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Marine Catalogue 2014/2015

VDO

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Viewline

OceanLink

Introducing VDO Viewline

Our engineers started with a clean sheet of paper and a worldwide view to create an instrument line like no other in today's market. Their goal to create an instrument with flexibility, class and integrity something you've come to expect from VDO. It begins with a fresh style and a choice of dial face colors of black or white. Next we added three choices of bezel styles along with three choices of bezel colors - white, black and chrome. To complete your choices we give you three choices of instrument sizes 100mm, 85mm and 52mm giving you more flexibility than ever to create the instrument you are looking for. They did not stop with just a pretty face, next they added integrity. With the use of fully sealed dual lens, lifetime LED lighting and warning indicators assure you that Viewline can withstand even open cab environments easily.

The future of analogue instrumentation

Viewline is the new standardised instrument platform for pleasure boats and yachts. With modular solutions in three housing variations, we supply more functions, more flexible installation and design options as well as space-saving combi instruments – something unique in this sector. Furthermore, Viewline offers maximum freedom to customise the cockpit and is the natural choice for an attractive price / performance ratio.

Anti-fog and water resistance

Electrical devices for use on boats under extreme conditions at sea need to be particularly well protected. This is why the fronts of all Viewline instrument casings are hermetically sealed in compliance with IP 67 and fitted with anti-fog double lenses in shock-resistant plastic, while the casing itself is corrosion-free.

Clip-on bezel

The modular bezel concept offers design flexibility in the layout of instrument panels. Three attractive design variants in black, white or chrome perfectly complement any boat's interior. Furthermore, bezels are available in flat, round and triangular versions. All available bezels can be combined with all devices.

Panel and flush mounting

All Viewline instruments can be conveniently mounted in the instrument panel. It is possible to use the modular bezels for installation as well as integrating the instruments flat without the bezels (flush installation). This allows maximum flexibility in cockpit customisation and numerous design variants.

Highly visible LED warning and indicator lights

Viewline instruments are fitted with highly visible, high intensity LED warning and indicator lights. They ensure that critical operating conditions can be quickly and safely detected.In the case of the multifunctional speedometer and tachometer, the Viewline platform concept includes instruments which can be equipped with up to five warning lights (OEM-specific).

Certified quality and innovative technology

Combi and multifunction gauges

Now, in addition to the tried and tested standard solutions, Viewline also offers OEMs the option of installing multifunction devices:

- 85 mm combi devices, analogue and / or digital representation of speedometer and tachometer signals (OEM solution)
- 110 mm multifunction devices, such as 4-in-1 or 2-in-1
- Integration of up to five display / warning lights (OEM solution).

Full backlight technology

The dials and pointers of all Viewline instruments feature full backlight technology:

- Optimum contrast and superb readability of the display when lit
- Attractive display appearance at night thanks to clearly structured dial design.

LC-display

As well as having an analogue indication (speed or engine revs), the new Viewline tachometer and speedometer instruments have an additional digital display:

- Display size 37 mm x 11 mm
- Quick and reliable retrieval of other data
- Optimum reading angle and representation on the display
- Display with speed or engine revs (option)
- Further monitoring functions available on the LC display (battery, temperature, mileage indicator, etc.)
- Individual function selection via external button.

Programmable displays

Viewline enables the user to use different setting and programming options:

- Basic setup via dip switches, external button or a PC software package
- Setup of various display functions via external button.

Signal inputs

Viewline offers the following options for the signal inputs:

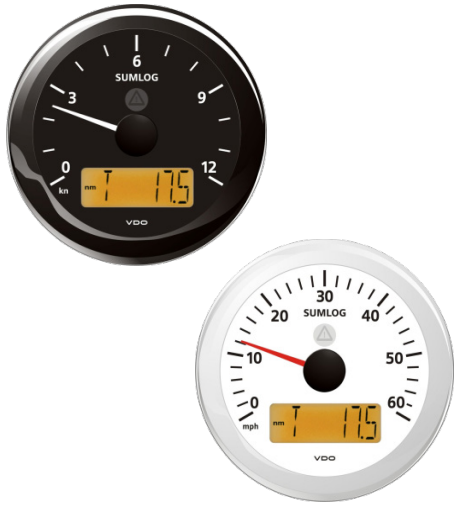
- NMEA 0183 data input for all navigation instruments
- Standard tachometer and speedometer signals
- Second frequency input (option)
- Standard signals for engine monitoring and onboard power supply
- Signal inputs for special sensors (option)
- Up to five usable switching inputs for control / warning lights within the OEM version (option).

1. Spin-Lok mounting – a VDO innovation developed to safeguard against mounting panel warping and makes fast installation.
2. Single PCB increases reliability and minimizes instrument depth.
3. LED lit pointers and through dial lighting minimize current consumption while optimizing nighttime viewing.
4. Single cavity connectors reduce wiring installation time.
5. Reverse polarity and over voltage protection virtually eliminate the possibility of installation failures.
6. Large, multifunction backlit LCD provides easy readout of programmed functions.
7. Built-in LED warning indicator (up to 5) is programmable to OEM-specified function.
8. Laser welded lenses ensure the highest level of protection against water intrusion.
9. Dual domed lenses eliminate fogging – another VDO innovation.
10. Customer installed bezels with nine style choices allow for greater styling differentiation between product lines.

GPS speedometer

GPS Speedometer Ø110 mm	Part number	Voltage [V]	Range	Input	Dial Bezel	Price
	A2C59501782	12	0 - 35 kn or 0 - 35 mph or 0 - 35 km/h	NMEA 2000	black round black	
	A2C59501781	12	0 - 70 kn or 0 - 70 mph or 0 - 70 km/h	NMEA 2000	black round black	

Sumlog®

Sumlog® Ø85 mm	Part number	Voltage [V]	Range	Input	Dial Bezel	Price
	A2C59512404	12 / 24	0 - 12 kn	Hall, NMEA 0183	black round black	
	A2C59512405	12 / 24	0 - 50 kn	Hall, NMEA 0183	black round black	
	A2C59512406	12 / 24	0 - 60 mph	Hall, NMEA 0183	black round black	
	A2C59512407	12 / 24	0 - 12 kn	Hall, NMEA 0183	white round white	
	A2C59512408	12 / 24	0 - 50 kn	Hall, NMEA 0183	white round white	
	A2C59512409	12 / 24	0 - 60 mph	Hall, NMEA 0183	white round white	

Sumlog® with compass Ø85 mm	Part number	Voltage [V]	Range	Input	Dial Bezel	Price
	A2C59514251	12 / 24	0 - 12 kn	NMEA 0183	black round black	
	A2C59514252	12 / 24	0 - 30 kn	NMEA 0183	black round black	
	A2C59514253	12 / 24	0 - 50 kn	NMEA 0183	black round black	
	A2C59514254	12 / 24	0 - 60 mph	NMEA 0183	black round black	
	A2C59514255	12 / 24	0 - 12 kn	NMEA 0183	white round white	
	A2C59514256	12 / 24	0 - 30 kn	NMEA 0183	white round white	
	A2C59514257	12 / 24	0 - 50 kn	NMEA 0183	white round white	
	A2C59514258	12 / 24	0 - 60 mph	NMEA 0183	white round white	

Depth

Depth Ø85 mm	Part number	Voltage [V]	Range	Input	Dial Bezel	Price
	A2C59514247	12 / 24	0 - 30 m 0 - 30 ft	NMEA 0183	black round black	
	A2C59514250	12 / 24	0 - 30 m 0 - 30 ft	NMEA 0183	white round white	

Triducer® multisensors

Triducer® NMEA multisensor speed - depth - temperature	Part number	Article description	Measuring range	Price
	X11-719-000-053	Triducer® NMEA 0183 Transom Mount Transducer	0 - 50 kn 0,5 - 70 m -10 - +40°C	
 * Adapter cable A2C59513503 or A2C59514544 (p. 39)	X11-719-000-058	Triducer® NMEA 0183 Thru-Hull Mount Transducer	0 - 50 kn 0,5 - 70 m -10 - +40°C	

Pitot-tube speedometer

Pitot-tube speedometer Ø85 mm	Part number	Voltage [V]	Measuring range	Dial Bezel	Price
	A2C59513851	12	10 - 50 kn 20 - 100 km/h	black round black	
	A2C59513846	12	10 - 50 kn 20 - 100 km/h	white round white	

Sensor for pitot-tube speedometer

Sensor for Pitot-tube speedometer	Part number	Article description	Measuring range	Price
	270-001-002-001X	Sensor for Pitot-tube speedometer	up to 44 kn	

Wind

Wind with LCD Ø85 mm	Part number	Voltage [V]	Measuring range	Input	Dial Bezel	Price
	A2C59514245	12 / 24	30° - 180° port / starboard	NMEA 0183	black round black	
	A2C59514248	12 / 24	30° - 180° port / starboard	NMEA 0183	white round white	

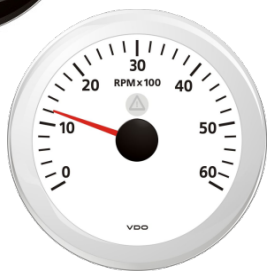
Close hauled wind with LCD Ø85 mm	Part number	Voltage [V]	Measuring range	Input	Dial Bezel	Price
	A2C59514246	12 / 24	0° - 60° port / starboard	NMEA 0183	black round black	
	A2C59514249	12 / 24	0° - 60° port / starboard	NMEA 0183	white round white	

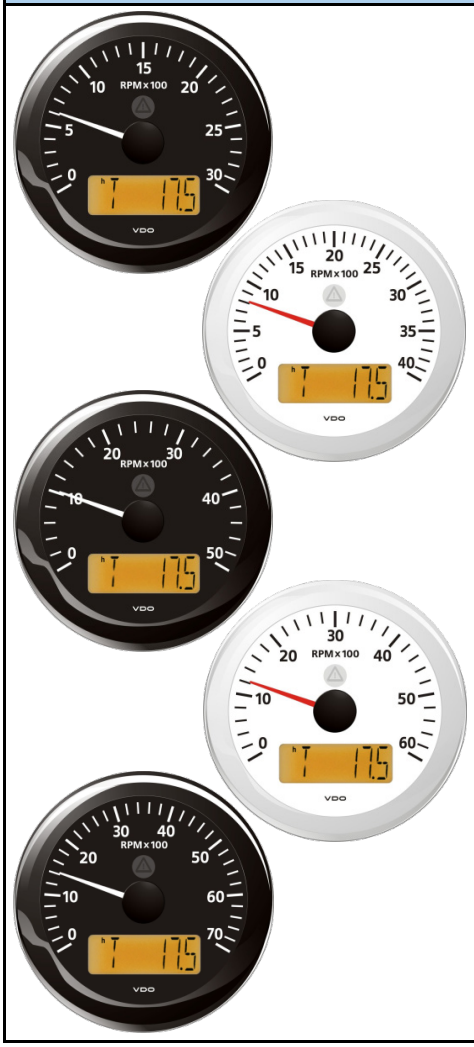
Wind sensors

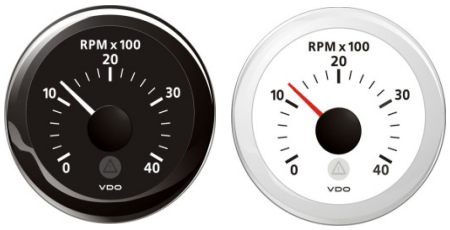
NMEA wind sensor	Part number	Article description	Wind speed range	Voltage [V]	Price
	A2C595174xx	AIRMAR WeatherStation® PB100	0 - 80 kn (0 - 148 km/h)	12	
	A2C595174xx	AIRMAR WeatherStation® PB150 (with GPS)	0 - 80 kn (0 - 148 km/h)	12	
	A2C595174xx	AIRMAR WeatherStation® PB200 (with GPS & compass)	0 - 80 kn (0 - 148 km/h)	12	

Tachometer

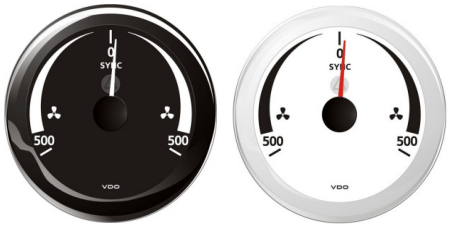
RPM x 100

Tachometer Ø 85 mm	Part number	Voltage [V]	Range	Input	Dial Bezel	Price
 	A2C59512430	12 / 24	0 - 3000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512433				white round white	
	A2C59512431	12 / 24	0 - 4000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512434				white round white	
	A2C59512432	12 / 24	0 - 6000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512435				white round white	

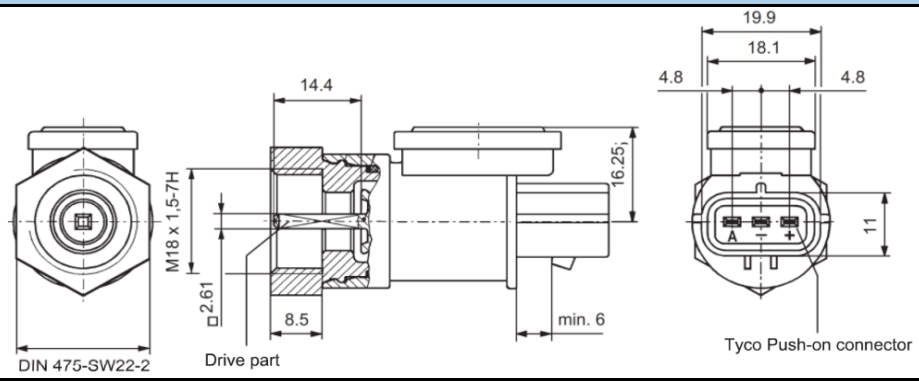
Tachometer with LCD Ø 85 mm	Part number	Voltage [V]	Range [rpm]	Input	Dial Bezel	Price
	A2C59512390	12 / 24	0 - 3000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512396				white round white	
	A2C59512391	12 / 24	0 - 4000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512397				white round white	
	A2C59512392	12 / 24	0 - 5000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512398				white round white	
	A2C59512393	12 / 24	0 - 6000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512399				white round white	
	A2C59512394	12 / 24	0 - 7000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512400				white round white	
	A2C59512395	12 / 24	0 - 8000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512401				white round white	

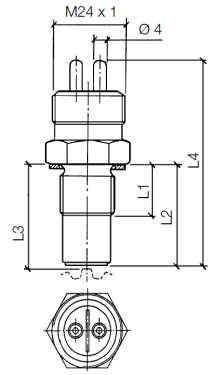
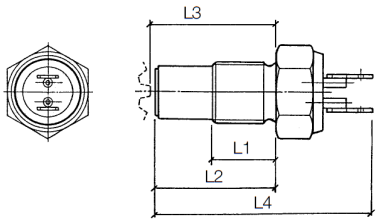
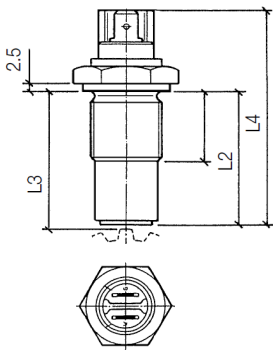
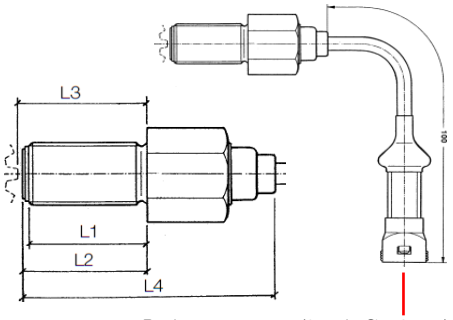
Tachometer Ø 52 mm	Part number	Voltage [V]	Range [rpm]	Input	Dial Bezel	Price
	A2C59512344	12 / 24	0 - 4000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512347				white round white	
	A2C59512345	12 / 24	0 - 6000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512348				white round white	
	A2C59512346	12 / 24	0 - 8000	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512349				white round white	

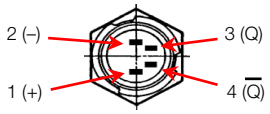
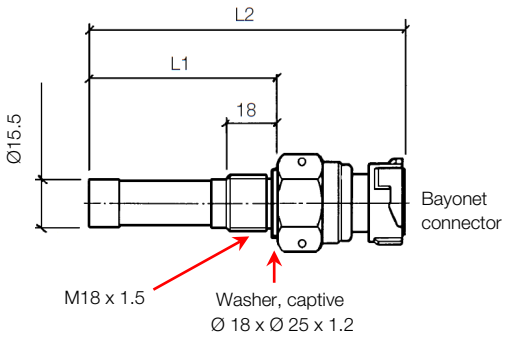
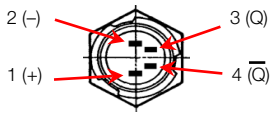
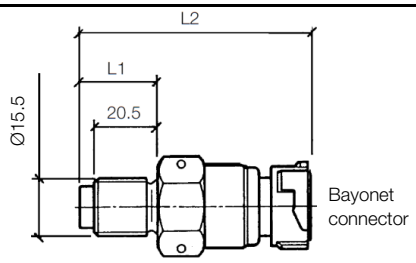
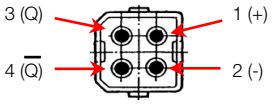
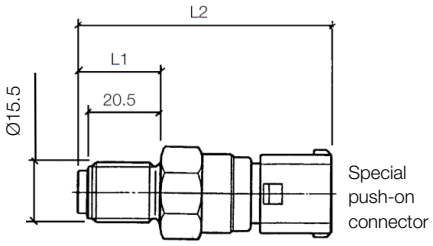
Synchronizer

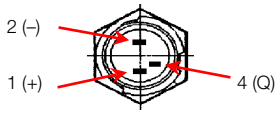
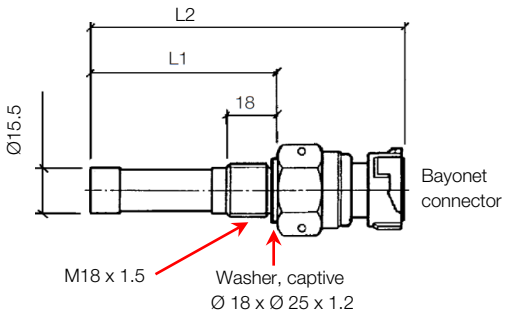
Synchronizer Ø 85 mm	Part number	Voltage [V]	Range [rpm]	Input	Dial Bezel	Price
	A2C59512402	12 / 24	-500 / +500	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	black round black	
	A2C59512403	12 / 24	-500 / +500	alternator terminal W, ignition coil terminal 1, inductive, genarator, hall sensor, lighting coil	white round white	

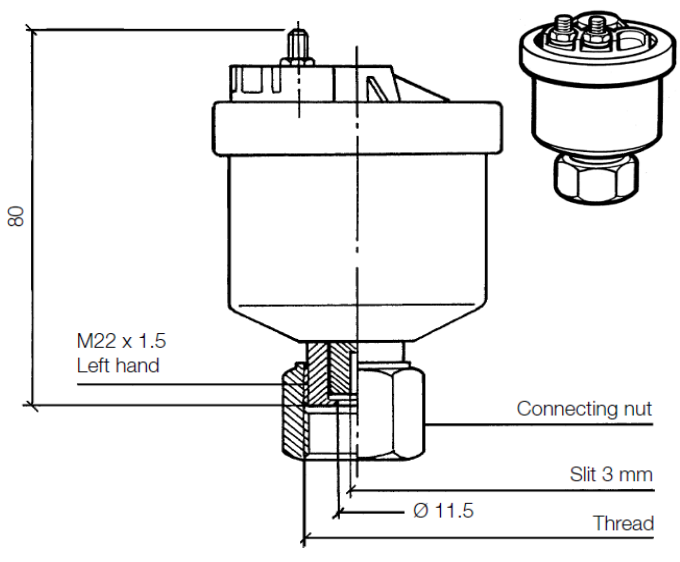
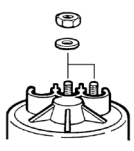
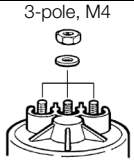
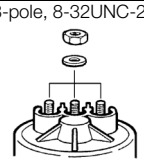
Speed and revolution sensors

Hall-effect sensor	3-pole insulated return	Part number	Price
		340-214-013-001Z	

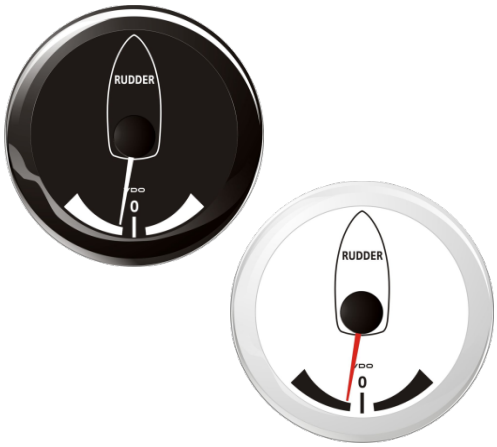
Inductive sensor	2-pole insulated return	Part number	Length [mm] L1	L2	L3	L4	Thread size	Price
Special push-on connector (KOSTAL) 		340-804-005-007C	15	35	36.1 ± 0.1	71.5	M18 x 1.5	
		340-804-005-001C	18	35	36.15 – 35.80	71.5	M18 x 1.5	
		340-804-005-013A	18	71.4	72.63 – 72.20	107.9	M18 x 1.5	
		340-804-005-015C	18	99.1	101.15 – 100.55	135.6	M18 x 1.5	
		340-804-005-018C	18	45.7	46.95 – 46.45	82.2	M18 x 1.5	
		340-804-005-002C	24.9	26.5	27.65 – 27.30	63	M18 x 1.5	
		340-804-005-028C	24.9	63.4	64.55 – 64.20	99.9	M18 x 1.5	
2x blade connector 6.3 x 0.8 mm 		340-804-006-002C	18	35	36.1 ± 0.1	63.5	M18 x 1.5	
		340-804-006-007C	33	34	35.1 ± 0.1	62	M18 x 1.5	
		340-804-007-003C	33	34	35.1 ± 0.1	64.5	M18 x 1.5	
	C1 blade connector G = 6.3 x 0.8 mm W = 6.3 x 0.8 mm	340-804-007-002A	27.5	28.5	29.6 ± 0.1	70	M18 x 1.5	
		340-804-007-004C	27.5	28.5	29.6 ± 0.1	70	3/4" - 16 UNF-2A	
		340-804-007-013C	27.5	28.5	29.6 ± 0.1	82.2	M18 x 1.5	
		340-804-007-001C	33	34	35.1 ± 0.1	70	M18 x 1.5	
		340-804-007-011C	33	34	35.1 ± 0.1	70	M18 x 1.5	
	C2 blade connector G = 4.8 x 0.8 mm W = 6.3 x 0.8 mm	340-804-007-019C	18.2	70.7	71.8 ± 0.1	79.7	M18 x 1.5	
		340-804-007-020C	20	39	40.1 ± 0.1	62	M18 x 1.5	
 Push-on connector (2 x pin Ø 1.6 mm)		340-804-030-006B	18.2	70.7	71.8 ± 0.1	93.5	M18 x 1.5	
		340-804-030-005B	23.3	25	26.1 ± 0.1	67	M18 x 1.5	

Blocking oscillator sensor	4-pole, insulated return 8 - 15 V, 12 mA	Part number	Length [mm]		Price
			L1	L2	
4x blade connector 3 x 0.8  		340-216-005-001C	90.2	133	
		340-216-005-002C	63.2	106	
4x blade connector 3 x 0.8  		A2C59513983	25	74	
4x blade connector 3 x 0.8  		340-216-010-003C	25	78.3	

Blocking oscillator sensor	4-pole, insulated return 30 V, 14 mA	Part number	Length [mm]		Price
			L1	L2	
4x blade connector 3 x 0.8  		340-216-010-004C	90.2	133	

Generator sensors	2-pole, 3-pole insulated return	Part number	Thread size	Price
	2-pole, M4 	340-808-001-002C	M22 x 1.5	
		340-808-001-004G	7/8" - 18NS-2A	
	3-pole, M4 	340-807-001-001C	M22 x 1.5	
	3-pole, 8-32UNC-2A 	340-807-001-003C	7/8" - 18UNS-2B	

Rudder angle

Rudder angle Ø85 mm	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59512410	12 / 24	-45° / +45°	3 - 180	black round black	
	A2C59512411	12 / 24	-45° / +45°	3 - 180	white round white	

Rudder angle Ø52 mm	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514154	12 / 24	-40° / +40°	3 - 180	black round black	
	A2C59514155	12 / 24	-40° / +40°	3 - 180	black triangular chrome	
	A2C59514230	12 / 24	-40° / +40°	3 - 180	white round white	

Rudder angle sensor

Rudder angle sensor	Part number	Article description	Voltage [V]	Resistance [Ω]	Price
	440-102-001-001D	Rudder angle sensor for single station	12 / 24	10 - 180	
	440-102-002-001D	Rudder angle sensor for dual station (fly bridge)	12 / 24	5 - 90	

Trim

Trim Ø52 mm	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514180	12 / 24	up / down	167 – 10	black round black	
	A2C59514181	12 / 24	up / down	167 – 10	black triangular chrome	
	A2C59514244	12 / 24	up / down	167 – 10	white round white	

Multifunction gauges

2 in 1 Tachometer - Trim Ø 110 mm	Part number	Voltage [V]	Measuring range	Dial Bezel	Price
	A2C59514259 *	12	0 – 6000 rpm up - down	black triangular chrome	
	A2C59514260 *			white round white	
	A2C59514261 *	12	0 – 7000 rpm up - down	black triangular chrome	
	A2C59514262 *			white round white	
	A2C59514263 *	12	0 – 8000 rpm up - down	black triangular chrome	
	A2C59514264 *			white round white	

* Speed & revolution sensors: see pages 8, 9

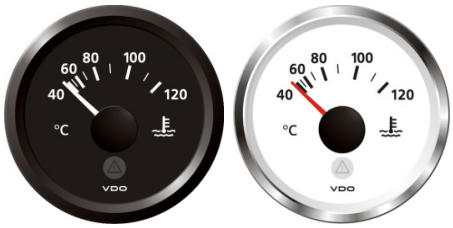
4 in 1 Ø 110 mm	Part number	Voltage [V]	Measuring range	Dial Bezel	Price
	A2C59514265 *	12	1. Engine oil pressure: 0 – 5 bar 2. Coolant temperature: 40 – 120°C 3. Voltmeter: 8 – 16 V 4. Fuel level: 0 – 1/2 - 1/1	black triangular chrome	
	A2C59514266 *	12	1. Engine oil pressure: 0 – 5 bar 2. Coolant temperature: 40 – 120°C 3. Voltmeter: 8 – 16 V 4. Fuel level: 0 – 1/2 - 1/1	white round white	

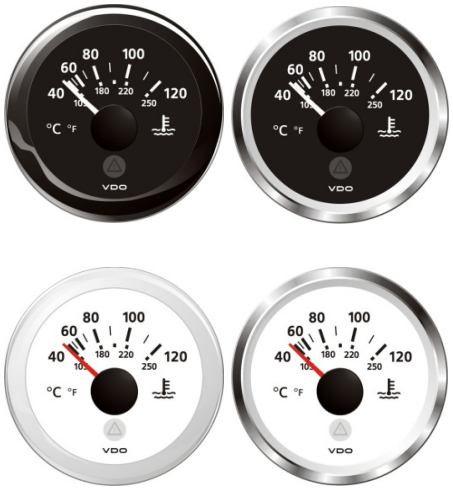
* Sensors: - Pressure: see pages 20 - 22
- Temperature: see pages 12 - 14
- Fuel: see pages 30 - 32

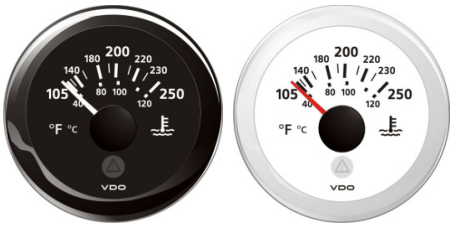
2 in 1 Pitot Speedo - Fuel Ø 110 mm double scale	Part number	Voltage [V]	Measuring range Speed	Measuring range Fuel / Sensor	Dial Bezel	Price
	A2C53405005 *	12	2 – 30 mph	E - F	white / **	
	A2C53405006 *		10 - 50 km/h	240 – 33,5 Ω	black / **	
	A2C53405007 *	12	10 – 50 mph	E - F	white / **	
	A2C53405008 *		10 - 80 km/h	240 – 33,5 Ω	black / **	
	A2C53405009 *	12	10 – 80 mph	E - F	white / **	
	A2C53405010 *		20 – 130 km/h	240 – 33,5 Ω	black / **	
	A2C53406159 *	12	10 – 43 kn	0 - 1/1	white / **	
	A2C53406160 *		10 – 80 km/h	3 – 180 Ω	black / **	

* Packaging unit contains 2 pieces
** Bezel, adapter cable 8-pole, adapter cable 14-pole not included - see page 38

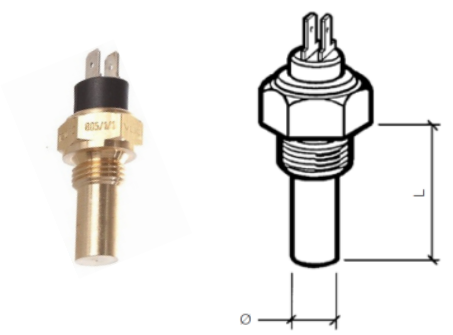
Coolant temperature (40 - 120°C)

Coolant temperature Ø52 mm single scale	Part number	Voltage [V]	Range [°C]	Input [Ω]	Dial Bezel	Price
	A2C59514159	12 / 24	40 - 120	287.4 – 22.7	black triangular black	
	A2C59514239	12 / 24	40 - 120	287.4 – 22.7	white triangular chrome	

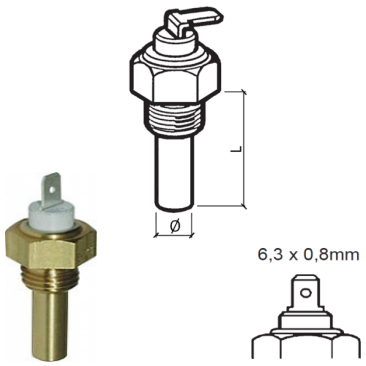
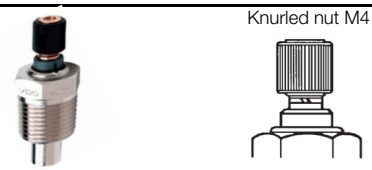
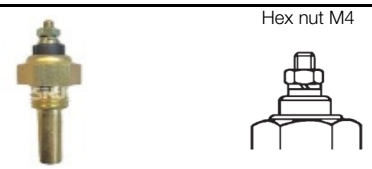
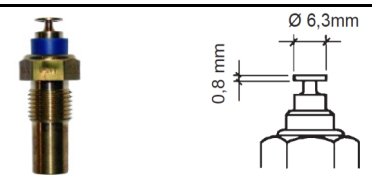
Coolant temperature Ø52 mm double scale	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514170	12 / 24	40 - 120°C 105 - 250°F	287.4 – 22.7	black round black	
	A2C59514171	12 / 24	40 - 120°C 105 - 250°F	287.4 – 22.7	black triangular chrome	
	A2C59514172	12 / 24	40 - 120°C 105 - 250°F	287.4 – 22.7	black triangular black	
	A2C59514237	12 / 24	40 - 120°C 105 - 250°F	287.4 – 22.7	white round white	
	A2C59514238	12 / 24	40 - 120°C 105 - 250°F	287.4 – 22.7	white triangular chrome	

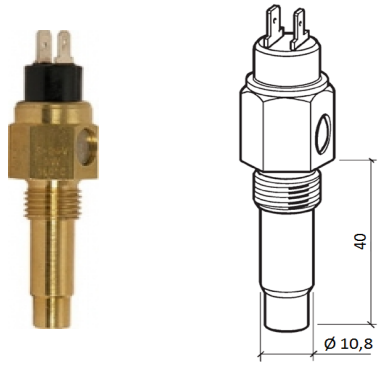
Coolant temperature Ø52 mm double scale	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514176	12 / 24	105 - 250°F 40 - 120°C	287.4 – 22.7	black round black	
	A2C59514177	12 / 24	105 - 250°F 40 - 120°C	287.4 – 22.7	black triangular chrome	
	A2C59514241	12 / 24	105 - 250°F 40 - 120°C	287.4 – 22.7	white round white	

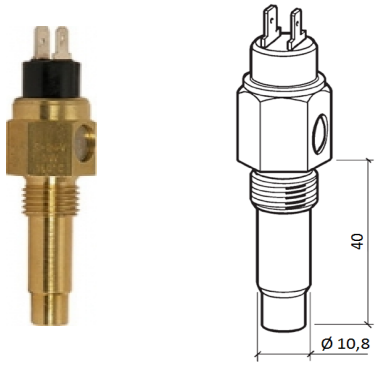
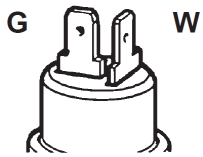
Sensors for coolant temperature (40 - 120°C)

Temperature sensor dual-pole insulated return	Part number	Tmax [°C]	L [mm]	Ø [mm]	Thread size	Price
	323-805-001-001K	120	29	11	M14 x 1.5	
	323-805-001-002C	120	24	11	5/8" - 18 UNF-2A	
	323-805-001-004N	120	29	11	1/2" - 14 NPTF	
	323-805-001-005N	120	29	11	3/8" - 18 Dryseal NPTF	
	323-805-001-015N	120	29	9	M18 x 1,5	
	325-805-003-001C *	120	29	10,9	1/4 – 18 NPTF	
	325-805-003-003C *	120	29	10,9	3/8 – 18 NPTF	

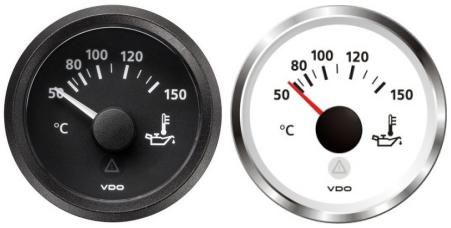
* For dual units (fly bridge)

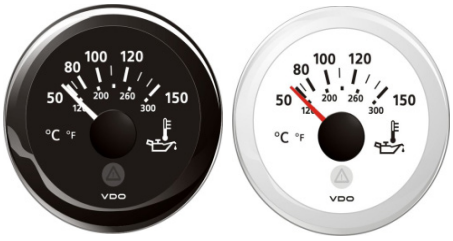
Temperature sensor single-pole common ground	Part number	Tmax [°C]	L [mm]	Ø [mm]	Thread size	Price
	323-801-001-006N	120	29	9	M14 x 1.5	
	323-801-001-007N	120	29	9	3/8" - 18 NPTF	
	323-801-001-008N	120	29	9	5/8" - 18 UNF-3A	
	323-801-001-009N	120	29	9	1/4" - 18 NPTF	
	323-801-001-010N	120	29	9	1/2" - 14 NPTF	
	323-801-001-022N	120	29	9	M18 x 1,5	
	323-801-001-040N	120	29	9	M16 x 1,5	
	323-801-001-026N	120	29	9	M14 x 1,5	
	323-801-001-029N	120	29	9	M16 x 1,5	
	323-801-001-058C	120	29	9	R 3/8" DIN 2999, tapered	
	323-801-001-054D	120	29	9	M14 x 1,5	
	323-801-005-001D	120	22	8,5	1/8" - 27 NPTF	
	323-801-005-005D	120	22	8,5	M10 x 1	
	323-801-017-001N	120	10,5	8,4	M10 x 1 tapered, short	

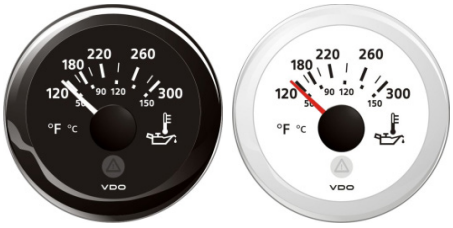
Temperature sensor with warning contact common ground	Part number	Tmax [°C]	Switch point [°C]	Thread size	Price
	323-803-001-001D	120	100 ± 3	M14 x 1.5	
	323-803-001-002D	120	98 ± 3	5/8" - 18 NF-3	
	323-803-001-004D	120	90 ± 3	M14 x 1.5	
	323-803-001-006D	120	96 ± 3	M14 x 1.5	
	323-803-001-007D	120	110 ± 3	M14 x 1.5	
	323-803-001-008D	120	110 ± 3	M14 x 1.5	
	323-803-001-009D	120	102 ± 3	M14 x 1.5	
	323-803-001-011D	120	95 ± 3	5/8" - 18 NF-3	
	323-803-001-012D	120	100 ± 3	5/8" - 18 NF-3	
	323-803-001-013D	120	106 ± 3	M14 x 1.5	
	323-803-001-016D	120	94 ± 3	M14 x 1.5	
	323-803-001-019D	120	95 ± 3	1/2" - 14 NPTF	
	323-803-001-020D	120	115 ± 3	M14 x 1.5	
	323-803-001-022D	120	118 ± 3	M14 x 1.5	
	323-803-001-023D	120	80 ± 3	M14 x 1.5	
	323-803-001-025D	120	103 ± 3	1/2" - 14 NPTF	

	323-803-001-028D	120	98 ± 3	M14 x 1.5	
	323-803-001-030D	120	100 ± 3	1/2" - 14 NPTF	
	323-803-001-032D	120	108 ± 3	1/2" - 14 NPTF	
	323-803-001-036D	120	103 ± 3	5/8" - 18 NF-3	
	323-803-001-059D	120	105 ± 3	5/8" - 18 NF-3	
	323-803-001-060D	120	105 ± 3	1/2" - 14 NPTF	
	323-803-001-064C	120	112 ± 3	M14 x 1.5	
G = Sensor terminal W = Warning contact terminal 	323-803-004-001D	120	100 ± 2,5	M14 x 1.5	
	323-803-004-002D	120	105 ± 3	M14 x 1.5	
	323-803-004-003D	120	95 ± 2,5	M14 x 1.5	
	323-803-004-007D	120	100 + 6	M14 x 1.5	
	323-803-004-011D	120	105 ± 3	M14 x 1.5	

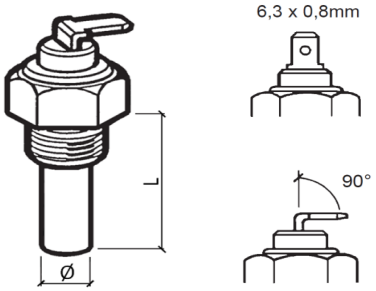
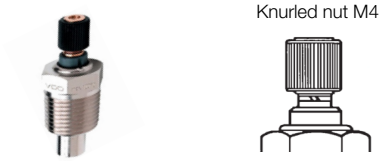
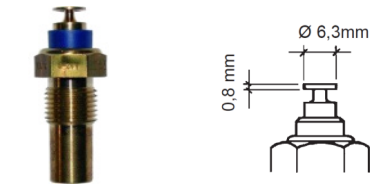
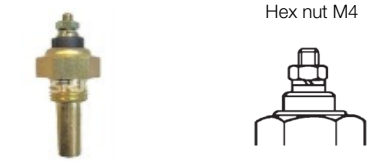
Engine oil temperature (50 - 150°C)

Engine oil temperature Ø52 mm single scale	Part number	Voltage [V]	Range [°C]	Input [Ω]	Dial Bezel	Price
	A2C59514164	12 / 24	50 - 150	322.8 – 18.6	black triangular black	
	A2C59514233	12 / 24	50 - 150	322.8 – 18.6	white triangular chrome	

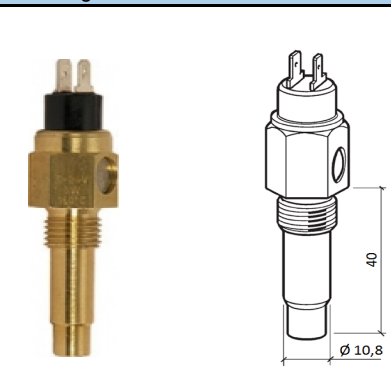
Engine oil temperature Ø52 mm double scale	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514160	12 / 24	50 - 150°C 120 - 300°F	322.8 – 18.6	black round black	
	A2C59514161	12 / 24	51 - 150°C 120 - 300°F	322.8 – 18.6	black triangular chrome	
	A2C59514162	12 / 24	52 - 150°C 120 - 300°F	322.8 – 18.6	black triangular black	
	A2C59514231	12 / 24	53 - 150°C 120 - 300°F	322.8 – 18.6	white round white	

Engine oil temperature Ø52 mm double scale	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514165	12 / 24	120 - 300°F 50 - 150°C	322.8 – 18.6	black round black	
	A2C59514234	12 / 24	120 - 300°F 50 - 150°C	322.8 – 18.6	white round white	

Sensors for oil temperature (50 - 150°C)

Temperature sensor — single-pole common ground	Part number	Tmax [°C]	L [mm]	Ø [mm]	Thread size	Price
	323-801-004-002N	150	29	9	M14 x 1.5	
	323-801-004-003D	150	29	9	R 1/2	
	323-801-004-007D	150	29	9	1/2" - 14 NPTF	
	323-801-004-039D	150	29	9	M14 x 1,5	
	323-801-012-001D	150	15	9	M16 x 1,5	
	323-801-012-002D	150	15	9	M14 x 1,5	
	323-801-012-003D	150	15	9	M18 x 1,5	
	323-801-004-012C	150	29	9	M16 x 1,5	
	323-801-009-001D	150	22	8,2	1/8" - 27 NPTF	
	323-801-009-003D	150	22	8,2	M10 x 1 tapered, short	
	323-801-010-001D	150	22	6,9	M10 x 1,5	
	323-801-010-003K	150	22	6,9	M12 x 1,5	
	323-801-004-006D	150	29	9	1/2" - 14 NPTF	
	323-801-004-017D	150	29	9	1/4" - 18 NPTF	

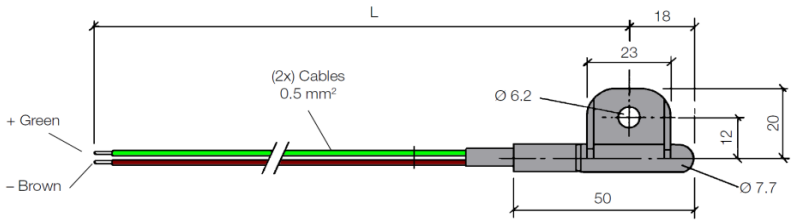
Temperature sensor — dual-pole insulated return	Part number	Tmax [°C]	L [mm]	Ø [mm]	Thread size	Price
	323-805-003-001N	150	29	11	M14 x 1.5	
	323-805-003-002N	150	29	11	1/4" - 18 NPTF	
	323-805-003-003N	150	29	11	5/8" - 18 UNF-2A with sealing cone	

Temperature sensor with warning contact — common ground	Part number	Tmax [°C]	Switch point [°C]	Thread size	Price
	323-803-002-002D	150	120 ± 3	M14 x 1.5	
	323-803-002-007D	150	130 ± 3	M14 x 1.5	
	323-803-002-010C	150	135 ± 3	M14 x 1.5	
	323-803-002-016D	150	130 ± 3	M14 x 1.5	
	323-803-002-017D	150	120 ± 3	M14 x 1.5	
	323-803-002-019D	150	135 ± 3	M14 x 1.5	
	323-803-002-020D	150	110 ± 3	M14 x 1.5	
G = Sensor terminal W = Warning contact terminal 	323-803-006-002C	150	130 ± 4	M14 x 1.5	

Outside air temperature

Outside air temperature Ø52 mm	Part number	Voltage [V]	Range	Input [kΩ]	Dial Bezel	Price
 	A2C59512336	12 / 24	-25 ÷ 50°C	39	black round black	
	A2C59512338	12 / 24	-25 ÷ 50°C	39	white round white	
 	A2C59512337	12 / 24	-10 ÷ 120°F	39	black round black	
	A2C59512339	12 / 24	-10 ÷ 120°F	39	white round white	

Sensor for air temperature

Sensor for air temperature	Part number	Cable length L [mm]	Price
	323-809-010-005C	3000	

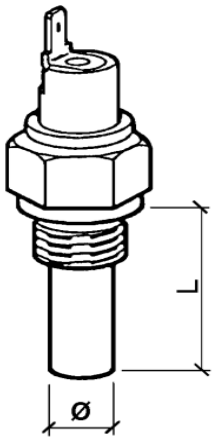
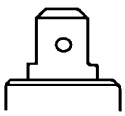
Pyrometer

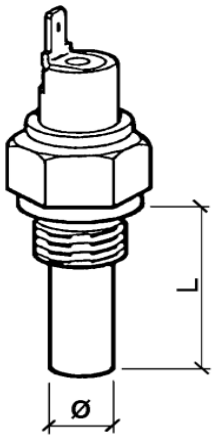
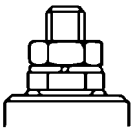
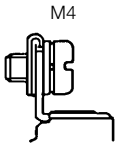
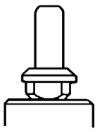
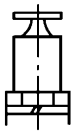
Pyrometer Ø52 mm	Part number	Voltage [V]	Range	Input [kΩ]	Dial Bezel	Price
 	A2C59512332	12 / 24	100 - 900°C	37	black round black	
	A2C59512333	12 / 24	100 - 900°C	37	white round white	
 	A2C59512334	12 / 24	250 - 1650°F	37	black round black	
	A2C59512335	12 / 24	250 - 1650°F	37	white round white	

Pyrometer sensor

Pyrometer sensor	Part number	Article description	Range Length	Terminals	Price
	N03-320-264	Thermocouple element	100 - 900°C -	Red = Negative Yellow = Positive	
	N03-320-268	Connecting cable	- 5 m	White = Negative Blue = Positive	
	N03-320-266	Threaded bushing for welding to manifold	-	-	

Temperature switches

Temperature switch	single-pole common ground	Part number	Switch-on point [°C]	L [mm]	Ø [mm]	Thread size	Price
	6,3 x 0,8 mm 	232-011-017-141D	28 ± 3 (normally closed, NC)	29	9.7	M14 x 1.5	
		232-011-017-129D	35 ± 3	29 ± 0.2	10 - 0.5	M14 x 1.5	
		232-011-017-148D	35 ± 3	29	10	M14 x 1.5	
		232-011-017-038D	55 ± 3	29	10	M14 x 1.5	
		232-011-017-040D	70 ± 3	29	10	M14 x 1.5	
		232-011-017-078D	80 ± 3	29	10	M14 x 1 tapered, short	
		232-011-017-017D	85 ± 3	29	10	M14 x 1.5	
		232-011-017-013D	90 ± 3	29	10	M10 x 1 tapered, short	
		232-011-017-033D	92 ± 3	29	10	M14 x 1.5	
		232-011-017-016D	95 ± 3	29	10	M14 x 1.5	
		232-011-017-039D	95 ± 3	29	10	1/2" - 14 NPTF	
		232-011-017-080D	97 ± 3	29	10	M14 x 1.5	
		232-011-017-099D	98 ± 3	29	10	5/8" - 18 UNF-2A	
		232-011-017-034D	100 ± 3	29	10	M14 x 1.5	
		232-011-017-139D	103 ± 3	29	10	3/8" - 18 NPTF	
		232-011-017-037D	105 ± 3	29	10	M14 x 1.5	
		232-011-017-041D	105 ± 3	29	10	1/2" - 14 NPTF	
		232-011-017-010D	110 ± 3	29	10	M14 x 1.5	
		232-011-017-076D	115 ± 3	29	10	M14 x 1.5	
		232-011-017-032D	120 ± 3	29	10	M14 x 1.5	
		232-011-017-143D	120 ± 3.3	27.1 ± 0.2	9.7 ± 0.2	3/4" - 16 UNF-2A	
		232-011-017-103D	130 ± 3	29	10	M14 x 1.5	
		232-011-005-004D	140 ± 10	29	10	M14 x 1.5	
		232-011-017-004D	140 ± 10	29	10	M14 x 1.5	

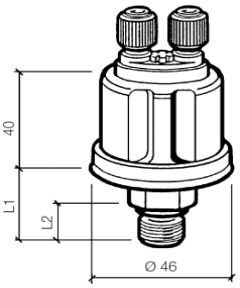
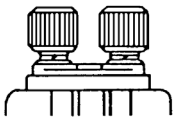
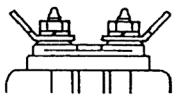
Temperature switch	single-pole common ground	Part number	Switch point [°C]	L [mm]	Ø [mm]	Thread size	Price
		232-011-005-003D	90 ± 3	38.5	6.9	M14 x 1.5	
		232-011-005-019D	96 ± 3	33 ± 0.5	12 ± 0.3	1/8" - 27 Dryseal NPFT	
		232-011-005-017D	150 ± 5	38,5	6.9	M14 x 1.5	
		232-011-005-004D	170 ± 5	38,5	6.9	M10 x 1.5	
		232-011-019-003D	195 +10	38,5	6.9	M10 x 1.5	
		232-011-017-005D	120 ± 3	29	10	1/2" - 14 NPTF	
		232-011-020-022E	16 ± 3 (normally closed, NC)	29	10	M14 x 1.5	
		232-011-020-006E	25 ± 3 (normally closed, NC)	29	10	M14 x 1.5	
		232-011-017-087D	40 ± 3	29	10	M14 x 1.5	
		232-011-017-147D	94 ± 3	29	10	M14 x 1.5	
		232-011-017-135D	102 ± 3	29 ± 0.2	9 ± 0.2	M14 x 1.5	
		232-011-005-027D	150 ± 5	38,5	6.9	M10 x 1.5	
		232-011-005-028D	170 ± 5	38,5	6.9	M10 x 1.5	
		232-011-005-030D	185 ± 5	38,5	6.9	M10 x 1.5	

Turbo pressure (0 - 2 bar)

Turbo pressure 0 - 2 bar Ø52 mm single scale	Part number	Voltage [V]	Range [bar]	Input [Ω]	Dial Bezel	Price
	A2C59514152	12 / 24	0 - 2	10 – 184	black triangular black	
	A2C59514227	12 / 24	0 - 2	10 – 184	white round white	
	A2C59514228	12 / 24	0 - 2	10 – 184	white triangular chrome	

Turbo pressure 0 - 2 bar / 0 - 30 psi Ø52 mm double scale	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514149	12 / 24	0 - 2 bar 0 - 30 psi	10 – 184	black round black	
	A2C59514150	12 / 24	0 - 2 bar 0 - 30 psi	10 – 184	black triangular chrome	
	A2C59514151	12 / 24	0 - 2 bar 0 - 30 psi	10 – 184	black triangular black	
	A2C59514225	12 / 24	0 - 2 bar 0 - 30 psi	10 – 184	white round white	
	A2C59514226	12 / 24	0 - 2 bar 0 - 30 psi	10 – 184	white triangular chrome	

Sensors for turbo pressure (2 bar)

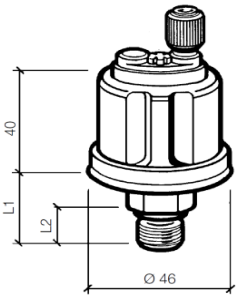
Pressure sender 2 bar, dual-pole insulated return		Part number	Range [bar]	Dimension [mm] L1	 L2	Thread	Price
	(2x) Knurled nut M4 M4 M4 	360-081-032-058C	2	20.5	12	M18 x 1.5	
	(2x) 6.3 x 0.8 mm (50°) M4 M4 	360-081-032-011C	2	20.5	12	M12 x 1.5	
		360-081-032-025C	2	19.5	11	1/8" – 27 NPTF	

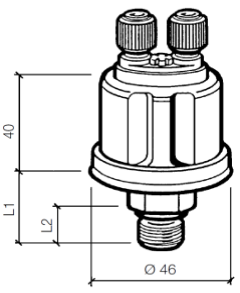
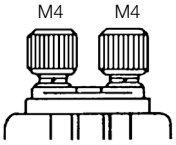
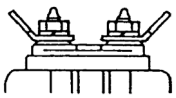
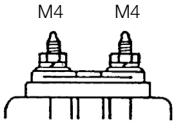
Engine oil pressure (0 - 5 bar)

Engine oil pressure 0 - 5 bar Ø52 mm single scale	Part number	Voltage [V]	Range [bar]	Input [Ω]	Dial Bezel	Price
	A2C59514126	12 / 24	0 - 5	10 – 184	black triangular black	
	A2C59514213	12 / 24	0 - 5	10 – 184	white triangular chrome	

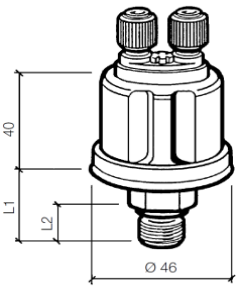
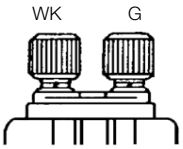
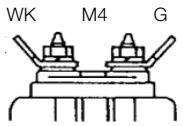
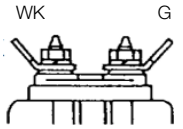
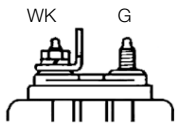
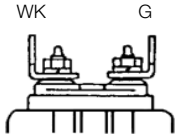
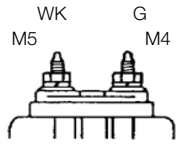
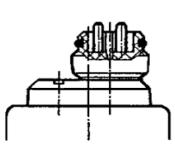
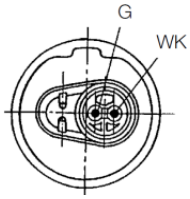
Engine oil pressure 0 - 5 bar / 0 - 80 psi Ø52 mm double scale	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514123	12 / 24	0 - 5 bar 0 - 80 psi	10 – 184	black round black	
	A2C59514124	12 / 24	0 - 5 bar 0 - 80 psi	10 – 184	black triangular chrome	
	A2C59514125	12 / 24	0 - 5 bar 0 - 80 psi	10 – 184	black triangular black	
	A2C59514211	12 / 24	0 - 5 bar 0 - 80 psi	10 – 184	white round white	
	A2C59514212	12 / 24	0 - 5 bar 0 - 80 psi	10 – 184	white triangular chrome	

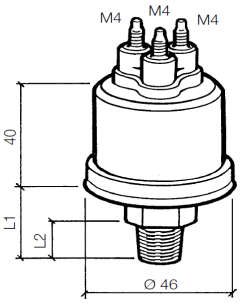
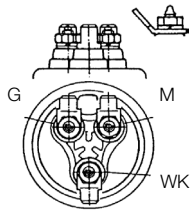
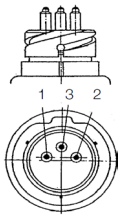
Sensors for engine oil pressure (5 bar)

Pressure sender	5 bar, single-pole common ground	Part number	Range [bar]	Dimension [mm]		Thread	Price
				L1	L2		
	Knurled nut M4 	360-081-029-001C	5	19.5	11	M10 x 1 tapered, short	
		360-081-029-004C	5	19.5	11	1/8" - 27 NPTF	
		360-081-029-008C	5	23.8	15.3	1/4" - 18 NPTF	
		360-081-029-025C	5	20.5	12	M18 x 1.5	
		360-081-029-026C	5	20.5	12	M14 x 1.5	
		360-081-029-085C	5	20.5	12	M12 x 1.5	
		360-081-029-099C	5	19.5	10	M12 x 1.25	
	6.3 x 0.8 mm (50°) M4 	360-081-029-041C	5	19.5	11	1/8" - 27 NPTF	
	Hexagonal nut M4 	360-081-029-059C	5	20.5	12	M18 x 1.5	
		360-081-029-065C	5	20.5	12	M14 x 1.5	

Pressure sender	5 bar, dual-pole insulated return	Part number	Range [bar]	Dimension [mm]		Thread	Price
				L1	L2		
	(2x) Knurled nut M4 M4 M4 	360-081-032-001C	5	20.5	12	1/8" – 27 NPTF	
		360-081-032-002C	5	19.5	11	M10 x 1 tapered, short	
		360-081-032-013C	5	20.8	12	M18 x 1.5	
		360-081-032-016C	5	23.8	15.3	1/4" - 18 NPTF	
	(2x) 6.3x0.8 mm (50°) M4 M4 	360-081-032-007C	5	19.5	11	1/8" - 27 NPTF	
		362-081-001-001K *	5	19.5	11	1/8" - 27 NPTF	
	(2x) Hexagonal nut M4 M4 	360-081-032-059C **	5	20.5	12	M18 x 1.5	
		360-081-032-060C **	5	20.5	12	M14 x 1.5	

* For dual units (fly bridge)
** Without hexagonal nut

Pressure sensor with warning contact	5 bar common ground	Part number	Warning contact [bar]	Dimension [mm] L1	Dimension [mm] L2	Thread size	Price
	(2x) Knurled nut M4 	360-081-030-001C	0.25 ± 0.15	19.5	11	M10 x 1 tapered, short	
		360-081-030-002C	0.5 ± 0.15	19.5	11	M10 x 1 tapered, short	
		360-081-030-004C	0.7 ± 0.15	19.5	11	M10 x 1 tapered, short	
		360-081-030-008C	0.5 ± 0.15	20.5	12	M12 x 1.5	
		360-081-030-010C	1.4 ± 0.3	19.5	11	1/8" - 27 NPTF	
		360-081-030-014C	0.6 ± 0.15	19.5	11	M10 x 1 tapered, short	
		360-081-030-018C	1.2 ± 0.15	19.5	11	M10 x 1 tapered, short	
		360-081-030-028C	0.5 ± 0.15	20.5	12	M14 x 1.5	
		360-081-030-036C	0.5 ± 0.15	20.5	12	M18 x 1.5	
		360-081-030-049C	0.4 ± 0.1	19.5	11	1/8" - 27 NPTF	
	(2x) 6.3 x 0.8 mm (50°) 	360-081-030-025C	0.4 ± 0.2	20.5	12	M18 x 1.5	
		360-081-030-053C	0.25 ± 0.15	20.5	12	M18 x 1.5	
		360-081-030-065K	0.4 ± 0.15	19.5	11	R 1/8 DIN 2999	
		360-081-030-097C	0.5 ± 0.15	20.5	12	M14 x 1.5	
	WK 6.3 x 0.8 mm (50°) G 4.8 x 0.8 mm (50°) 	360-081-030-085C	0.4 $^{+0.2}$	20.5	12	M18 x 1.5	
		360-081-030-086C	0.5 $^{+0.2}_{-0.1}$	19.5	11	1/8" - 27 NPTF	
	WK 6.3 x 0.8 mm (90°) G M4 	360-081-030-033C	0.4 ± 0.1	20.5	12	M14 x 1.5	
		360-081-030-071C	0.4 ± 0.15	20.5	12	M14 x 1.5	
		360-081-030-157C	0.5 $^{+0,15}$	20.5	12	M18 x 1.5	
	(2x) 6.3 x 0.8 mm (90°) 	360-081-030-119C	1.4 ± 0.3	19.5	11	1/8" - 27 NPTF	
W = Warning contact terminal	Hexagonal nut M5 	360-081-034-002C	0.25 ± 0.15	20.5	12	M14 x 1.5	
		360-081-034-004C	0.25 ± 0.15	20.5	12	M18 x 1.5	
Special push-on connector 		360-081-062-002A	0.4	20.5	12	M14 x 1.5	
		360-081-062-004A	1.0	20.5	12	M14 x 1.5	

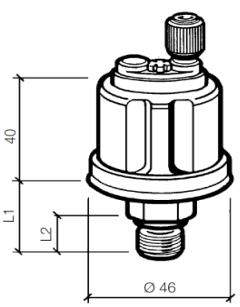
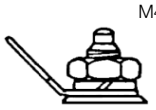
Pressure sensor with warning contact	5 bar 3 connections	Part number	Warning contact [bar]	Dimension [mm] L1	Dimension [mm] L2	Thread size	Price
G = Sensor M = Ground (Masse) WK = Warning contact  1 = Sensor 2 = Warning contact 3 = Anti-twist guard		360-081-039-002C	0.8 ± 0.15	19.5	11	1/8" - 27 Dryseal NPTF	
		360-081-039-015C	0.25	19.5	11	1/8" - 27 Dryseal NPTF	
		360-081-064-001C	0.25	20.5	12	M18 x 1.5	
		360-081-064-003C	0.25 ± 0.15	20.5	12	M18 x 1.5	

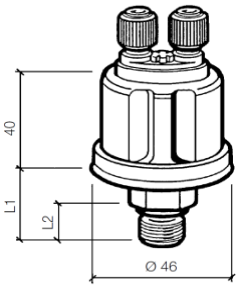
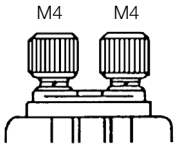
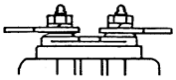
Engine oil pressure (0 - 10 bar)

Engine oil pressure 0 - 10 bar	Ø52 mm single scale	Part number	Voltage [V]	Range [bar]	Input [Ω]	DialBezel	Price
 		A2C59514114	12 / 24	0 - 10	10 – 184	black triangular black	
		A2C59514201	12 / 24	0 - 10	10 – 184	white triangular chrome	

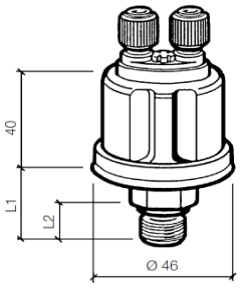
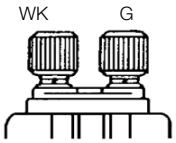
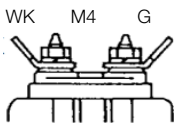
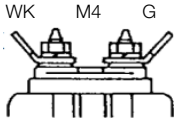
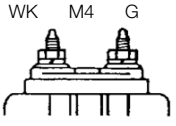
Engine oil pressure 0 - 10 bar / 0 - 150 psi	Ø52 mm double scale	Part number	Voltage [V]	Range	Input [Ω]	DialBezel	Price
 		A2C59514111	12 / 24	0 - 10 bar 0 - 150 psi	10 – 184	black round black	
		A2C59514112	12 / 24	0 - 10 bar 0 - 150 psi	10 – 184	black triangular chrome	
		A2C59514113	12 / 24	0 - 10 bar 0 - 150 psi	10 – 184	black triangular black	
		A2C59514199	12 / 24	0 - 10 bar 0 - 150 psi	10 – 184	white round white	
		A2C59514200	12 / 24	0 - 10 bar 0 - 150 psi	10 – 184	white triangular chrome	

Sensors for engine oil pressure (10 bar)

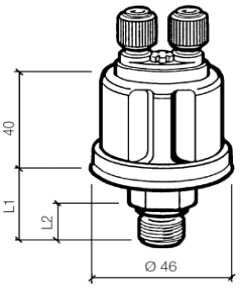
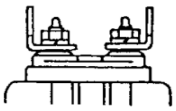
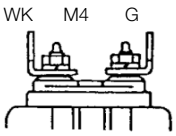
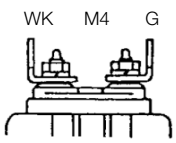
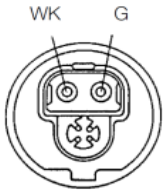
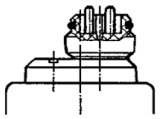
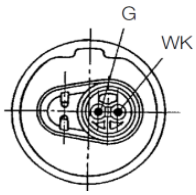
Pressure sender	10 bar, single-pole common ground	Part number	Range [bar]	Dimension [mm] L1	Dimension [mm] L2	Thread	Price
 * For dual units (fly bridge)	Knurled nut M4 	360-081-029-010C	10	19.5	11	M10 x 1 tapered, short	
		360-081-029-012C	10	19.5	11	1/8" - 27 NPTF	
		360-081-029-013C	10	20.5	12	M12 x 1.5	
		360-081-029-020C	10	23.8	15.3	1/4" - 18 NPTF	
		360-081-029-033C	10	20.5	12	M14 x 1.5	
	6.3 x 0.8 mm (50°) M4 	360-081-029-038C	10	20.5	12	M14 x 1.5	
		360-081-029-042C	10	19.5	11	1/8" - 27 NPTF	
		360-081-029-062C	10	19.5	11	R 1/8 DIN 2999	
		362-081-003-002K *	10	19.5	11	1/8" - 27 NPTF	

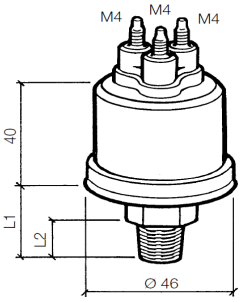
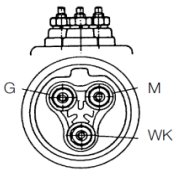
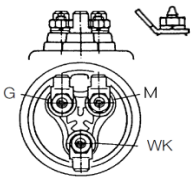
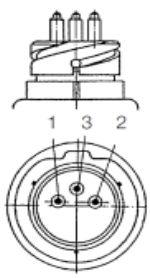
Pressure sender	10 bar, dual-pole insulated return	Part number	Range [bar]	Dimension [mm] L1	Dimension [mm] L2	Thread	Price
	(2x) Knurled nut M4 	360-081-032-003C	10	19.5	11	M10 x 1 tapered, short	
		360-081-032-004C	10	20.5	12	M12 x 1.5	
		360-081-032-006C	10	20.5	12	M14 x 1.5	
		360-081-032-008C	10	20.5	12	M18 x 1.5	
		360-081-032-014C	10	19.5	11	1/8" - 27 NPTF	
		360-081-032-053C	10	20.5	12	M12 x 1.5	
		360-081-032-057C	10	40	10	R1/8 DIN 2999	
	(2x) 6.3 x 0.8 mm 	362-081-001-002C *	10	19.5	11	1/8" - 27 NPTF	

* For dual units (fly bridge)

Pressure sensor with warning contact	10 bar common ground	Part number	Warning contact [bar]	Dimension [mm] L1	Dimension [mm] L2	Thread size	Price
	(2x) Knurled nut, M4 	360-081-030-009C	0.5 ± 0.15	19.5	11	M10 x 1 tapered, short	
		360-081-030-015C	0.8 ± 0.3	19.5	12	1/8" - 27 NPTF	
		360-081-030-017C	0.9 ± 0.15	19.5	11	M10 x 1 tapered, short	
		360-081-030-019C	1.5 ± 0.15	20.5	12	M12 x 1.5	
		360-081-030-022C	0.5 ± 0.15	20.5	12	M12 x 1.5	
		360-081-030-030C	0.7 ± 0.15	20.5	12	M14 x 1.5	
		360-081-030-032C	0.5 ± 0.15	20.5	12	M14 x 1.5	
		360-081-030-037C	0.75 ± 0.15	20.5	12	M18 x 1.5	
		360-081-030-041C	2.0 ± 0.3	19.5	11	M10 x 1 tapered, short	
		360-081-030-052C	0.5 $^{-0,2}_{-0,1}$	19.5	11	1/8" - 27 NPTF	
		360-081-030-074C	0.5 ± 0.15	20.5	12	M18 x 1.5	
	(2x) 6.3 x 0.8 mm (50°) 	360-081-030-031C	0.5 ± 0.15	19.5	11	M10 x 1 tapered, short	
		360-081-030-039C	0.75 ± 0.15	19.5	11	M10 x 1 tapered, short	
		360-081-030-063C	1.0 ± 0.15	20.5	12	M14 x 1.5	
		360-081-030-070C	0.5 ± 0.15	20.5	12	M18 x 1.5	
		360-081-030-100C	4.0 $^{+0.5}$	19.5	11	1/8" - 27 NPTF	
	WK 4.8 x 0.8 mm (50°) G 6.3 x 0.8 mm (50°) 	360-081-030-107C	5.5 ± 0.3	20.5	12	M16 x 1.5	
		360-081-030-122C	0.75 ± 0.15	20.5	12	M18 x 1.5	
	(2x) Hexagonal nut, M4 	360-081-030-078C	1.0 ± 0.15	20.5	12	M14 x 1.5	

G = Sensor terminal
WK = Warning contact terminal

 G = Sensor terminal WK = Warning contact terminal	(2x) 6.3 x 0.8 mm (90°) WK M4 G 	360-081-030-075C	5.0 ± 0.3	20.5	12	M14 x 1.5	
		360-081-030-152C	5.2 ± 0.5	19.5	11	M10 x 1 tapered, short	
	WK 4.8 x 0.8 mm (90°) G 6.3 x 0.8 mm (90°) WK M4 G 	360-081-030-138C	1.25 + 0.3	19.5	11	1/8" - 27 NPTF	
	WK 6.3 x 0.8 mm (90°) G 4.8 x 0.8 mm (90°) WK M4 G 	360-081-030-112C	1.35 ± 0.15	18.5	10	M10 x 1	
Special push-on connector  		360-081-061-002C	0.7 ± 0.15	20.5	12	M14 x 1.5	
		360-081-061-003C	1.0 ± 0.15	20.5	12	M14 x 1.5	
		360-081-061-006C	5.0 ± 0.3	21.5	13	M12 x 1.5 tapered, short	
Special push-on connector  		360-081-062-003C	5.5 ± 0.3	20.5	12	M14 x 1.5	
		360-081-062-005A	3.0 ± 0.3	20.5	12	M14 x 1.5	

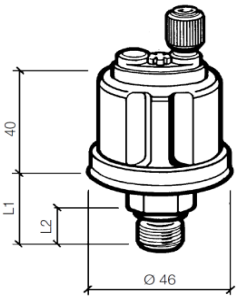
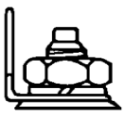
Pressure sensor with warning contact	10 bar 3 connections	Part number	Warning contact [bar]	Dimension [mm] L1	 L2	Thread size	Price
	(3x) Hexagonal nut M4 	360-081-039-007C	1.0 ± 0.15	19.5	11	M14 x 1.5	
	(3x) 6.3 x 0.8 mm (50°) 	360-081-039-003C	0.8 ± 0.15	20.5	12	1/8" - 27 Dryseal NPTF	
Special bayonet connector 	1 - Sensor 2 - Warning contact 3 - Ground	360-081-063-001C	5.2 ± 0.3	20.5	12	M12 x 1.5	
	1 - Sensor 2 - Warning contact 3 - Anti-twist guard	360-081-064-004C	0.6 + 0.3	20.5	12	M18 x 1.5	

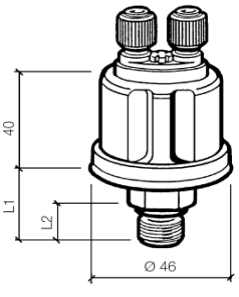
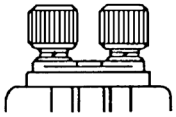
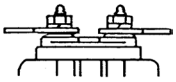
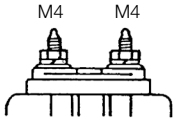
Transmission oil pressure (0 - 25 bar)

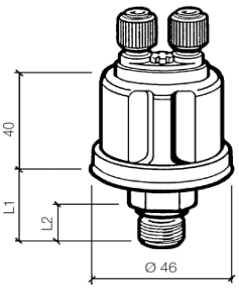
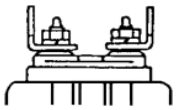
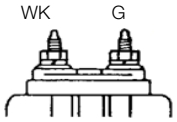
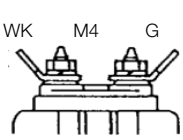
Transm. oil presure 0 - 25 bar	Ø52 mm single scale	Part number	Voltage [V]	Range [bar]	Input [Ω]	Dial Bezel	Price
		A2C59514139	12 / 24	0 - 25	10 – 184	black triangular black	
		A2C59514219	12 / 24	0 - 25	10 – 184	white triangular chrome	

Transm. oil presure 0 - 25 bar / 0 - 350 psi	Ø52 mm double scale	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
		A2C59514136	12 / 24	0 - 25 bar 0 - 350 psi	10 – 184	black round black	
		A2C59514137	12 / 24	0 - 25 bar 0 - 350 psi	10 – 184	black triangular chrome	
		A2C59514138	12 / 24	0 - 25 bar 0 - 350 psi	10 – 184	black triangular black	
		A2C59514206	12 / 24	0 - 25 bar 0 - 350 psi	10 – 184	white round white	
		A2C59514207	12 / 24	0 - 25 bar 0 - 350 psi	10 – 184	white triangular chrome	

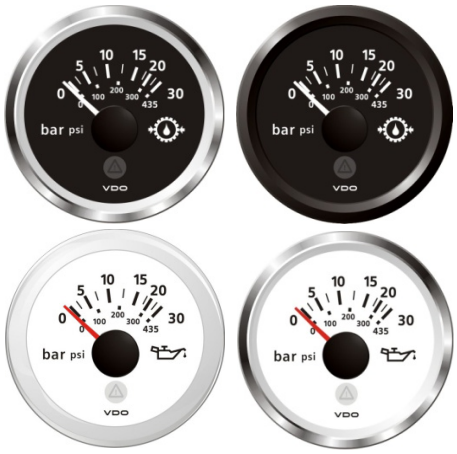
Sensors for transmission oil pressure (25 bar)

Pressure sender	25 bar, single-pole common ground	Part number	Range [bar]	Dimension [mm] L1	 L2	Thread	Price
 * For dual units (fly bridge)	6.3 x 0.8 mm (50°) M4 	360-081-037-008C	25	19.5	11	M10 x 1 tapered, short	
		360-081-037-011C	25	19.5	11	M10 x 1 tapered, short	
		362-081-004-001C *	25	19.5	11	M14 x 1.5	
	6.3 x 0.8 mm (90°)  	360-081-037-003C	25	20.5	12	M18 x 1.5	
		360-081-037-010C	25	19.5	11	1/8" - 27 NPTF	
		360-081-037-013C	25	20.5	12	M14 x 1.5	
		360-081-037-017C	25	20.5	12	M14 x 1.5	
		360-081-037-018C	25	20.5	12	M18 x 1.5	

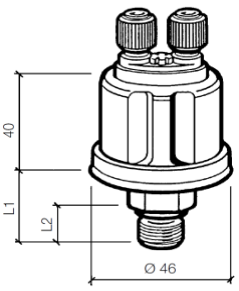
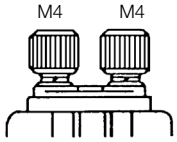
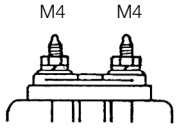
Pressure sender	25 bar, dual-pole insulated return	Part number	Range [bar]	Dimension [mm] L1	 L2	Thread	Price
 * For dual units (fly bridge)	(2x) Knurled nut M4 M4 M4 	360-081-038-005C	25	20.5	12	M18 x 1.5	
	(2x) 6.3 x 0.8 mm 	360-081-038-002C	25	23.8	15.3	3/8" - 18 Dryseal NPTF	
		362-081-002-001K *	25	19.5	11	1/8" - 27 NPTF	
	(2x) Hexagonal nut M4 M4 	360-081-038-001C	25	20.5	12	M14 x 1.5	
		360-081-038-003C	25	19.5	11	1/8" - 27 NPTF	

Pressure sensor with warning contact	25 bar common ground	Part number	Warning contact [bar]	Dimension [mm] L1	Dimension [mm] L2	Thread size	Price
	WK 4.8 x 0.8 mm (90°) G 6.3 x 0.8 mm (90°) 	360-081-053-001C	15.5 +1.5 - 0.5	19.5	11	1/8" - 27 NPTF	
	(2x) Hexagonal nut M4 	360-081-053-003C	5.5 +1.0 - 0.5	20.5	12	M18 x 1.5	
	(2x) 6.3 x 0.8 mm (50°) 	360-081-053-004C	14.5 +1.5 - 0.5	19.5	11	1/8" - 27 NPTF	

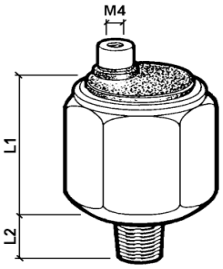
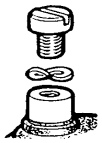
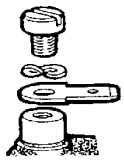
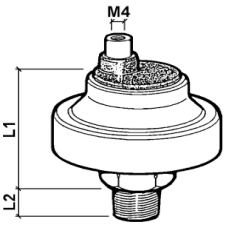
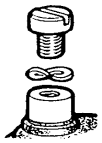
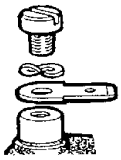
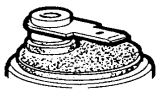
Transmission oil pressure (0 - 30 bar)

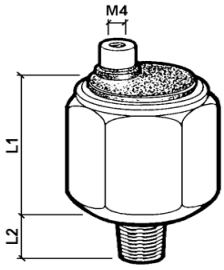
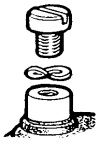
Transm. oil presure 0 - 30 bar / 0 - 435 psi	Ø52 mm double scale	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
		A2C59514141	12 / 24	0 - 30 bar 0 - 435 psi	10 – 184	black round black	
		A2C59514142	12 / 24	0 - 30 bar 0 - 435 psi	10 – 184	black triangular chrome	
		A2C59514143	12 / 24	0 - 30 bar 0 - 435 psi	10 – 184	black triangular black	
		A2C59514208	12 / 24	0 - 30 bar 0 - 435 psi	10 – 184	white round white	
		A2C59514209	12 / 24	0 - 30 bar 0 - 435 psi	10 – 184	white triangular chrome	

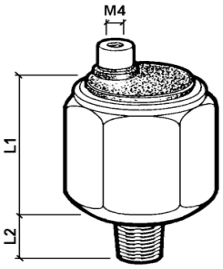
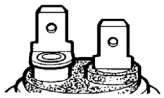
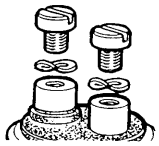
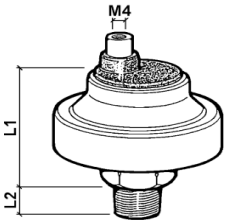
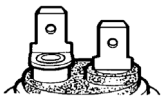
Sensors for transmission oil pressure (30 bar)

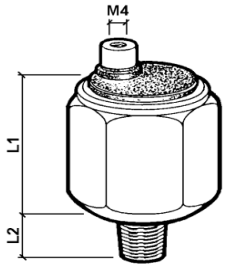
Pressure sender	30 bar, dual-pole insulated return	Part number	Range [bar]	Dimension [mm] L1	Dimension [mm] L2	Thread	Price
 * For dual units (fly bridge)	(2x) Knurled nut M4 	360-081-038-008C	30	19.5	11	1/8" - 27 NPTF	
		362-081-002-003C *	30	19.5	11	1/8" - 27 NPTF	
	(2x) Hexagonal nut M4 M4 	362-081-002-004C *	30	19.5	11	1/8" - 27 NPTF	

Pressure switches

Pressure switch	single pole common ground	Part number	Switch point [bar]		Dimension [mm] L1	L2	Range [bar]	Thread	Price
	Screw M4 x 5 	230-112-001-004C ²	0.4 ± 0.3	SS	26	11	12	M10 x 1 tapered, short	
		230-112-003-015C ¹	0.5 ± 0.1	SF	26	11	12	M10 x 1 tapered, short	
		230-112-001-015C ²	0.9 ± 0.15	OF	26	11	12	M10 x 1 tapered, short	
		230-112-003-022C ²	0.9 ± 0.15	SF	26	11	12	M10 x 1 tapered, short	
		230-112-001-001C ²	1.0 ± 0.2	SS	26	11	12	M10 x 1 tapered, short	
		230-112-001-005C ²	2.5 ± 0.3	SS	26	11	12	M10 x 1 tapered, short	
	Screw M4 x 5 6.3 x 0.8 mm 	230-112-005-004C	0.3 ± 0.3	SF	26	10	12	M10 x 1 tapered, short	
		230-112-005-005C	0.8 ± 0.2	SF	26	10	12	M10 x 1 tapered, short	
¹ Contact chamber: vented ² Contact chamber: unvented		230-112-005-001C	1.0 ± 0.2	SF	26	10	12	M10 x 1 tapered, short	
	Screw M4 x 5 	230-113-001-004C ¹	0.4 ± 0.2	SF	39	11	12	M10 x 1 tapered, short	
		230-213-001-021C ²	8.0 ± 0.5	SF	39	11	25	M10 x 1 tapered, short	
	Screw M4 x 5 6.3 x 0.8 mm 	230-213-001-011C ²	12.0 ± 0.4	SF	39	11	18	M10 x 1 tapered, short	
	6.3 x 0.8 mm riveted 	230-113-001-008C ²	5.5 ± 0.2	SF	39	12	10	M12 x 1.5	
¹ Contact chamber: vented ² Contact chamber: unvented									

Pressure switch	single pole common ground	Part number	Switch point [bar]		Dimension [mm] L1	L2	Range [bar]	Thread	Price
	Screw M4 x 5 	230-112-003-012C ¹	6	SF	26	11	12	1/8" - 27 NPTF	
		230-112-001-002C ¹	10	SS	26	11	12	1/8" - 27 NPTF	
		230-112-003-013C ¹	10	SF	26	11	12	1/8" - 27 NPTF	
¹ Contact chamber: vented									

Pressure switch	dual-pole insulated return	Part number	Switch point [bar]		Dimension [mm] L1	L2	Range [bar]	Thread	Price
	(2x) 6.3 x 0.8 mm riveted (90°) 	230-112-007-005C [2]	0.3 ± 0.15	OS	24.5	12	12	M14 x 1.5 [3]	
		230-112-005-006C	0.5 ± 0.2	SF	26	11	12	M10 x 1 tapered, short	
		230-112-005-012C	1.2 ± 0.2	SF	24.5	10.5	12	M10 x 1	
		230-213-004-002C	12.5 ± 0.4	SS	39	12	12	M14 x 1.5	
	(2x) Screws M4 x 5 	230-112-002-001C [2]	0.5 ± 0.2	SS	26	11	12	1/8" - 27 NPTF	
		230-112-005-005C [1]	0.8 ± 0.2	SF	26	11	12	M10 x 1 tapered, short	
		230-112-005-001C [1]	1.0 ± 0.2	SF	26	11	12	M10 x 1 tapered, short	
		230-112-005-004C [1]	3.0 ± 0.4	SF	26	11	12	M10 x 1 tapered, short	
	(2x) Ring terminal 	230-112-005-011C [1]	1.5 ± 0.2	SF	26	11	12	M10 x 1 tapered, short	
[1] Contact chamber: vented [2] Contact chamber: unvented [3] With sealing washer, captive		230-112-005-003C [1]	1.8 ± 0.2	SF	26	11	12	M10 x 1 tapered, short	
	(2x) Screws M4 x 5 	230-213-002-004C [1]	4.5 ± 0.3	SF	38	12	12	M12 x 1.5	
	(2x) Screws M4 x 5 (2x) Ring terminal 	230-213-002-001C [1]	7.0 ± 0.3	SF	39	11	12	1/8" - 27 NPTF	
	(2x) 6.3 x 0.8 mm riveted (90°) 	230-213-002-003C	10.5 ± 0.3	SF	39	11	12	1/8" - 27 Dryseal NPTF	
[1] Contact chamber: vented									

Pressure switch	dual-pole insulated return	Part number	Switch point [bar]		Dimension [mm] L1	L2	Range [bar]	Thread	Price
	(2x) Screws M4 x 5 	230-112-005-010C [1]	7 ± 0.2	SF	26	10	12	1/8" - BSPF	
[1] Contact chamber: vented									

Switch point	SF = Contact closes with falling pressure
	SS = Contact closes with rising pressure
	OF = Contact opens with falling pressure
	OS = Contact opens with rising pressure

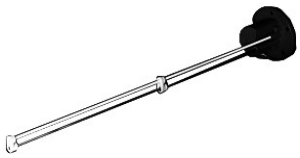
Fresh water

WATER

Fresh Water (capacitive) Ø52 mm 4 - 20 mA	Part number	Voltage [V]	Range	Input [mA]	Dial Bezel	Price
	A2C59514676	12 / 24	0 - 1/1	4 - 20	black round black	
	A2C59514677	12 / 24	0 - 1/1	4 - 20	white round white	

Fresh water (resistive) Ø52 mm 3 - 180 Ω	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514097	12 / 24	0 - 1/1	3 - 180	black round black	
	A2C59514098	12 / 24	0 - 1/1	3 - 180	black triangular chrome	
	A2C59514192	12 / 24	0 - 1/1	3 - 180	white round white	
	A2C59514099	12 / 24	E - F	3 - 180	black round black	
	A2C59514100	12 / 24	E - F	3 - 180	black triangular chrome	
	A2C59514193	12 / 24	E - F	3 - 180	white round white	

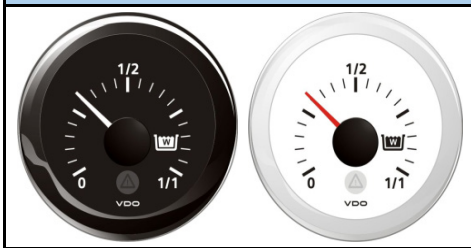
Fresh water sensors (capacitive)

Capacitive fresh water level sensor 4 - 20 mA	Part number	Voltage [V]	Signal range [mA]	Length [mm]	Price
	N02-240-402	12 / 24	4 - 20	80 - 600	
	N02-240-404	12 / 24	4 - 20	600 - 1200	
	N02-240-406	12 / 24	4 - 20	1200 - 1500	

Fresh water sensors (resistive)

Lever type fresh water level sensors 3 - 180 Ω	Part number	Voltage [V]	Signal range [Ω]	Length [mm]	Price
	226-828-001-001K	12 / 24	3 - 180	200 - 600	

Waste water

Waste water Ø52 mm	Part number	Voltage [V]	Range	Input [mA]	Dial Bezel	Price
	A2C59512342	12 / 24	0 - 1/1	4 - 20	black round black	
	A2C59512343	12 / 24	0 - 1/1	4 - 20	white round white	

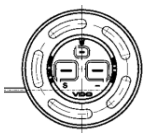
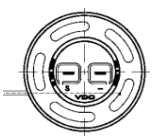
Waste water sensors (capacitive)

Capacitive waste water level sensor 4 - 20 mA	Part number	Voltage [V]	Signal range [Ω]	Length [mm]	Price
	N02-240-902	12 / 24	4 - 20	200 - 600	
	N02-240-904	12 / 24	4 - 20	600 - 1200	
	N02-240-906	12 / 24	4 - 20	1200 - 1500	

Fuel gauges (3 – 180 Ω)

Fuel Ø52 mm 3 – 180 Ω	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514082	12 / 24	0 - 1/1	3 – 180	black round black	
	A2C59514083	12 / 24	0 - 1/1	3 – 180	black triangular chrome	
	A2C59514084	12 / 24	0 - 1/1	3 – 180	black triangular black	
	A2C59514184	12 / 24	0 - 1/1	3 – 180	white round white	
	A2C59514185	12 / 24	0 - 1/1	3 – 180	white triangular chrome	
	A2C59514091	12 / 24	E - F	3 – 180	black round black	
	A2C59514092	12 / 24	E - F	3 – 180	black triangular chrome	
	A2C59514093	12 / 24	E - F	3 – 180	black triangular black	

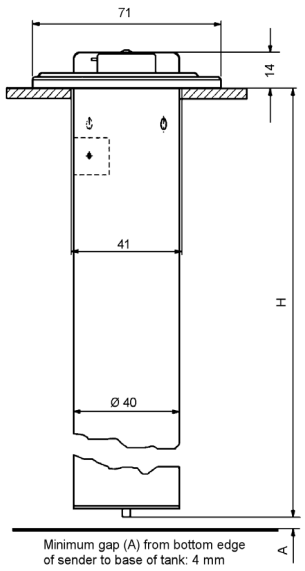
Lever-arm fuel level senders (3 – 180 Ω)

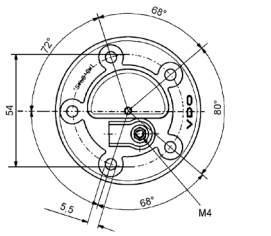
Lever-arm fuel level sender 3 – 180 Ω	Part number	Article description	Signal range (empty - full)	Length [mm]	Price
	226-801-015-001G	Adjustable lever-arm fuel level sender, standard / ALAS I	3 – 180 Ω	150 - 600	
	N02-240-106	Adjustable lever-arm fuel level sender standard / ALAS I for dual units (flying bridge)	2 – 90 Ω	150 - 600	
 	A2C59510165	Adjustable lever-arm fuel level sender, standard / ALAS I with warning contact	3 – 180 Ω	145 - 400	
	A2C59510171	Adjustable lever-arm fuel level sender, standard / ALAS I without warning contact	3 – 180 Ω	145 - 400	

Fuel gauges (90 – 4 Ω)

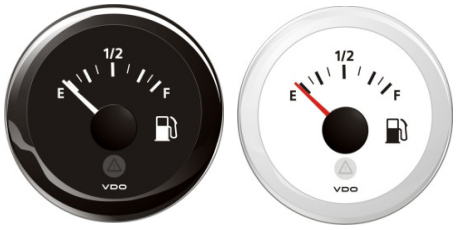
Fuel Ø52 mm 90 – 4 Ω	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514079	12 / 24	0 - 1/1	90 – 4	black round black	
	A2C59514080	12 / 24	0 - 1/1	90 – 4	black triangular chrome	
	A2C59514081	12 / 24	0 - 1/1	90 – 4	black triangular black	
	A2C59514182	12 / 24	0 - 1/1	90 – 4	white round white	
	A2C59514183	12 / 24	0 - 1/1	90 – 4	white triangular chrome	
	A2C59514088	12 / 24	E - F	90 – 4	black round black	
	A2C59514089	12 / 24	E - F	90 – 4	black triangular chrome	
	A2C59514090	12 / 24	E - F	90 – 4	black triangular black	
	A2C59514188	12 / 24	E - F	90 – 4	white round white	
	A2C59514189	12 / 24	E - F	90 – 4	white triangular chrome	

Tubular fuel level senders (90 – 4 Ω)

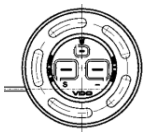
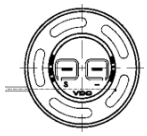
Tubular fuel level sender metal standard	Part number	Signal range (empty - full)	Length [mm]	Price
	224-011-000-150G	69,0 - 4,5 Ω	150	
	224-011-000-160G	74,0 - 4,5 Ω	160	
	224-011-000-170G	79,5 - 4,5 Ω	170	
	224-011-000-180G	64,0 - 3,0 Ω	180	
	224-011-000-190G	68,0 - 3,0 Ω	190	
	224-011-000-200G	68,0 - 2,5 Ω	200	
	224-011-000-210G	76,0 - 3,0 Ω	210	
	224-011-000-220G	80,0 - 3,0 Ω	220	
	224-011-000-230G	84,0 - 2,5 Ω	230	
	224-011-000-240G	65,5 - 2,5 Ω	240	
	224-011-000-250G	72,0 - 2,5 Ω	250	
	224-011-000-260G	72,0 - 2,5 Ω	260	
	224-011-000-270G	74,5 - 2,5 Ω	270	
	224-011-000-280G	75,5 - 2,5 Ω	280	
	224-011-000-290G	78,0 - 2,5 Ω	290	
	224-011-000-300G	82,8 - 2,5 Ω	300	
	224-011-000-310G	84,0 - 2,5 Ω	310	
	224-011-000-330G	72,0 - 2,5 Ω	330	
	224-011-000-340G	74,0 - 2,5 Ω	340	
	224-011-000-350G	79,6 - 2,5 Ω	350	
	224-011-000-360G	69,0 - 2,5 Ω	360	
	224-011-000-370G	71,0 - 2,5 Ω	370	
	224-011-000-380G	73,0 - 2,5 Ω	380	
	224-011-000-390G	75,0 - 2,5 Ω	390	
	224-011-000-400G	74,9 - 2,5 Ω	400	
	224-011-000-450G	84,3 - 2,5 Ω	450	
	224-011-000-500G	75,4 - 2,5 Ω	500	
	224-011-000-550G	77,6 - 2,5 Ω	550	
	224-011-000-600G	85,3 - 2,5 Ω	600	
	224-011-000-650G	82,2 - 2,5 Ω	650	
	224-011-000-700G	81,6 - 2,0 Ω	700	
	224-011-000-750G	82,0 - 2,0 Ω	750	
	224-011-000-800G	68,5 - 2,0 Ω	800	



Fuel gauges (0 – 90 Ω)

Fuel Ø52 mm 0 – 90 Ω	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514085	12 / 24	E - F	0 – 90	black round black	
	A2C59514086	12 / 24	E - F	0 – 90	black triangular chrome	
	A2C59514087	12 / 24	E - F	0 – 90	black triangular black	
	A2C59514186	12 / 24	E - F	0 – 90	white round white	
	A2C59514187	12 / 24	E - F	0 – 90	white triangular chrome	

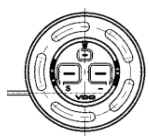
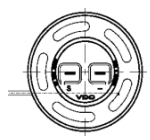
Lever-arm fuel level senders (2 – 90 Ω)

Lever-arm fuel level sender 2 – 90 Ω		Part number	Article description	Signal range (empty - full)	Length [mm]	Price
		A2C59510167	Adjustable lever-arm fuel level sender, standard / ALAS I with warning contact	2 – 90 Ω	145 - 400	
		A2C59510173	Adjustable lever-arm fuel level sender, standard / ALAS I without warning contact	2 – 90 Ω	145 - 400	

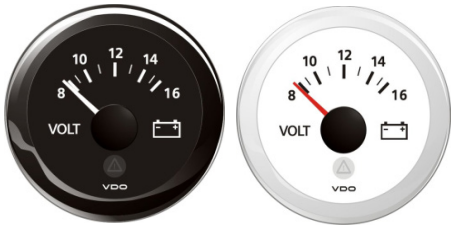
Fuel gauges (240 – 33.5 Ω)

Fuel Ø52 mm 240 – 33.5 Ω	Part number	Voltage [V]	Range	Input [Ω]	Dial Bezel	Price
	A2C59514094	12 / 24	E - F	240 – 33.5	black round black	
	A2C59514095	12 / 24	E - F	240 – 33.5	black triangular chrome	
	A2C59514096	12 / 24	E - F	240 – 33.5	black triangular black	
	A2C59514190	12 / 24	E - F	240 – 33.5	white round white	
	A2C59514191	12 / 24	E - F	240 – 33.5	white triangular chrome	

Lever-arm fuel level senders (240 – 33.5 Ω)

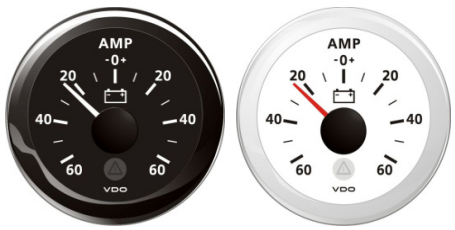
Lever-arm fuel level sender 240 – 33.5 Ω		Part number	Article description	Signal range (empty - full)	Length [mm]	Price
		A2C59510166	Adjustable lever-arm fuel level sender, standard / ALAS I with warning contact	240 - 33.5 Ω	145 - 400	
		A2C59510172	Adjustable lever-arm fuel level sender, standard / ALAS I without warning contact	240 - 33.5 Ω	145 - 400	

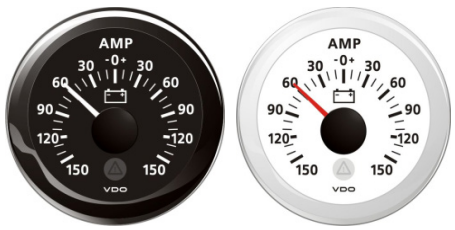
Voltmeter

Voltmeter Ø 52 mm	Part number	Voltage [V]	Range [V]	Input	Dial Bezel	Price
	A2C59512545	12	8 – 16	-	black round black	
	A2C59512546	12	8 – 16	-	white round white	

Voltmeter Ø 52 mm	Part number	Voltage [V]	Range [V]	Input	Dial Bezel	Price
	A2C59512457	24	18 – 32	-	black triangular chrome	
	A2C59512458	24	18 – 32	-	black round black	
	A2C59512459	24	18 – 32	-	white round white	

Ammeter

Ammeter -60 ÷ +60 A Ø 52 mm	Part number	Voltage [V]	Range [A]	Input [mV]	Dial Bezel	Price
	A2C59512328	12 / 24	-60 ÷ +60	60	black round black	
	A2C59512330	12 / 24	-60 ÷ +60	60	white round white	

Ammeter -150 ÷ +150 A Ø 52 mm	Part number	Voltage [V]	Range [A]	Input [mV]	Dial Bezel	Price
	A2C59512329	12 / 24	-150 ÷ +150	60	black round black	
	A2C59512331	12 / 24	-150 ÷ +150	60	white round white	

Ammeter shunts

Ammeter shunt	Part number	Voltage [V]	Ampere	Volt	Packaging	Price
	A2C59514043	12 / 24	60 A	60 mV	single	
	A2C59514047	12 / 24	150 A	60 mV	single	

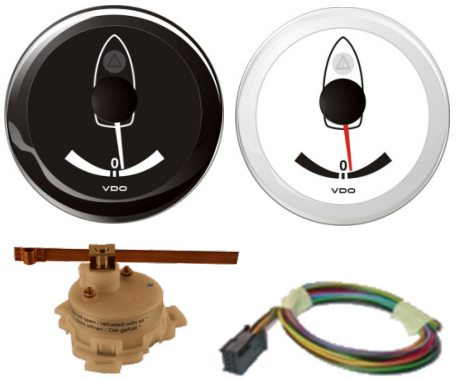
Engine hours counter

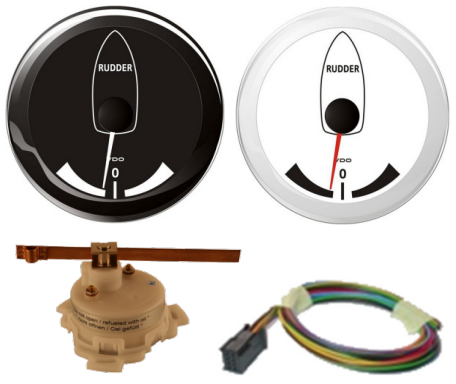
Engine hours counter Ø52 mm	Part number	Voltage [V]	Range [h]	Dial Bezel	Price
	A2C59512452	12 / 24	0.0 - 99999.9	black triangular chrome	
	A2C59512453	12 / 24	0.0 - 99999.9	black round black	
	A2C59512454	12 / 24	0.0 - 99999.9	white round white	

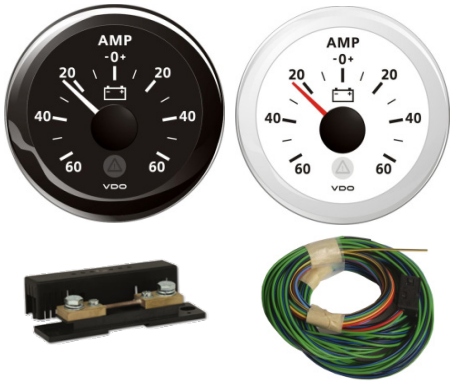
Clock

Clock Ø52 mm	Part number	Voltage [V]	Range	Dial Bezel	Price
	A2C59513443	12	-	white round white	
	A2C59513444	24	-	white round white	
	A2C59513445	12	-	black round black	
	A2C59513446	24	-	black round black	

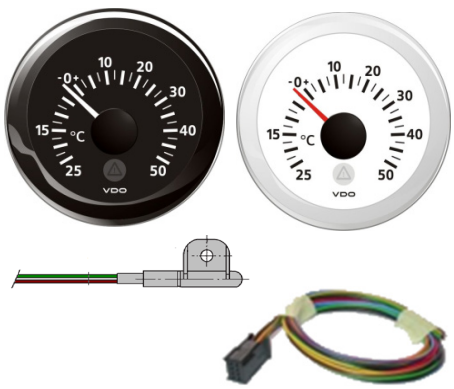
Kits

Rudder position indicator kit Ø52 mm	Part number	Components	Article Description	Dial Bezel	Price
	A2C59514811	A2C59514154	Rudder angle gauge Ø 52 mm, -40°/+40°	black round black	
		440-102-001-001D	Rudder angle sensor for single station	-	
		A2C59512675	Adapter cable 8-pole	-	
	A2C59514813	A2C59514230	Rudder angle gauge Ø 52 mm, -40°/+40°	white round white	
		440-102-001-001D	Rudder angle sensor for single station	-	
		A2C59512675	Adapter cable 8-pole	-	

Rudder position indicator kit Ø 85 mm	Part number	Components	Article Description	Dial Bezel	Price
	A2C59514812	A2C59512410	Rudder angle gauge Ø 85 mm, -45°/+45°	black round black	
		440-102-001-001D	Rudder angle sensor for single station	-	
		A2C59512675	Adapter cable 8-pole	-	
	A2C59514814	A2C59512411	Rudder angle gauge Ø 85 mm, -45°/+45°	white round white	
		440-102-001-001D	Rudder angle sensor for single station	-	
		A2C59512675	Adapter cable 8-pole	-	

Ammeter kit Ø 52 mm	Part number	Components	Article Description	Dial Bezel	Price
	A2C59514815	A2C59512328	Ammeter gauge Ø 52 mm, -60 ÷ +60 A	black round black	
		A2C59514043	Ammeter Shunt 60 A	-	
		A2C59512949	Adapter cable 8-pole	-	
	A2C59514817	A2C59512330	Ammeter gauge Ø 52 mm, -60 ÷ +60 A	white round white	
		A2C59514043	Ammeter Shunt 60 A	-	
		A2C59512949	Adapter cable 8-pole	-	
	A2C59514816	A2C59512329	Ammeter gauge Ø 52 mm, -150 ÷ +150 A	black round black	
		A2C59514047	Ammeter Shunt 150 A	-	
		A2C59512949	Adapter cable 8-pole	-	
	A2C59514818	A2C59512331	Ammeter gauge Ø 52 mm, -150 ÷ +150 A	white round white	
		A2C59514047	Ammeter Shunt 150 A	-	
		A2C59512949	Adapter cable 8-pole	-	

Pyrometer kit Ø 52 mm	Part number	Components	Article Description	Dial Bezel	Price
	A2C59514801	A2C59512332	Pyrometer gauge Ø 52 mm, 100°C - 900°C	black round black	
		N03-320-264	Thermocouple element	-	
		N03-320-268	Connecting cable 5m	-	
		N03-320-266	Threaded bushing for welding to manifold	-	
	A2C59514802	A2C59512333	Pyrometer gauge Ø 52 mm, 100°C - 900°C	black round black	
		N03-320-264	Thermocouple element	-	
		N03-320-268	Connecting cable 5m	-	
		N03-320-266	Threaded bushing for welding to manifold	-	

Outside temperature kit Ø 52 mm	Part number	Components	Article Description	Dial Bezel	Price
	A2C59514803	A2C59512336	Outside temp. gauge Ø 52 mm, -25°C - 50°C	black round black	
		323-809-010-005C	Sensor for air temperature	-	
		A2C59512947	Adapter cable 8-pole	-	
	A2C59514804	A2C59512338	Outside temp. gauge Ø 52 mm, -25°C - 50°C	white round white	
		323-809-010-005C	Sensor for air temperature	-	
		A2C59512947	Adapter cable 8-pole	-	

Fresh water kit Ø 52 mm	Part number	Components	Article Description	Dial Bezel	Price
	A2C59514805	A2C59514676	Fresh water gauge Ø 52 mm, 0 - 1/1	black round black	
		N02-240-402	Fresh water sensor 4 - 20mA, 80 - 600 mm	-	
		A2C59512947	Adapter cable 8-pole	-	
	A2C59514806	A2C59514677	Fresh water gauge Ø 52 mm, 0 - 1/1	white round white	
		N02-240-402	Fresh water sensor 4 - 20mA, 80 - 600 mm	-	
		A2C59512947	Adapter cable 8-pole	-	

Waste water kit Ø 52 mm	Part number	Components	Article Description	Dial Bezel	Price
	A2C59514807	A2C59512342	Wastewater gauge Ø 52 mm, 0 - 1/1	black round black	
		N02-240-902	Wastewater sensor 4 - 20mA, 200 - 600 mm	-	
		A2C59512947	Adapter cable 8-pole	-	
	A2C59514808	A2C59512343	Wastewater Gauge Ø 52 mm, 0 - 1/1	white round white	
		N02-240-902	Wastewater sensor 4 - 20mA, 200 - 600 mm	-	
		A2C59512947	Adapter cable 8-pole	-	

Fuel level kit Ø 52 mm	Part number	Components	Article Description	Dial Bezel	Price
	A2C59514842	A2C59514091	Fuel level gauge Ø 52 mm, E - F	black round black	
		A2C59510165	Lever arm sensor with warning contact	-	
		A2C59512947	Adaptor cable 8-pole	-	
		N05-801-432	Flange Kit	-	
	A2C59514843	A2C59514184	Fuel level gauge Ø 52 mm, 0 - 1/1	white round white	
		A2C59510165	Lever arm sensor with warning contact	-	
		A2C59512947	Adaptor cable 8-pole	-	
		N05-801-432	Flange Kit	-	

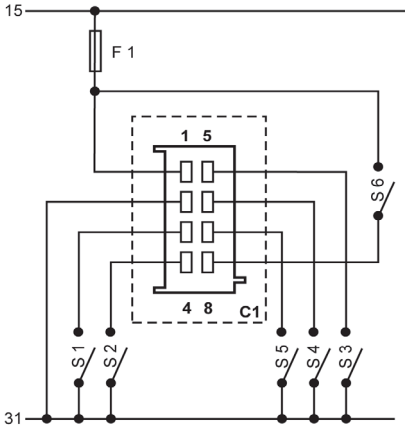
Warning lights !

Warning lights Ø 52 mm	Part number	Voltage	Telltale	Function	Buzer	Color	Dial Bezel	Price
	A2C59506150	12 V	WL1	Pre Heating	No	Amber	white triangle chrome	
			WL2	Cooling Water	Yes	Red		
			WL3	Battery Fault	Yes	Red		
			WL4	Oil Pressure	Yes	Red		
			WL5	Water in Gasoil	Yes	Red		
			WL6	Ignition ON	No	Green		
	A2C59506153	12 V	WL1	Pre Heating	No	Amber	black triangle black	
			WL2	Cooling Water	Yes	Red		
			WL3	Battery Fault	Yes	Red		
			WL4	Oil Pressure	Yes	Red		
			WL5	Water in Gasoil	Yes	Red		
			WL6	Ignition ON	No	Green		

Warning lights Ø 52 mm	Part number	Voltage	Telltale	Function	Buzer	Color	Dial Bezel	Price
	A2C59506156	12 V	WL1	Low Fuel	No	Amber	white round white	
			WL2	Cooling Water	No	Red		
			WL3	Battery Fault	No	Red		
			WL4	Oil Pressure	No	Red		
			WL5	Oil Temperature	No	Red		
			WL6	Pre Heating	No	Amber		
	A2C59506159	12 V	WL1	Low Fuel	No	Amber	black round black	
			WL2	Cooling Water	No	Red		
			WL3	Battery Fault	No	Red		
			WL4	Oil Pressure	No	Red		
			WL5	Oil Temperature	No	Red		
			WL6	Pre Heating	No	Amber		

Warning gauge Type A

Wiring Diagram 1: WL 6 High activation



Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

Pin 1 - Term. 15, ignition plus 12V, red *
Pin 2 - WL 6, Signal Ground, black
Pin 3 - WL 1, Ground, blue / black
Pin 4 - WL 2, Ground, brown
Pin 5 - WL 3, Ground, green
Pin 6 - WL 4, Ground, blue / red
Pin 7 - WL 5, Ground, yellow / black
Pin 8 - WL 6, Signal plus 12V, yellow / red

Designations in the wiring diagram:
Terminal 15: connected (ignition) plus
Terminal 31: ground
F1: fuse 5A quick-response
C1: 8-pin MQS connector
S1-S6: Warning Input

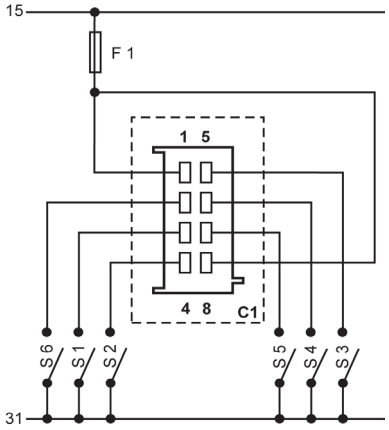
You must comply with the wiring diagram.

Pin 1 - ground, red *
Pin 2 - WL 6, +12 VDC signal, black
Pin 3 - WL 1, +12 VDC signal, blue / black
Pin 4 - WL 2, +12 VDC signal, brown
Pin 5 - WL 3, +12 VDC signal, green
Pin 6 - WL 4, +12 VDC signal, blue / red
Pin 7 - WL 5, +12 VDC signal, yellow / black
Pin 8 - WL 6, ground, yellow / red

Now insert the plug into the gauge.
Note the inverse polarity protection nose in the process.

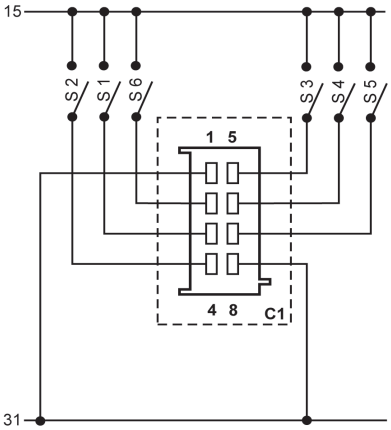
* Cable colors are valid for harness A2C59512675

Wiring Diagram 2: WL 6 Low activation

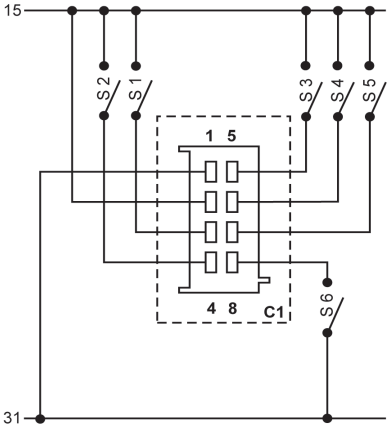


Warning gauge Type B

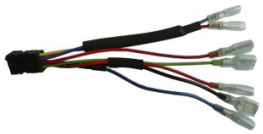
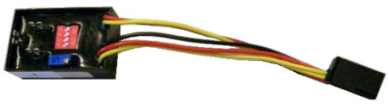
Wiring Diagram 1: S6 High activation



Wiring Diagram 2: S6 Low activation



Accessories

Accessories	Part number	Article description		Price
	999-072-001	Spinlock Nut 52 mm		
	A2C53212238	Spinlock Nut 85 mm		
	A2C53238881	Spinlock Nut 110 mm		
	A2C59512684	Push button for LCD 13,6mm IP67		
	A2C59510850	Connector set 8-pole		
	A2C59510851	Connector set 14-pole		
	A2C59510852	Adapter cable for 52 mm 5 x AMP taps, 6.3 mm 2 x AMP taps, 2.8 mm		
	A2C59510886	Make Point Switch 12 V Gauges: 52 mm: temperature, pressure, tank, trim, rudder angle 85 / 110 mm: temperature, pressure, tank		
	A2C59512675	Adapter cable 8-pole for sumlog, temperature, pressure, fuel level, trim, pyrometer, outside temperature, freshwater, blackwater, tachometer, speedometer	unpacked	
	A2C59512947		packed	
	A2C59512677	Adapter cable 8-pole for voltmeter, engine hours counter, clock	unpacked	
	A2C59512948		packed	
	A2C59512679	Adapter cable 8-pole for ammeter	unpacked	
	A2C59512949		packed	
	A2C59512681	Adapter cable 14-pole for tachometer with LCD	unpacked	
	A2C59512950		packed	

	A2C59513503	Adapter cable - Sumlog / Airmar (1 gauge)	
	A2C59514544	Adapter cable - Sumlog / Echolot (2 gauges)	
	A2C59514545	Adapter cable - Sumlog / Wind (3 gauges)	
	A2C59514546	Adapter cable - Sumlog Open Collector for sumlog, tachometer, speedometer when connected for sensors whit open collector output	
	A2C53324664	Connector protective cap 8-pin	
	A2C53324671	Connector protective cap 14-pin	
	A2C59513492	Connector blind plug 14-pin	

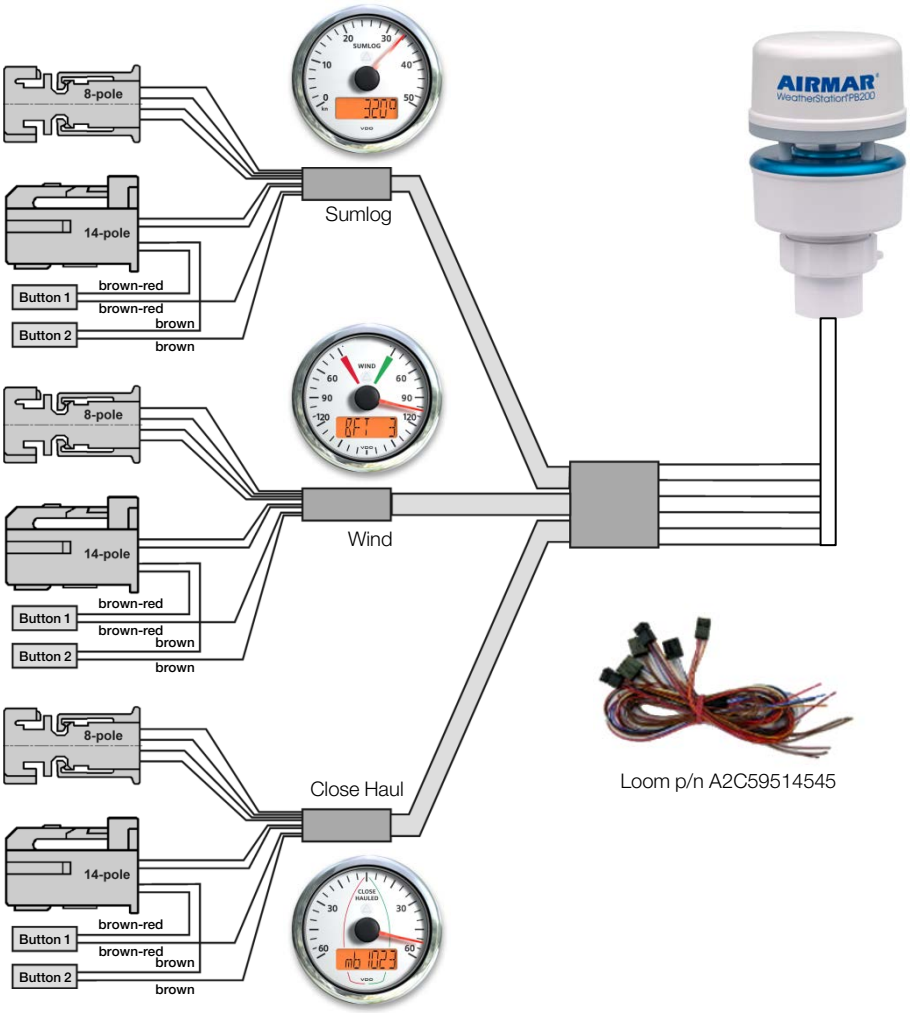
Bezels

Bezel Ø 52 mm	Part number	Profile	Color	Price
	A2C53186040	flat	black	
	A2C53186022	flat	white	
	A2C53186023	flat	chrome	
	A2C53186024	triangular	black	
	A2C53186025	triangular	white	
	A2C53186026	triangular	chrome	
	A2C53186027	round	black	
	A2C53186028	round	white	
	A2C53186029	round	chrome	

Bezel Ø 85 mm	Part number	Profile	Color	Price
	A2C53192911	flat	black	
	A2C53192912	flat	white	
	A2C53192910	flat	chrome	
	A2C53192917	triangular	black	
	A2C53192920	triangular	white	
	A2C53192918	triangular	chrome	
	A2C53192913	flat	black	
	A2C53192916	flat	white	
	A2C53192914	flat	chrome	

Bezel Ø 110 mm	Part number	Profile	Color	Price
	A2C53210745	flat	black	
	A2C53210746	flat	white	
	A2C53210747	flat	chrome	
	A2C53210763	triangular	black	
	A2C53210764	triangular	white	
	A2C53210765	triangular	chrome	
	A2C53210749	round	black	
	A2C53210760	round	white	
	A2C53210761	round	chrome	

Viewline Adaptor Cable for Sumlog - Wind Gauge

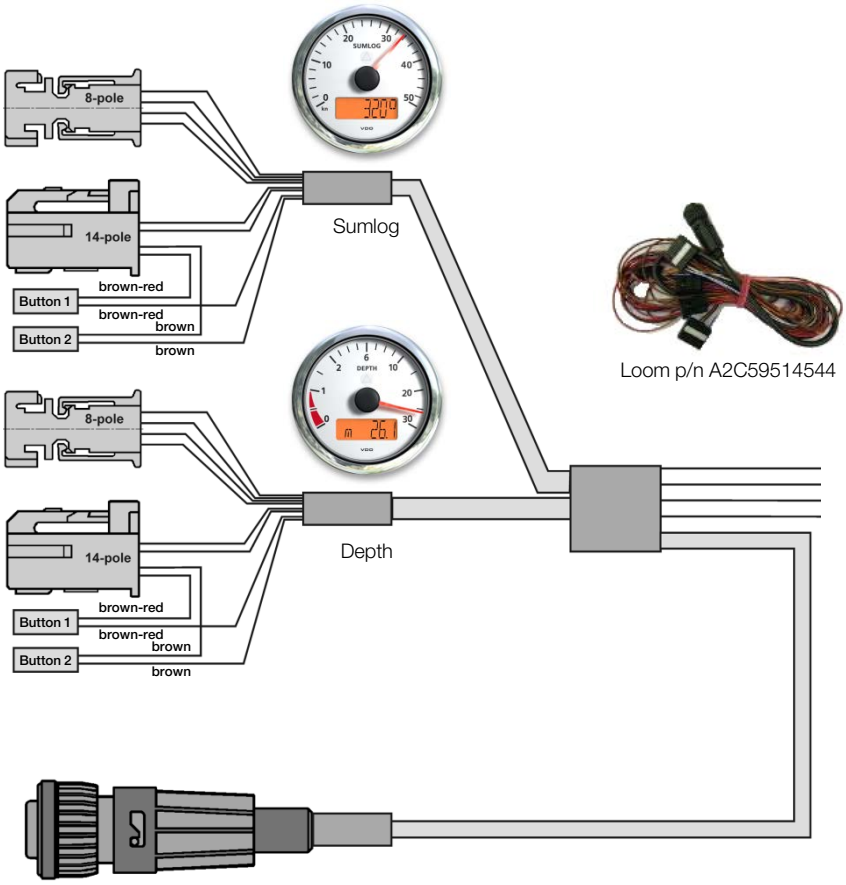


Terminal	Cabel Colour
Battery + (30)	red
Battery – (31)	black
Ignition + (15)	red / yelow
Illumination + (58)	red / blue
NMEA -	blue / white
NMEA +	white
Config Button	brown
Mode Button	brown / red

Connect the 7 cables according to the following wiring Diagrams.

Insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Viewline Adaptor Cable for Sumlog – Depth Gauge



5-pole pin terminal

Terminal	Cable Colour	Pin #
Sensor ground	black / blue	3
Ignition + (15)	red / yelow	2
NMEA 0183 -	blue / white	5
NMEA 0183 +	white	4

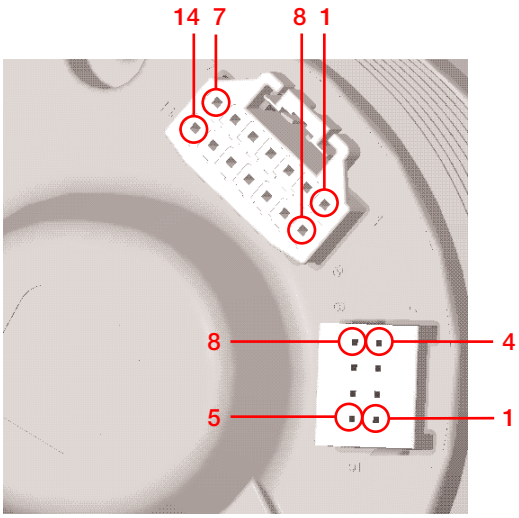
Terminal	Cabel Colour
Battery + (30)	red
Battery – (31)	black
Ignition + (15)	red / yelow
Illumination + (58)	red / blue
NMEA 0183 -	blue / white
NMEA 0183 +	white
Config Button	brown
Mode Button	brown / red

Connect the 7 cables according to the following wiring Diagrams.

Insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Connector Schema - Viewline Ø85 mm:

Sumlog / Sumlog with compass / Depth / Wind / Close Hauled / Speedometer / Tachometer

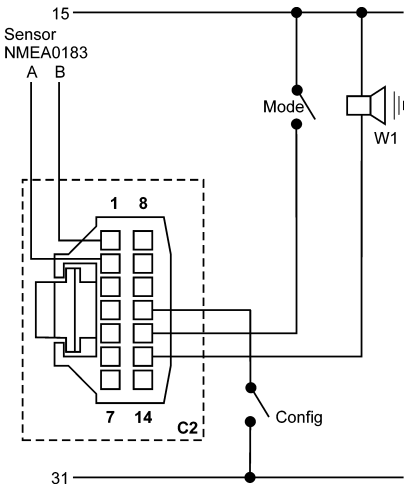


Designations in the wiring diagram:

- Terminal 30: steady-state plus 12 V
- Terminal 15: connected (ignition) plus
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- C1: 8-pin MQS connector
- C2: 14-pin MQS connector
- Config: configuration key
- Mode: mode key
- W1: optional alarm output (max. 100 mA)

You must comply with the wiring diagram.

14-pin connection

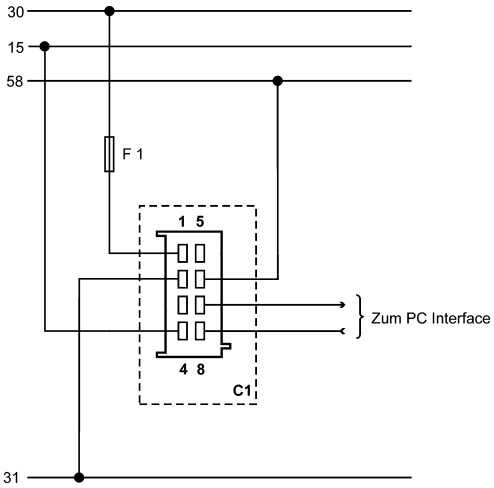


Connector set 8-pin
A2C59510850

Connector set 14-pin
A2C59510851

Sumlog with compass / Depth / Wind / Close Hauled

8-pin connection



Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

Pin 1 - Terminal 30 - battery 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - unassigned
Pin 4 - Terminal 15 - ignition plus
Pin 5 - unassigned
Pin 6 - Terminal 58 - lighting
Pin 7 - programming port Tx
Pin 8 - programming port Rx

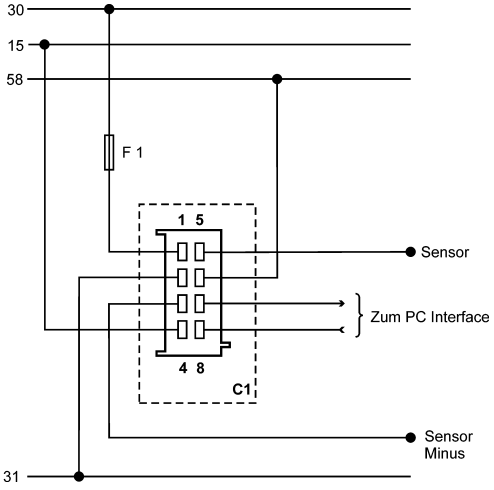
14-pin contact housing

Pin 1 - NMEA0183-B
Pin 2 - NMEA0183-A
Pin 3 - unassigned
Pin 4 - unassigned
Pin 5 - unassigned
Pin 6 - unassigned
Pin 7 - unassigned
Pin 8 - unassigned
Pin 9 - unassigned
Pin 10 - unassigned
Pin 11 - Configuration key
Pin 12 - Mode key
Pin 13 - optionaly alarm output (max 100 mA)
Pin 14 - unassigned

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Sumlog / Speedometer / Tachometer

8-pin connection



Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

Pin 1 - Terminal 30 - battery 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - signal ground
Pin 4 - Terminal 15 - ignition plus
Pin 5 - sensor signal
Pin 6 - Terminal 58 - lighting
Pin 7 - programming port Tx
Pin 8 - programming port Rx

14-pin contact housing

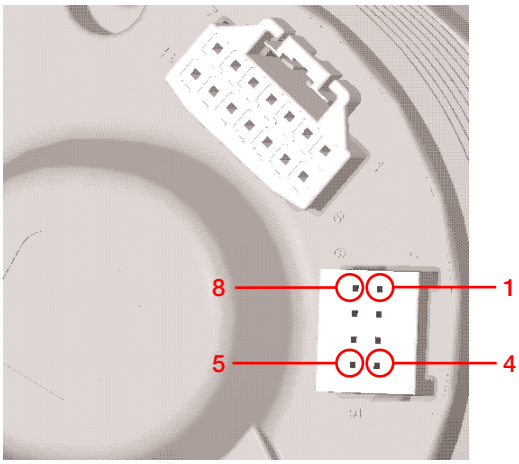
Pin 1 - NMEA0183-B / unassigned *
Pin 2 - NMEA0183-A / unassigned *
Pin 3 - unassigned
Pin 4 - unassigned
Pin 5 - unassigned
Pin 6 - unassigned
Pin 7 - unassigned
Pin 8 - unassigned
Pin 9 - unassigned
Pin 10 - unassigned
Pin 11 - Configuration key
Pin 12 - Mode key
Pin 13 - optionaly alarm output(max 100 mA)
Pin 14 - unassigned

* Tachometer

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Connector Schema - Viewline Ø85 mm:

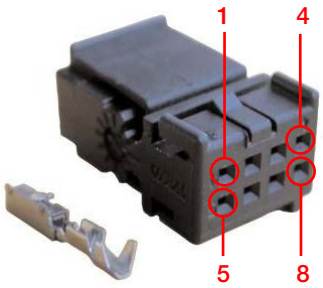
Tachometer without LCD / Rudder position



Designations in the wiring diagram:

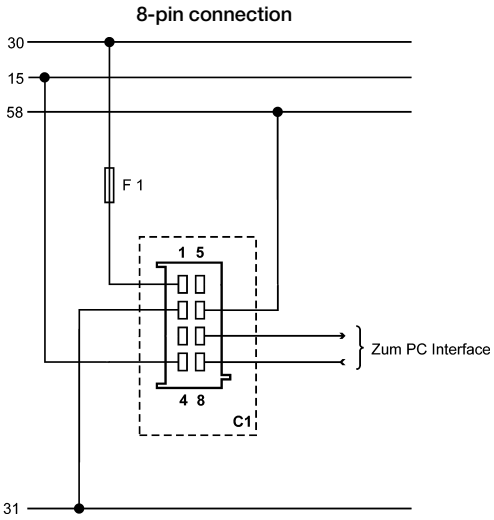
- Terminal 30: steady-state plus 12/24 V
- Terminal 15: connected (ignition) plus
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- C1: 8-pin MQS connector

You must comply with the wiring diagram.



Connector set 8-pin
A2C59510850

Tachometer without LCD



Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

Pin 1 - Terminal 30 - battery 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - signal ground
Pin 4 - Terminal 15 - ignition plus
Pin 5 - sensor signal
Pin 6 - Terminal 58 - lighting
Pin 7 - programming port Tx
Pin 8 - programming port Rx

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

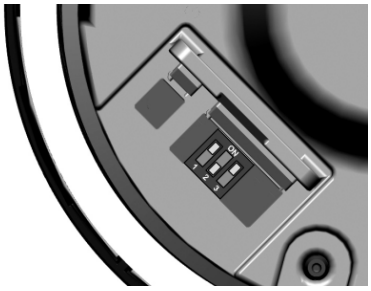
Startup

Setting the impulse number

1. Activate Terminal 30 (8-pin - Pin 1)
2. Deactivate Terminal 15 (8-pin - Pin 1)

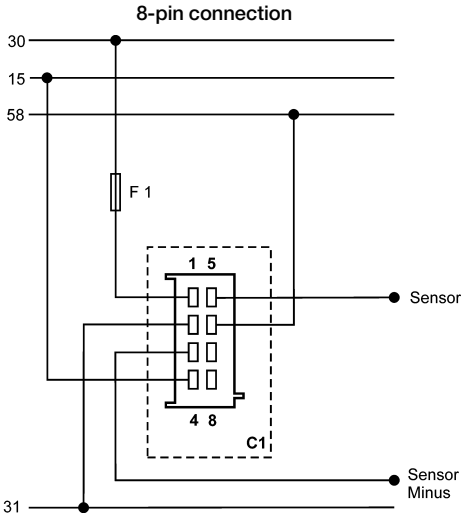
Set the impulse number according to the following Table. Ensure that switch position "1" points toward the center of the instrument.

Select switch position "XXX" if you want to set an impulse number with the optional PC software.



Impuls R	Switch 1	Switch 2	Switch 3
XXX	0	0	0
1	1	0	0
2	0	1	0
3	1	1	0
4	0	0	1
5	1	0	1
6	0	1	1
8	1	1	1

Rudder position



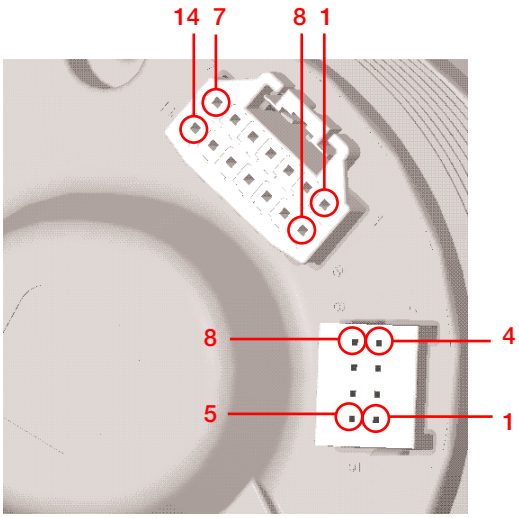
Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

Pin 1 - Terminal 30 - battery 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - signal ground
Pin 4 - Terminal 15 - ignition plus
Pin 5 - sensor signal
Pin 6 - Terminal 58 - lighting
Pin 7 - unassigned
Pin 8 - unassigned

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Synchronizer



Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

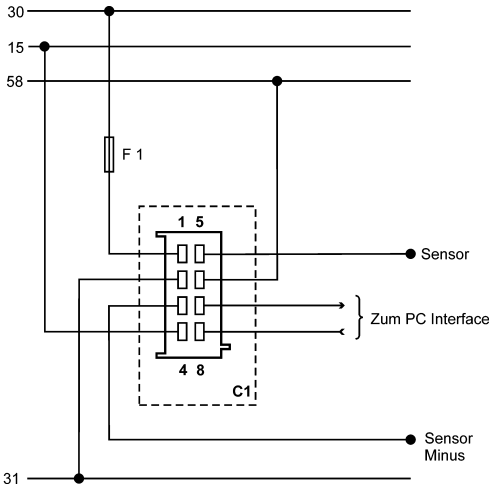
Pin 1 - Terminal 30 - battery 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - sensor port minus
Pin 4 - Terminal 15 - ignition plus
Pin 5 - sensor port
Pin 6 - Terminal 58 - lighting
Pin 7 - programming port Tx
Pin 8 - programming port Rx

14-pin contact housing

Pin 1 - unassigned
Pin 2 - unassigned
Pin 3 - unassigned
Pin 4 - sensor starboard minus
Pin 5 - sensor starboard
Pin 6 - unassigned
Pin 7 - unassigned
Pin 8 - unassigned
Pin 9 - unassigned
Pin 10 - unassigned
Pin 11 - unassigned
Pin 12 - unassigned
Pin 13 - unassigned
Pin 14 - unassigned

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

8-pin connection

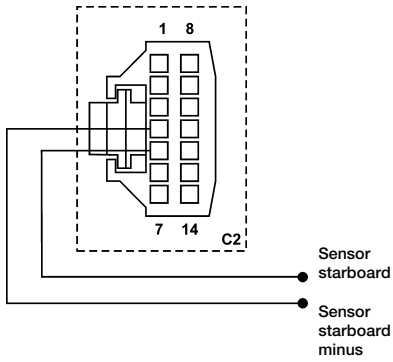


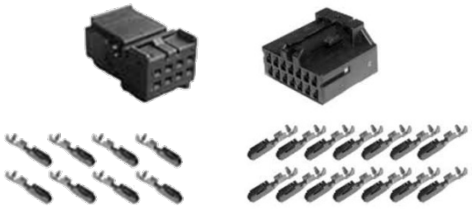
Designations in the wiring diagram:

- Terminal 30: steady-state plus 12 V
- Terminal 15: connected (ignition) plus
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- C1: 8-pin MQS connector
- C2: 14-pin MQS connector

You must comply with the wiring diagram.

14-pin connection

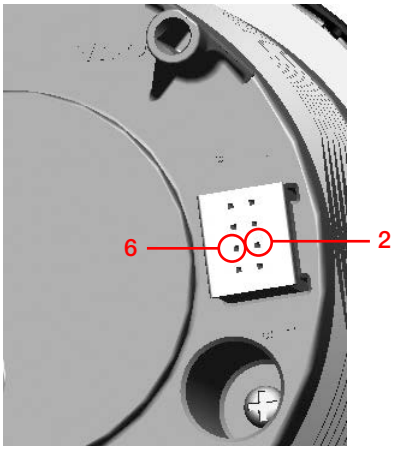




Connector set 8-pin
A2C59510850

Connector set 14-pin
A2C59510851

Pitot-tube Speedometer



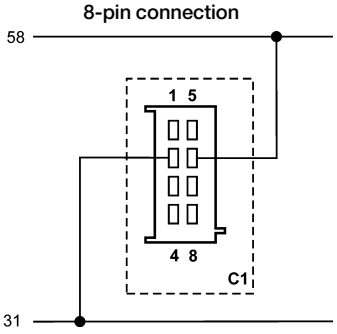
Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

Pin 1 - unassigned
Pin 2 - Terminal 31 - ground
Pin 3 - unassigned
Pin 4 - unassigned
Pin 5 - unassigned
Pin 6 - Terminal 58 - lighting
Pin 7 - unassigned
Pin 8 - unassigned

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

8-pin connection



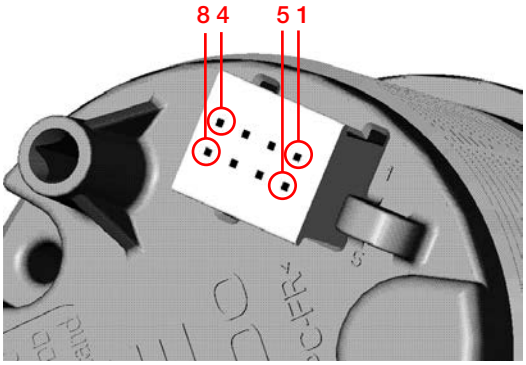
Designations in the wiring diagram:

- Terminal 58: lighting
- Terminal 31: ground
- C1: 8-pin MQS connector

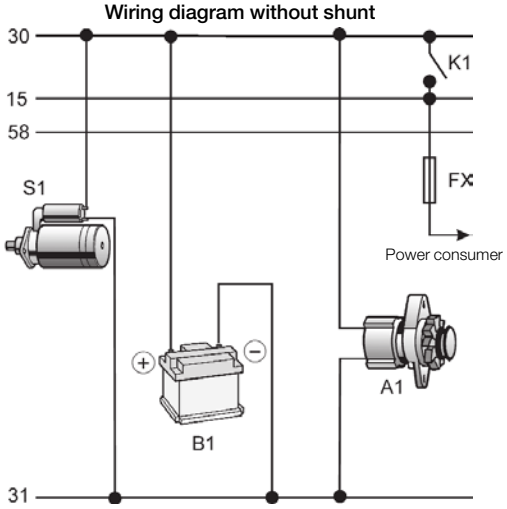
You must comply with the wiring diagram.

Connector Schema - Viewline Ø52 mm:

Ammeter



Wiring diagram without shunt

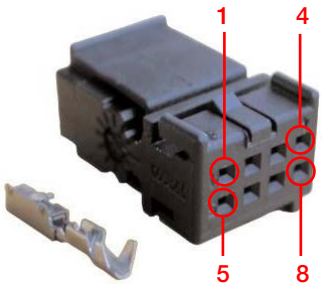


Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

Pin 1 - Terminal 30 - battery 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - signal ground
Pin 4 - Terminal 15 - ignition plus
Pin 5 - sensor signal
Pin 6 - Terminal 58 - lighting
Pin 7 - programming port Tx
Pin 8 - programming port Rx

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.



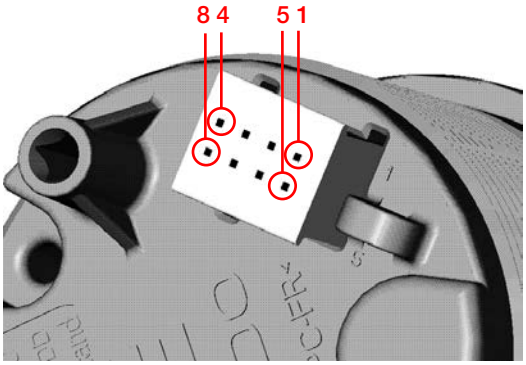
Connector set 8-pin
A2C59510850

Designations in the wiring diagram:

- Terminal 30: steady-state plus 12/24 V
- Terminal 15: connected (ignition) plus
- Terminal 58: lighting
- Terminal 31: ground
- A1: alternator
- B1: battery
- FX: fuse
- K1: switch “ignition”
- S1: starter

You must comply with the wiring diagram.

Black Water

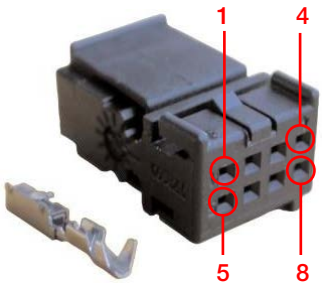


Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

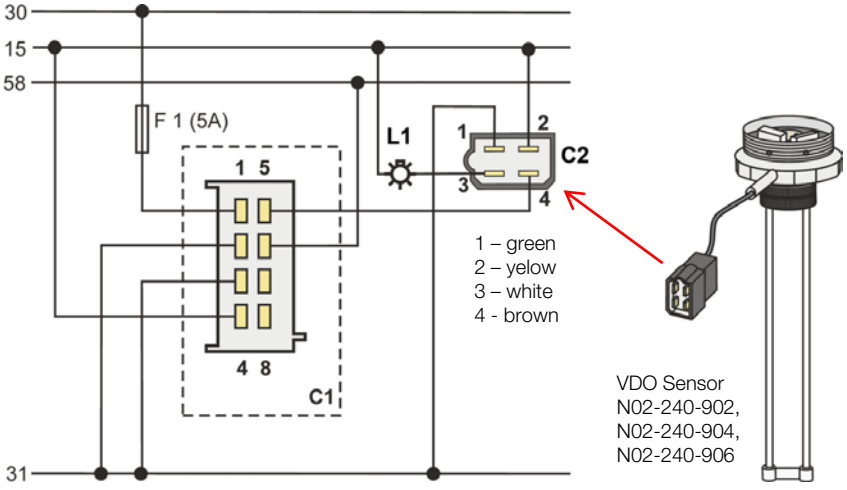
Pin 1 - Terminal 30 - battery 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - signal ground
Pin 4 - Terminal 15 - ignition plus
Pin 5 - sensor signal
Pin 6 - Terminal 58 - lighting
Pin 7 - programming port Tx
Pin 8 - programming port Rx

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.



Connector set 8-pin
A2C59510850

Max Load for the makepoint 1A



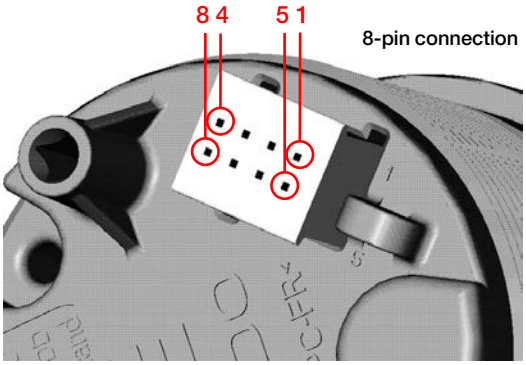
VDO Sensor
N02-240-902,
N02-240-904,
N02-240-906

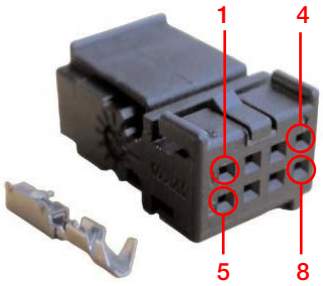
Designations in the wiring diagram:

- Terminal 30: steady-state plus 12/24 V
- Terminal 15: connected (ignition) plus
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- C1: 8-pole MQS connector
- C2: 4-pole connector (Sensor)
- L1: Optional external warning light

You must comply with the wiring diagram.

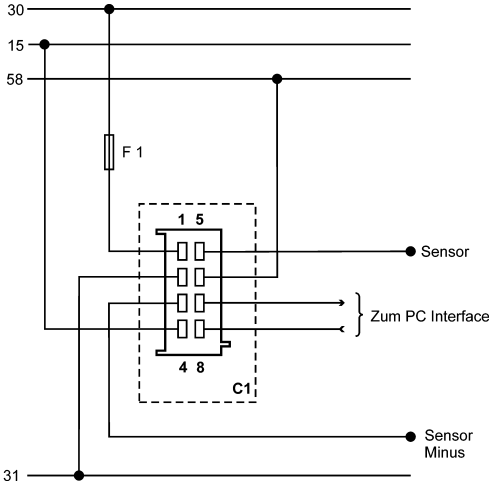
Tachometer / Outside Temperature Gauge / Pyrometer



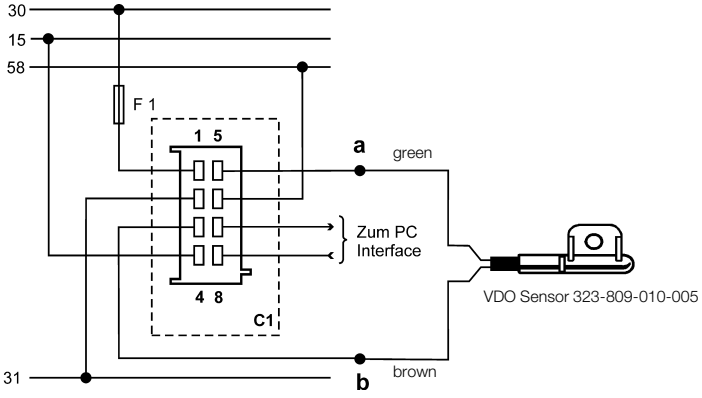


Connector set 8-pin
A2C59510850

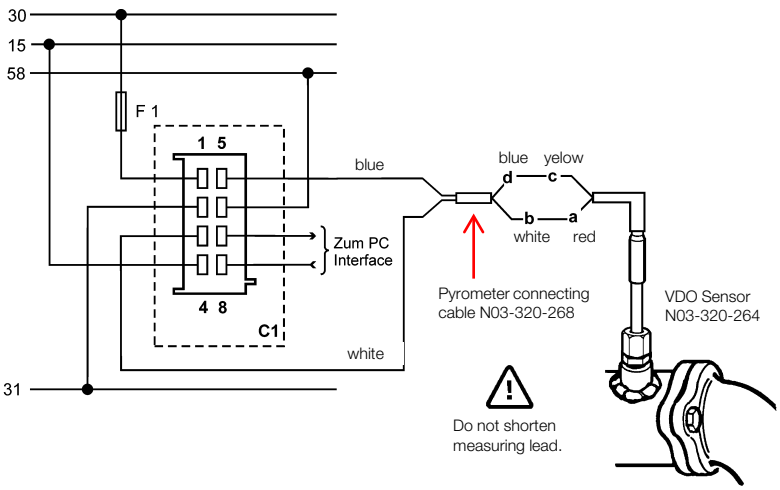
Tachometer



Outside Temperature Gauge



Pyrometer



Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

Pin 1 - Terminal 30 - battery 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - signal ground
Pin 4 - Terminal 15 - ignition plus
Pin 5 - sensor signal
Pin 6 - Terminal 58 - lighting
Pin 7 - programming port Tx
Pin 8 - programming port Rx

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Designations in the wiring diagram:

- Terminal 30: steady-state plus 12/24 V
- Terminal 15: connected (ignition) plus
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- C1: 8-pin MQS connector

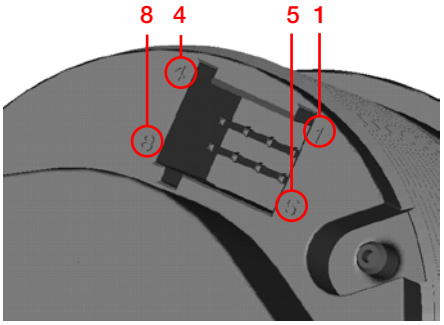
You must comply with the wiring diagram.

Tachometer: setting the impulse number

The revolution counter is factory-set to 6 impulses per revolution. Optionally available PC software can be used to change the number of impulses. Please contact your VDO partner for more information.

Connector Schema - Viewline Ø52 mm:

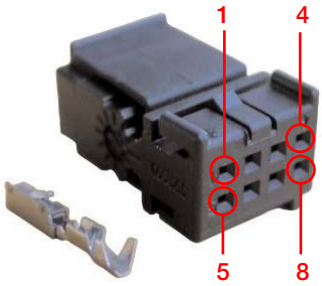
Temperature / Pressure / Rudder Angel / Trim / Fuel / Fresh Water for Level-type Sensor



Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment.
The contacts must audibly lock into place.

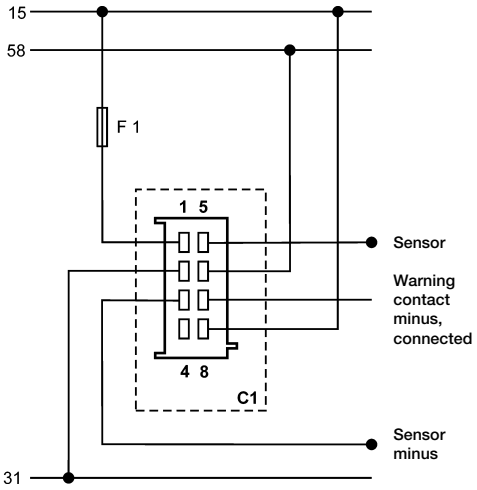
8-pin contact housing

Pin 1 - Terminal 15 – ignition plus 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - signal ground
Pin 4 - unassigned
Pin 5 - sensor signal
Pin 6 - Terminal 58 - lighting
Pin 7 - warning LED ground
Pin 8 - warning LED plus



Connector set 8-pin
A2C59510850

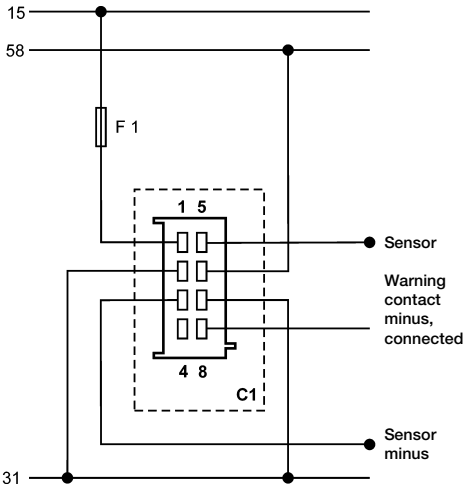
Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.



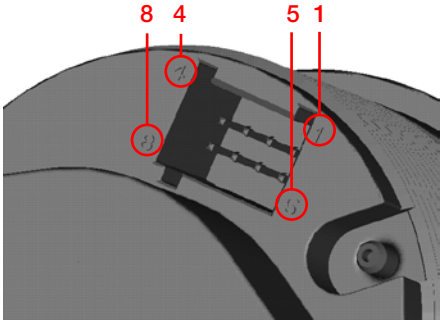
Designations in the wiring diagram:

- Terminal 15: connected (ignition) plus 12/24 V
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- C1: 8-pin MQS connector

You must comply with the wiring diagram.



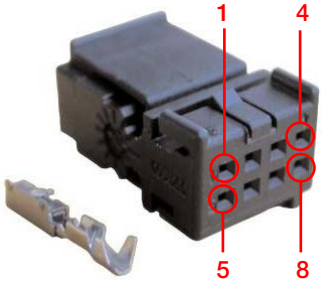
Voltmeter 12 Volt / Voltmeter 24 Volt



Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment.
The contacts must audibly lock into place.

8-pin contact housing

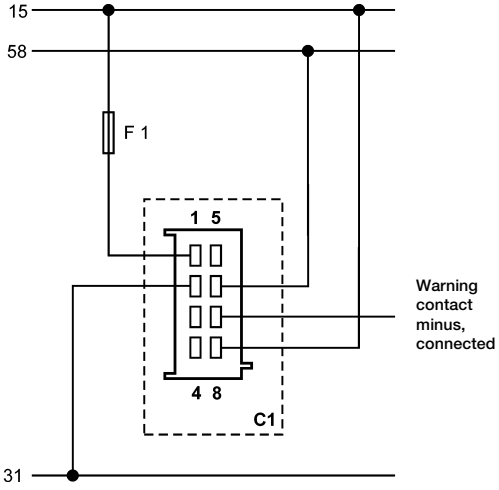
Pin 1 - Terminal 15 - ignition plus 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - unassigned
Pin 4 - unassigned
Pin 5 - unassigned
Pin 6 - Terminal 58 - lighting
Pin 7 - warning LED ground
Pin 8 - warning LED plus



Connector set 8-pin
A2C59510850

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Connection 12 V (24 V)
Warning contact minus, connected

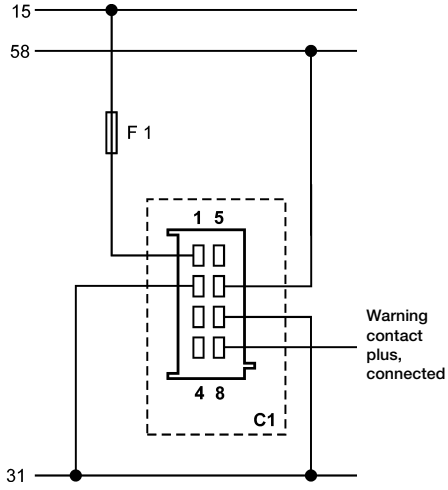


Designations in the wiring diagram:

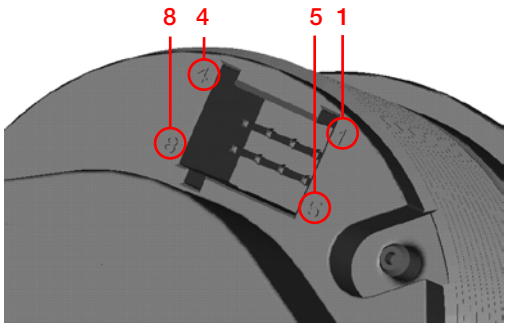
- Terminal 15: connected (ignition) plus 12/24 V
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- C1: 8-pin MQS connector

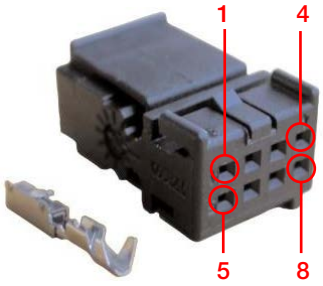
You must comply with the wiring diagram.

Connection 12 V (24 V)
Warning contact plus, connected



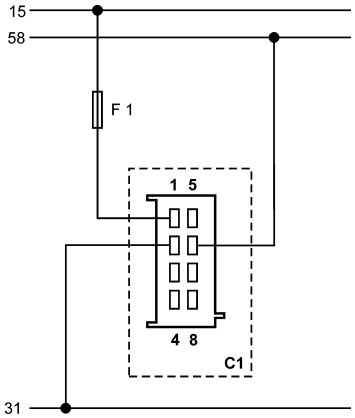
Operating Hours Counter / Clock / Fresh Water





Connector set 8-pin
A2C59510850

Operating Hours Counter



Designations in the wiring diagram:

- Terminal 15: connected (ignition) plus
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- C1: 8-pin MQS connector

You must comply with the wiring diagram.

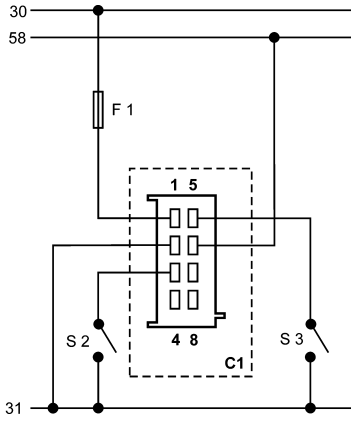
Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

8-pin contact housing

Pin 1 - Terminal 15 - ignition plus
Pin 2 - Terminal 31 - ground
Pin 3 - unassigned nd
Pin 4 - unassigned
Pin 5 - unassigned
Pin 6 - Terminal 58 - lighting
Pin 7 - unassigned
Pin 8 - unassigned

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Clock



Designations in the wiring diagram:

- Terminal 30: steady-state plus 12 V
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- S2: Clock setting, forwards
- S3: Clock setting, backwards
- C1: 8-pin MQS connector

You must comply with the wiring diagram.

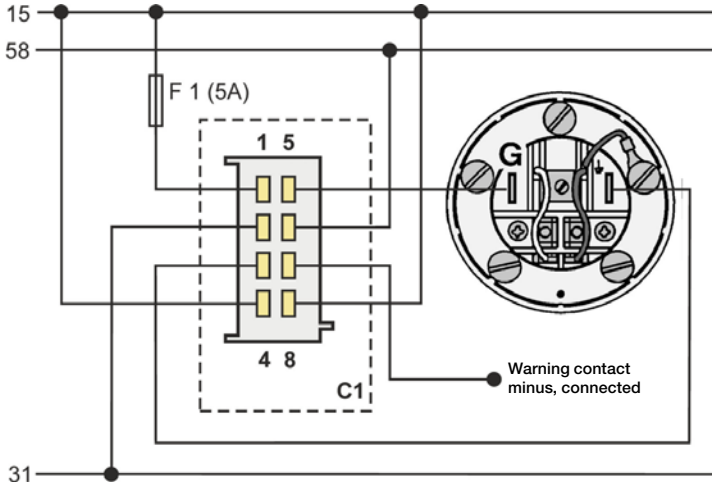
Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment. The contacts must audibly lock into place.

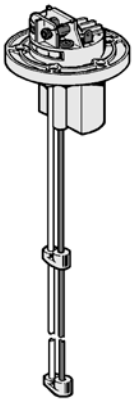
8-pin contact housing

Pin 1 - Terminal 30 - battery 12/24 V
Pin 2 - Terminal 31 - ground
Pin 3 - + set button (clockwise)
Pin 4 - unassigned
Pin 5 - – set button (counter clockwise)
Pin 6 - Terminal 58 - lighting
Pin 7 - unassigned
Pin 8 - unassigned

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Fresh Water





VDO Sensor
N02-240-402,
N02-240-404,
N02-240-406

8-pin contact housing

Pin 1 - Terminal 15 - ignition plus
Pin 2 - Terminal 31 - ground
Pin 3 - signal ground
Pin 4 - Terminal 15 - ignition plus
Pin 5 - sensor signal
Pin 6 - Terminal 58 - lighting
Pin 7 - warning LED ground
Pin 8 - warning LED plus

Now insert the plug into the gauge. Note the inverse polarity protection nose in the process.

Designations in the wiring diagram:

- Terminal 15: connected (ignition) plus
- Terminal 58: lighting
- Terminal 31: ground
- F1: fuse 5A quick-response
- C1: 8-pin MQS connector

You must comply with the wiring diagram.

OceanLink - easy to install VDO CAN instrumentation for sports boats

Engines on modern sports and leisure boats increasingly feature electronic management. To meet these new requirements, VDO provides a modular instrumentation concept for marine use: the OceanLink. The main element and information powerhouse is a ultifunctional tachometer with direct access to the engine CAN bus.

The instrument can display and forward all available data to up to 20 additional satellite instruments. Installation follows the practical Plug & Play principle, making further system expansion particularly convenient, with no need for complicated programming.

Search the data horizon

VDO OceanLink

The central instrument automatically presents all the key data – up to 256 standard measurement values ranging from oil pressure and fuel consumption to operating hours – on a generously proportioned digital display. Besides a CAN interface with SAE J1939 data protocol it features two inputs for analogue sensors. The innovative Easy Link data connection renders complicated cabling unnecessary. The CAN interface also allows a second central instrument to be hooked up for positioning on the flybridge, for example. Satellite instruments for further dynamic measurement values receive updates from the central instrument every 20 ms. OceanLink is available in various designs, including a range of installation depths, metric and imperial scales, and a number of bezel colour options. The instruments can also be conveniently integrated into customer-specific panel solutions.

VDO OceanLink benefits

Straightforward system expansion	Plug & Play principle	Customer-specific integration	OceanLink benefits
Easy Link connector	Easy installation	Combined instruments	Double lens system
Up to 20 satellite instruments per central instrument	No reprogramming	Panel solutions	Flush mounting
Minimal cabling			Many design options

Boost pressure gauge

Gearbox oil pressure gauge

Engine coolant temperature gauge

Fuel level gauge

Important data is displayed automatically on the large digital display. As many as 20 different parameters, such as oil pressure, fuel consumption, and operating hours, can be displayed on additional peripheral instruments. In addition to a CAN interface running the SAE J1939 data protocol, the master instrument also features two inputs for analog sensors. The innovative serial data link makes complex cabling a thing of the past. All instruments can be easily integrated into customer-specific instrument panel solutions.

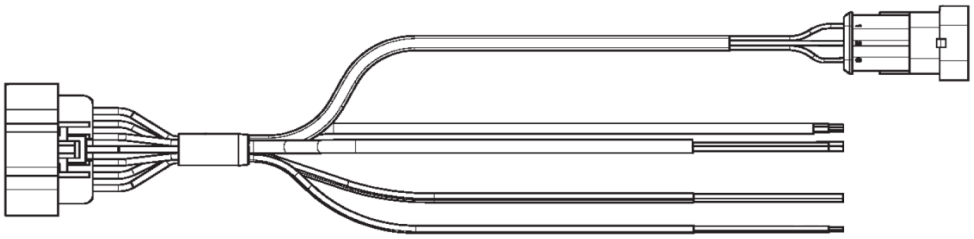
Facts - Functions - Figures

Specification	Master (85 mm)	Satellite (52 mm)
Version	Translucent backlighting	Translucent backlighting
Housing	Plastic (flame-retardant) according to UL94-V0	Plastic (flame-retardant) according to UL94-V0
Bezel	Plastic, coloured	Plastic, coloured, clipable
Lens	Plastic, double lens, anti-reflection	Plastic, double lens, anti-reflection
Dial	Black with white graphics or white with black graphics	Black with white graphics or white with black graphics
Illumination	Red LED, 8 dimmer steps	Red LED, 8 dimmer steps, adjustable via master
Pointer	Translucent backlighting, black cap, white pointer	Translucent backlighting, black cap, white pointer
Display	132 x 33 dots	
Connections	DELPHI connector, GT 150 Series	AMP connector 282105-1, Super Seal 1.5 Series
Installation	Housing nut, nut jam height 0–17 mm	Mounted from the front, housing nut, nut jam height 0–12 mm, studs 12–25 mm flush mount: for 3 mm panel thickness with mounting angle, screws and studs on panel gasket Æ51.5 /Æ60x2
Indication area	3.000, 4.000 and 5.000 rpm	270 ° (depending on satellite functionality)
Nominal voltage	12 / 24 V	
Nominal position	0–90° angle, according to VDON 2.700.1	
Operating temperature	–20 °C to +70 °C (at nominal voltage)	–20 °C to +70 °C (at nominal voltage)
Storage temperature	–30 °C to +85 °C	–30 °C to +85 °C
EMC	DIN EN61000-6-1/2/3, EN61000-4-3, EMC Directive 2004/108/EC	DIN EN61000-6-1/2/3, EN61000-4-3, EMC Directive 2004/108/EC
Protection class	IP65, mounted from the front according to IEC 529	IP65, mounted from the front according to IEC 529
Max. no. of satellites		Max. 20 gauges and 20 m cable length connected to master
Current consumption	120 mA without, 140 mA with illumination	< 70 mA with illumination
Data transfer	CAN Bus SAE J1939	Easy Link bus uni-directional from master to satellite
Power supply	10 – 30 V	

Tachometer

RPM x 1000

Tachometer Ø 85 mm master	Part number	Voltage [V]	Range [rpm]	Dial	Price
	N02-012-920	12 / 24	0 - 3000	black with white graphics	
	N02-012-928	12 / 24	0 - 3000	white with black graphics	
	N02-012-922	12 / 24	0 - 4000	black with white graphics	
	A2C59500012	12 / 24	0 - 5000	black with white graphics	

Cable harness	Part number	Price
	A2C53092432	

Temperature

°C / °F

Engine oil temperature Ø 52 mm satellite	Part number	Voltage	Range	Dial	Imprint	Price
	N02-311-054	12 / 24 V	50 - 150°C	black with white graphics	°C	
	N02-311-542	12 / 24 V	100 - 250°F	black with white graphics	°C	

Gearbox oil temperature Ø 52 mm satellite	Part number	Voltage	Range	Dial	Imprint	Price
	N02-311-536	12 / 24 V	50 - 150°C	black with white graphics	°C	
	N02-311-544	12 / 24 V	120 - 300°F	black with white graphics	°C	

Engine coolant temperature Ø 52 mm satellite	Part number	Voltage [V]	Range	Dial	Imprint	Price
	N02-311-056	12 / 24	40 - 120°C	black with white graphics	°C	
	N02-311-060	12 / 24	40 - 120°C 100 - 250°F	white with black graphics	°C / °F	
	N02-311-552	12 / 24	100 - 250°F	black with white graphics	°F	

Exhaust gas temperature Ø 52 mm satellite	Part number	Voltage [V]	Range	Dial	Imprint	Price
	N02-311-540	12 / 24	100 - 900°C	black with white graphics	°C	
	N02-311-546	12 / 24	200 - 1700°F	black with white graphics	°F	

Turbo inlet temperature A Ø 52 mm satellite	Part number	Voltage [V]	Range [°F]	Dial	Price
	N02-311-554	12 / 24	100 - 900	black with white graphics	
	N02-311-548	12 / 24	200 - 1700	black with white graphics	

Turbo inlet temperature B Ø 52 mm satellite	Part number	Voltage [V]	Range [°F]	Dial	Price
	N02-311-556	12 / 24	100 - 900	black with white graphics	
	N02-311-550	12 / 24	200 - 1700	black with white graphics	

Pressure

psi / bar

Engine oil pressure Ø 52 mm satellite	Part number	Voltage [V]	Range	Dial	Imprint	Price
	N02-140-156	12 / 24 V	0 - 10 bar	black with white graphics	bar	
	N02-140-160	12 / 24 V	0 - 10 bar 0 - 145 psi	white with black graphics	bar / psi	
	N02-140-512	12 / 24 V	0 - 150 psi	black with white graphics	psi	

Gearbox oil pressure Ø 52 mm satellite	Part number	Voltage [V]	Range	Dial	Imprint	Price
	N02-140-154	12 / 24 V	0 - 25 bar	black with white graphics	bar	
	N02-140-158	12 / 24 V	0 - 25 bar 0 - 360 psi	white with black graphics	bar / psi	
	N02-140-516	12 / 24 V	0 - 360 psi	black with white graphics	psi	

Boost pressure Ø 52 mm satellite	Part number	Voltage [V]	Range [bar]	Dial	Imprint	Price
	N02-140-508	12 / 24	0 - 3	black with white graphics	bar	

Voltmeter

Voltmeter Ø 52 mm satellite	Part number	Voltage [V]	Range [V]	Dial	Imprint	Price
	N02-413-074	12 / 24	8 - 16	white with black graphics	volt	
	N02-413-058	12 / 24	18 - 32	black with white graphics	volt	
	N02-413-060	12 / 24	18 - 32	white with black graphics	volt	

Fuel

Fuel level Ø 52 mm satellite	Part number	Voltage [V]	Range	Dial	Imprint	Price
	N02-224-082	12 / 24 V	0 - 4/4	white with black graphics		

Authorized partner

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