|------------------------|-------------------|
| Thread M14x1,5 | 323 801 001 006 K |
| Thread M16x1,5 | 323 801 001 040 N |
| Thread M18x1,5 | 323 801 001 022 K |
| Thread 1/2-14 NPTF | 323 801 001 010 K |
| Thread 1/4-18 NPTF | 323 801 001 009 N |
| Thread 3/8-18 NPTF | 323 801 001 007 N |
| Thread 5/8-18 UNF - 3A | 323 801 001 008 N |

Temperature sensors Type- 2, Earth Return 140-160°C and 284-320°F

| | |
|------------|-------------------|
| Thread M10 | 323 801 010 001 D |
|------------|-------------------|

Temperature sensors Type- 3, insulated return 70-120°C and 158-250°F, Terminal Type: Flat plug

| | |
|-----------------------------------|-------------------|
| Thread M14x1,5 | 323 805 001 001 K |
| Thread M18x1,5 | 323 805 001 015 N |
| Thread 1/2-14 NPTF | 323 805 001 004 K |
| Thread 1/4-18 NPTF/Dryseal | 323 805 001 007 N |
| Thread 3/8-18 NPTF/Dryseal | 323 805 001 005 N |
| Thread 5/8-18 UNF - 2A taper seat | 323 805 001 002 C |

Temperature switch, 6-24 V, swithing load 3 W, terminal thread M4

| | | |
|------------------|---------|-------------------|
| Thread M10x1 keg | 110±3°C | 232 011 005 024 D |
| Thread M10x1,5 | 125±5°C | 232 011 005 011 D |
| Thread M10x1,5 | 150±5°C | 232 011 005 017 D |
| Thread M10x1,5 | 170±5°C | 232 011 005 004 D |

Temperature sensors Type- 6, Earth Return, for Dual-Station Readings 70-120°C and 158-255°F, Terminal: Flat plug, marking "D"

| | |
|---|-------------------|
| Thread M18x1,5, Earth Return | 325 801 002 002 D |
| Thread 1/4-18 NPTF, insulated return | 325 805 003 001 C |
| Thread 5/8-18 UNF-2A, Taperseat, insulated return | 325 805 003 002 C |

3.2 VDO Temperature Sensors

Temperature sensors Type- 5, Earth Return, with switch sensor 70-120°C, Terminal Type: Flat plug

| | | |
|--------------------|---------|-------------------|
| Thread M14x1.5 | 90±3°C | 323 803 001 004 D |
| Thread M14x1.5 | 96±3°C | 323 803 001 006 D |
| Thread M14x1.5 | 110±3°C | 323 803 001 008 D |
| Thread 5/8-18 NF 3 | 95±3°C | 323 803 001 011 D |
| Thread 5/8-18 NF3 | 98±3°C | 323 803 001 002 D |
| Thread 5/8-18 NF3 | 100±3°C | 323 803 001 012 D |
| Thread 1/2-14 NPTF | 95±3°C | 323 803 001 019 D |

Temperature switch, 6-24 V, switching load 3 W, Flatplug 6,3 x 0,8 mm

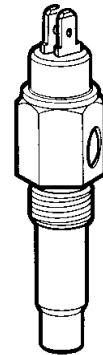
| | | |
|--------------------|---------|-------------------|
| Thread M14x1.5 | 55±3°C | 232 011 017 038 D |
| Thread M14x1.5 keg | 60±3°C | 232 011 017 015 D |
| Thread M14x1.5 | 85±3°C | 232 011 017 017 D |
| Thread M14x1.5 | 90±3°C | 232 011 017 009 D |
| Thread M14x1.5 | 95±3°C | 232 011 017 016 D |
| Thread M14x1.5 | 100±3°C | 232 011 017 034 D |
| Thread M14x1.5 | 110±3°C | 232 011 017 010 D |
| Thread M14x1.5 | 120±3°C | 232 011 017 032 D |
| Thread M14x1.5 | 130±3°C | 232 011 017 103 D |

Temperature sensors Type- 4, insulated return 140-160°C, Terminal Type: Flat plug

| | |
|--------------------|-------------------|
| Thread M14x1.5 | 323 805 003 001 N |
| Thread 1/4-18 NPTF | 323 805 003 002 N |

Temperatureswitch, 6-24 V, insulated return, switching load 100 W, 2 Flat plug 6,3 x 0,8 mm

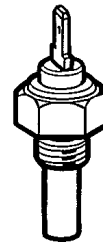
| | | |
|--------------------|---------|-----------------|
| Thread M14x1.5 | 64±3°C | X10 232 001 001 |
| Thread M18x1.5 | 82±3°C | X10 232 001 002 |
| Thread M18x1.5 | 86±3°C | X10 232 001 003 |
| Thread M18x1.5 | 92±3°C | X10 232 001 004 |
| Thread M18x1.5 | 96±3°C | X10 232 001 005 |
| Thread 1/2-14 NPTF | 96±3°C | X10 232 001 006 |
| Thread M14x1.5 | 96±3°C | X10 232 001 007 |
| Thread M22x1.5 | 96±3°C | X10 232 001 008 |
| Thread M18x1.5 | 100±3°C | X10 232 001 009 |
| Thread M18x1.5 | 105±3°C | X10 232 001 010 |



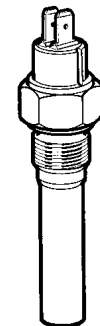
Temperature sensors with switch,
flat plug connector



Temperature sensors

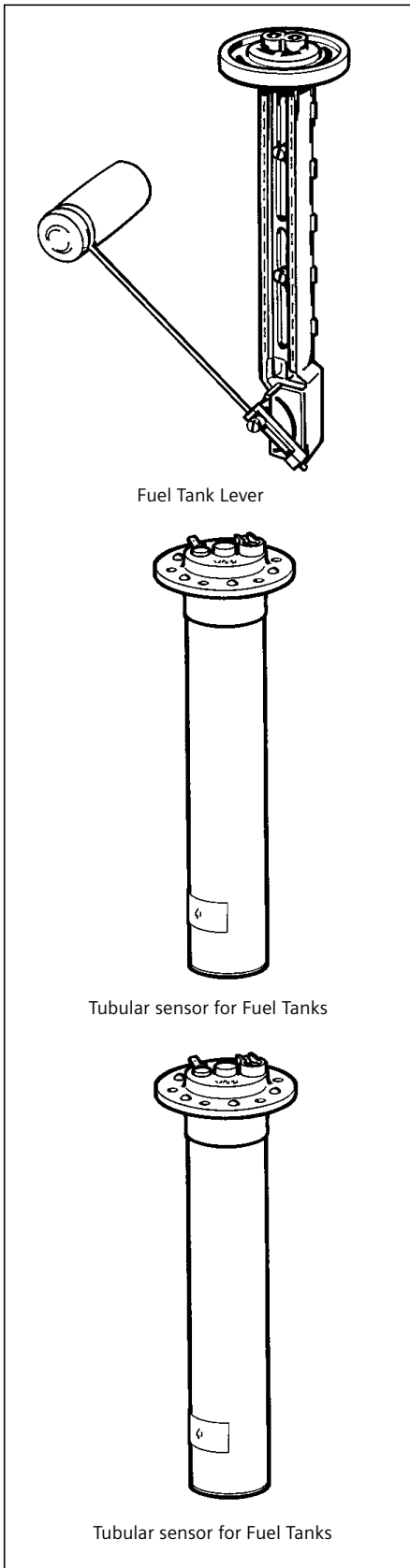


Temperature sensors
flat plug connector



Temperature sensors, insulated
return flat plug connector

3.2 VDO Tank Sensors



VDO Tank sensors

Fuel Lever-Type

| | | |
|--|--------|-------------------|
| For fuel, insulated return, with flange | 6-24 V | 226 801 015 001 C |
| For dual-station readings, with insulated return, marked "D" | 6-24 V | N02 240 106 |

Note:- Lever are adjustable from 200 to 600 mm

Tubular sensor for Fuel Tanks, Earth Return Flange/Bolt Circle Dia Ø 54 mm

| | | |
|---------------|----------|-------------------|
| Instal. depth | 221,5 mm | 224 082 008 021 R |
| Instal. depth | 251,5 mm | 224 082 006 097 R |
| Instal. depth | 279,5 mm | 224 082 007 022 R |
| Instal. depth | 310,5 mm | 224 082 005 136 R |
| Instal. depth | 341,5 mm | 224 082 005 137 R |
| Instal. depth | 346,0 mm | 224 082 005 108 R |
| Instal. depth | 372,5 mm | 224 082 007 004 R |
| Instal. depth | 404,5 mm | 224 082 005 142 R |
| Instal. depth | 433,5 mm | 224 082 005 098 R |
| Instal. depth | 463,5 mm | 224 082 005 044 R |
| Instal. depth | 498,5 mm | 224 082 005 117 R |
| Instal. depth | 591,0 mm | 224 082 007 021 R |
| Instal. depth | 692,0 mm | 224 082 005 011 R |
| Instal. depth | 787,0 mm | 224 082 005 072 R |

Tubular sensor for Fuel Tanks, Earth Return Flange/Bolt Circle Dia Ø 80 mm

| | | |
|---------------|----------|-------------------|
| Instal. depth | 536,0 mm | 224 082 009 037 R |
| Instal. depth | 596,0 mm | 224 082 009 039 R |
| Instal. depth | 686,0 mm | 224 082 014 002 R |
| Instal. depth | 741,0 mm | 224 082 009 029 R |
| Instal. depth | 781,0 mm | 224 082 009 019 R |
| Instal. depth | 831,0 mm | 224 082 009 026 R |
| Instal. depth | 881,0 mm | 224 082 014 003 R |
| Instal. depth | 916,0 mm | 224 082 014 011 R |
| Instal. depth | 996,0 mm | 224 082 014 015 R |

3.2 VDO Tank Sensors

Capacitive Sensors for Fresh watertank, with flange

| | | |
|---------------------------------|--------|-------------|
| for tank depths of 80-600 mm | 6-24 V | N02 240 402 |
| for tank depths of 600-1200 mm | 6-24 V | N02 240 404 |
| for tank depths of 1200-1500 mm | 6-24 V | N02 240 406 |

Note Sensor capacitive:

- Sensor can be cut individually
- Sensor not for alluminic tank
- Sensor recommended for freshwater only

Seal for Tankflange

| | |
|-------------------------------------|-----------|
| Bolt circle dia Ø 54 mm cork seal | 2 250 234 |
| Bolt circle dia Ø 54 mm rubber seal | 2 251 243 |
| Bolt circle dia Ø 80 mm cork seal | 2 251 006 |
| Bolt circle dia Ø 80 mm rubber seal | 2 251 016 |

Bolt-on Tankflange for Fuel- and Fresh water sensor

| | |
|-------------------------|-------------|
| Bolt circle dia Ø 54 mm | N05 801 432 |
|-------------------------|-------------|

Weld-on Tankflange for Fuel- and Fresh water sensor

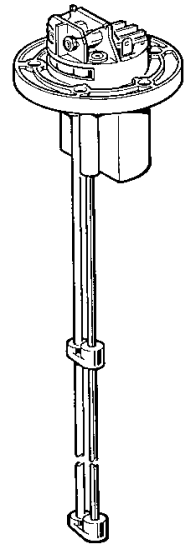
| | |
|--------------------------------------|-----------------|
| Bolt circle dia Ø 54 mm (Capacitive) | 2 250 264 1141 |
| Bolt circle dia Ø 80 mm | 11 591 001 1401 |

Tankflange with Sealing for Blackwater sensor and Reedcontact Sensor

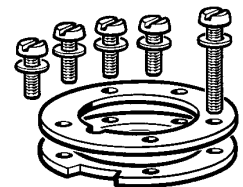
X10 224 000 007

Capacitive Tank Sensor for Blackwater, usage in different tank materials like, steel, alluminium, plastic with galvanic separation and for all conductive liquids like water, greywater, wastewater with adjustable make point

| | | |
|--------|--------------|-------------|
| Sensor | 200-600 mm | N02 240 902 |
| Sensor | 600-1200 mm | N02 240 904 |
| Sensor | 1200-1500 mm | N02 240 906 |



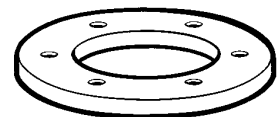
Fresh watersensor capacitive



Bolt-on Tankflange



Weld-on Tankflange




Weld-on Tankflange



Black water sensor

4.1 VDO Marine Accessories, general

| | | | |
|--|--|-----------------|-------------|
|  <p>Lightbulb</p> <p>Bulbholder 29 133 005 Engine monitoring Standard</p> <p>Bulbholder N05 800 218 Powerboat Serie</p> | VDO Marine Accessories | | |
| | Lightbulb | | |
| | for old Engine monitoring equipment, old-/new-type ammeter, pyrometer, Speedometer Ø 85 mm, Ø 100 mm, compass Adis I, depth sounder, Sumlog SL, Sumlog HS, old-type wind ind. system, white | 12 V/2 W | 4 124 122 |
| | for old-type engine monitoring equipment, old-/new type ammeter, pyrometer, speedometer Ø 85 mm, Ø 100 mm, compass Adis I, depth sounder, Sumlog SL, Sumlog HS, old-type wind ind. system, white | 24 V/3 W | N05 800 296 |
| | For new-type engine monitoring, type "Powerboat-Serie": Twinline, Pitot-Speedometer, new-type wind ind. system, red | 12 V/1,2 W | N05 800 552 |
| | For new-type engine monitoring, Typ "Powerboat-Serie": Twinline, Pitot-Speedometer, new-type wind ind. system, red | 24 V/1,2 W | N05 800 550 |
| | For Typ "Powerboat-Serie": Speedometer, Sumlog S, red | 12 V/2 W | N05 800 540 |
| | For Typ "Powerboat-Serie": Speedometer, Sumlog S, red | 24 V/1,2 W | N05 800 550 |
| | Dropping resistor 24 V Standard Serie, for adapting 12 V. Instruments for 25 V use | | |
| | For temperature-, pressure-, tank gauges, Rudderangle indicator, complete with lightbulb | | N05 801 180 |
| Note:- Dropping resistor for VDO Standard Serie only. | | | |
| Front lenses Standard Serie | | | |
| Cover lens Ø 52 mm | | N05 801 336 | |
| Cover lens Ø 100 mm | | N05 800 286 | |
| Bezel Standard Serie | | | |
| Bezel, black Ø 120 mm | | N05 800 264 | |
| Bezel, black 125 x 125 mm | | N05 800 262 | |
| Bezel, black Ø 62,5 mm | | N05 801 110 | |
| Bezel, black 62,5 x 62,5 mm | | N05 800 222 | |
| Autopilot Ascessories | | | |
| Kompass sensor | | X10 719 002 049 | |
| Buzzer | | N03 230 702 | |

4.2 VDO Chart Plotter Accessories

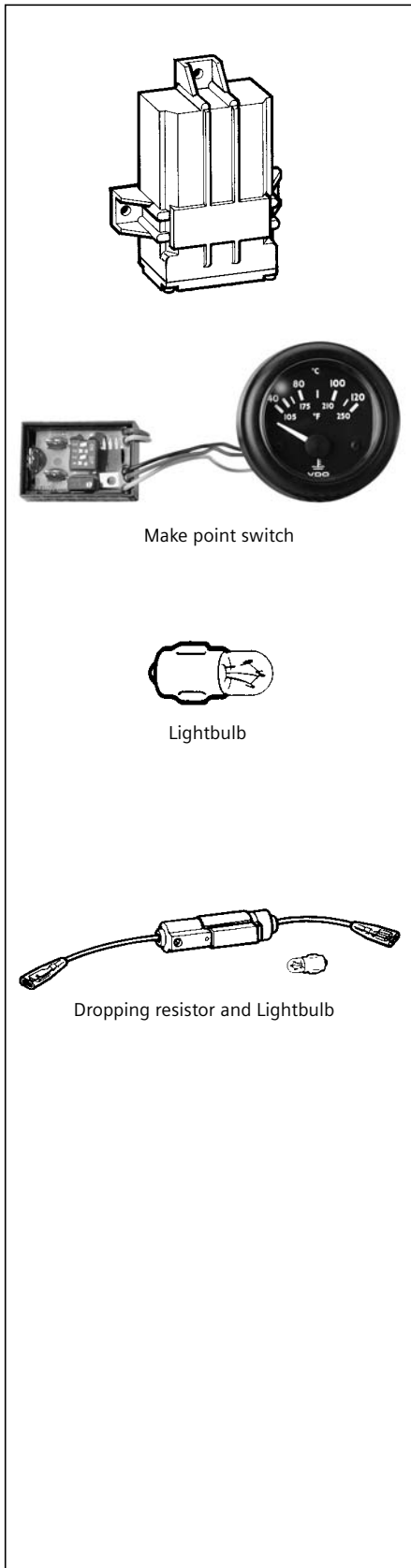
Chart Plotter Accessories

| | |
|--|-----------------|
| Fishcam | X10 719 002 044 |
| Antenna Cable 10m für MAP 7 c, cc and MAP 11 (until 2002) | X11 719 000 018 |
| Through-hull for Fishcam | X11 719 000 020 |
| GPS Antenna MAP 7 and MAP 11 (until 2002) | X11 719 000 017 |
| Bracket for GPS Antenna, Sail. | X11 719 000 005 |
| Bracket for MAP 7 | X11 719 000 016 |
| Camera switch MAP 7 + MAP 11 | X11 719 000 019 |
| Camera connector für MAP 7 cc + MAP 11 | X11 719 000 021 |
| GPS-Sensor MAP 11 and MAP 7w without cable (from 2003) | X11 719 000 048 |
| Cable for Sensor MAP 11 and MAP 7w (from 2003) | X11 719 000 047 |
| Bracket MAP 11 | X11 719 000 032 |
| Power cable MAP 11 | X11 719 000 033 |
| Adapter cable Video | X11 719 000 056 |
| Bracket MAP 7v | X11 719 000 079 |



Fishcam

4.3 VDO Ocean Line Accessories



Make point switch

Lightbulb

Dropping resistor and Lightbulb

Ocean Line NMEA Interface

| | | |
|-------------------------------|-----------|-------------|
| for Compass, Log, Wind, Depth | 10,8-30 V | N01 610 506 |
|-------------------------------|-----------|-------------|

Ocean Line Makepoint switch

| | | |
|---|---------|-----------------|
| Makepoint switch Ocean Line for Pressure-, Temperature- and Fuel level gauges | 12-24 V | X10 719 002 037 |
|---|---------|-----------------|

Lightbulb

| | | |
|---|------|-------------|
| Lightbulb 1,2 W red; for Ø 52, Ø 85 mm Instruments | 12 V | N05 800 552 |
|---|------|-------------|

| | | |
|---|------|-------------|
| Lightbulb 1,2 W red; for Ø 52, Ø 85 mm Instruments | 24 V | N05 800 550 |
|---|------|-------------|

| | | |
|---|------|-------------|
| Lightbulb 1,2 W white; for Ø 52, Ø 85 mm Instruments | 12 V | N05 801 532 |
|---|------|-------------|

| | | |
|---|------|-------------|
| Lightbulb 1,2 W white; for Ø 52, Ø 85 mm Instruments | 24 V | N05 800 588 |
|---|------|-------------|

| | | |
|--------------------|--|-------------|
| Bulbholder Ø 85 mm | | N05 801 564 |
|--------------------|--|-------------|

| | | |
|--------------------|--|-------------|
| Bulbholder Ø 52 mm | | N05 800 218 |
|--------------------|--|-------------|

Dropping resistor for 12 V Ocean Line Pyrometer, Ammeter, and outside temperature, Tachometer Ø 52 mm on 24 V

| | | |
|--------------------------|------------|-------------|
| with red, 24 V Lightbulb | 24 V/1,2 W | N05 800 786 |
|--------------------------|------------|-------------|

| | | |
|----------------------------|------------|-------------|
| with white, 24 V Lightbulb | 24 V/1,2 W | N05 800 596 |
|----------------------------|------------|-------------|

Warning lamp

| | | |
|-------------------------------|------------|-------------|
| Warning lamp with socket, red | 12 V/1,2 W | N05 800 762 |
|-------------------------------|------------|-------------|

| | | |
|-------------------------------|------------|-------------|
| Warning lamp with socket, red | 24 V/1,2 W | N05 800 764 |
|-------------------------------|------------|-------------|

| | | |
|----------------------------------|--|------------|
| Spade connector for warning lamp | | 25 199 014 |
|----------------------------------|--|------------|

Connecting Accessories:

| | | |
|---|--|-----------------|
| 3-pole connector with spade connectors for Ø 52 mm Instruments | | X39 000 000 002 |
|---|--|-----------------|

| | | |
|--|--|-------------|
| 8-pole connector housing for Ø 85 mm Instruments | | 999 115 016 |
|--|--|-------------|

| | | |
|--|--|-----------------|
| Spade connector 6,3 mm for connector housing | | X11 000 002 021 |
|--|--|-----------------|

| | | |
|--|--|-----------------|
| Delphi connector OL Combi, 14 pins (without cable) | | X11 719 002 037 |
|--|--|-----------------|

| | | |
|---|--|-----------------|
| Adaptercable for OL Combi (with connector for NMEA sensor and Easy Link) | | X11 719 000 073 |
|---|--|-----------------|

| | | |
|--|--|-------------|
| 10 m sensor cable for Ocean Line Depth | | N05 801 851 |
|--|--|-------------|

| | | |
|--|--|-------------|
| 20 m sensor cable for Ocean Line Depth | | N05 801 852 |
|--|--|-------------|

Lens Ocean Line

| | | |
|----------------------------|--|-------------|
| Lens for Ø 52 mm Indicator | | N05 801 336 |
|----------------------------|--|-------------|

| | | |
|--|--|-------------|
| Lens for Ø 85 mm Indicator with reset button | | N05 801 832 |
|--|--|-------------|

| | | |
|---|--|-------------|
| Lens for Ø 85 mm Indicator without reset button | | N05 801 834 |
|---|--|-------------|

4.3 VDO Ocean Line Accessories

Bezel

| | |
|--|-----------------|
| Ocean Line, black; for Ø 85 mm Instruments | N05 801 562 |
| Ocean Line, white; for Ø 85 mm Instruments | N05 801 790 |
| Ocean Line, black; for Ø 52 mm Instruments | N05 800 774 |
| Ocean Line, white; for Ø 52 mm Instruments | N05 801 788 |
| Ocean Line, chrome; for Ø 52 mm Instruments | X11 719 000 022 |
| Ocean Line, chrome; for Ø 85 mm Instruments | X11 719 000 023 |
| Ocean Line, aluminium; for Ø 52 mm Instruments | X11 719 000 027 |
| Ocean Line, aluminium; for Ø 85 mm Instruments | X11 719 000 026 |
| Ocean Line, anthrazit; for Ø 52 mm Instruments | X11 719 000 031 |
| Ocean Line, anthrazit; for Ø 85 mm Instruments | X11 719 000 030 |
| Ocean Line, brass; for Ø 52 mm Instruments | X11 719 000 029 |
| Ocean Line, brass; for Ø 85 mm Instruments | X11 719 000 028 |
| Ocean Line, gold, for Ø 85 mm Instruments | X11 719 000 041 |
| Ocean Line, gold; for Ø 52 mm Instruments | X11 719 000 046 |

Mounting Kit

(incl. Bracket, bolts and nuts)

| | |
|--|-----------------|
| For 85 mm Ø Indicator with Ocean Line Plastic Bezel | N05 800 792 |
| For Pressure- Temperatur- Fuel- Fresh water- and voltmeter 52 mm Ø with Ocean Line Plastic Bezel | N05 800 766 |
| For Pressure- Temperatur- Fuel- Fresh water- and voltmeter 52 mm Ø with Metal-Chrome Bezel | N05 800 696 |
| For Pyrometer, Ammeter, Speedometer, Electronic engine hourmeter 52 mm Ø with Ocean Line Plastic Bezel | N05 800 782 |
| Ocean Line Spin Lock nut Ø 85 mm | N06 027 480 |
| Ocean Line Spin Lock nut Ø 52 mm | 999 072 001 |
| Ocean Line Flush mounting ring 85 mm | X11 719 000 064 |
| Ocean Line Flush mounting ring 52 mm | X11 719 000 062 |

Spare parts

| | |
|--|------------------|
| Thru-Hull fitting 12-50 kn, 80 km/h (Ocean Line Sumlog) | 270 023 005 010 |
| Paddle wheel with axle 12 kn, 20 kn (Ocean Line Sumlog) | 270 023 005 003 |
| Paddle wheel with axle 30 kn (Ocean Line Sumlog) | 270 023 005 004 |
| Paddle wheel with axle 50 kn, 80 km/h | 270 023 005 005 |
| Sensor with Thru-Hull fitting 12-50 kn, 80 km/h | N01 140 302 |
| Wind vane from production date 8/93 | N05 800 356 |
| Wind vane cups with boss whole | N05 801 448 |
| Blind Plug for NMEA sensor and Fishcam | X11 719 000 061 |
| Thru-Hull fitting for NMEA sensor | X11 719 000 060 |
| NMEA Sensor (Thru-Hull) | X11 719 000 059 |
| Sumlog sensor until 50 kn (without Thru-Hull fitting) | 270 023 005 002K |
| Floot valve | N05 800 258 |
| Blind Plug for Sumlog | N05 801 478 |
| Thru-Hull, Blind Plug, Fixing Nut for Ocean Line Depth | N05 801 416 |

4.4 VDO Sound Accessories

VDO Ocean Line Radio Remote Control

| | |
|------------------------------------|-----------------|
| without Front Bezel and Cable | N01-660-206 |
| with Front Bezel (black) and Cable | X11 719 000 069 |
| with Front Bezel (white) and Cable | X11 719 000 070 |

| | |
|-------------|-----------------|
| Radio Cover | X11 719 000 034 |
|-------------|-----------------|

Marine Loudspeaker

| | |
|---|-----------------|
| Loudspeaker Set, broad band, 130 mm, RAL 9010 | X11 719 000 057 |
| Loudspeaker Set, dual cone, 165 mm, RAL 9003 | X11 719 000 071 |
| Loudspeaker Set, dual cone, 130 mm, RAL 9003, without Logo | X11 719 000 072 |
| Loudspeaker Set, broad band, 130 mm, RAL 9003, without Logo | X11 719 000 072 |



Technical Data see Seite 42

5.1 Technical Data Chart Plotters

VDO MAP 7 GPS, 11csE, VDO GPS Receiver

Dimensions:

| | |
|------------------------|----------------------------|
| MAP 7 v (L x D x H) | 140mm x 60mm x 140mm |
| MAP 7 w (L x D x H) | 241mm x 151mm x 44,5mm |
| MAP 7 wi (L x D x H) | 241mm x 151mm x 88,5mm |
| MAP 11 csE (L x D x H) | 329mm x 230,5mm x 50(90)mm |

Voltage: 10-35 V DC

Power consumption:

| | |
|----------------|----------|
| MAP 7 v, w, wi | 7,5 Watt |
| MAP 11 csE | 15 Watt |

Display diagonal:

| | |
|-------------|--------|
| MAP 7 v | 142 mm |
| MAP 7 w, wi | 176mm |
| MAP 11csE | 262 mm |

Display resolution:

| | |
|----------------|-----------------|
| MAP 7 v | 240 x 320 Pixel |
| MAP 7 w, wi | 480 x 234 Pixel |
| MAP 11 csE | 640 x 480 Pixel |
| MAP 11 csE | 256 colours |
| MAP 7 v, w, wi | 256 colours |

Map format: C-Map, high-resolution, CF 95, NT+ MAX

Storage medium: non-volatile, battery -back-up

Keyboard: backlit silicon keyboard with track-pad

Operating temperatures: -0°C to +55°C

Protection: Splashproof, IP 54, CE-EN 60945

Weight: 950 gr.(Map 7 v),
1,1 kg. (MAP 7 w, wi), 1,6 kg (MAP 11 csE)

Serial Input/output: NMEA 0182/0183

NMEA output autopilot: NMEA 0183, 0180/CDX, 0183 Vers. 2.0

WAAS ready: MAP 7 v, w, wi
MAP 11 csE

GPS Sensor, 12 Channel Parallel

Receiver: WAAS/EGNOS compatible

Operating temperature: -30°C to +75°C

Protection: IP 65, waterproof, CE-EN 60945

Receiving frequency: L1 C/A Code

5.2 Technical Data Ocean Line Navigation

VDO Ocean Line

NMEA Interface

| | |
|------------------------|--|
| Voltage supply: | 10,8–30 V DC |
| Current consumption: | < 60 mA |
| Operating temperature: | –25°C to +70°C |
| Input: | Ocean Line Log, Ocean Line Depth, Ocean Line Wind, Ocean Line Compass |
| Output: | Interface according to NMEA 0183 Output rate: 1 Data set/Sec. A maximum of 2 devices can be connected to the data output |
| Data sets transmitted: | DPT Depth from the water surface, distance between sensor and keel |
| | DBK Depth below keel |
| | DBT Depth below sensor |
| | HDG Magnetic heading, variation |
| | HDM Magnetic heading |
| | HDT True heading |
| | MWV Wind speed, wind direction |
| | VPW VMG (Velocity made good) |
| | VWR Apparent wind direction, apparent wind speed |
| | VWT True wind direction, true wind speed |
| | VHW True Heading, magnetic Heading, Boatspeed in kn |

5.2 Technical Data Ocean Line Navigation

VDO Ocean Line, Ø 85 mm

Depth, Sounder, Pitot-tube Speedometer-System, Sumlog®, Compass, Wind-System

| | Ocean Line, black | Ocean Line, white |
|-----------------------------------|---|---|
| Dial: | Translucent, black | Translucent, white |
| Pointer: | Translucent, white | Translucent, red |
| Bezel: | Plastic, black | Plastic, white |
| Cover lens: | Double lens system | Double lens system |
| Illumination: | 2x Lightbulb 1,2 W white LCD permanent illuminated (green), (not Pitot-Tube- speedometer) | 2x Lightbulb 1,2 W red LCD permanent illuminated (green) (not Pitot-Tube-speedometer) |
| Housing: | Plastic, flame resistant | |
| Connectors: | Flat plug 6,3 x 0,8 mm, Sensor: FCC Plug, (not Pitot-speedometer) | |
| Fixing: | Spinlock Housing nut, Option: Bracket Mounting kit | |
| Voltage: | 12 or 24 V (10,8–30 V), (not Pitot-speedometer) | |
| Current consumption indicator: | max. 90 mA (without Illumination, not Pitot-speedometer) | |
| Repeater: | max. 2 Repeaters connectable, (10 m Cable, not Pitot-speedometer) | |
| Nominal position: | 0–90° | |
| Operating temperature: | –10°C to +60°C (at operating voltage) | |
| Storage temperature: | –20°C to +70°C | |
| EMC: | Reference standards EN 50082-1, EN 50081-1, complies with CE | |
| Vibration resistance: | max. 1 g eff. 25 Hz–500 Hz (for 8 hour period) | |
| Shock: | 15 g, 1,5 ms Semi-sinus | |
| Protection: | IP 65 from the front, as per IEC 60529 in an installed position | |
| Installation diameter: | Ø 85,5 mm | |

5.2 Technical Data Ocean Line Navigation

VDO Ocean Line Combi

| | Ocean Line, black | Ocean Line, white |
|------------------------|---|----------------------|
| Dial: | Translucent, black | Translucent, white |
| Pointer: | Translucent, white | Translucent, black |
| Bezel: | Plastic, black | Plastic, white |
| Cover lens: | Double lens, plastic | Double lens, plastic |
| Illumination: | LED red, dimmable, LCD amber | |
| Housing: | Plastic, flame resistant | |
| Connectors: | Delphi connector GT150 sealed | |
| Fixing: | Spinlock Housing nut, Option: Bracket Mounting Kit | |
| Voltage: | 10 to 32 V | |
| Current consumption; | max. 120 mA without Illumination max. 140 mA with Illumination | |
| Nominal position: | 0-90° | |
| Operating temperature: | -20°C to +70°C (at operating voltage) | |
| Storage temperature: | -30°C to +85°C | |
| EMC: | Reference 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: | IP 65 from the front, as per IEC 60529 in an installed position | |
| Installation diameter: | Ø 85,5 mm | |
| Installation depth: | 73 mm (incl. connector and cable) | |
| Input | VDO Ocean Line Log Sensor VDO Ocean Line Depth Sensor Airmar transom mount Sensor P66 Airmar Retractable Triducer Sensor | |
| Output | Easy Link Bus | |

5.3 Technical Data Ocean Line Engine Monitoring

VDO Ocean Line, Ø 52 mm

Ammeter, Outside Temperature, Engine hours counter, Speedometer,
Pressure gauge, Pyrometer, Quartz clock, Rudder-angle indicator, Blackwater system,
Thermometers, Fuel gauges, Fresh water gauges, Voltmeter

| | Ocean Line, black | Ocean Line, white | Ocean Line, chrome |
|--------------------------------|--|--------------------|---------------------|
| Dial: | Translucent, black | Translucent, white | Translucent, black |
| Pointer: | Translucent, white | Translucent, red | Frontlighting, red |
| Bezel: | Plastic, black | Plastic, white | Chrome-plated brass |
| Cover lens: | Double lens system | Double lens system | Single lens system |
| Illumination: | red, 1,2 W, Socket W5/2 | 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), Locking height 0–12 mm | | |
| Operating Voltage: | 12 or 24 V, (earth returned) | | |
| 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: | Reference standards EN 50082-1, EN 50081-1, complies with EMC guideline 89/336/EWG | | |
| 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 60529 in an installed position | | |
| Option: | Warning lamp (see Accessories) | | |
| Installation diameter: | Ø 52,5 mm borehole | | |
| Germanic Lloyd: | Certificate no.: 12-276-98 H | | |



5.3 Technical Data Ocean Line Engine Monitoring

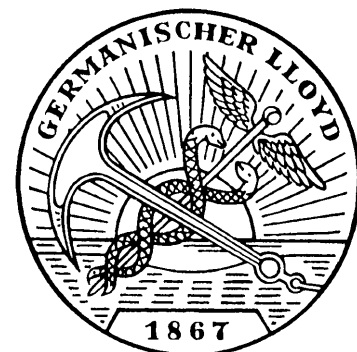
VDO Ocean Line, Ø 85 mm

Tachometer, Rudder-angle

| | Ocean Line, black | Ocean Line, white | Ocean Line, chrome |
|--------------------------------|--|---|---|
| Dial: | Translucent, black | Translucent, white | Translucent, black |
| Pointer: | Translucent, white | Translucent, red | Frontlighting, red |
| Bezel: | Plastic, black | Plastic, white | Chrome-plated brass |
| Cover lens: | Double lens system | Double lens system | Single lens system |
| Illumination: | 2x Lightbulb 1,2 W, red coloured, LCD permanent illuminated (green) | 2x Lightbulb 1,2 W, red coloured, LCD permanent illuminated (green) | 2x Lightbulb 1,2 W, red coloured, LCD permanent illuminated (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 Illumination) | | |
| Nominal position: | 0–90° | | |
| Operating temperature: | –20°C to +70°C (at operating Voltage) | | |
| Storage temperature: | –30°C to +85°C | | |
| EMC: | Reference 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: | IP 65 on the front, as per IEC 60529 in an installed position | | |
| Installation diameter: | Ø 85,5 mm Borehole | | |
| Germanic Lloyd: | Certificate no.: 12-276-98 H | | |

VDO Ocean Line, Makepoint switch

| | |
|------------------------|---|
| Voltage supply: | 10,8–32 Volt |
| Current consumption: | < 10 mA (warning lamp off) |
| Operating temperature: | –25°C to +70°C |
| Input: | Resistor sensor (Pressure, Temperatur, supply levels) |
| Output: | Switch output, max. 300 mA (not short-circuit-protected) |



5.4 Technical Data Ocean Link

Technical Data Ocean Link Master

| | |
|-----------------------|---|
| Operating voltage | 10,5 ... 32 V DC |
| Current consumption | ~ 120 mA w/o illumination ~ 140 mA with illumination |
| Illumination | Dial: red backlight dimmable; display: amber |
| Operating temperature | -20 ...+ 70°C at nominal voltage |
| Protection | IP65 from the front, Din 40050 |
| EMC | CE according 89/336/EWG |
| Inputs | CAN 2.0B; SAE J1339 Analog 4 - 20 mA Analog 0 - 200 Ohm |
| Output | VDO Serial Bus |
| Dimensions | 85 mm diameter 73 mm high incl. wiring harness |
| Connection | Delphi, GT150 sealed |

Technical Data Ocean Link Slave

| | |
|-----------------------|---|
| Operating voltage | 10 ... 30 V DC |
| Current consumption | < 70 mA incl. illumination |
| Illumination | Red, backlight, dimmable via master |
| Operating temperature | -20 ...+ 70°C at nominal voltage (master) |
| Protection | IP65 from the front |
| EMC | CE according 89/336/EWG |
| Inputs | VDO Serial Bus |
| Dimensions | 52 mm diameter 35 mm high incl. wiring harness |
| Connection | AMP Superseal 1.5 |

5.5 Technical Data Sound

Loudspeaker 130 RV

Diameter: 130 mm

Outer Diameter Grill: 160 mm

Nom. Impedance: 4 Ohm

Long term max. power: 120 Watts

Rated noise power: 50 Watts

Frequency range:

50 Hz (-15dB) – 18 KHz (-20dB)

Loudspeaker 165 mm

Diameter: 165 mm

Outer Diameter Grill: 190 mm

Nom. Impedance: 4 Ohm

Long term max. power: 120 Watts

Rated noise power: 50 Watts

Frequency range:

50 Hz (-15dB) – 20 KHz (-20dB)

Notice

Notice

Notice

Notice

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