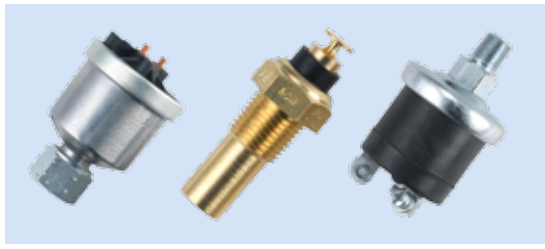

www.vdo-instruments.com

Commercial Vehicle Catalog
For Heavy & Medium Duty Trucks

- Instruments
- Senders
- Sensors
- Accessories
- Camera Systems

VDO

VDO engineering: quality, reliability and innovation

We're focused on providing our customers with the best possible instrumentation and monitoring technology – a goal that we've pursued since 1920. We continue to work to deliver the functionality, durability and high quality finish that have earned our products a best-in-class reputation, worldwide. At the same time, we strive to continually pursue innovations that make our products more efficient, affordable and useful to the people who own and operate the vehicles and equipment that incorporate our technology.

We're aware of the role our instruments and monitoring equipment play as a vital human-machine interface. And, we understand the importance to our customers of key factors such as ergonomics, cost, reliability and aesthetics.

In this catalog, you'll find our new video cameras and monitors, our advanced technology Viewline Instruments with GPS capabilities, the proven Vision, Cockpit International and Series 1 instrument lines and the expanded CAN*cockpit* GEN III line. In addition, we offer our latest ALAS II fuel senders and a complete line of accessories.

From rugged analog gauges to sophisticated, flexible CAN bus platforms, to versatile video technology, we're working to give our customers choice, flexibility and style for all their monitoring needs.

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VDO - The continuing technology evolution

Our latest instruments offer revolutionary technologies such as GPS speed senders and plug-and-play solutions, and these innovations are part of a VDO technology evolution that reaches back over 100 years.

From the first “Eddy current” speedometer invented in 1902 by Otto Schulze, to our latest Viewline gauge series, VDO has been at the leading edge of instrumentation and monitoring technology and one of the industry’s most trusted brands.

Staying on the edge with innovation

The VDO instrument evolution has included innovations such as the introduction of stepper motors that delivered greater precision and accuracy than ever before. Our Spin-Lok™ mounting system made installations easier, faster and more secure. We pioneered ‘through dial lighting’ as well as LED dial illumination, to make our gauges easier to read and more stylish – an accomplishment matched by very few in the commercial market. VDO in-gauge LCD screens brought new monitoring capabilities to instrumentation, and our self-contained electronics eliminated the need for additional components in high-tech instrumentation. Our new VDO GPS Speed Sender enables Speedometer installations without the need for transmission cables.

New monitoring technologies

Today, our innovation evolution extends beyond gauges. The adjustable design of our VDO ALAS II fuel senders helps provide a custom solution and ensures accurate and reliable readings, even in unusual tank shapes, sizes or configurations. Our new line of cameras and monitor screens are designed to extend your monitoring capabilities and give vehicle operators a more complete view of operations. Built to withstand the toughest environments, VDO LCD monitor screens can accept up to four simultaneous inputs, including cameras and navigation feeds. The cameras can be positioned anywhere on the vehicle, to help make maneuvering and operation easier and safer.

World-class gauge manufacturing

VDO products are designed, built and brought to you by Continental Automotive Systems, one of the top 10 automotive suppliers in the world. From automotive tires, brakes and sensors, to fully integrated electronic components, we have automotive technology, resources and manufacturing capabilities that can only be found among the “Tier One” suppliers to the world’s leading auto manufacturers. That’s why, when it comes to gauges, VDO is in a league by itself.

1902 – Eddy Current speedometer

Today, many gauge manufacturers only assemble their instruments. Most don’t even make their own gauge movements or sensors, which are critical to instrument accuracy. Every VDO Instrument starts with one of our own patented movements, specifically designed for the requirements and performance criteria of that instrument. Each instrument is CE certified and built to withstand the harshest environments.

All of the VDO gauges are manufactured in our factories, which have earned highly coveted QS or TS9000 automotive quality ratings. We produce over 100,000 VDO instruments a day in these state-of-the-art facilities, and each instrument delivers the level of quality and consistency that car makers demand. With that experience, you know we can deliver the quality and performance you want and expect for your instrumentation.

In addition to maintaining end-to-end manufacturing control of our instruments, we are one of the few companies in the world that design and manufacture our own fuel, pressure and temperature senders. We make sure that our gauges and accessories fit together and work together, to deliver the most accurate readings possible while providing years of trouble-free service.

VDO Instruments have long been the industry's choice for rugged and dependable performance, elegant design and leading-edge technology. We continue to work to deliver the innovation, functionality and durability that have earned VDO the best-in-class reputation for instrumentation worldwide – not only for the commercial vehicle and equipment industries, but also for the automotive, marine, power sports and custom vehicle markets.

Today, the VDO Instrument line is the single most complete offering in the business, and the catalog you're holding represents our latest offering of world class instruments and accessories. We have an instrument solution for every type of Heavy & Medium Duty Truck, as well as Heavy-Duty, Off-Road, Construction and Agricultural equipment and Power Generation and Materials Processing. No other instrument supplier can cover all these categories.

Continental facilities reach worldwide, bringing you our economies of scale.

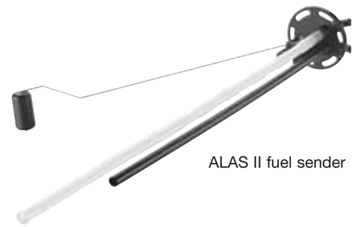
VDO Instrument distribution facility,
Allentown, PA

VDO Instrument distribution facility,
Babenhausen, Germany

We offer a wide range of instrumentation in both traditional and contemporary styles with crisp graphics, innovative designs, stunning dials and a variety of exciting bezel choices. Regardless of which gauge series you choose, you can count on the VDO tradition of excellence for rock-solid reliability, attention to detail and fit and finish.

Thank you for taking the time to get to know us better. We sincerely hope that you will look to VDO to satisfy all your monitoring needs.

To see the most up-to-the minute VDO innovations, visit: www.vdo-instruments.com.



ALAS II fuel sender

New Products

VDO vehicle cameras and screens

VDO vehicle cameras and monitor screens provide vehicle operators with extended visibility that can help make operations safer, protect equipment and even save lives.

VDO LCD monitor screens can accept up to four simultaneous camera inputs.*

*Check location regulations for use of video in motor vehicles.

See pages 12-13 for product information.

VDO Viewline 5” Quad Gauges

Our new Viewline Multi-function gauges feature patented VDO movements, LED illumination and LED warning lights for each gauge. All connections can be made through two SpeedHarness™ plug-n-play connectors for easy hookup.

See page 17 for Viewline Onyx product information.
See page 21 for Viewline Ivory product information.

VDO GPS Speed Sender

Now, any VDO electronic speedometer can be an incredibly accurate GPS-driven speedometer. With the VDO GPS Speed Sender, there’s no calibration or transmission cables required. No buttons or switches to activate. Just hook up power and ground and you’re ready to go.

The VDO GPS sender’s small size allows a variety of easy mounting options including the back of the speedometer. The sender features an LED activity status indicator and a signal loss protection circuit that continues to transmit last known speed until the GPS signal is regained.

See page 58 for product information.

LED Replacement Bulbs

Our new colored, long life LED bulbs are designed to fit in traditional wedge based bulb sockets. In addition to adding a dash of style, these LED bulbs draw less power, last 20,000 hours or more, and operate at cooler temperatures.

See page 69 for LED Replacement Bulb information.

Engine Control Panel

The VDO Engine Control Panel offers two cost effective options for stationary engines. The compact design features up to nine possible telltales, integrated start/run key and engine shut down features.
The Control Panel is available with traditional analog pointer gauges or LCD screen configurations. The analog configuration features up to three traditional analog gauges for oil pressure, coolant temperature and fuel level and a fixed LCD screen to display engine hours, engine speed and amperage. The LCD configuration displays all necessary engine monitoring via a color LCD display.

Features:	
Operating Voltage	8-18 VDC
Operating Temperature	0°C to +70°C
Storage Temperature	0°C to +70°C
Standby Current	less than 380mA
Sleep Mode Current	less than 10mA
Dimensions	265mmx151mmx88mm
Engine Functions Monitored	Oil Pressure Water Temperature Fuel Level Engine RPM Engine Hours Charging Current
Engine Shut Down On:	Low Oil Pressure High Water Temperature Low Fuel Auxiliary Trigger Low RPM High RPM

Camera Systems

VDO vehicle cameras and monitor screens provide vehicle operators with extended visibility that can help make operations safer, protect equipment and even save lives.
VDO LCD monitor screens can accept up to four camera inputs.*

*Check location regulations for use of video in motor vehicles.

Camera Kits

Catalog Number	Description
A2C59519820	5.6" Display with Rear View Mini Camera with Parking Guide Lines
A2C59519819	7" Display with Rear View Mini Camera with Parking Guide Lines
A2C59519821	7" Quad Display with 2 Side Mount Cameras and 2 Large Rear View Cameras
A2C59519818	7" Quad Display with 2 Side Mount Cameras and 2 Small Rear View Cameras
A2C59519822	7" Quad Display with 2 Side Mount Cameras and a Rear View Mini with Parking Guide Lines

Mini Cameras

Rear View Backup cameras offer enhanced visibility both inside and outside the vehicle

Catalog Number	Description
A2C59519794-S	Mini Camera with Parking Guide Lines
A2C59519795-S	Rear View Mini Camera

120 ° View Cameras

120° view cameras offer enhanced visibility both inside and out utilize infrared LED for enhanced nighttime visibility.

Catalog Number	Description
A2C59519790-S	120 Degree Rear View Camera Large with Sun Guard
A2C59519792-S	120 Degree Rear View Camera Large with Sun Guard and Audio Input Option
A2C59519791-S	120 Degree Rear View Camera Small with IR LED Lights

Side Mount Cameras

120° Side View Cameras allow better visibility and maneuvering. Infrared LED's enhance nighttime viewing.

Catalog Number	Description
A2C59519793-S	120 Degree Direct Mount Side View Camera with IR LED Lights

Camera Displays

These flexible and compact displays have multiple mounting options, and are capable of multiple viewing displays.

Catalog Number	Description
A2C59519796-S	5.6" Single Camera Display
A2C59519797-S	7" Dual View Camera Display
A2C59519798-S	7" Quad View Camera Display

Camera Accessories

Catalog Number	Description
A2C59519799-S	16ft (5m) Extension Cable
A2C59519800-S	33ft (10m) Extension Cable
A2C59519801-S	65ft (20m) Extension Cable

VDO Viewline: OEM technology. OEM quality. In each and every instrument.

1. Spin-Lok™ mounting – a VDO innovation developed to safeguard against mounting panel warping and make installation fast and easy.
2. Single PCB increases reliability and minimizes instrument depth.
3. Built-in LED warning indicators (up to 5) are programmable to OEM-specified function.
4. Single cavity connectors reduce wiring installation time.
5. Reverse polarity and over voltage protection virtually eliminate the possibility of installation failures.
6. VDO is one of the few companies in the world to design, patent and manufacture stepper motors and resistive movements.
7. Corrosion-free and flame retardant materials comply with manufacturer's latest specifications.
8. Laser welded lenses ensure the highest level of protection against water intrusion.
9. Dual domed lenses eliminate fogging – another VDO innovation.
10. LED lit pointers and 'through dial lighting' minimize current consumption while optimizing nighttime viewing.
11. Detail finish ring enhances the overall appearance of finished instrument – a VDO exclusive.
12. Designed to withstand continuous 25 G vibrations and 100 G single shock, to ensure maximum reliability of each instrument.
13. Large, multifunction backlit LCD provides easy readout of programmed functions.
14. Customer installed bezels with nine style choices allow for greater styling differentiation between product lines.

Viewline Onyx with chrome round bezel

Viewline Ivory with black round bezel

VDO Spin-Lok™ mounting

Introducing the VDO Viewline SpeedHarness™ - designed for plug-and-play gauge installations.

The revolutionary VDO SpeedHarness cuts gauge installation time in half and eliminates the chance for wiring the gauge to the wrong sensor. Each gauge connection is clearly imprinted with the type of gauge it is meant for, eliminating the potential for connecting the wrong wire to a gauge. The connectors also feature a keyed tab that only allows a 'one-way' hook up to prevent cross-wiring and short circuits.

The harness comes in three sections. One section connects to the sensors and senders, while another section connects under the dash to power, ground, turn signal indicators, etc. The remaining section hooks up to the gauges. The two halves connect with prewired OE-style connectors, eliminating the chance for crossed wires.

Viewline Black with chrome round bezel

Programmable Speedometers with Autocalibration & Multifunction LCD

Speedometers feature 1-button auto calibration and a user defined speed warning indicator. LCD features odometer, trip-odometer, voltage and clock. Accepts signal inputs from Hall Effect and inductive sender and most electronic controlled transmission outputs.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
120 MPH	110mm	4 3/8"	MPH	Tyco connector (included)	12-24V	Y	A2C53194639-S	A2C53194639-B
85 MPH/140 KMH	110mm	4 3/8"	MPH/Kmh	Tyco connector (included)	12-24V	Y	A2C53194641-S	A2C53194641-B
85 MPH/140 KMH	85mm	3 3/8"	MPH/Kmh	Tyco connector (included)	12-24V	X	A2C53194747-S	A2C53194747-B
120 MPH	85mm	3 3/8"	MPH	Tyco connector (included)	12-24V	X	A2C53194759-S	A2C53194759-B
160 MPH	85mm	3 3/8"	MPH	Tyco connector (included)	12-24V	X	A2C53194765-S	A2C53194765-B

Programmable Speedometers with Tell-Tales, Autocalibration & Multifunction LCD

Speedometers feature 1-button auto calibration, user defined speed warning, left and right turn signals, emergency brake warning and high-beam indicator. LCD features odometer, trip-odometer, voltage and clock. Accepts signal inputs from Hall Effect and inductive sender and most electronic controlled transmission outputs.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
120 MPH	85mm	3 3/8"	MPH	Tyco connector (included)	12-24V	X	A2C53408268-S	A2C53408268-B

Programmable Tachometers with Multifunction LCD

Programmable tachometers feature: User defined rev. limit warning, LCD display for total hours, resettable hours, voltage and clock. Accepts signal inputs from electronic controlled ignitions with tachometer output terminal, standard coil ignition, alternator signal and 12V square wave applications.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
8000 RPM	110mm	4 3/8"	RPMx100	Tyco connector (included)	12-24V	Y	A2C53194590-S	A2C53194590-B
6000 RPM	110mm	4 3/8"	RPMx100	Tyco connector (included)	12-24V	Y	A2C53194593-S	A2C53194593-B
4000 RPM	110mm	4 3/8"	RPMx100	Tyco connector (included)	12-24V	Y	A2C53194596-S	A2C53194596-B
3000 RPM	110mm	4 3/8"	RPMx100	Tyco connector (included)	12-24V	Y	A2C53194597-S	A2C53194597-B
3000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194789-S	A2C53194789-B
4000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194863-S	A2C53194863-B
5000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194867-S	A2C53194867-B
6000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194872-S	A2C53194872-B
7000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194881-S	A2C53194881-B
8000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194885-S	A2C53194885-B

Viewline Onyx

Programmable Tachometers

Programmable tachometers accept signal inputs from 2,4,6,8,10,12 & 16 cylinder standard coil ignition. Viewline programming software (available separately) allows use with alternator and 12V square signals, as well as activate the user defined rev. limit warning.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
3000 RPM	110mm	4 3/8"	RPMx100	Tyco connector (included)	12-24V	Y	A2C53218711-S	A2C53218711-B
4000 RPM	110mm	4 3/8"	RPMx100	Tyco connector (included)	12-24V	Y	A2C53218712-S	A2C53218712-B
7000 RPM	110mm	4 3/8"	RPMx100	Tyco connector (included)	12-24V	Y	A2C53218713-S	A2C53218713-B
3000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53218716-S	A2C53218716-B
4000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53218722-S	A2C53218722-B
6000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53218726-S	A2C53218726-B
8000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53408405-S	A2C53408405-B

Quad Gauges, 4 3/8" (110mm) Dia

Quad gauges display fuel level, water temperature, oil pressure and voltage.

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F/80 PSI/250°F/16V	VDO		Tyco connector (included)	12V	A/1/ALAS	AB	A2C81561900-S	A2C81561900-B
16V-5bar-120°C-1/1	VDO		Tyco connector (included)	12V	A/1/ALAS	AB	A2C53371945-S	A2C53371945-B

Fluid Temperature Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27 NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
250°F/120°C		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53413386-K1	–
250°F/120°C		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53413386-K2	–
250°F		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53413355-K1	–
250°F		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53413355-K2	–

Fluid Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
300°F/150°C	322.1-18.6		Tyco connector (included)	12-24V	B	Z	A2C53413405-S	A2C53413405-B
400°F	471.0-14.2	°F	Tyco connector (included)	12-24V	C	Z	A2C53418135-S	A2C53418135-B
240°F	447.0-46.5		Tyco connector (included)	12-24V	D	Z	A2C53413351-S	A2C53413351-B
250°F	291.5-22.5		Tyco connector (included)	12-24V	A	Z	A2C53413355-S	A2C53413355-B
250°F/120°C	291.5-22.5		Tyco connector (included)	12-24V	A	Z	A2C53413386-S	A2C53413386-B

Outside Temperature Gauge Kit, Electrical, 2 1/16" (52mm) Dia

Kit includes gauge and matched sender.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
+120°F	°F	Tyco connector (included)	–	12-24V	AA	A2C53210847-K	–

Outside Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
+120°F	5389.4-2353.5	°F	Tyco connector (included)	12-24V	E	AA	A2C53210847-S	A2C53210847-B

Pyrometer Kit, Electrical, 2 1/16" (52mm) Dia

Kit includes gauge, pyrometer sender and 18ft (6m) harness.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F		Tyco connector (included)	–	12-24V	AA	A2C53210907-K	–

Pyrometer, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F	–		Tyco connector (included)	12-24V	E	AA	A2C53210907-S	A2C53210907-B

Air Pressure Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI/1000 KPA	10-180		Tyco connector (included)	12-24V	5	Z	A2C53416883-S	A2C53416883-B
150 PSI/10 KPA	10-180		Tyco connector (included)	12-24V	5	Z	A2C53417216-S	A2C53417216-B

Oil Pressure Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI/5 bar		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53413151-K1	–
80 PSI/5 bar		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53413151-K2	–
150 PSI/10 bar	ENG OIL	Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53413141-K1	–
150 PSI/10 bar	ENG OIL	Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53413141-K2	–
150 PSI/10 bar		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53413157-K1	–
150 PSI/10 bar		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53413157-K2	–
80 PSI		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53412998-K1	–
80 PSI		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53412998-K2	–

Oil Pressure Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	10-180		Tyco connector (included)	12-24V	1	Z	A2C53412998-S	A2C53412998-B
80 PSI	240-33		Tyco connector (included)	12-24V	2	Z	A2C53412999-S	A2C53412999-B
80 PSI/5 bar	240-33		Tyco connector (included)	12-24V	2	Z	A2C53413006-S	A2C53413006-B
80 PSI/5 bar	10-180		Tyco connector (included)	12-24V	1	Z	A2C53413151-S	A2C53413151-B
100 PSI/7 bar	240-33		Tyco connector (included)	12-24V	4	Z	A2C53413154-S	A2C53413154-B
150 PSI/10 bar	240-33		Tyco connector (included)	12-24V	–	Z	A2C53413156-S	A2C53413156-B
150 PSI/10 bar	10-180	ENG OIL	Tyco connector (included)	12-24V	5	Z	A2C53413141-S	A2C53413141-B
400 PSI/25 bar	10-180		Tyco connector (included)	12-24V	7	Z	A2C53417222-S	A2C53417222-B
150 PSI/10 bar	10-180		Tyco connector (included)	12-24V	5	Z	A2C53413157-S	A2C53413157-B

Turbo & Boost Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 PSI	10-180		Tyco connector (included)	12-24V	8	Z	A2C53417177-S	A2C53417177-B
2 bar/28 PSI	10-180		Tyco connector (included)	12-24V	8	Z	A2C53417219-S	A2C53417219-B

Viewline Onyx

Water Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 PSI		Tyco connector (included)	AE	A2C59513648-S	A2C59513648-B
40 PSI		Tyco connector (included)	AE	A2C59513651-S	A2C59513651-B

Water Level Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F	10-180	WATER	Tyco connector (included)	12-24V	Water Level Senders	Z	A2C53418137-S	A2C53418137-B
0-1/1	4-20mA		Tyco connector (included)	12-24V	Water Level Senders	AA	A2C31401700-S	A2C31401700-B

Fuel Level Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F	3-180		Tyco connector (included)	12-24V	ALAS I & II	Z	A2C53412987-S	A2C53412987-B
E-F	240-33		Tyco connector (included)	12-24V	ALAS I & II	Z	A2C53412988-S	A2C53412988-B
E-F	0-90		Tyco connector (included)	12-24V	Tube Type Fuel	Z	A2C53412989-S	A2C53412989-B
E-F	90-0		Tyco connector (included)	12-24V	Tube Type Fuel	Z	A2C53412990-S	A2C53412990-B

Ammeter and Shunt Kits, 2 1/16" (52mm) dia

Kit includes gauge, matched shunt and harness.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 150 A		Tyco connector (included)	–	12-24V	AA	A2C53210957-K	–
+/- 60 A		Tyco connector (included)	–	12-24V	AA	A2C53210959-K	–
+/- 100 A		Tyco connector (included)	–	12-24V	AA	A2C53210973-K	–
+/- 30 A		Tyco connector (included)	–	12-24V	AA	A2C53211039-K	–

Ammeters (external shunt required), 2 1/16" (52mm) Dia

Description	On Dial	Connection	Shunt Spec.	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 150 A		Tyco connector (included)	60mv	AA	A2C53210957-S	A2C53210957-B
+/- 60 A		Tyco connector (included)	60mv	AA	A2C53210959-S	A2C53210959-B
+/- 100A		Tyco connector (included)	60mv	AA	A2C53210973-S	A2C53210973-B
+/- 30A		Tyco connector (included)	60mv	AA	A2C53211039-S	A2C53211039-B

Voltmeters, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V		Tyco connector (included)	Z	A2C53191766-S	A2C53191766-B
18-32V		Tyco connector (included)	Z	A2C53191767-S	A2C53191767-B

Hourmeters, Illuminated, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
100,000 Hours	HOURGLASS	Tyco connector (included)	12-24V		A2C59510876-S	A2C59510876-B

Clocks, Electrical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
3-6-9-12	–	Tyco connector (included)	12V	–	A2C53321687-S	A2C53321687-B
3-6-9-12	–	Tyco connector (included)	24V	–	A2C53321689-S	A2C53321689-B

Viewline Ivory with black round bezel

Programmable Speedometers with Auto-Calibration & Multifunction LCD

Speedometers feature 1-button auto calibration and a user defined speed warning indicator. LCD features odometer, trip-odometer, voltage and clock. Accepts signal inputs from Hall Effect and inductive sender and most electronic controlled transmission outputs.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
85 MPH/140 KMH	85mm	3 3/8"	MPH/Kmh	Tyco connector (included)	12-24V	X	A2C53194748-S	A2C53194748-B
160 MPH	85mm	3 3/8"	MPH	Tyco connector (included)	12-24V	X	A2C53194766-S	A2C53194766-B
120 MPH	85mm	3 3/8"	MPH	Tyco connector (included)	12-24V	X	A2C53194760-S	A2C53194760-B

Programmable Speedometers with Tell-Tales, Auto-Calibration & Multifunction LCD

Speedometers feature 1-button auto calibration, user defined speed warning, left and right turn signals, emergency brake warning and high-beam indicator. LCD features odometer, trip-odometer, voltage and clock. Accepts signal inputs from Hall Effect and inductive sender and most electronic controlled transmission outputs.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
120 MPH	85mm	3 3/8"	MPH	Tyco connector (included)	12-24V	X	A2C53408300-S	A2C53408300-B

Programmable Tachometers with Multifunction LCD

Programmable tachometers feature: User defined rev. limit warning, LCD display for total hours, resettable hours, voltage and clock. Accepts signal inputs from electronic controlled ignitions with tachometer output terminal, standard coil ignition, alternator signal and 12V square wave applications.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
8000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194887-S	A2C53194887-B
7000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194883-S	A2C53194883-B
6000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194875-S	A2C53194875-B
5000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194869-S	A2C53194869-B
4000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194865-S	A2C53194865-B
3000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53194791-S	A2C53194791-B

Viewline Ivory

Programmable Tachometers

Programmable tachometers accept signal inputs from 2,4,6,8,10,12 & 16 cylinder standard coil ignition. Viewline programming software (available separately) allows use with alternator and 12V square signals, as well as activate the user defined rev. limit warning .

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
8000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53408441-S	A2C53408441-B
6000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53218727-S	A2C53218727-B
4000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53218724-S	A2C53218724-B
3000 RPM	85mm	3 3/8"	RPMx100	Tyco connector (included)	12-24V	X	A2C53218718-S	A2C53218718-B

Quad Gauges, 4 3/8" (110mm) Dia

Quad gauges display fuel level, water temperature, oil pressure and voltage.

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F/80 PSI/250°F/16V	VDO		Tyco connector (included)	12V	A/1/ALAS	AB	A2C81562100-S	A2C81562100-B
16V-5bar-120°C-1/1	VDO		Tyco connector (included)	12V	A/1/ALAS	AB	A2C53371946-S	A2C53371946-B

Fluid Temperature Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27 NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
250°F/120°C		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	–	A2C53413388-K1	–
250°F/120°C		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	–	A2C53413388-K2	–
250°F		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53413384-K1	–
250°F		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53413384-K2	–

Fluid Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
300°F/150°C	322.1-18.6		Tyco connector (included)	12-24V	B	Z	A2C53413407-S	A2C53413407-B
250°F/120°C	291.5-22.5		Tyco connector (included)	12-24V	A	Z	A2C53413388-S	A2C53413388-B
250°F	291.5-22.5		Tyco connector (included)	12-24V	A	Z	A2C53413384-S	A2C53413384-B
240°F	447.0-46.5		Tyco connector (included)	12-24V	D	Z	A2C53413383-S	A2C53413383-B

Outside Temperature Gauge Kit, Electrical, 2 1/16" (52mm) Dia

Kit includes gauge and matched sender.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
+120°F	°F	Tyco connector (included)	–	12-24V	AA	A2C53210844-K	–

Outside Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
+120°F	5389.4-2353.5	°F	Tyco connector (included)	12-24V	E	AA	A2C53210844-S	A2C53210844-B

Pyrometer Kit, Electrical, 2 1/16" (52mm) Dia

Kit includes gauge, pyrometer sender and 18ft (6m) harness.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F		Tyco connector (included)	–	12-24V	AA	A2C53210905-K	–

Pyrometer, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F	–		Tyco connector (included)	12-24V	E	AA	A2C53210905-S	A2C53210905-B

Oil Pressure Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI/5 bar		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53413289-K1	–
80 PSI/5 bar		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53413289-K2	–
80 PSI		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53413136-K1	–
80 PSI		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53413136-K2	–
150 PSI/10 bar		Tyco connector (included)	1/8x27 NPT x1/4", 3/8" & 1/2"	12-24V	Z	A2C53413312-K1	–
150 PSI/10 bar		Tyco connector (included)	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12-24V	Z	A2C53413312-K2	–

Oil Pressure Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI/5 bar	240-33		Tyco connector (included)	12-24V	2	Z	A2C53413288-S	A2C53413288-B
80 PSI/5 bar	10-180		Tyco connector (included)	12-24V	1	Z	A2C53413289-S	A2C53413289-B
80 PSI	10-180		Tyco connector (included)	12-24V	1	Z	A2C53413136-S	A2C53413136-B
400 PSI/25 bar	10-180		Tyco connector (included)	12-24V	7	Z	A2C53417226-S	A2C53417226-B
80 PSI	10-180		Tyco connector (included)	12-24V	1	Z	A2C53413136-S	A2C53413136-B
400 PSI/25 bar	10-180		Tyco connector (included)	12-24V	7	Z	A2C53417226-S	A2C53417226-B
150 PSI/10 bar	240-33		Tyco connector (included)	12-24V	–	Z	A2C53413311-S	A2C53413311-B
150 PSI/10 bar	10-180		Tyco connector (included)	12-24V	5	Z	A2C53413312-S	A2C53413312-B
100 PSI/7 bar	240-33		Tyco connector (included)	12-24V	4	Z	A2C53413310-S	A2C5341331-B

Turbo & Boost Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
2 bar/28 PSI	10-180		Tyco connector (included)	12-24V	8	Z	A2C53417223-S	A2C53417223-B

Water Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
40 PSI		Tyco connector (included)	AE	A2C59513652-S	A2C59513652-B
30 PSI		Tyco connector (included)	AE	A2C59513649-S	A2C59513649-B

Water Level Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F	10-180	WATER	Tyco connector (included)	12-24V	Water Level Senders	Z	A2C53418382-S	A2C53418382-B
0-1/1	4-20mA		Tyco connector (included)	12-24V	Water Level Senders	AA	A2C31402000-S	A2C31402000-B

Viewline Ivory

Fuel Level Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F	240-33		Tyco connector (included)	12-24V	ALAS I & II	Z	A2C53412993-S	A2C53412993-B
E-F	0-90		Tyco connector (included)	12-24V	Tube Type Fuel	Z	A2C53412994-S	A2C53412994-B
E-F	90-0		Tyco connector (included)	12-24V	Tube Type Fuel	Z	A2C53412995-S	A2C53412995-B
0-1/1	3-180		Tyco connector (included)	12-24V	ALAS I & II	Z	A2C53412991-S	A2C53412991-B

Ammeter and Shunt Kits, 2 1/6" (52mm) dia

Kit includes gauge, matched shunt and harness.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 60 A		Tyco connector (included)	–	12-24V	AA	A2C53210958-K	–
+/- 30 A		Tyco connector (included)	–	12-24V	AA	A2C53211037-K	–
+/- 150 A		Tyco connector (included)	–	12-24V	AA	A2C53210956-K	–
+/- 100 A		Tyco connector (included)	–	12-24V	AA	A2C53210974-K	–

Ammeters (external shunt required), 2 1/16" (52mm) Dia

Description	On Dial	Connection	Shunt Spec.	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 60 A		Tyco connector (included)	60mv	AA	A2C53210958-S	A2C53210958-B
+/- 30A		Tyco connector (included)	60mv	AA	A2C53211037-S	A2C53211037-B
+/- 150 A		Tyco connector (included)	60mv	AA	A2C53210956-S	A2C53210956-B
+/- 100A		Tyco connector (included)	60mv	AA	A2C53210974-S	A2C53210974-B

Voltmeters, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V		Tyco connector (included)	Z	A2C53191768-S	A2C53191768-B
18-32V		Tyco connector (included)	Z	A2C53191769-S	A2C53191769-B

Hourmeters, Illuminated, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
100,000 Hours	HOURGLASS	Tyco connector (included)	12-24V		A2C59510877-S	A2C59510877-B

Clocks, Electrical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
3-6-9-12	–	Tyco connector (included)	12V	–	A2C53311885-S	A2C53311885-B
3-6-9-12	–	Tyco connector (included)	24V	–	A2C53321688-S	A2C53321688-B

Viewline Bezels and Harnesses

Viewline Bezels

52MM Viewline Bezels

	Size	Color	Shape
A2C53186027-S	2 1/16 in (52mm)	Black	Round
A2C53186029-S	2 1/16 in (52mm)	Chrome	Round
A2C53186028-S	2 1/16 in (52mm)	White	Round
A2C53186024-S	2 1/16 in (52mm)	Black	Triangle
A2C53186026-S	2 1/16 in (52mm)	Chrome	Triangle
A2C53186025-S	2 1/16 in (52mm)	White	Triangle

85MM Viewline Bezels

	Size	Color	Shape
A2C53192913-S	3 3/8 in (85mm)	Black	Round
A2C53192914-S	3 3/8 in (85mm)	Chrome	Round
A2C53192916-S	3 3/8 in (85mm)	White	Round
A2C53192917-S	3 3/8 in (85mm)	Black	Triangle
A2C53192918-S	3 3/8 in (85mm)	Chrome	Triangle
A2C53192920-S	3 3/8 in (85mm)	White	Triangle

110MM (5” Dial) Viewline Bezels

	Size	Color	Shape
A2C53210749-S	4 1/4 in (110mm)	Black	Round
A2C53210761-S	4 1/4 in (110mm)	Chrome	Round
A2C53210760-S	4 1/4 in (110mm)	White	Round
A2C53210763-S	4 1/4 in (110mm)	Black	Triangle
A2C53210765-S	4 1/4 in (110mm)	Chrome	Triangle
A2C53210764-S	4 1/4 in (110mm)	White	Triangle

Viewline Installation Accessories

Programming & Mode Button for Viewline

240-046	Programming & Mode Button for Viewline Speedometer or Tachometer - .250” Spade Connector. Black with Chrome Surround
240 205	Programming & Mode Button for Viewline Speedometer or Tachometer - 1/8” Spade Connector. Black with Black Surround

Wiring Harness & Accessories for Viewline

240 099	14 Pole Connector and Pins for 1 Viewline Instrument. Does Not Include Wire Lead
240 098	8 Pole Connector and Pins for 1 Viewline Instrument. Does Not Include Wire Lead
A2C53422790-S	Replacement 14 Pole Harness with 500mm Leads for 1 Viewline Speedometer or Tachometer with 5 Telltales
240 204	Replacement 14 Pole Harness with 500mm Leads for 1 Viewline Speedometer or Tachometer
240 201	Replacement 8 Pole Harness with 500mm Leads for 1 Viewline Instrument
240 202	Optional 8 Pole Harness with 500mm Leads for 1 Viewline Voltmeter, Hourmeter or Clock
240 097	8 Pole Retrofit Harness. Use When Upgrading To Viewline From a Non-Viewline Instrument
240 203	Replacement 8 Pole Harness with Leads for 1 Viewline Ammeter and Shunt
240 048	Connection Pins for Viewline Connectors

Vision Chrome

Vision Chrome features crisp black dials and polished chrome bezels. High contrast clear white graphics and red pointers make Vision instruments easy to read. VDO patented movements provide smooth and accurate performance and long life dependability.

Standard 0.25" spade connectors simplify wiring and VDO Spin-lok™ mounting makes installation fast and easy while providing a full 360° degrees of mounting force. Included light diffusers allow the dial illumination color to be changed to red or green.

Programmable Speedometers with Auto-Calibration & Resettable LCD Tripodometer

Speedometers feature push button odometer and trip odometer clearly displayed in the LCD window. Unique auto-calibration feature allows for easy adjustment and can be used with Hall Effect and inductive senders or most electronic controlled transmission outputs

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
120 MPH	85mm	3 3/8"	MPH	.250" Spade	12-24V	A	437 191	437 191B
120 MPH	100mm	4"	MPH	.250" Spade	12-24V	A	437 198	437 198B

Programmable Tachometers with LCD Hourmeter

Programmable for use with most electronic controlled ignitions with tachometer output terminal, standard coil ignition, alternator signal and 12V square wave applications. Engine hour meter is displayed in LCD window.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
6000 RPM/	85mm	3 3/8"	RPM	.250" Spade	12-24V	B	333 194	333 194B
4000 RPM/	85mm	3 3/8"	RPM	.250" Spade	12-24V	B	333 193	333 193B
3000 RPM/	85mm	3 3/8"	RPM	.250" Spade	12-24V	B	333 192	333 192B

Programmable Tachometers

For use on 4,5,6 & 8 cylinder application engines with standard coil ignitions, most square wave electronic control ignitions with tachometer output terminal and alternators with "w" tachometer terminal.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
8000 RPM/	100mm	4"	RPM	.250" Spade	12V	C	333 195	333 195B
6000 RPM	85mm	3 3/8"	RPM	.250" Spade	12V	C	333 197	333 197B
3000 RPM	85mm	3 3/8"	RPM	.250" Spade	12V	C	333 199	333 199B

Fluid Temperature Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27 NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
300°F	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	310 1961	–
300°F	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	310 1962	–
250°F	WATER	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	310 1951	–
250°F	WATER	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	310 1952	–

Fluid Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
300°F	322.1-18.6	OIL	.250" Spade	12V	B	E	310 196	310 196B
250°F	291.5-22.5	WATER	.250" Spade	12V	A	E	310 195	310 195B
220°F	447.0-46.5	WATER	.250" Spade	12V	D	E	310 194	310 194B

Fluid Temperature Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	Capillary Length	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
265°F	72"	WATER	1/2"-14NPT	H	180 191	180 191B

Pyrometer Kit, Electrical, 2 1/16" (52mm) Dia

Kit includes gauge, pyrometer sender and 12ft harness.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F	°F	.250" Spade	–	12V	O	310 193	310 193B

Pyrometer, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F	–	°F	.250" Spade	12V	E	O	310 191	310 193B

Oil Pressure Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	350 1941	–
80 PSI	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	350 1942	–
150 PSI	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	350 1981	–
150 PSI	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	350 1982	–
100 PSI	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	350 1961	–
100 PSI	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	350 1962	–

Oil Pressure Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	OIL	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 1921	–
150 PSI	OIL	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	I	150 1922	–
100 PSI	OIL	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 1971	–
100 PSI	OIL	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	I	150 1972	–

Vision Chrome

Oil Pressure Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	10-180	OIL	.250" Spade	12V	1	E	350 194	350 194B
80 PSI	240-33	OIL	.250" Spade	12V	2	E	350 195	350 195B
400 PSI	10-180	TRANS	.250" Spade	12V	7	E	350 290	350 290B
150 PSI	10-180	OIL	.250" Spade	12V	5	E	350 198	350 198B
150 PSI	240-33	OIL	.250" Spade	12V	–	E	350 199	350 199B
100 PSI	10-180	OIL	.250" Spade	12V	3	E	350 196	350 196B

Oil Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	OIL	1/8-27 NPT	I	150 192	150 192B
100 PSI	OIL	1/8-27 NPT	I	150 197	150 197B

Turbo & Boost Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 PSI	BOOST	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 1941	–
30 PSI	BOOST	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.5 M10x1.0, 1/8x28BSP	I	150 1942	–
15 PSI	BOOST	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 1911	–
15 PSI	BOOST	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.5 M10x1.0, 1/8x28BSP	I	150 1912	–

Turbo & Boost Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 PSI	BOOST	1/8-27 NPT	I	150 194	150 194B
15 PSI	BOOST	1/8-27 NPT	I	150 191	150 191B

Fuel Level Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F	10-184	FUEL	.250" Spade	12V	ALAS	E	301 194	301 194B
E-F	240-33	FUEL	.250" Spade	12V	ALAS	E	301 195	301 195B
E-F	0-90	FUEL	.250" Spade	12V	Tube Type Fuel	E	301 197	301 197B

Voltmeters, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V	VOLT	.250" Spade	E	332 193	332 193B

Hourmeters, Non-Illuminated, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
100,000 Hours	HOURS	.250" Spade	12V	J	331 955	331 955B

Vision Black

Crisp black dials and matching bezels, along with VDO's Tri-optic through dial illumination make Vision a solid choice. High contrast clear white graphics and red pointers make Vision instruments easy to read, while VDO patented movements provide smooth and accurate performance and long life dependability. Standard 0.25" spade connectors simply wiring and VDO Spin-lok™ mounting makes installation fast and easy while providing a full 360° degrees of mounting force. Included light diffusers allow the dial illumination color to be changed to red or green.

Programmable Speedometers with Auto-Calibration & Resettable LCD Tripodometer

Speedometers feature push button odometer and trip odometer clearly displayed in the LCD window. Unique Auto-Calibration feature allows for easy adjustment and can be used with Hall Effect and inductive senders or most electronic controlled transmission outputs

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
85 MPH/130 KMH	85mm	3 3/8"	MPH	.250" Spade	12-24V	A	437 152	437 152B
220 MPH	100mm	4"	MPH	.250" Spade	12-24V	A	437 159	437 159B
200 MPH	100mm	4"	KMH	.250" Spade	12-24V	A	437 156	437 156B
200 KMH	80mm	3 1/8"	KMH	.250" Spade	12-24V	A	437 154	437 154B
140 MPH/220 KMH	100mm	4"	MPH	.250" Spade	12-24V	A	437 158	437 158B
120 MPH	85mm	3 3/8"	MPH	.250" Spade	12-24V	A	437 153	437 153B
120 MPH	80mm	3 1/8"	MPH	.250" Spade	12-24V	A	437 151	437 151B
120 MPH	100mm	4"	MPH	.250" Spade	12-24V	A	437 155	437 155B

Programmable Tachometers with LCD Hourmeter

Programmable for use with most electronic controlled ignitions with tachometer output terminal, standard coil ignition, alternator signal and 12V square wave applications. Engine hour meter is displayed in LCD window.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
6000 RPM	85mm	3 3/8"	RPM	.250" Spade	12-24V	B	333 164	333 164B
4000 RPM	85mm	3 3/8"	RPM	.250" Spade	12-24V	B	333 163	333 163B
3000 RPM	85mm	3 3/8"	RPM	.250" Spade	12-24V	B	333 162	333 162B

Programmable Tachometers

For use on 4,5,6 & 8 cylinder application engines with standard coil ignitions, most square wave electronic control ignitions with tachometer output terminal and alternators with "w" tachometer terminal.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
8000 RPM	52mm	2 1/16"	RPM	.250" Spade	12V	D	333 159	333 159B
8000 RPM	100mm	4"	RPM	.250" Spade	12V	C	333 160	333 160B
7000 RPM	85mm	3 3/8"	RPM	.250" Spade	12V	C	333 155	333 155B
7000 RPM	80mm	3 1/8"	RPM	.250" Spade	12V	C	333 151	333 151B

Vision Black

Programmable Tachometers

For use on 4,5,6 & 8 cylinder application engines with standard coil ignitions, most square wave electronic control ignitions with tachometer output terminal and alternators with "w" tachometer terminal.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
6000 RPM	52mm	2 1/16"	RPM	.250" Spade	12V	D	333 158	333 158B
4000 RPM	52mm	2 1/16"	RPM	.250" Spade	12V	D	333 156	333 156B
3000 RPM	85mm	3 3/8"	RPM	.250" Spade	12V	C	333 152	333 152B

Fluid Temperature Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27 NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
400°F	TRANS	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	310 1071	–
400°F	TRANS	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	310 1072	–
300°F	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	310 1061	–
300°F	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	310 1062	–
250°F	WATER	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	310 1051	–
250°F	WATER	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	310 1052	–

Fluid Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
400°F	471.0-14.2	TRANS	.250" Spade	12V	C	E	310 107	310 107B
300°F	322.1-18.6	OIL	.250" Spade	12V	B	E	310 106	310 106B
300°F	322.1-18.6	TRANS	.250" Spade	12V	B	E	310 111	310 111B
250°F	291.5-22.5	WATER	.250" Spade	12V	A	E	310 105	310 105B
220°F	447.0-46.5	WATER	.250" Spade	12V	D	E	310 104	310 104B
150°C	322.1-18.6		.250" Spade	12V	B	E	310 109	310 109B
120°C	322.1-18.6		.250" Spade	12V	A	E	310 108	310 108B

Fluid Temperature Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	Capillary Length	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
265°F	72"	WATER	1/2"-14NPT	H	180 101	180 101B

Outside Temperature Gauge Kit, Electrical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
40°C	°C	.250" Spade	–	12V	N	397 155	397 155B
120°F	°F	.250" Spade	–	12V	N	397 154	397 154B

Pyrometer Kit, Electrical, 2 1/16" (52mm) Dia

Kit includes gauge, pyrometer sender and 12ft harness.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F	°F	.250" Spade	1/4" NPT	12V	O	310 153	–

Pyrometer, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F	–	°F	.250" Spade	12V	E	O	310 151	310 151B

Air Pressure Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	10-180	FRONT AIR	.250" Spade	12V	5	E	350 111	350 111B
150 PSI	10-180	REAR AIR	.250" Spade	12V	5	E	350 112	350 112B

Air Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	AIR	1/8-27 NPT	I	150 112	150 112B
150 PSI	FRONT AIR	1/8-27 NPT	I	150 105	150 105B
150 PSI	REAR AIR	1/8-27 NPT	I	150 106	150 106B

Oil Pressure Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	350 1041	–
80 PSI	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	350 1042	–
150 PSI	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	350 1081	–
150 PSI	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	350 1082	–
100 PSI	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	350 1061	–
100 PSI	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	350 1062	–

Oil Pressure Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	OIL	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 1111	–
150 PSI	OIL	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	I	150 1112	–
100 PSI	OIL	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 1071	–
100 PSI	OIL	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	I	150 1072	–

Oil Pressure Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	10-180	OIL	.250" Spade	12V	1	E	350 104	350 104B
80 PSI	240-33	OIL	.250" Spade	12V	2	E	350 105	350 105B
5 bar	10-180		.250" Spade	12V	1	E	350 101	350 101B
400 PSI	10-180	TRANS	.250" Spade	12V	7	E	350 110	350 110B
150 PSI	10-180	OIL	.250" Spade	12V	5	E	350 108	350 108B
150 PSI	240-33	OIL	.250" Spade	12V	–	E	350 109	350 109B
100 PSI	10-180	OIL	.250" Spade	12V	3	E	350 106	350 106B
100 PSI	240-33	OIL	.250" Spade	12V	4	E	350 107	350 107B
10 bar	10-180		.250" Spade	12V	5	E	350 102	350 102B

Oil Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	OIL	1/8-27 NPT	I	150 111	150 111B
100 PSI	OIL	1/8-27 NPT	I	150 107	150 107B

Turbo & Boost Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 PSI	BOOST	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 1041	–
30 PSI	BOOST	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.5 M10x1.0, 1/8x28BSP	I	150 1042	–
15 PSI	BOOST	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 1011	–

Boost Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 PSI	BOOST	1/8-27 NPT	I	150 104	150 104B
3 bar	BOOST	1/8-27 NPT	I	150 102	150 102B
15 PSI	BOOST	1/8-27 NPT	I	150 101	150 101B

Vacuum Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 Hg	VACUUM	1/8-27 NPT	I	150 131	150 131B

Turbo & Boost Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
25 PSI	TURBO	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 1211	–
25 PSI	TURBO	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.5 M10x1.0, 1/8x28BSP	I	150 1212	–

Turbo & Boost Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
30"Hg-25 PSI	TURBO	1/8-27 NPT	I	150 121	150 121B

Fuel Level Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F	10-184	FUEL	.250" Spade	12V	ALAS	E	301 104	301 104B
E-F	240-33	FUEL	.250" Spade	12V	ALAS	E	301 105	301 105B
E-F	0-90	FUEL	.250" Spade	12V	ALAS	E	301 106	301 106B
E-F	90-0	FUEL	.250" Spade	12V	Tube Type Fuel	E	301 107	301 107B

Ammeters (external shunt required), 2 1/16" (52mm) Dia

Description	On Dial	Connection	Shunt Spec.	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 150 A	AMP	.250" Spade	50mV	M	190 151	190 151B

Ammeters (no external shunt required), 2 1/16" (52mm) Dia

These ammeters contain a built in internal shunt, eliminating the need for an external shunt or additional wiring.

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 60 A	AMP	.250" Spade	L	190 104	190 104B
+/- 100 A	AMP	.250" Spade	L	190 105	190 105B

Voltmeters, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V	VOLT	.250" Spade	E	332 103	332 103B

Clocks, Electrical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
3-6-9-12	–	.250" Spade	12V	J	370 100	–
3-6-9-12	–	.250" Spade	12V	J	370 155	370 155B

The gauge that started it all. Years of research have revealed the best combination of colors for readability and reduced eye fatigue. Cockpit instruments feature VDO patented movements, computer balanced pointers and fully illuminated dials. Sharp black dials and classic bezels are accented by deep red pointers and white graphics. Standard 0.25" spade connectors simple wiring and VDO Spin-lok™ mounting makes installation fast and easy while providing a full 360° degrees of mounting force.

Programmable Speedometers with Auto-Calibration & Resettable LCD Tripodometer

Speedometers feature push button odometer and trip odometer clearly displayed in the LCD window. Unique Auto-Calibration feature allows for easy adjustment and can be used with Hall Effect and inductive senders or most electronic controlled transmission outputs

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
160 MPH	85mm	3 3/8"	MPH	.250" Spade	12-24V	A	437 053	437 053B
120 MPH	80mm	3 1/8"	MPH	.250" Spade	12-24V	A	437 050	437 050B
120 MPH	85mm	3 3/8"	MPH	.250" Spade	12-24V	A	437 052	437 052B

Programmable Tachometers

For use on 4,5,6 & 8 cylinder application engines with standard coil ignitions, most square wave electronic control ignitions with tachometer output terminal and alternators with "w" tachometer terminal.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
7000 RPM	85mm	3 3/8"	RPMx100	.250" Spade	12V	C	333 055	333 055B
7000 RPM	80mm	3 1/8"	RPMx100	.250" Spade	12V	C	333 051	333 051B

Cylinder Head Temperature Gauge and Sender Kit, Electrical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
600°F	CYL HEAD TEMPERATURE	.250" Spade	–	12V	P	310 901	–

Fluid Temperature Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27 NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
400°F	TRANSMISSION OIL TEMP	.250" Spade	–	12V	G	310 091	–
300°F	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	G	310 0121	–
300°F	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	G	310 0122	–
250°F	WATER	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	G	310 0391	–
250°F	WATER	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	G	310 0392	–

Fluid Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
400°F	471.0-14.2	TRANSMISSION OIL TEMP	.250" Spade	12V	C	E	310 015	310 015B
300°F	322.1-18.6	OIL	.250" Spade	12V	B	E	310 012	310 012B
250°F	291.5-22.5	WATER	.250" Spade	12V	A	E	310 039	310 039B

Fluid Temperature Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	Capillary Length	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
340°F	96"	WATER	–	H	180 087	–

Oil Pressure Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	350 0401	–
80 PSI	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	350 0402	–
150 PSI	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	350 0411	–
150 PSI	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	350 0412	–
100 PSI	OIL	.250" Spade	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	E	350 0651	–
100 PSI	OIL	.250" Spade	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	E	350 0652	–

Oil Pressure Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
100 PSI	OIL	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	G	150 0301	–
100 PSI	OIL	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	G	150 0302	–

Oil Pressure Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	10-180	OIL	.250" Spade	12V	1	E	350 040	350 040B
80 PSI	10-180		.250" Spade	12V	1	E	350 066	350 066B
150 PSI	10-180	OIL	.250" Spade	12V	5	E	350 041	350 041B
100 PSI	10-180	OIL	.250" Spade	12V	3	E	350 065	350 065B

Oil Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
100 PSI	OIL	1/8-27 NPT	I	150 030	150 030B

Boost Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 PSI	BOOST	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 0521	–
30 PSI	BOOST	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.5 M10x1.0, 1/8x28BSP	I	150 0522	–
15 PSI	BOOST	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 0511	–
15 PSI	BOOST	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.5 M10x1.0, 1/8x28BSP	I	150 0512	–

Boost Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 PSI	–	BOOST	1/8-27 NPT	12V	–	I	150 052	150 052B
15 PSI	–	BOOST	1/8-27 NPT	12V	–	I	150 051	150 051B

Vacuum Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 Hg	VACUUM	1/8-27 NPT	1/8" TEE	I	150 042	150 042B

Turbo & Boost Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
30"Hg -25 PSI	TURBO	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 0631	–
30"Hg -25 PSI	TURBO	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.5 M10x1.0, 1/8x28BSP	I	150 0632	–

Turbo & Boost Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
30"Hg -25 PSI	TURBO	1/8-27 NPT	I	150 063	150 063B

Fuel Level Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
0-1/1	10-184	FUEL	.250" Spade	12V	ALAS	E	301 015	301 015B
0-1/1	0-90	FUEL	.250" Spade	12V	ALAS	E	301 030	301 030B

Voltmeters, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V	VOLTS	.250" Spade	E	332 041	332 041B

Cockpit International

World-class Cockpit International instruments are the standard in the industry for reliability and economy. These instruments feature our latest generation patented air core movements or stepper motor technology to deliver the precision and durability that has made VDO renowned as the leading brand in instrumentation. VDO Cockpit International instruments are made for durability with a choice of two terminals: M4 studs or .250" male spades. Most 2 1/16" (52mm) instruments feature zinc-plated metal housing and black painted, brass bezels for rugged, reliable service. Cockpit International Instruments feature standard flood-lit illumination and are available in 12 / 24V applications.

Programmable Speedometers with Auto-Calibration & Resettable LCD Tripodometer

Speedometers feature push button odometer and trip odometer clearly displayed in the LCD window. Unique Auto-Calibration feature allows for easy adjustment and can be used with Hall Effect and inductive senders or most electronic controlled transmission outputs

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
85 MPH/130 KMH	100mm	4"	MPH/kmh	.250" Spade	12-24V	A	437 957	437 957B
45 MPH/70 KMH	85mm	3 3/8"	MPH/Kmh	.250" Spade	12-24V	A	437 950	437 950B
130 KMH/85 MPH	85mm	3 3/8"	Kmh/MPH	.250" Spade	12-24V	A	437 956	437 956B
120 KMH	100mm	4"	KMH	.250" Spade	12-24V	A		437-055-002C

Programmable Tachometers with LCD Hourmeter

Programmable for use with most electronic controlled ignitions with tachometer output terminal, standard coil ignition, alternator signal and 12V square wave applications. Engine hour meter is displayed in LCD window.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
4000 RPM	80mm	3 1/8"	RPMX100	.250" Spade	12-24V	B	333 964	333 964B
4000 RPM	85mm	3 3/8"	RPMX100	.250" Spade	12-24V	B	333 963	333 963B
3000 RPM	80mm	3 1/8"	RPMX100	.250" Spade	12-24V	B	333 961	333 961B
3000 RPM	85mm	3 3/8"	RPMX100	.250" Spade	12-24V	B	333 962	333 962B

Programmable Tachometers

For use on 4,5,6 & 8 cylinder application engines with standard coil ignitions, most square wave electronic control ignitions with tachometer output terminal and alternators with "w" tachometer terminal.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
8000 RPM	52mm	2 1/16"	RPMX100	.250" Spade	12V	D	333 968	333 968B
8000 RPM	52mm	2 1/16"	RPMX100	.250" Spade	12V	D	333 959	333 959B
7000 RPM	80mm	3 1/8"	RPMX100	.250" Spade	12V	C	333-035-003G	–
6000 RPM	52mm	2 1/16"	RPMX100	.250" Spade	12V	D	333 958	333 958B
4000 RPM	52mm	2 1/16"	RPMX100	.250" Spade	12V	D	333 965	333 965B
4000 RPM	85mm	3 3/8"	RPMX100	.250" Spade	12V	C	333 953	333 953B
4000 RPM	52mm	2 1/16"	RPMX100	.250" Spade	12V	D	333 969	333 969B
3000 RPM	100mm	4"	RPMX100	.250" Spade	12V	C	333 966	–
3000 RPM	85mm	3 3/8"	RPMX100	.250" Spade	12V	C	333 952	333 952B

Cylinder Head Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
600°F	–	Cylinder Head Temperature	.250" Spade	12V	–	P	310 033	–

Fluid Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
300°F/150°C	322.1-18.6		.250" Spade	12V	B	E	310 915	310 915B
300°F/150°C	322.1-18.6		M4 Stud	24V	B	G	310 916	310 916B
300°F/150°C	322.1-18.6		.250" Spade	12V	B	E	310 936	310 936B
280°F/140°C	–		M4 Stud	12V	D	G	310 911	310 911B
250°F/120°C	291.5-22.5		M4 Stud	12V	A	G	310 909	310 909B
250°F/120°C	291.5-22.5		M4 Stud	12V	A	G	310 910	310 910B
250°F/120°C	291.5-22.5		.250" Spade	12V	A	E	310 934	310 934B
240°F/110°C	447.0-46.5		M4 Stud	12V	D	G	310 907	310 907B
200°C	471.0-14.2	–	.250" Spade	12V	C	E	310 919	310 919B
150°C	322.1-18.6		.250" Spade	12V	B	E	310 918	310 918B
150°C	322.1-18.6		.250" Spade	12V	B	E	310 912	310 912B
120°C	291.5-22.5		.250" Spade	12V	A	E	310 917	310 917B
120°C	322.1-18.6		.250" Spade	24V	A	E	310 920	310 920B

Fluid Temperature Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	Capillary Length	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
265°F/130°C	72"		1/2"-14NPT	H	180 901	180 901B
265°F/130°C	96"		1/2"-14NPT	H	180 902	180 902B
265°F/130°C	144"		1/2"-14NPT	H	180 903	180 903B

Pyrometer Kit, Electrical, 2 1/16" (52mm) Dia

Kit includes gauge, pyrometer sender and 12ft harness.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F	°F	.250" Spade	–	12V	O	310 953	–

Pyrometer, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
1650°F	–	°F	.250" Spade	12V	E	O	310 951	310 951B

Air Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI/10 bar		1/8-27 NPT	I	150 905	150 905B
150 PSI	AIR & lbs/square inch	1/8-27 NPT	I	151 910	151 910B

Air Pressure Gauges, Mechanical, 3 1/8" (80mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150PSI	PSI	1/8-27 NPT	–	151 002	–

Oil Pressure Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI/5 bar	10-180		M4 Stud	12V	1	G	350 901	350 901B
80 PSI/5 bar	10-180		.250" Spade	12V	1	E	350 934	350 934B
80 PSI/5 bar	10-180		M4 Stud	24V	1	G	350 902	350 902B
400 PSI	10-180		M4 Stud	12V	7	G	350 913	350 913B
150 PSI/10 bar	10-180		M4 Stud	12V	5	G	350 909	350 909B
150 PSI/10 bar	10-180		M4 Stud	24V	5	G	350 910	350 910B
150 PSI/10 bar	10-180		.250" Spade	12V	5	E	350 911	350 911B
1000 kPa	10-180		.250" Spade	24V	5	E	350 917	350 917B
100 PSI/7 bar	10-180		M4 Stud	12V	3	G	350 905	350 905B
10 bar/150 PSI	10-180		.250" Spade	24V	5	E	350 921	350 921B
10 bar	10-180		.250" Spade	24V	1	E	350 922	350 922B

Oil Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
400 PSI/25 bar		1/8-27 NPT	I	150 906	150 906B
150 PSI/10 bar		M4 Stud	I	150 904	150 904B

Turbo & Boost Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
30"Hg-20 PSI		1/8-27 NPT	I	150 921	150 921B

Cockpit International

Fuel Level Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F	90-0		M4 Stud	12V	Tube Type Fuel	G	301 906	301 906B
0-1/1	90-0		.250" Spade	12V	Tube Type Fuel	E	301 910	301 910B
0-1/1	10-180		.250" Spade	24V	ALAS	E	301 911	301 911B
0-1/1	10-184		M4 Stud	12V	ALAS	G	301 901	301 901B
0-1/1	240-33		M4 Stud	12V	ALAS	G	301 903	301 903B
0-1/1	90-0		M4 Stud	12V	Tube Type Fuel	G	301 905	301 905B
0-1/1	10-184		.250" Spade	12V	ALAS	E	301 907	301 907B
0-1/1	0-90		.250" Spade	12V	ALAS	K	301 930	301 930B
0-1/1	10-184		M4 Stud	24V	ALAS	G	301 902	301 902B
0-1/1	240-33		M4 Stud	24V	ALAS	G	301 904	301 904B

Ammeters (external shunt required), 2 1/16" (52mm) Dia

Description	On Dial	Connection	Shunt Spec.	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 300 A	AMP	.250" Spade	50mV	M	190 963	190 963B
+/- 300 A	AMP	.250" Spade	50mV	M	190 966	–

Ammeters (no external shunt required), 2 1/16" (52mm) Dia

These ammeters contain a built in internal shunt, eliminating the need for an external shunt or additional wiring.

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 60 A	AMP	M5 stud	L	190 904	190 904B
+/- 30 A	AMP	M5 stud	L	190 903	190 903B

Voltmeters, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V		.250" Spade	E	332 932	332 932B
8-16V		M4 Stud	G	332 901	332 901B
18-32V		M4 Stud	G	332 902	332 902B
18-32V		.250" Spade	E	332 933	332 933B

Clocks, Electrical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
3-6-9-12	–	.250" Spade	12V	J	370 955	370 955B

Series 1 instruments provide traditional styling backed by modern technology. Brilliant stepped chrome bezel and white pointer with offset classic black bezel and white graphics.

Traditional robust metal housing and stud-type connectors complete the traditional look.

Programmable Speedometers with Auto-Calibration & Resettable LCD Tripodometer

Speedometers feature push button odometer and trip odometer clearly displayed in the LCD window. Unique Auto-Calibration feature allows for easy adjustment and can be used with Hall Effect and inductive senders or most electronic controlled transmission outputs

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
120 MPH	85mm	3 3/8"	MPH	.250" Spade	12-24V	A	437 353	437 353B
120 MPH	85mm	3 3/8"	MPH	.250" Spade	12-24V	A	437 354	437 354B

Programmable Tachometers with LCD Hourmeter

Programmable for use with most electronic controlled ignitions with tachometer output terminal, standard coil ignition, alternator signal and 12V square wave applications. Engine hour meter is displayed in LCD window.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
4000 RPM	85mm	3 3/8"	RPM	.250" Spade	12-24V	B	333 363	333 363B

Programmable Tachometers

For use on 4,5,6 & 8 cylinder application engines with standard coil ignitions, most square wave electronic control ignitions with tachometer output terminal and alternators with "w" tachometer terminal.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
7000 RPM	85mm	3 3/8"	RPM	.250" Spade	12V	C	333 355	333 355B
4000 RPM	85mm	3 3/8"	RPM	.250" Spade	12V	C	333 353	333 353B

Fluid Temperature Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27 NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
400°F	TRANS	M4 Stud	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	G	310 3031	–
400°F	TRANS	M4 Stud	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	G	310 3032	–
300°F	OIL	M4 Stud	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	G	310 3051	–
300°F	OIL	M4 Stud	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	G	310 3052	–
250°F	WATER	M4 Stud	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	G	310 3041	–
250°F	WATER	M4 Stud	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	G	310 3042	–

Fluid Temperature Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
400°F	471.0-14.2	TRANS	M4 Stud	12V	C	G	310 303	310 303B
300°F	322.1-18.6	OIL	M4 Stud	12V	B	G	310 312	310 312B
250°F	291.5-22.5	WATER	M4 Stud	12V	A	G	310 304	310 304B

Fluid Temperature Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	Capillary Length	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
340°F	72"	OIL	1/2"-14NPT	I	180 315	180 315B
340°F	144"	OIL	1/2"-14NPT	I	180 317	180 317B
265°F	72"	WATER	1/2"-14NPT	I	180 301	180 301B
265°F	144"	WATER	1/2"-14NPT	I	180 302	180 302B
265°F	288"	WATER	1/2"-14NPT	I	180 308	180 308B
265°F	48"	WATER	1/2"-14NPT	I	180 310	180 310B

Fluid Temperature Gauges, Mechanical, 2 1/16" (52mm) Dia with Shallow 1" (25mm) Deep Housing

Description	Capillary Length	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
265°F	72"	WATER	1/2"-14NPT	AD	A2C59519598-S	A2C59519598-B
265°F	60"	WATER	1/2"-14NPT	AD	A2C59519599-S	A2C59519599-B
265°F	48"	WATER	1/2"-14NPT	AD	A2C59519600-S	A2C59519600-B
265°F	144"	WATER	1/2"-14NPT	AD	A2C59519601-S	A2C59519601-B

Air Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	AIR	1/8-27 NPT	I	150 307	150 307B

Air Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia with Shallow 1 1/8" (33mm) Deep Housing

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	AIR	M4 Stud	AC	A2C59519597-S	A2C59519597-B

Oil Pressure Gauge and Sender Kits, Electrical, 2 1/16" (52mm) Dia

Kits includes gauge, matched sender with 1/8-27NPTF threads and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	OIL	M4 Stud	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	G	350 3031	–
80 PSI	OIL	M4 Stud	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	G	350 3032	–
100 PSI	OIL	M4 Stud	1/8x27 NPT x1/4", 3/8" & 1/2"	12V	G	350 3061	–
100 PSI	OIL	M4 Stud	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	12V	G	350 3062	–

Oil Pressure Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	OIL	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 3061	–
150 PSI	OIL	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	I	150 3062	–
100 PSI	OIL	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 3301	–
100 PSI	OIL	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.0 M10x1.0, 1/8x28BSP	I	150 3302	–

Oil Pressure Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	10-180	OIL	M4 Stud	12V	1	G	350 303	350 303B
100 PSI	10-180	OIL	M4 Stud	12V	3	G	350 306	350 306B

For sender tables, accessories and technical drawings please see pgs 52 to 79

Oil Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI	OIL	1/8-27 NPT	I	150 306	150 306B
100 PSI	OIL	1/8-27 NPT	I	150 330	150 330B

Oil Pressure Gauges, Mechanical, 2 1/16" (52mm) Dia with Shallow 1 1/8" (33mm) Deep Housing

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 PSI	OIL	M4 Stud	AC	A2C59519593-S	A2C59519593-B
100 PSI	OIL	M4 Stud	AC	A2C59519594-S	A2C59519594-B

Vacuum Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 Hg	VAC	1/8-27 NPT	1/8" TEE	–	150 302	–

Vacuum Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
30 Hg	VAC	1/8-27 NPT	I	150 301	150 301B

Turbo & Boost Gauge Kit, Mechanical, 2 1/16" (52mm) Dia

Kit includes gauge, 6' of tubing and brass adapters as noted.

Description	On Dial	Connection	Included Adapters	Drawing Number	Single Pack Part No.	10 Pack Part No.
15 PSI	TURBO	1/8-27 NPT	1/8x27 NPT x1/4", 3/8" & 1/2"	I	150 3611	–
15 PSI	TURBO	1/8-27 NPT	M16x1.5, M14x1.5, M12x1.5 M10x1.0, 1/8x28BSP	I	150 3611	–

Turbo & Boost Gauges, Mechanical, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
15 PSI	TURBO	1/8-27 NPT	I	150 361	150 361B

Fuel Level Gauges, Electrical, 2 1/16" (52mm) Dia

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
0-1/1	10-184	FUEL	M4 Stud	12V	ALAS	G	301 301	301 301B
0-1/1	240-33	FUEL	M4 Stud	12V	ALAS	G	301 302	301 302B
0-1/1	0-90	FUEL	M4 Stud	12V	ALAS	G	301 303	301 303B

Ammeters (no external shunt required), 2 1/16" (52mm) Dia

These ammeters contain a built in internal shunt, eliminating the need for an external shunt or additional wiring.

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 60 A	AMP	M4 Stud	L	190 301	190 301B
+/- 30 A	AMP	M4 Stud	L	A2C59519596-S	A2C59519596-B

Voltmeters, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V	VOLTS	M4 Stud	G	332 341	332 341B
8-16V	VOLTS	M4 Stud	G	332 342	332 342B

VDO ModulCockpit II is a modular system designed with real world requirements in mind that can be adapted for many different types of applications. The instruments in this series can be installed in any combination with a choice of dual or quad instrument housings. Through dial illumination technology enables the best possible contrast, even at night.

The housings are made of rugged black plastic with low-reflection, scratch resistant lenses.
VDO ModulCockpit II can be connected quickly and easily via a central connector. Available in 12 and 24 volt versions, it is equally suitable for both on or off highway use. US and dual scale (US/Metric) versions are available.

Programmable Speedometers with Auto-Calibration & Resettable LCD Tripodometer, 100mm x 100mm

Complete, pre-assembled and ready to install Speedometer assembly. Accepts Hall Effect, inductive and most electronic transmission output signals.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
60 KMH/35 MPH	100mm	4"	km/h MPH	MOD II Connector	12-24V	–		437-260-980-001C
60 KMH/35 MPH	100mm	4"	km/h MPH	MOD II Connector	12-24V	–		437-809-980-004C
125 KMH/77 MPH	100mm	4"	km/h MPH	MOD II Connector	12-24V	–		437-260-980-002C
125 KMH/77 MPH	100mm	4"	km/h MPH	MOD II Connector	12-24V	–		437-809-980-005C

Tachometer with Hourmeter, 100mm x 100mm

Complete, pre-assembled and ready to install Tachometer assembly. Accepts ignition, ECM tachometer output, alternator and 12V square wave (generator sender, etc.) signals.

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
4000 RPM	100mm	4"	1/min x 100	MOD II Connector	12-24V	–		333-251-980-004C
3000 RPM	100mm	4"	1/min x 100	MOD II Connector	12-24V	–		333-251-980-003C
2000 RPM	100mm	4"	1/min x 100	MOD II Connector	12-24V	–		333-251-980-009C

Temperature Module, Electric, 37.5mm x 37.5mm

Instrument movement, dial and pointer. Requires lens, bezel, housing, and connector assemblies for completion.

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
100°C	700-38.5		MOD II Connector	12-24V	–	–		310-284-980-010C
150°C	322.1-18.6		MOD II Connector	12-24V	B	–		310-284-980-012C
150°C	322.1-18.6		MOD II Connector	12-24V	B	–		310-284-980-014C
200°C	471.0-14.2	°C	MOD II Connector	12-24V	C	–		310-284-980-016C
120°C	291.5-22.5		MOD II Connector	12-24V	A	–		310-284-980-017C

For sender tables, accessories and technical drawings please see pgs 52 to 79

Pressure Module, Electric 37.5mm x 37.5mm

Instrument movement, dial and pointer. Requires lens, bezel, housing, and connector assemblies for completion.

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
5 bar	10-180		MOD II Connector	12-24V	1	–		350-272-980-010C
10 bar	10-180		MOD II Connector	12-24V	5	–		350-272-980-011C
10 bar	10-180		MOD II Connector	12-24V	5	–		350-272-980-012C
10 bar	10-180		MOD II Connector	12-24V	5	–		350-272-980-013C
25 bar	10-180		MOD II Connector	12-24V	7	–		350-272-980-014C
10 bar	10-180	bar	MOD II Connector	12-24V	5	–		350-272-980-018C
16 bar	10-180		MOD II Connector	12-24V	–	–		350-272-980-019C
16 bar	10-180		MOD II Connector	12-24V	–	–		350-272-980-020C

Fuel Level Module, Electrical, 37.5mm x 37.5mm

Instrument movement, dial and pointer. Requires lens, bezel, housing, and connector assemblies for completion.

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
0-1/1	90-0		MOD II Connector	12-24V	Tube Type	–		301-291-980-003C
0-1/1	240-33		MOD II Connector	12-24V	ALAS	–		301-292-980-003C
0-1/1	10-180		MOD II Connector	12-24V	ALAS	–		301-292-980-004C

Voltmeter Module, 37.5mm x 37.5mm

Instrument movement, dial and pointer. Requires lens, bezel, housing, and connector assemblies for completion.

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V		MOD II Connector	–		332-305-980-003C
18-32V		MOD II Connector	–		332-305-980-004C

Dual Gauges, 50mm x 100mm

Complete, pre-assembled and ready to install instrument assembly

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
1/1-120°C	VDO		MOD II Connector	12-24V	ALAS/A	–		110-008-981-014C
10,000 Hours-1/1	10-180		MOD II Connector	12-24V	ALAS	–		110-008-983-003C
10,000 Hours-1/1	90-0		MOD II Connector	12-24V	Tube Type	–		110-008-983-005C

Quad Gauges, 100mm x 100mm

Complete, pre-assembled and ready to install instrument assembly

Description	Ohm Range	On Dial	Connection	Voltage	See Sender Table	Drawing Number	Single Pack Part No.	10 Pack Part No.
16V-5bar-120°C-1/1	VDO		MOD II Connector	12-24V	ALAS/A/1	–		110-008-980-013C

Tell Tale Panel and Gauge, 50mm x 100mm

Complete, pre-assembled and ready to install instrument assembly

Description	Ohm Range	Tell Tale #1	Tell Tale #2	Tell Tale #3	Tell Tale #4	Connection	Voltage	Single Pack Part No.	10 Pack Part No.
120°C	291.5-22.5	Battery/Oil	Temp/Brake			MOD II Connector	12-24V		110-008-982-004C
0-1/1	90-0	Turn Signal/ Hazzard	Glow Plug/ High Beam			MOD II Connector	12-24V		110-008-982-005C
10.000 Hours	–	Air Filter/ Glow Plug	Battery/Oil			MOD II Connector	12-24V		110-008-984-001G

ModulCockpit II

Tell Tale Panel, 100mm x 100mm

Complete, pre-assembled and ready to install instrument assembly

Description	Ohm Range	Tell Tale #1	Tell Tale #2	Tell Tale #3	Tell Tale #4	Connection	Voltage	Single Pack Part No.	10 Pack Part No.
Preconfigured	–	Turn Signal/ Lights	High Beam/ Battery	Oil/Brake	Park Brake/ Gear	MOD II Connector	12-24V		113-000-980-002G
Customizable	–	blank	blank	blank	blank	MOD II Connector	12-24V		113-000-980-004C
Preconfigured	–	Turn Signal/ Hazzard	High beam/ Lights	Battery/Brake	Oil/Level	MOD II Connector	12-24V		113-000-980-014C

Panel Assembly Parts

Description	Single Pack Part No.
4 Pin Connector	X11-000-014-001
5 Pin Connector	X11-000-014-002
7 Way Socket	X11-000-014-003
5 Pin Connector	X11-000-014-004
Connector Socket	X11-000-014-005
Heatsink Shield	X11-395-000-008
Bracket	X11-395-000-009
Light Box	X11-395-000-010
Dial Cover	X11-395-000-012
Blind Cover	X11-395-000-014
Dual Housing Assembly	X11-395-000-029
Screw 14MM	X11-395-000-015
Screw 25MM	X11-395-000-016
Quad Housing Assembly	X11-395-000-028
Dual Circuit Board, Vertical, 12V	X11-395-000-037
Dual Circuit Board, Vertical, 24V	X11-395-000-038
Dual Circuit Board, Landscape, 12V	X11-395-000-041
Dual Circuit Board, Landscape, 24V	X11-395-000-042
Circuit Board 12/24V (W/LIGHT)	X11-395-000-043
Circuit Board 24V Hourmeter	X11-395-000-045
Circuit Board 12/24V (Hourmeter)	X11-395-000-046
Quad Circuit Board 12V	X11-395-000-054
Quad Circuit Board 24V	X11-395-000-055
Dual Circuit Board 12V	X11-395-000-056
Dual Circuit Board 24V	X11-395-000-057
Dial Cover (Dark)	X11-395-000-059

Severe Link

VDO Severe Link is a J1939 CAN Bus solution designed specifically for demanding environments! IP67 water protection, dual lenses and corrosion-proof housings ensure extreme service life, while Severe Link's plug-n-play software makes installation simple and fast. Severe Link's master tachometer with multifunction LCD's can support up to 20 separate satellite gauges, all of which feature built-in pigtails for simplified daisy-chaining.

Master Tachometer

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
5000 RPM	85mm	3 3/8"	x1000	Integrated Waterproof Connector & Harness	12-24V	F	A2C59500012-S	A2C59500012
4000 RPM	85mm	3 3/8"	x1000	Integrated Waterproof Connector & Harness	12-24V	F	N02-012-922-S	N02-012-922
3000 RPM	85mm	3 3/8"	x1000	Integrated Waterproof Connector & Harness	12-24V	F	N02-012-920-S	N02-012-920

Satellite Temperature Gauges, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
300°F		Integrated Waterproof Connector & Harness	–	N02-311-544-S	N02-311-544
300°F		Integrated Waterproof Connector & Harness	F	N02-311-542-S	N02-311-542
250°F		Integrated Waterproof Connector & Harness	F	N02-311-552-S	N02-311-552
1700°F		Integrated Waterproof Connector & Harness	F	N02-311-546-S	N02-311-546

Satellite Pressure Gauges, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
300 PSI		Integrated Waterproof Connector & Harness	F	N02-140-516-S	N02-140-516
150 PSI		Integrated Waterproof Connector & Harness	F	N02-140-512-S	N02-140-512

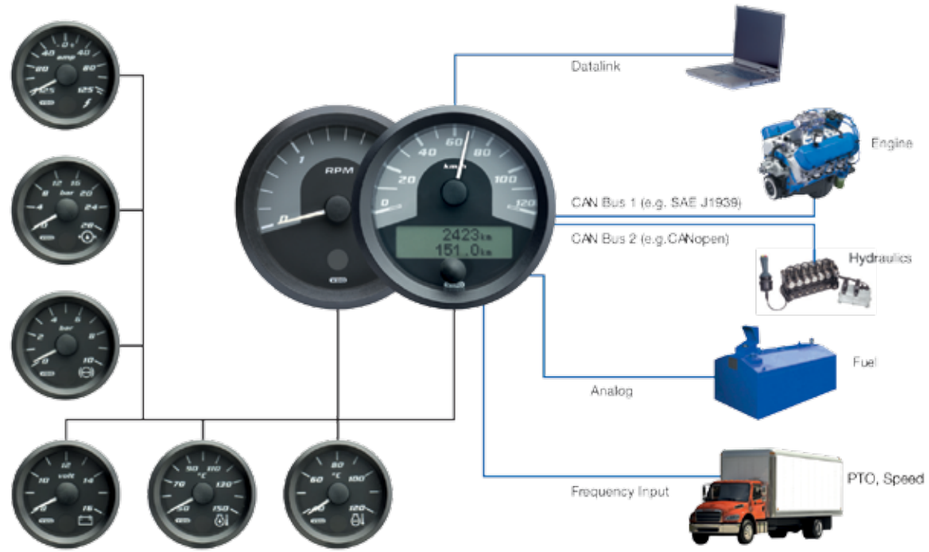
Satellite Fuel Level Gauges, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
0-1/1		Integrated Waterproof Connector & Harness	F	N02-224-080-S	N02-224-080

Satellite Voltmeters, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V		Integrated Waterproof Connector & Harness	F	N02-413-066-S	N02-413-066
18-32V		Integrated Waterproof Connector & Harness	F	N02-413-058-S	N02-413-058

CAN*cockpit* Generation III



VDO CAN*cockpit* GEN III is a flexible, intelligent instrumentation system designed to operate in a Control Area Network (CAN) environment. The system can process digital signals from two CAN bus inputs simultaneously, as well as data provided from analog sensors, such as fuel tank level senders. VDO CAN*cockpit* GEN III can process data protocols from all of the leading engine manufacturers. It is simple to expand and can be easily configured to meet specific application needs.

The CAN*cockpit* GEN III system is built around a master instrument, which can stand alone or be used to control up to 16 additional display instruments. In addition to monitoring speed or RPM, the master instrument can also handle 25 additional engine signals via an integrated LCD display. Data such as temperature, pressure, or fill levels can be displayed using individual instruments, driven by the master instrument.

VDO CAN*cockpit* GEN III can be easily programmed, using WINgauge software, to monitor critical operating parameters and trigger warning signals, or directly display warnings transmitted from the CAN bus when readings are out-of-range. It can also be customized to display service functions, such as specified engine service intervals, which can help reduce operating costs and make scheduling easier.

The CAN*cockpit* GEN III System technology is completely self-contained and eliminates the cost and complexity of external "black boxes" and other interface electronics. Its programmable capability also helps manufacturers reduce production costs and minimizes wiring installation time and sensor assembly requirements.

The master instrument features a yellow backlit monochrome LCD 132 x 33 dot matrix display with white illumination. The housing is made from sturdy flame retardant plastic and mounts easily with our Spin-Lok™ mounting ring.

CAN*cockpit* GEN III Technical Specifications:

Connector:	MP 26 pins MODU II, MATE-N-LOK 4 pins
Inputs:	2 x CAN inputs, 2 x frequency, 3 x resistance, 1 x 4–20mA, 1 x 0–5V
Outputs:	Up to 16 display instruments, 2 x switch output
Rated voltage:	12 to 24V DC
Operating voltage:	9 to 32V DC
Current:	50 mA +/- 10%
Operating temp:	-40° F to 176° F (-40° C to +85° C) (visible restrictions outside -4° F and 158° F [-20° C and +70° C])
Storage temp:	-40° F to 176o F (-40° C to +85° C)
Software:	All instruments must be programmed using VDO WINgauge software
Wire Harness Components:	See page 50
Compatibility:	CAN*cockpit* GEN III is not backwards compatible with previous versions of CAN*cockpit*

Master Speedometer

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
80 MPH/120 KMH	80mm	3 1/8"	MPH/kmh	AMP MODU II 26 PIN	12-24V	–		A2C60000025
80 MPH	85mm	3 3/8"	MPH	AMP MODU II 26 PIN	12-24V	–		A2C60000073
60 KMH	80mm	3 1/8"	km/h	AMP MODU II 26 PIN	12-24V	–		A2C60000022
60 KMH	100mm	4"	KMH	AMP MODU II 26 PIN	12-24V	–		A2C60000128
50 MPH/80 KMH	100mm	4"	MPH/kmh	AMP MODU II 26 PIN	12-24V	–		A2C60000131
30 KMH	80mm	3 1/8"	KMH	AMP MODU II 26 PIN	12-24V	–		A2C60000026
200 KMH/120 MPH	100mm	4"	KMH/MPH	AMP MODU II 26 PIN	12-24V	–		A2C60000133
200 KMH	80mm	3 1/8"	KMH	AMP MODU II 26 PIN	12-24V	–		A2C60000024
200 KMH	100mm	4"	KMH	AMP MODU II 26 PIN	12-24V	–		A2C60000130
140 MPH/220 KMH	100mm	4"	MPH/kmh	AMP MODU II 26 PIN	12-24V	–		A2C60000132
120 MPH/200 KMH	100mm	4"	MPH/kmh	AMP MODU II 26 PIN	12-24V	–		A2C60000134
120 MPH	85mm	3 3/8"	MPH	AMP MODU II 26 PIN	12-24V	–		A2C60000075
120 KMH	80mm	3 1/8"	KMH	AMP MODU II 26 PIN	12-24V	–		A2C60000023
120 KMH	85mm	3 3/8"	KMH	AMP MODU II 26 PIN	12-24V	–		A2C60000072
120 KMH	100mm	4"	KMH	AMP MODU II 26 PIN	12-24V	–		A2C60000129
100 MPH	85mm	3 3/8"	MPH	AMP MODU II 26 PIN	12-24V	–		A2C60000074

Satellite Speedometers

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
60 KMH	80mm	3 1/8"	KMH	MATE-N-LOK 6 PIN	12-24V	–		A2C60000357
60 KMH	52mm	2 1/16"	KMH	MATE-N-LOK 6 PIN	12-24V	–		A2C60000287

Master Tachometer

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
3000 RPM	80mm	3 1/8"	x1000	AMP MODU II 26 PIN	12-24V	–		A2C60000020
4000 RPM	80mm	3 1/8"	x1000	AMP MODU II 26 PIN	12-24V	–		A2C60000021
8000 RPM	80mm	3 1/8"	x1000	AMP MODU II 26 PIN	12-24V	–		A2C60000027
3000 RPM	85mm	3 3/8"	x1000	AMP MODU II 26 PIN	12-24V	–		A2C60000070
4000 RPM	85mm	3 3/8"	x1000	AMP MODU II 26 PIN	12-24V	–		A2C60000071
5000 RPM	85mm	3 3/8"	x1000	AMP MODU II 26 PIN	12-24V	–		A2C60000076
3000 RPM	100mm	4"	x1000	AMP MODU II 26 PIN	12-24V	–		A2C60000126
4000 RPM	100mm	4"	x1000	AMP MODU II 26 PIN	12-24V	–		A2C60000127

Satellite Tachometer

Description	Diameter (Metric)	Diameter (US)	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
3000 RPM	52mm	2 1/16"	x1000	MATE-N-LOK 6 PIN	12-24V	–		A2C60000286
3000 RPM	80mm	3 1/8"	x1000	MATE-N-LOK 6 PIN	12-24V	–		A2C60000356
3000 RPM	100mm	4"	x1000	MATE-N-LOK 6 PIN	12-24V	–		A2C60000360

CAN*cockpit* Generation III

Satellite Temperature Gauges, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150°C/300°F		MATE-N-LOK 6 PIN	–		A2C60000270
300°F/150°C		MATE-N-LOK 6 PIN	–		A2C60000271
120°C		MATE-N-LOK 6 PIN	–		A2C60000276
300°F/150°C		MATE-N-LOK 6 PIN	–		A2C60000288
900°C		MATE-N-LOK 6 PIN	–		A2C60000277
150°C		MATE-N-LOK 6 PIN	–		A2C60000268
150°C		MATE-N-LOK 6 PIN	–		A2C60000269
150°C		MATE-N-LOK 6 PIN	–		A2C60000272
120°C		MATE-N-LOK 6 PIN	–		A2C60000355
280°F/140°C		MATE-N-LOK 6 PIN	–		A2C60000275

Satellite Pressure Gauges, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
150 PSI/10 bar		MATE-N-LOK 6 PIN	–		A2C60000263
150 PSI/10 bar		MATE-N-LOK 6 PIN	–		A2C60000297
150 PSI/10 bar		MATE-N-LOK 6 PIN	–		A2C60000298
80 PSI/5 bar		MATE-N-LOK 6 PIN	–		A2C60000255
100 PSI/7 bar		MATE-N-LOK 6 PIN	–		A2C60000256
150 PSI/10 bar		MATE-N-LOK 6 PIN	–		A2C60000257
400 PSI/28 bar		MATE-N-LOK 6 PIN	–		A2C60000266
2 bar		MATE-N-LOK 6 PIN	–		A2C60000267
5 bar		MATE-N-LOK 6 PIN	–		A2C60000251
10 bar		MATE-N-LOK 6 PIN	–		A2C60000252
500 kPA		MATE-N-LOK 6 PIN	–		A2C60000253
1000 kPA		MATE-N-LOK 6 PIN	–		A2C60000254
10 bar		MATE-N-LOK 6 PIN	–		A2C60000258
10 bar	1	MATE-N-LOK 6 PIN	–		A2C60000259
10 bar	2	MATE-N-LOK 6 PIN	–		A2C60000260
250 bar	AUX1	MATE-N-LOK 6 PIN	–		A2C60000261
250 bar	AUX2	MATE-N-LOK 6 PIN	–		A2C60000262
16 bar		MATE-N-LOK 6 PIN	–		A2C60000264
28 bar		MATE-N-LOK 6 PIN	–		A2C60000265
10 bar		MATE-N-LOK 6 PIN	–		A2C60000354

Satellite Fuel Level Gauges, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
E-F		MATE-N-LOK 6 PIN	–		A2C60000279
0-1/1		MATE-N-LOK 6 PIN	–		A2C60000278
0-1/1	Add Blue	MATE-N-LOK 6 PIN	–		A2C60000299

Satellite Water Level Gauges, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
0-1/1		MATE-N-LOK 6 PIN	–		A2C60000281
0-1/1		MATE-N-LOK 6 PIN	–		A2C60000280

Satellite Ammeters, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
+/- 125 A	⊟	MATE-N-LOK 6 PIN	–		A2C60000285

Satellite Voltmeters, 2 1/16" (52mm) dia

Description	On Dial	Connection	Drawing Number	Single Pack Part No.	10 Pack Part No.
8-16V	⊟	MATE-N-LOK 6 PIN	–		A2C60000282
20-34V	⊟	MATE-N-LOK 6 PIN	–		A2C60000289
18-32V	⊟	MATE-N-LOK 6 PIN	–		A2C60000284

Interface Controller

Description	Single Pack Part No.	10 Pack Part No.
J1939/Can Open/Analog Interface Controller. Supports 16 Satellite Instruments		A2C60500641

CAN*cockpit* GEN III Harness Components

A2C53344035	CAN*cockpit* Master to Satellite Harness with Gold Plated Contacts
A2C53344036	CAN*cockpit* Satellite to Satellite Harness with Gold Plated Contacts
A2C59512862	CAN*cockpit* Gold Plated Pin 4+6 Pin Connector
X11-602-000-001	CAN*cockpit* 26 Pin Housing for 26 Pin Master Connector
X11-602-000-002	CAN*cockpit* Coupling for 26 Pin Master Connector
X11-602-000-004	CAN*cockpit* Pin Locking for 26 Pin Master Connector
X11-602-000-005	CAN*cockpit* Bracket for 26 Pin Master Connector
X11-602-000-006	CAN*cockpit* 4 Pin Connector for Master
A2C53041729	CAN*cockpit* Type A Master Harness (Data source to Master)

System Support

Description	Single Pack Part No.	10 Pack Part No.
VDO WinGauge Software (Required with CAN*cockpit* Instruments)	X11-602-000-010	–

The VDO hourmeter line has been expanded to offer hourmeters in many sizes, styles and configurations. They include models which are illuminated and non-illuminated.

Hourmeters, Illuminated, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
100,000 Hours	HOURS	.250" Spade	12V	J	331 957	331 957B
100,000 Hours	HOURS	.250" Spade	24V	J	331 960	331 960B

Hourmeters, Non-Illuminated, 2 1/16" (52mm) Dia

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
100,000 Hours	HOURS	.250" Spade	12V	J	331 953	331 953B

Hourmeters, Non-Illuminated, 2 1/16" (52mm) Dia w/ minute hand

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
100,000 Hours	HOURS	.250" Spade	12V	J	331 959	331 959B

Mini Hourmeter, 2 Hole Mounting Flange, Electrical, 1.42"Wx.92"Hx2.91"D (36mmx23.4mmx71.1mm)

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
10,000 Hours	HOURS	.250" Spade	12-60V	Q	331 536	331 536B

Mini Hourmeter, Flush Mount Flange, Electrical, 1.42"Wx.92"Hx2.91"D (36mmx23.4mmx71.1mm)

Description	On Dial	Connection	Voltage	Drawing Number	Single Pack Part No.	10 Pack Part No.
100,000 Hours	HOURS	.250" Spade	12-60V	Q	331 537	–

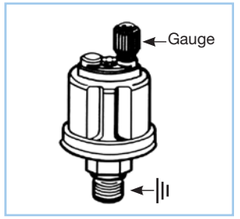
VDO Pressure & Temperature Senders

Using the expertise we've gained in developing specialized solutions for many of the world's leading vehicle manufacturers, we offer a large portfolio of pressure and temperature senders. Unlike many companies today, we manufacture our senders in our own ISO and TSO registered facilities, using the same quality materials and engineering processes, to meet the same quality standards as our OE products.

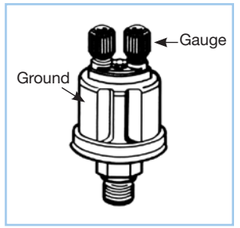
With optional features such as floating ground, warning contact point to control warning lights and/or warning alarms and dual station (twin gauge) capability, VDO senders offer more choices to meet your specific needs

With VDO senders, you can count on the performance that you would expect from one of the largest suppliers in the world. Designed to meet the challenges of some of the most demanding OE applications, VDO pressure and temperature senders are engineered to deliver maximum performance for years of trouble free service.

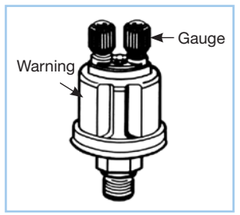
Pressure Sender Kits



Standard Ground:
sender case to common ground; and Dual Station Standard Ground



Floating Ground:
isolated terminal to common ground; and Dual Station Floating Ground



Standard Ground
with Warning Contact

Note: All Pressure senders are designed to work with VDO gauges only, unless otherwise noted. Senders are matched to gauges according to maximum reading on dial face. All senders are standard ground (sender case to common ground) **Please note**: VDO senders have tapered threads and DO NOT require the use of Teflon tape or pipe sealant. This will interfere with grounding causing incorrect instrument readings.

Pressure Sender & Adapter Kits

VDO universal sender kits include ⅛-27NPT common ground pressure sender, spade connector and US thread adapter kit for ¼-18, ⅜-18 and ½-14 NPT threads.

Catalog Number	Description
360 905	150PSI/5bar with US Thread Adapters
360 900	80PSI/5bar with US Thread Adapters

Table 1: 80PSI / 5 bar (10-180Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
¼-18NPTF	8 PSI	Standard	30/20	Knurled Nut	360 019
¼-18NPTF		Standard	29/8	Knurled Nut	360 005
⅛-27NPTF		Standard	29/4	Knurled Nut	360 003
⅛-27NPTF		Standard	3/1	.250" Spade	**362 033**
⅛-27NPTF		Floating	1/1	.250" Spade	**362 001**
⅛-27NPTF		Floating	32/1	Knurled Nut	360 410
M10x1.0		Standard	29/1	Knurled Nut	360 001
M12x1.5		Standard	29/85	Knurled Nut	360 002
M10x1.0	12 PSI	Standard	30/4	Knurled Nut	360 034
⅛-27NPTF		Standard	30/23	Knurled Nut	360 009
M10x1.0	7 PSI	Standard	30/2	Knurled Nut	360 006
M14x1.5	7 PSI	Standard	30/28	Knurled Nut	360 028
M12x1.5	8.5 PSI	Standard	30/6	Knurled Nut	360 007

Table 2: 80PSI / 5 bar (240-33Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
⅛-27NPTF		Standard	AT84200	10-32 Stud	360 801

Table 3: 100PSI / 7 bar (10-180Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
⅛-27NPTF		Standard	655	10-32 Stud	360 086

Table 4: 100PSI / 7 bar (240-33Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
⅛-27NPTF		Standard	734	10-32 Stud	360 811

Table 5: 150PSI / 10 bar (10-180Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
¼-18NPTF		Standard	29/20	Knurled Nut	360 021
⅛-27NPTF		Standard	29/12	Knurled Nut	360 004
⅛-27NPTF		Standard	3/2	Knurled Nut	**362 034**
⅛-27NPTF		Floating	1/2	.250" Spade	**362 002**
⅛-28BSP		Standard	29/62	Knurled Nut	360 081
⅛-27NPTF		Standard	32/14	Knurled Nut	360 430
M10x1.0		Standard	29/10	Knurled Nut	360 015
⅛-27NPTF	11.4 PSI	Standard	30/15	Knurled Nut	360 025
M10x1.0	29.6 PSI	Standard	30/41	Knurled Nut	360 033
M10x1.0	7 PSI	Standard	30/9	Knurled Nut	360 023
M12x1.5	7 PSI	Standard	30/22	Knurled Nut	360 024

Table 6: 350 PSI / 25 bar (10-180Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
⅛-27NPTF		Standard	4/1	.250" Spade	**362 035**
⅛-27NPTF		Floating	2/1	.250" Spade	**362 003**
⅜-18NPTF		Standard	38/2	.250" Spade	360 432
⅛-27NPTF		Standard	38/3	M4 Stud	360 431
M14x1.5		Standard	38/1	M4 Stud	360 442

"362" series of pressure senders are for dual station (2 pressure gauge) installations

Pressure Senders & Switches

Table 7: 400PSI / 28 bar (10-180Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
1/8-27NPTF		Floating	2/3	Knurled Nut	**362 004**
1/8-27NPTF		Floating	38/8	Knurled Nut	360 406

Table 8: 30PSI / 2 bar (10-180Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
1/8-27NPTF		Floating	32/25	.250" Spade	360 043

Table 9: 100PSI / 7 bar (0-90Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
1/8-27NPTF		Standard		10-32 Stud	360 802

Table 10: 250PSI / 16 bar (10-180Ohm) Pressure Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
1/8-27NPTF		Standard	37/7	Knurled Nut	360 035

Pressure Sender

Heavy-Duty Pressure Switch Technical Specifications:

Normally Open: Contacts open until pressure rises which then completes the circuit. **Normally Closed:** Contacts closed until pressure rises which then breaks the circuit. Direct action blade contact pressure switches with adjustable contact ranges: 4–7 PSI +/- 1; 14–24 PSI +/- 3; 51–90 PSI +/- 7

Contacts: Silver alloy

Operating Pressure (Set Point Range)
4–24 PSI = 150 PSI 25–90 PSI = 250 PSI

Proof Pressure: 500 PSI

Burst Pressure (Set Point Range)
4–24 PSI = 750 PSI 25–90 PSI = 1,250 PSI

Base: Steel plated
Diaphragm: Polyimide film
Cover: Glass reinforced polyester

Electrical Ratings

Resistive:	15 Amp–6 VDC
	8 Amp–12 VDC
	4 Amp–24 VDC
Inductive:	1 Amp–120 VAC
	0.5 Amp–240 VAC

Temperature Range: -40° F to 250° F

Terminals: #8–32 screws
Thread Size: 1/8–27 NPT

Pressure Switch

Pressure Switches: Single Circuit, Normally Closed, Insulated Ground

Warning Contact Point	Thread	Connection	Circuit	Catalog #
15PSI	1/8-27NPTF	#8-32	Normally Closed	230 515
4PSI	1/8-27NPTF	#8-32	Normally Closed	230 504
60PSI	1/8-27NPTF	#8-32	Normally Closed	230 560

Pressure Switches: Single Circuit, Normally Open, Insulated Ground

Warning Contact Point	Thread	Connection	Circuit	Catalog #
60PSI	1/8-27NPTF	#8-32	Normally Open	230 460
4PSI	1/8-27NPTF	#8-32	Normally Open	230 404
15PSI	1/8-27NPTF	#8-32	Normally Open	230 415

Pressure Switches: Dual Circuit, Normally Open/Normally Closed, Insulated Ground

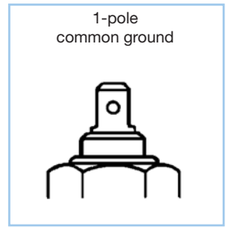
Warning Contact Point	Thread	Connection	Circuit	Catalog #
60PSI	1/8-27NPTF	#8-32	Normally Open/Normally Closed	230 660
4PSI	1/8-27NPTF	#8-32	Normally Open/Normally Closed	230 604
15PSI	1/8-27NPTF	#8-32	Normally Open/Normally Closed	230 615

Warning Notice: VDO pressure senders are not to be used with any type of fuel application. VDO pressure senders may not be used in automotive braking systems. VDO pressure senders are not suitable for use in aircraft.

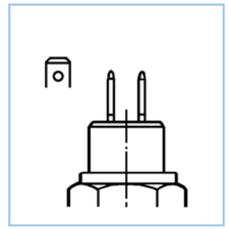
"362" series of pressure senders are for dual station (2 pressure gauge) installations

Temperature Senders

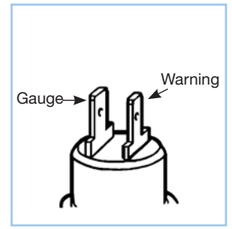
Types of senders



Standard Ground: sender case to common ground



Floating Ground: isolated terminal to common ground



Standard Ground with Warning Contact

Universal Sender Kits

Temperature Sender & Adapter Kits

VDO universal sender kits include 1/8-27NPT common ground temperature sender, spade connector and US thread adapter kit for 1/4-18, 3/8-18 and 1/2-14 NPT threads.

Catalog Number	Description
323 900	250°F/120°C with US Thread Adapters
323 905	300°F/150°C with US Thread Adapters

Table A: 250°F / 120°C Temperature Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
1/2-14NPTF		Standard	801/1/16	Knurled Nut	323 419
1/2-14NPTF		Standard	801/1/10	.250" Spade	323 093
1/4-18NPTF		Standard	801/1/9	.250" Spade	323 420
1/8-27NPTF		Standard	801/5/1	.250" Spade	323 095
3/8-18NPTF		Standard	801/1/38	Knurled Nut	323 421
3/8-18NPTF		Standard	801/1/7	.250" Spade	323 094
5/8-18 UNF		Standard	801/1/8	.250" Spade	323 422
1/4-18NPTF		Floating	805/3/1	.250" Spade	325 002
3/8-18NPTF		Floating	805/3/3	.250" Spade	325 007
1/2-14NPTF		Floating	805/1/4	.250" Spade	323 478
3/8-18NPTF		Floating	805/1/5	.250" Spade	323 479
5/8-18 UNF		Floating	805/1/2	.250" Spade	323 483
M14x1.5		Floating	805/1/1	.250" Spade	323 425
M14x1.5		Standard	801/1/26	Knurled Nut	323 416
M16x1.5		Standard	801/1/29	Knurled Nut	323 417
M18x1.5		Standard	801/1/22	.250" Spade	323 418
1/2-14NPTF	205°F	Standard	803/1/19	.250 & .187 Spade	323 098
M14x1.5	205°F	Standard	803/1/6	.250 & .187 Spade	323 102
5/8-18 UNF	209°F	Standard	803/1/2	.250 & .187 Spade	323 026
1/2-14NPTF	217°F	Standard	803/1/25	.250 & .187 Spade	323 099
1/2-14NPTF	230°F	Standard	803/1/32	.250 & .187 Spade	323 100
M16x1.5	230°F	Standard	803/1/7	.250 & .187 Spade	323 028
M10x1.0		Standard	801/17/1	.250" Spade	323 088

Note: All Temperature senders are designed to work with VDO gauges only. Senders are matched to gauges according to maximum reading on dial face. All senders are standard ground (sender case to common ground). Please note: VDO senders have tapered threads and DO NOT require the use of Teflon tape or pipe sealant. This will interfere with grounding causing incorrect instrument readings.

Temperature Senders

Table B: 300°F / 150°C Temperature Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
1/2-14NPTF		Standard	801/4/6	M4 Stud	323 060
1/4-18NPTF		Standard	801/4/17	Knurled Nut	323 058
1/8-27NPTF		Standard	801/9/1	.250" Spade	323 057
3/8-18NPTF		Standard	801/4/15	.250" Spade	323 059
1/4-18NPTF		Floating	805/3/2	.250" Spade	323 485
M10x1.0		Standard	801/9/3	.250" Spade	323 423
M12x1.5		Standard	801/10/3	.250" Spade	323 092
M14x1.5		Standard	801/12/2	.250" Spade at 90°	323 055
M16x1.5		Standard	801/12/1	.250" Spade at 90°	323 056
M18x1.5		Standard	801/12/3	.250" Spade at 90°	323 064
1/2-14NPTF	250°F	Standard	803/2/15	.250 & .187 Spade	323 120
M14x1.5		Standard	803/2/7	.250 & .187 Spade	323 121

Table C: 400°F / 200°C Temperature Senders

Thread	Warning Contact Point	Ground	Component Reference #	Connection	Catalog #
1/8-27NPTF		Standard	801/13/1	.250" Spade	323 050
1/8-27NPTF		Standard	801/18/1	.250" Spade	323 086
M10x1.5		Standard	801/3/1	.250" Spade	323 091

Table D: Air, Cylinder and Exhaust Temperature Senders

Description	Range	Thread	Connection	Catalog #
Outside Air, for Vision Gauges	120°F	M10x1.0	M4 Stud	323 087
Outside Air, for Viewline	185°F		Unterminated Wire Lead	323-112
600F Cylinder Head, 14MM, Includes 15ft Wire Harness	600°F		14mm Ring Terminal	323 701
Pyrometer Thermocouple	1650°F	1/4-18NPTF	#6 Ring Terminal	323 892
Pyrometer Thermocouple and Weld-on Adapter	1650°F	1/4-18NPTF	#6 Ring Terminal	323 903
Pyrometer Sender, for Ocean Line, Severe Duty and Viewline	1650°F	1/4-18NPTF	#6 Ring Terminal	326 001

Table E: Replacement US Range Coolant and Oil Temperature Senders

Description	Range	Thread	Connection	Catalog #
Temperature Sender 240°F 1/8-27NPTF	240F	1/8-27NPTF	#8-32	323 500
Temperature Sender 280°F 1/8-27NPTF	280F	1/8-27NPTF	#8-32	323 501
Temperature Sender 320°F 1/8-27NPTF	320F	1/8-27NPTF	#8-32	323 502

Temperature Switches

Temperature Switch Technical Specifications:

Switching Capacity: 1.2W to 3W, non-inductive for monitoring various mediums

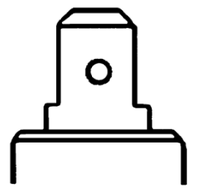
Normally Open, Single Circuit, Standard Ground Systems

Rated Voltage: 6V to 24V

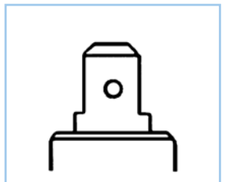
Type of Contact: SS = contact closes as temperature rises

Break Point: 5° C max. below make point

Contacting Mode: Slow-acting

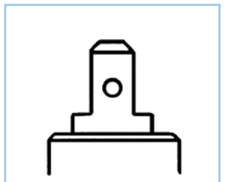


Types of switches



Connection: .250”

Connection: M4 Stud



Connection: .187”

Temperature Switches

Warning Contact Point	Thread	Connection	Circuit	Catalog #
158°F	M14x1.5	.250” Spade	Normally Open	232 013
194°F	M10x1.5	M4 Stud	Normally Open	232 001
203°F	1/2-14NPTF	.250” Spade	Normally Open	232 012
205°F	1/8-27NPTF	M4 Stud	Normally Open	232 007
217°F	1/2-14NPTF	.250” Spade	Normally Open	232 015
217°F	3/8-18NPTF	.250” Spade	Normally Open	232 017
221°F	1/2-14NPTF	.250” Spade	Normally Open	232 005
221°F	3/8-18NPTF	.187 Spade	Normally Open	232 019
230°F	M10x1.0	M4 Stud	Normally Open	232 009
230°F	M14x1.5	.250” Spade	Normally Open	232 011
248°F	1/2-14NPTF	M4 Screw	Normally Open	232 010
248°F	3/4-16UNF	.250” Spade	Normally Open	232 018
275°F	M10x1.5	M4 Stud	Normally Open	232 021
302°F	M10x1.5	M4 Stud	Normally Open	232 006
338°F	M10x1.5	M4 Stud	Normally Open	232 002
383°F	M10x1.5	M4 Stud	Normally Open	232 020

Speed, Position and Tachometer Senders

Generator Senders	
Description	**Catalog #**
Generator Sender 7/8-18, 4 Pulse	340 001
Generator Sender M22X1.5, 4 Pulse	340 002
Generator Sender with Odometer/Revolution Counter 7/8-18, 4 Pulse	340 008
Generator Sender with Odometer/Revolution Counter M22X1.5, 4 Pulse	340 007

340 001

Inductive Sender	
Description	**Catalog #**
Inductive Sender, Magnetic Pickup 2”	340 020

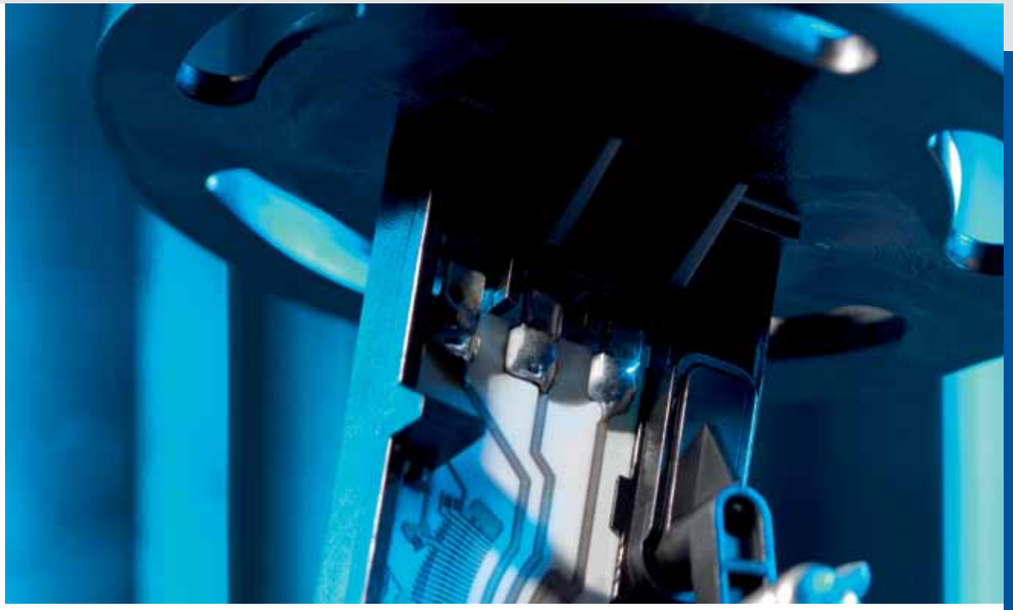
340 020

Position Indicator Senders	
Description	**Catalog #**
Position Indicator Sender 0-90 Ohm, Dual Station	440 004
Position Indicator Sender 10-180 Ohm, Single Station	440 003

440 003

Speed Senders	
Description	**Catalog #**
Standard GM 7/8-18 Thread, Aluminum body	340 011
Standard GM 7/8-18, Heavy Duty	340 011E
Hall Effect Sender for Ford Transmission	340 013
GPS Speed Sender	340 786

340 786



VDO Fuel Senders

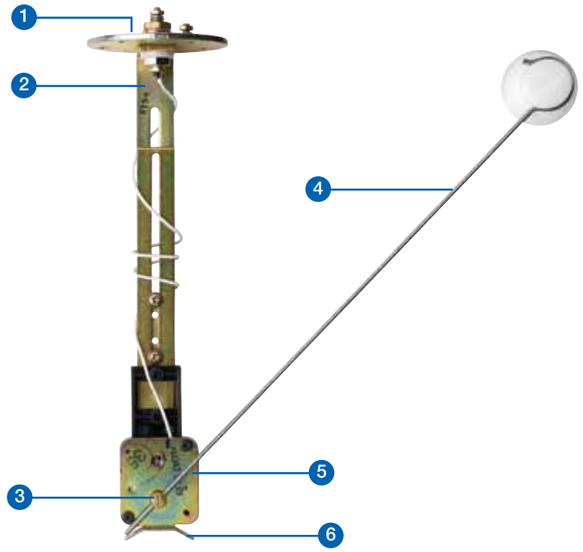
Today more than ever, due to tank configurations, you need choices when it comes to designing new systems. VDO gives you those choices, from simple economical solutions to ones which give you integrated delivery and return tubes.

Our original ALAS design, which has been often copied in the industry but never duplicated in its quality or durability is now joined by two new designs, ALAS I & ALAS II. On the following pages you can see the features of each design and decide for yourself which best meet your requirements.

- **ALAS** (adjustable length arm sender)
- **ALAS I** (adjustable length arm sender with low warning contact)
- **ALAS II** (adjustable length arm sender with low warning contact, draw & return tubes)

VDO ALAS Plated Steel 12/24V Adjustable Swing Arm Sender

Designed for severe duty use, each of these senders contains an SAE standard five hole metal mounting flange and body components which can be adjusted from 6" to 23" tank depth. Adaptable to right hand or left hand swing arm. Each contains thick film resistor technology for greater resistance to wear associated with standard wire wound units. Each kit contains neoprene mounting gasket and mounting screws. For tanks without flange mounting holes our optional tank mounting kit may be used.



1. SAE 5-hole mounting flange can rotate to position sender for right or left hand swing.
2. Body constructed of plated steel to eliminate damage caused by fuel slosh.
3. Swing arm pivot uses oversized bearings for long life.
4. Adjustable for tank depths from 152mm to 584mm.
5. Wiper and thick film resistor are shielded from fuel slosh for maximum durability.
6. Float arm stops ensure wiper remains in contact with resistor board when tank is full or low.

ALAS Fuel Senders			
Description	**Component Reference**	**Mounting Diameter**	**Catalog #**
ALAS Adjustable Fuel Sender 6 3/4-23", 10-184 Ohm	1-551-004-082B	54mm	226 001
ALAS Adjustable Fuel Sender 6 3/4-23", 10-184 Ohm, with Tank Flange	1-551-004-082B	54mm	226 002
ALAS Adjustable Fuel Sender 6 3/4-23", 240-33 Ohm	1-551-004-123D	54mm	226 007
ALAS Adjustable Fuel Sender 6 3/4-23", 0-90 Ohm (most GM)	1-551-004-161D	54mm	226 008
ALAS Adjustable Fuel Sender 6 3/4-23", 73-10 Ohm		54mm	226 003

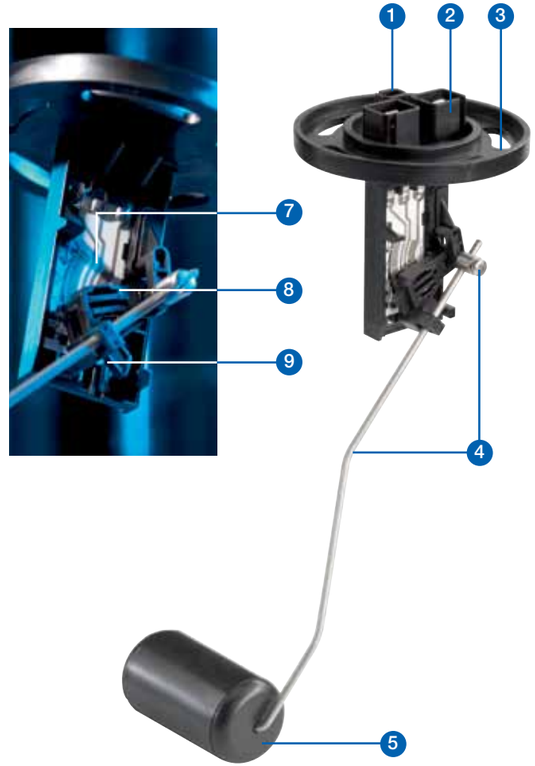
VDO ALAS I 12/24V Fuel Senders

An economical and practical solution for fuel monitoring for tank depths from 140mm to 400mm

Engineered with a redundant dual wiper system, our unique VDO 'quiet arm' and thick film technology, VDO ALAS I leads the field in reliability and durability. In fact, this family of senders has the ability to withstand over one million swing arm cycles without failure. ALAS I senders feature our unique slotted SAE five-hole flange mount, an industry first that gives you the utmost in versatility for sender mounting positions.

Three resistance values are available, 10-180 ohm, 240-33 ohm & 90-0 ohm. ALAS I senders are available with an optional low fuel warning contact circuit found in no other universal type sender.

Upon request, we can supply senders fully assembled to your specifications.



1. Available with low fuel warning contact.
2. Redundant ground connection.
3. Unique SAE 5-hole slotted mounting plate allows for positioning sender for left or right hand applications.
4. Stainless steel float arm and pivot adjusts from 140mm to 400mm.
5. "No sink" solid float.
6. Steel reinforced mounting hardware (included with single packed senders).
7. VDO thick film element with 39-step resolution.
8. Redundant dual wiper system.
9. 'Quiet arm' minimizes float movement.

ALAS I Fuel Senders				
Description	**Warning contact**	**Component Reference**	**Mounting Diameter**	**Catalog #**
ALAS I Adjustable Fuel Sender, 6-15 3/4", 0-90 Ohm, with Low Fuel Warning Contact	Yes	A2C59510164	54mm	226 164
ALAS I Adjustable Fuel Sender, 6-15 3/4", 240-33 Ohm, with Low Fuel Warning Contact	Yes	A2C59510163	54mm	226 163
ALAS I Adjustable Fuel Sender, 6-15 3/4", 3-180 Ohm, with Low Fuel Warning Contact	Yes	A2C59510162	54mm	226 162

ALAS II 12/24V Fuel Senders with Draw / Return Tubes

Again, VDO is first to market with the only adjustable fuel sender featuring interchangeable draw / return tubes, plus optional low fuel warning contact. Just pick the length and diameter of the draw / return tubes based on your gas or diesel application, set the float length and you're ready for installation.

If you have several tank configurations, inventory is minimized with our 'one size fits all' design, without compromising the durability or integrity of the sender. These units are fully adjustable from 140mm to 400mm.

Engineered with a redundant dual wiper system, the unique VDO 'quiet arm' and thick film technology, ALAS II leads the field in reliability and durability. In fact, this family of senders has the ability to withstand over one million swing arm cycles without failure. VDO ALAS II senders feature our unique slotted SAE 5-hole flange mount, an industry first that gives you the utmost in versatility for sender mounting positions.

Three resistance values are available, 10-180 ohm, 240-33 ohm and 90-0 ohm. ALAS II senders are available with an optional low fuel warning contact circuit that is not offered in other universal type senders.

Upon request, we can supply senders fully assembled to your specifications.

Each draw / return tube has 360° of positioning capability within the flange to meet your specific application.

Draw / return tubes available in four different diameters (6.5mm, 8mm, 10 and 12mm), accommodating tank depths up to 400mm.

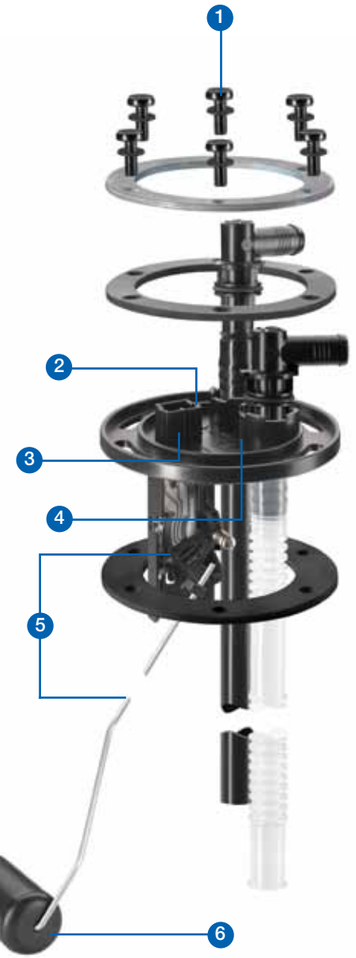
Where return tubes are not required, a port plug is available.

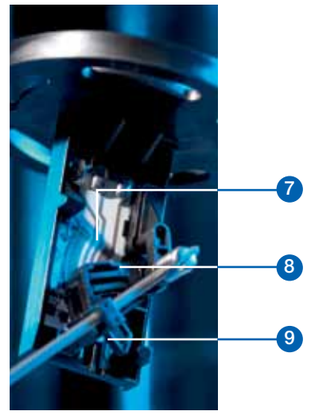
ALAS II Fuel Senders				
Description	**Warning contact**	**Component Reference**	**Mounting Diameter**	**Catalog #**
ALAS II Adjustable Fuel Sender, 5 1/2-15 3/4", 0-90 Ohm, with Low Fuel Warning Contact	Yes	A2C53278251	80mm	226 975
ALAS II Adjustable Fuel Sender, 5 1/2-15 3/4", 240-33 Ohm, with Low Fuel Warning Contact	Yes	A2C53278250	80mm	226 973
ALAS II Adjustable Fuel Sender, 5 1/2-15 3/4", 3-180 Ohm, with Low Fuel Warning Contact	Yes	A2C53278239	80mm	226 946
ALAS II Fuel Sender Kit with 10mm (3/8") Draw and Return Tubes and Wire Harness. 0-90 Ohm Range	Yes	A2C53278251	80mm	226-975K
ALAS II Fuel Sender Kit with 10mm (3/8") Draw and Return Tubes and Wire Harness. 10-180 Ohm Range	Yes	A2C53278239	80mm	226-946K
ALAS II Fuel Sender Kit with 10mm (3/8") Draw and Return Tubes and Wire Harness. 240-33 Ohm Range	Yes	A2C53278250	80mm	226-973K

ALAS II Platform:

- Composite construction.
- Available with or without low fuel warning contact.
- Available factory set to customer specifications.
- Available in 10-180 ohm, 240-33 ohm, 90-0 ohm range.

1. Steel reinforced mounting hardware.
2. Available with low fuel warning contact.
3. Redundant ground connection.
4. Unique SAE 5-hole slotted mounting plate allows for positioning sender for left or right hand applications.
5. Stainless steel float arm and pivot adjusts from 140mm to 400mm.
6. 'No sink' solid float.
7. VDO thick film element with 39-step resolution.
8. Redundant dual wiper system.
9. 'Quiet arm' minimizes float movement.





ALAS II Fuel Sender Installation Kit and Draw & Return Tubes		
Step 1: Required installation kit	Installation Kit	226 985
Step 2: Select draw tube	Tube inside diameter	Single
	6.5mm	226 955
	8.0mm	226 953
	10.0mm	226 951
	12.0mm	226 949
Step 3: Select return tube	Tube inside diameter	Single
	6.5mm	226 956
	8.0mm	226 954
	10.0mm	226 952
	12.0mm	226 950
Step 4: (optional - if 1 or both tubes are not required)		Single
	port plug	226 965
(required)	wire harness connector with 24" lead	A2C59519722-S

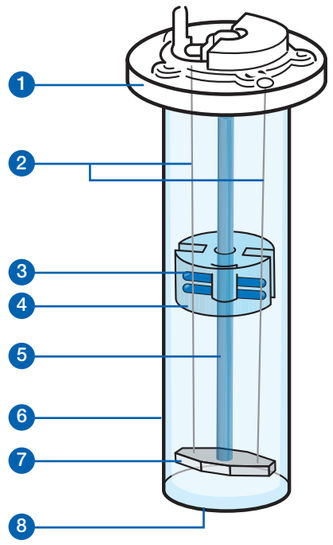
VDO Tube Type 12/24V Fuel Senders

Our VDO tube type fuel senders are considered to be the most robust fuel sender in our product offering today.

The advantage of a tube type sender is that it uses the least amount of space within a tank, with no worries about float arm direction. The float is contained within the aluminum cylindrical housing, and it rides on two resistive wires that protect it from the 'extreme fuel sloshing' that occurs in many shallow, large or odd sized tanks.

VDO tube type fuel senders feature a standard SAE 5-hole mounting flange and can fit tanks depths from 150mm to 800mm.

- Suitable for gasoline and diesel fuels.
- Ideal for situations where fuel slosh is problematic.
- Aluminum flange and housing can withstand extreme environments, where dust or salt water spray are present.
- Available in 34 standard lengths from 150mm (~6in) to 800mm (~31 ½ in).
- M4 stud and .250" spade connections provided with each sender.
- Supplied with neoprene mounting gasket.



VDO tubular level sensor

1. Mounting flange.
2. Resistance wires.
3. Contact springs.
4. Float.
5. Guide bar.
6. Protecting tube.
7. Insulating piper.
8. Liquid access hole.

Tube Type Fuel Level Senders				
Mounting Dia.	**Mounting Depth**	**Component Ref. #**	**Connection**	**Catalog #**
54mm	150mm / 6 in	224-011-000-150X	interchangeable: .250 Spade or M4 Stud	224 215
54mm	160mm / 6.3 in	224-011-000-160X	interchangeable: .250 Spade or M4 Stud	224 216
54mm	170mm / 6.7 in	224-011-000-170X	interchangeable: .250 Spade or M4 Stud	224 217
54mm	180mm / 7.1 in	224-011-000-180X	interchangeable: .250 Spade or M4 Stud	224 218
54mm	190mm / 7.5 in	224-011-000-190X	interchangeable: .250 Spade or M4 Stud	224 219
54mm	200mm / 7.9 in	224-011-000-200X	interchangeable: .250 Spade or M4 Stud	224 220
54mm	210mm / 8.3 in	224-011-000-210X	interchangeable: .250 Spade or M4 Stud	224 221
54mm	220mm / 8.7 in	224-011-000-220X	interchangeable: .250 Spade or M4 Stud	224 222
54mm	230mm / 9.1 in	224-011-000-230X	interchangeable: .250 Spade or M4 Stud	224 223
54mm	250mm / 9.9 in	224-011-000-250X	interchangeable: .250 Spade or M4 Stud	224 225
54mm	260mm / 10.3 in	224-011-000-260X	interchangeable: .250 Spade or M4 Stud	224 226

Tube Type Fuel Level Senders continued on next page

Tube Type Fuel Level Senders				
Mounting Dia.	**Mounting Depth**	**Component Ref. #**	**Connection**	**Catalog #**
54mm	270mm / 10.7 in	224-011-000-270X	interchangeable: .250 Spade or M4 Stud	224 227
54mm	280mm / 11.1 in	224-011-000-280X	interchangeable: .250 Spade or M4 Stud	224 228
54mm	290mm / 11.5 in	224-011-000-290X	interchangeable: .250 Spade or M4 Stud	224 229
54mm	300mm / 11.9 in	224-011-000-300X	interchangeable: .250 Spade or M4 Stud	224 230
54mm	310mm / 12.3 in	224-011-000-310X	interchangeable: .250 Spade or M4 Stud	224 231
54mm	320mm / 12.6 in	224-011-000-320X	interchangeable: .250 Spade or M4 Stud	224 232
54mm	330mm / 13.2 in	224-011-000-330X	interchangeable: .250 Spade or M4 Stud	224 233
54mm	340mm / 13.4 in	224-011-000-340X	interchangeable: .250 Spade or M4 Stud	224 234
54mm	350mm / 13.8 in	224-011-000-350X	interchangeable: .250 Spade or M4 Stud	224 235
54mm	360mm / 14.2 in	224-011-000-360X	interchangeable: .250 Spade or M4 Stud	224 236
54mm	370mm / 14.6 in	224-011-000-370X	interchangeable: .250 Spade or M4 Stud	224 237
54mm	380mm / 15 in	224-011-000-380X	interchangeable: .250 Spade or M4 Stud	224 238
54mm	390mm / 15.4 in	224-011-000-390X	interchangeable: .250 Spade or M4 Stud	224 239
54mm	400mm / 15.8 in	224-011-000-400X	interchangeable: .250 Spade or M4 Stud	224 240
54mm	450mm / 17.8 in	224-011-000-450X	interchangeable: .250 Spade or M4 Stud	224 245
54mm	500mm / 19.7 in	224-011-000-500X	interchangeable: .250 Spade or M4 Stud	224 250
54mm	550mm / 21.7 in	224-011-000-550X	interchangeable: .250 Spade or M4 Stud	224 255
54mm	600mm / 23.7 in	224-011-000-600X	interchangeable: .250 Spade or M4 Stud	224 260
54mm	650mm / 25.6 in	224-011-000-650X	interchangeable: .250 Spade or M4 Stud	224 265
54mm	700mm / 27.6 in	224-011-000-700X	interchangeable: .250 Spade or M4 Stud	224 270
54mm	750mm / 29.6 in	224-011-000-750X	interchangeable: .250 Spade or M4 Stud	224 275
54mm	800mm / 31.5 in	224-011-000-800X	interchangeable: .250 Spade or M4 Stud	224 280
80mm	882.65mm / 34.8 in		.250" Spade	224 074
80mm	916mm / 36.1 in		.250" Spade	224 052
80mm	1086mm / 42.8 in		M5 Stud	224 075

Water Level Senders

Constructed of durable stainless steel, these senders are designed for fresh and blackwater applications as indicated. Mounting hardware is supplied with each sender.

Water Type	Sender Type	Mounting Depth	Mounting Dia.	Catalog #
Freshwater	Capacitive	1200-1500mm / 47.2-59.0 in	54mm	226 455
Freshwater	Capacitive	600-1200mm / 23.5-47.2 in	54mm	226 454
Freshwater	10-180 Ohm	203mm to 584mm / 8.0-23.0 in	54mm	226 452
Freshwater	Capacitive	80-600mm / 3.1-23.5 in	54mm	226 453
Wastewater	Capacitive	1200-1500mm / 47.2-59.0 in	54mm	226 458
Wastewater	Capacitive	600-1200mm / 23.5-47.2 in	54mm	226 457
Wastewater	Capacitive	80-600mm / 3.1-23.5 in	54mm	226 456

Instrument Accessories and Service Parts

Steel Mounting Bracket

240 027	1 Gauge Mounting Bracket - for 2 1/16" Gauges - Black
240 028	2 Gauge Mounting Bracket - for 2 1/16" Gauges - Black
240 029	3 Gauge Mounting Bracket - for 2 1/16" Gauges - Black
240 034	1 Gauge Mounting Bracket - for 2 1/16" Gauges - Chrome
240 035	2 Gauge Mounting Bracket - for 2 1/16" Gauges - Chrome
240 036	3 Gauge Mounting Bracket - for 2 1/16" Gauges - Chrome

Steel Mounting Cup

240 017	Steel Mounting Cup Kit for 2 1/16" Gauges - Chrome
240 016	Steel Mounting Cup Kit for 2 1/16" Gauges - Black
240 019	Steel Mounting Cup Kit for 3 3/8" Gauges - Chrome
240 018	Steel Mounting Cup Kit for 3 3/8" Gauges - Black

Mounting Cup

240 101	Plastic Mounting Cup for 2 1/16" Gauges - Black
240 102	Plastic Mounting Cup for 3 1/8" Gauges - Black

Rubber Mounting Brackets

240 802	1 Gauge Rubber Mounting Bracket for 2 1/16" Gauges
240 803	2 Gauge Rubber Mounting Bracket for 2 1/16" Gauges
240 804	3 Gauge Rubber Mounting Bracket for 2 1/16" Gauges

Anti-Glare Rings

240 005	Anti-Glare Ring for 2 1/16" Gauges - Pair

Stud Mounting Kits

600 401	Stud Mount Conversion Kit for 3 1/8" and 3 3/8" Vision and Cockpit Series Gauges
600 402	Stud Mount Conversion Kit for 2 1/16" Vision and Cockpit Series Gauges

Spin-Lok™ Mounting Rings (Replacement)

600 415	3 3/8" (85mm) for Viewline
600 416	4 3/8" (110mm) for Viewline
600 405	3 1/8" (80mm) for Vision and Cockpit Series Instruments
600 406	3 3/8" (85mm) for Vision, Cockpit and Series 1 Instruments
600 404	2 1/16" (52mm) for All VDO Instruments
600 403	4" (100MM) for Vision and Cockpit Series Instruments

Flush Mounting Kits

600 413	Back Mount Bracket and Gasket for 1 Viewline Instrument

Reducer Rings

600 851	Reducing Ring 2 3/8" to 2 1/16"
600 885	Reducing Ring 3 3/8" to 3 1/8"

85MM Ocean Line & Severe Duty Bezels

600 002	Square Bezel for 85mm Ocean Line & Severe Duty Instruments

Instrument Panel Hole Covers

240 864	Instrument Panel Hole Cover, 2 1/16"

Optional Black Square Bezels

600 001	Square Bezel for 52mm Ocean Line & Severe Duty Instruments

Warning Buzzer

407 1101	Panel Mounted Warning Buzzer with Black Bezel
407 4101	Panel Mounted Warning Buzzer with Chrome Bezel

Mounting Brackets

Adjustable Mounting Cups

Mounting Cups

Spin-Lok™ Mounting Rings

600 402

Anti-glare Rings

Instrument Accessories and Service Parts

Nylon Tubing Kit

240 023

Adapters & Fittings

Tubing Kits

150 851	0-150 PSI Nylon Tubing Kit, 6ft
150 855	0-150 PSI Nylon Tubing Kit, 16ft
150 856	0-400 PSI Copper Tubing Kit, 16ft

Wiring Harness & Accessories for Viewline

240 048	Connection Pins for Viewline Connectors
240 048M	Connection Pins for Viewline Connectors, Master Pack
240 097	8 Pole Retrofit Harness. Use When Upgrading To Viewline From a Non-Viewline Instrument
240 098	8 Pole Connector and Pins for 1 Viewline Instrument. Does Not Include Wire Lead
240-098M	8 Pole Connector for Viewline, Master Pack. Connection Pins Sold Separately
240 099	14 Pole Connector and Pins for 1 Viewline Instrument. Does Not Include Wire Lead
240-099M	14 Pole Connector for Viewline, Master Pack. Connection Pins Sold Separately
240 201	Replacement 8 Pole Harness with 500mm Leads for 1 Viewline Instrument
240 202	Optional 8 Pole Harness with 500mm Leads for 1 Viewline Voltmeter, Hourmeter or Clock
240 203	Replacement 8 Pole Harness with Leads for 1 Viewline Ammeter and Shunt
240 204	Replacement 14 Pole Harness with 500mm Leads for 1 Viewline Speedometer or Tachometer
A2C53422790-S	Replacement 14 Pole Harness with 500mm Leads for 1 Viewline Speedometer or Tachometer with 5 Telltales

Severe Link Wire Harness

A2C53092432-S	Input Harness to Master. Supports CAN & Two Analog Inputs

Programming & Mode Button for Viewline

240-046	Programming & Mode Button for Viewline Speedometer or Tachometer - .250" Spade Connector. Black with Chrome Surround
240 205	Programming & Mode Button for Viewline Speedometer or Tachometer - 1/8" Spade Connector. Black with Black Surround

Single Gauge Wiring Harness for Vision, Cockpit and Series 1

240 023	1 Gauge Universal Wiring Kit (Except Viewline)

Wiring Harness & Accessories for Vision, Cockpit and Series 1 Instruments

240 025	3 prong Connector for Vision & Cockpit Series
240 026	3 prong Connector with Terminals
240 045	M4 Stud to .250" Blade Terminal Adapter
240 053	6 Pole Connector for Vision, Cockpit and Series 1 Speedometers and Tachometers without LCD
240 024	8 pole Connector for Vision, Cockpit and Series 1 Speedometers and Tachometers with LCD

Universal Ammeter Wiring Kit (Except Viewline)

240 021	1 Gauge Universal Ammeter Wiring Kit (Except Viewline)

Pyrometer Cables

326 002	Pyrometer Cable for Viewline & Ocean Line/Severe Duty, 13ft
240 092	Pyrometer Extension Cable, 30ft

Adapters & Fittings

240 904	Brass Adapters, includes 1/8-27NPTF to: M16x1.5, M14x1.5, M12x1.5,M10x1 and 1/8-28BSP
240 903	Brass Adapters, includes 1/8-27NPTF to 1/4-18, 3/8-18 and 1/2-14
240 828	Angle Adapter 1/8-27NPTF male X 1/8-27NPTF female
240 850	Brass T Adapter M10 X 1
240 855	Brass T Adapter 1/8-27NPTF
180 067	Adapter for Mechanical Temp. Gauge Probe 5/8-18UNF to 3/8 18NPTF
180 066	Adapter for Mechanical Temp. Gauge Probe 5/8-18UNF to ½ 14NPTF
240 863	Weld on Threaded nut for Mounting Pyrometer Sender

Instrument Accessories and Service Parts

Fuel Sender Service Parts

226-053	Replacement Neoprene Fuel Sender Gasket - SAE 5 Hole
226-451	SAE 5 Hole Mounting Flange Kit
226-479	Replacement Float Arm with Float
226-985	ALAS II Fuel Sender Installation Kit
600-601	Replacement Float for ALAS Fuel Senders
600-408	Bolt on Flange Kit for Lever Arm Type Fuel Senders
226-902	Fuel Sender Adapter Flange for Fords 1935-1956

Air, Cylinder and Exhaust Temperature Sender Parts

240 701	Cylinder Head Temperature Sender Harness, 15ft
240 702	Pyrometer Cable for Vision & Cockpit International, 12ft

Position Indicator Senders Service Parts

440 050	Position Indicator Mounting Kit
440 100	Lever Assembly for Position Indicator Senders

Drive Keys for generator senders

340 065	Drive Key .104", Square
340 060	Drive Key .152", Tang
340 061	Drive Key .187", Tang
340 062	Drive Key .203", Tang
340 064	Drive Key .2"

Makepoint Switch

A2C59510886-S	Makepoint Switch for Viewline Warning Light - 1 req. per Instrument

Resistors & Resistors Kits

391 101	Resistor Kit for Vision & Cockpit International with Peanut Bulb, 12V to 24V
391 102	Resistor Kit for Vision & Cockpit International with Wedge Bulb, 12V to 24V
391 103	Resistor Kit for Vision, Cockpit and Series 1 3 3/8" Tachometers without Hourmeters, 12V to 24V
391 704	Resistor Kit 12V to 24V with Type A Bulb
A2C59510221-S	Resistor Kit for Viewline Instruments, 12V to 24V
391 706	Resistor for Ocean Line & Severe Duty Instruments, 12V to 24V

Shunts

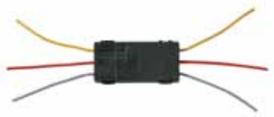
391 007	150A Shunt for Vision
391 009	300A Shunt, for Cockpit International
391 300	30A Shunt For Viewline Ammeter
391 301	60A Shunt For Viewline Ammeter
391 302	100A Shunt For Viewline Ammeter
391 303	150A Shunt For Viewline Ammeter

Panel Mount LED Warning Lights

600 847 LED	Blue LED Warning Light with Socket & Pigtail
600 845 LED	Green LED Warning Light with Socket & Pigtail
600 844 LED	Red LED Warning Light with Socket & Pigtail
600 846 LED	Yellow LED Warning Light with Socket & Pigtail
600 844 B LED	Blinking Red LED Warning Light with Socket & Pigtail

Panel Mount Warning Lights

		Lighting Color
600 844	Red Snap in Panel Light, 12V	Red
600 845	Green Snap in Panel Light, 12V	Green
600 846	Yellow Snap in Panel Light, 12V	Yellow
600 847	Blue Snap in Panel Light, 12V	Blue



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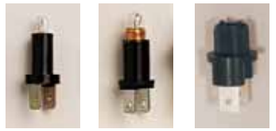
Warning Lights

Instrument Accessories and Service Parts

LED Replacement Bulbs



600 813 600 819 600 823

600 840 600 816

600 821 600 818

Light Diffusers

Replacement Bulb Sockets

600 818	Type B Steel Bulb Socket
600 817	Type A Brass Bulb Socket
600 819	Type B Plastic Bulb Socket
600 813	Type A Plastic Bulb Socket
600 816	Type A Steel Bulb Socket
600 840	Type E Plastic Bulb Socket

Original Replacement Bulbs

600 807	Type A 9/32" (7mm) Metal Base Bulb, 24V, 3W, 4 Pack
600 824	Type D Wedge Based Peanut Bulb, red, 12V. 1.2W, 4 Pack
600 822	Type D Wedge Based Peanut Bulb, red, 24V. 1.2W, 4 Pack
600 815	Type E Wedge Based Bulb, 12V 3.4W, 4 Pack
600 804	Type B 11/32" (9mm) Metal Base Bulb, 12V, 2W, 4 Pack
600 802	Type A 9/32" (7mm) Metal Base Bulb, 12V, 2W, 4 Pack
600 806	Type B 11/32" (9mm) Metal Base Bulb, 12V, 4W, 4 Pack
600 820	Type C 3/8" (10mm) Metal Base Bulb, 12V, 2W, 4 Pack
600 829	Type D Wedge Based Peanut Bulb, 24V. 1.2W, 4 Pack
600 809	Type D Wedge Based Peanut Bulb, 12V. 1.2W, 4 Pack
600 826	Type E Wedge Based Bulb, 24V 3W, 4 Pack

Upgrade Replacement Bulbs

600 870	Red LED Wedge Type Bulb (Type E) Upgrade Kit for 5 Gauge Kits
600 871	Red LED Wedge Type Bulb (Type E) Upgrade Kit for 6 Gauge Kits
600 872	Green LED Wedge Type Bulb (Type E) Upgrade Kit for 5 Gauge Kits
600 873	Green LED Wedge Type Bulb (Type E) Upgrade Kit for 6 Gauge Kits
600 874	Blue LED Wedge Type Bulb (Type E) Upgrade Kit for 5 Gauge Kits
600 875	Blue LED Wedge Type Bulb (Type E) Upgrade Kit for 6 Gauge Kits
600 876	Amber LED Wedge Type Bulb (Type E) Upgrade Kit for 5 Gauge Kits
600 877	Amber LED Wedge Type Bulb (Type E) Upgrade Kit for 6 Gauge Kits
600 878	Red LED Wedge Type Bulb (Type E) Upgrade
600 879	Green LED Wedge Type Bulb (Type E) Upgrade
600 880	Blue LED Wedge Type Bulb (Type E) Upgrade
600 881	Amber LED Wedge Type Bulb (Type E) Upgrade
600 882	HID White LED Wedge Type Bulb (Type E) Upgrade Kit for 5 Gauge Kits
600 883	HID White LED Wedge Type Bulb (Type E) Upgrade Kit for 6 Gauge Kits
600 886	HID White LED Wedge Type Bulb (Type E) Upgrade

Light Diffusers

600 859MP	Red Light Diffusers for Type D Peanut Bulb
600 857	Red Light Diffusers for Type B Bulb, 4 Pack
600 860	Green Light Diffusers for Type D Peanut Bulb - 4 pack
600 859	Red Light Diffusers for Type D Peanut Bulb, 4 Pack
600 861	Red Light Diffusers for Type C and E Wedge Bulbs, 4 Pack
600 862	Green Light Diffusers for Type C and E Wedge Bulbs - 4pack
600 864	Amber Light Diffusers for Type C and E Wedge Bulbs - 4pack
600 863	Blue Light Diffusers for Type C and E Wedge Bulbs - 4pack
600 853	Red Light Diffusers for Type A Bulb, 4 Pack
600 856	Green Light Diffusers for Type A Bulb - 4 pack

Replacement Warning Light for Ocean Line & Severe Duty Instruments

05 800 762	Red Warning Light with Socket, 12V
05 800 764	Red Warning Light with Socket, 24V

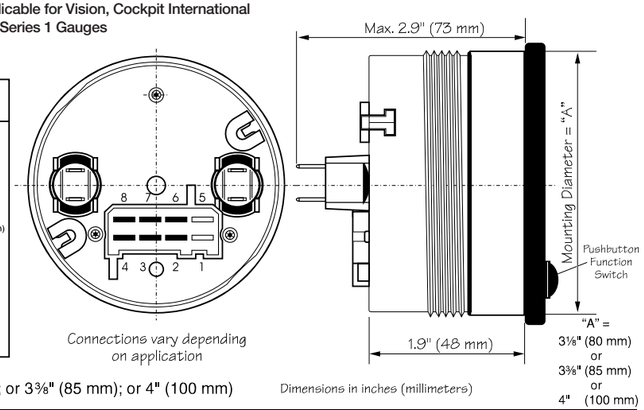
Technical Reference

A Programmable Speedometer

Applicable for Vision, Cockpit International and Series 1 Gauges

Specifications
(Common to all Programmable *Speedometers*)

Operating Temperature:	–4° F...+158° F (–20° C...+70° C)
Storage Temperature:	–22° F...+185° F (–30° C...+85° C)
Illumination:	2 push-in, wedge-type lamp sockets; 12 volt: VDO #600 815 24 volt: VDO #600 826
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Dial Graphics:	See product line for specific information
Connection:	Tin-plated brass blade connectors (6,3 x 0,8 mm)
Mounting:	Mounting clamp. Clamping range: 0 - 0,8" (0 - 20 mm).
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0° to 90°
Operating Voltage:	10,8 volts to 32 volts
Nominal Voltage:	12v –24v with Insulated return
Current Consumption:	< 100 mA, without illumination
Torque Values:	For Spin-Lok™ Mounting Clamp: 2,2 – 2,4 ft. lb. (3 – 8 Nm)



Mounting hole dimension: 3⅛" (80 mm); or 3⅜" (85 mm); or 4" (100 mm)

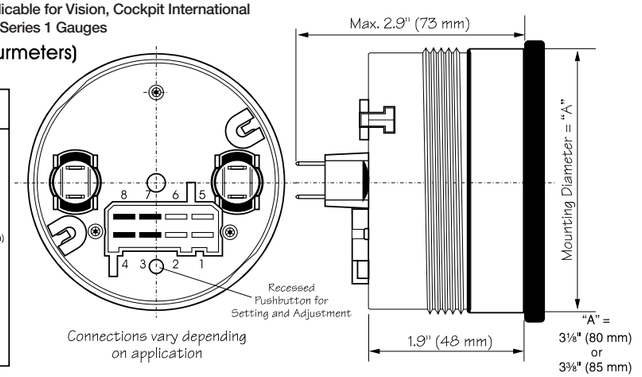
Dimensions in inches (millimeters)

B Programmable Tachometers (with hourmeters)

Applicable for Vision, Cockpit International and Series 1 Gauges

Specifications
(Common to all *Tachometers with Engine Hourmeter*)

Operating Temperature:	–4° F...+158° F (–20° C...+70° C)
Storage Temperature:	–22° F...+185° F (–30° C...+85° C)
Illumination:	2 push-in, wedge-type lamp sockets; 12 volt: VDO #600 815 24 volt: VDO #600 826
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Dial Graphics:	See product line for specific information
Connection:	Tin-plated brass blade connectors (6,3 x 0,8 mm)
Mounting:	Mounting clamp. Clamping range: 0 - 0,8" (0 - 20 mm).
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0° to 90°
Operating Voltage:	10,8 volts to 32 volts
Nominal Voltage:	12v –24v with Insulated return
Current Consumption:	< 100 mA, without Illumination
Torque Values:	For Spin-Lok™ Mounting Clamp: 2,2 – 2,4 ft. lb. (3 – 8 Nm)



Mounting hole dimension: 3⅛" (80 mm); or 3⅜" (85 mm); or 4" (100 mm)

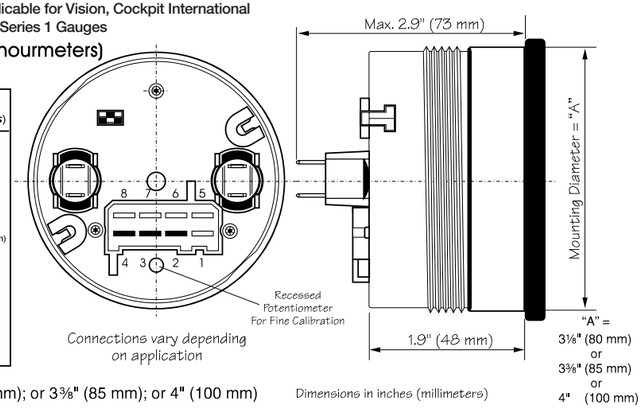
Dimensions in inches (millimeters)

C Programmable Tachometers (without hourmeters)

Applicable for Vision, Cockpit International and Series 1 Gauges

Specifications
(Common to all *Tachometers without Engine Hourmeters*)

Operating Temperature:	–4° F...+158° F (–20° C...+70° C)
Storage Temperature:	–22° F...+185° F (–30° C...+85° C)
Illumination:	2 push-in, wedge-type lamp sockets; 12 volt: VDO #600 815 24 volt: VDO #600 826
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Dial Graphics:	See product line for specific information
Connection:	Tin-plated brass blade connectors (6,3 x 0,8 mm)
Mounting:	Mounting clamp. Clamping range: 0 - 0,8" (0 - 20 mm).
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0° to 90°
Operating Voltage:	10,8 to 16 volts
Nominal Voltage:	12v with insulated return
Current Consumption:	< 100 mA, without illumination
Torque Values:	For Spin-Lok™ Mounting Clamp: 2,2 – 2,4 ft. lb. (3 – 8 Nm)



Mounting hole dimension: 3⅛" (80 mm); or 3⅜" (85 mm); or 4" (100 mm)

Dimensions in inches (millimeters)

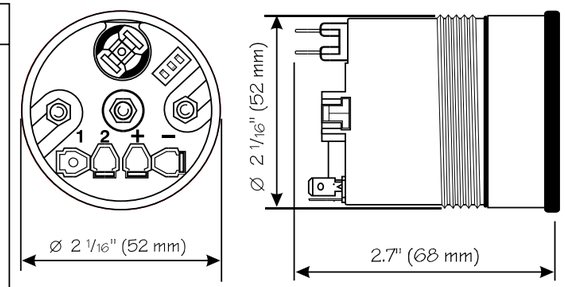
D Electronic Tachometer (2 1/16" (52 mm))

Applicable for Vision and Cockpit International Gauges

Specifications
(Common to all 2 1/16" (52 mm) *Tachometers*)

Operating Temperature:	–4° F...+158° F (–20° C...+70° C)
Storage Temperature:	–22° F...+185° F (–30° C...+85° C)
Illumination:	Push-In, wedge-type lamp sockets; 12 volt: VDO #600 809 24 volt: VDO #600 829
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Connection:	¼" brass blade
Mounting:	Mounting clamp. Clamping range: 0 - 0.8" (0 - 20 mm). Or, with optional 2 brackets with 2 bolts (M4x45) and nuts (M4x10). Clamping range: 0-½" (0-12mm)
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0° to 90°
Operating Voltage:	10.8 to 16 volts
Nominal Voltage:	12v with insulated return
Current Consumption:	< 100 mA, without Illumination
Torque Values:	For Spin-Lok™ Mounting Clamp: 2.2 – 2.4 ft. lb. (3 – 8 Nm)

Dimensions in inches (millimeters)



Mounting hole dimension: 2 1/16" (52 mm)

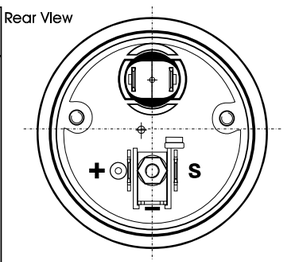
E Electric Fuel, Volt, Temp, Pressure (Spin-Lok™ clamp mount)

Applicable for Vision and Cockpit International Gauges

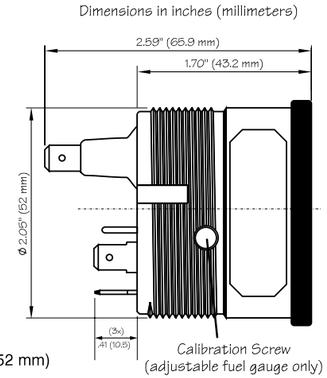
Specifications
(Common to all Electric 2 1/16" (52 mm.) Instruments *with VDO's Spin-Lok™ Mounting Clamp*)

Operating Temperature:	–22° F...+185° F (–30° C...+85° C)
Storage Temperature:	–40° F...+221° F (–40° C...+90° C)
Illumination:	Push-In wedge-base sockets, 12 volt: VDO #600 815 24 volt: VDO #600 826
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Dial Graphics:	See product line for specific information
Connection:	¼" brass blade
Mounting:	Housing with 16 threads/inch, Class 2A fit and rotating plastic Spin-Lok™ clamp
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	NPO – 90°
Operating Voltage:	11 – 16 volts (12v$_n$) or 21.5 – 30 volts (24v$_n$)
Nominal Voltage:	12v or 24v, insulated return (floating ground)
Torque Values:	For Spin-Lok™ Mounting Clamp: 2,2 – 2,4 ft. lb. (3 – 8 Nm)

Rear View



Dimensions in inches (millimeters)

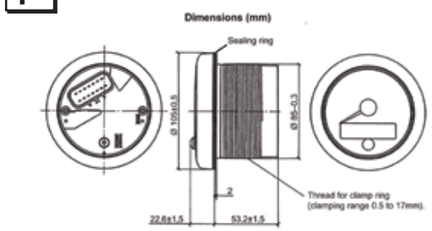


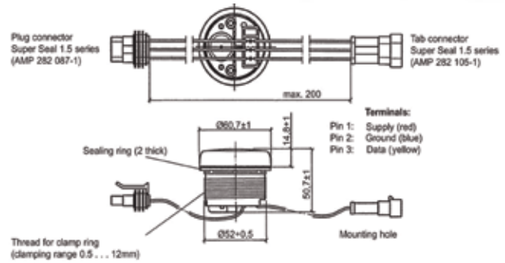
Mounting hole dimension: 2 1/16" (52 mm)

F Severe Link

Applicable for Severe Link Gauges

Dimensions (mm)





Specifications

Operating Temperature:	- 20°C to + 70°C
Storage Temperature:	- 30°C to + 85°C
Protection:	IP65 mounted (from front)
Illumination:	Red LED (variable in 8 steps)
Connector on Master:	Delphi GT Series (15326856)

Power Supply:	10.5 – 30V
Power Consumption:	
Master:	140 mA with illumination
Satellite:	<70 mA with illumination
Master Display LCD:	132 X 33 Dots

Technical Reference

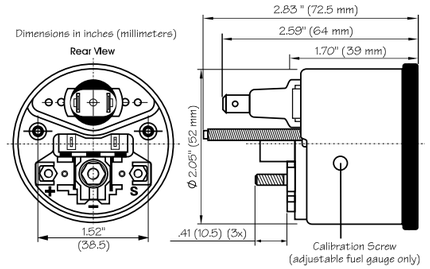
G Electric Fuel, Volt, Temp, Pressure

(stud mount) Applicable for Cockpit International and Series 1 Gauges

Specifications

(Common to all Electric 2 1/16" (52 mm) Gauges ***with Stud Terminals*** and ***Stud Mounting***)

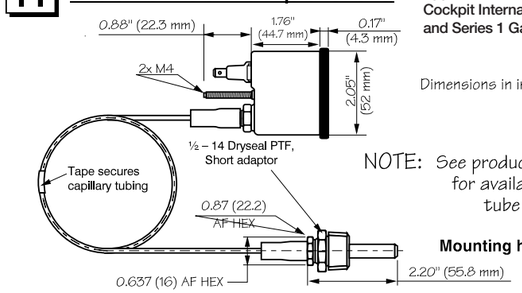
Operating Temperature:	–22° F...+185° F (–30° C...+85° C)
Storage Temperature:	–40° F...+194° F (–40° C...+90° C)
Illumination:	Push-in wedge-type lamp socket; 12 volt: VDO #600 815 24 volt: VDO #600 826
Bezel Material:	See product line for specific Information ***Lens:*** Window glass, clear
Dial Graphics:	See product line for specific Information
Connection:	M4 Stud
Mounting Bracket:	Steel, zinc chromate plated ***Mounting Nut:*** Hexagon; steel, zinc chromate plated
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0 – 90°
Operating Voltage:	8 – 16 volts (12 v.) or 16 – 32 volts (24 v.)
Nominal Voltage:	12 volts or 24 volts, insulated return (floating ground)
Torque Values:	For M4 nuts: 2.2 –4.2 **in.lb.** (.25 – .47 Nm)



Mounting hole dimension: 2 1/16" (52 mm)

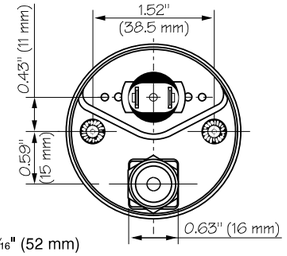
H Mechanical Temperature

Applicable for Vision, Cockpit International and Series 1 Gauges



Dimensions in inches (millimeters)

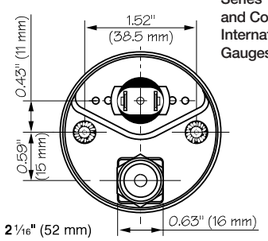
NOTE: See product line sections for available capillary tube lengths.



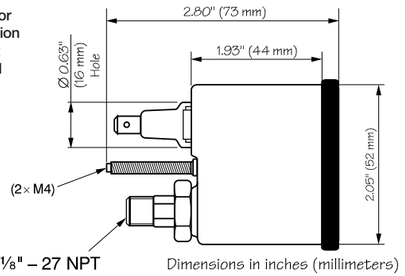
Mounting hole dimension: 2 1/16" (52 mm)

I Mechanical Pressure

Applicable for Series 1, Vision and Cockpit International Gauges



Mounting hole dimension: 2 1/16" (52 mm)



Dimensions in inches (millimeters)

J Clocks & Hourmeters

Applicable for Vision, Cockpit International Gauges

Specifications

(Common to all 2 1/16" [52 mm] ***Hourmeters)***

Operating voltage:	9V to 16V or 18V to 28V
Movement:	quartz controlled movement with number-wheel type counter
Current consumption at room temperature:	at 13.5 V < 10 mA at 28V: < 23 mA
Operating temperature:	–40°C to +85°C
Storage temperature:	–40°C to +90°C
Protection:	IP85 DIN 40 050 front side IP42 DIN40 050 rear side (or IP65)
OE approved, KBA registration	
Vibration resistance: (according to IEC 68 part 2 – 6)	2g, 25 Hz to 500 Hz, 24h x, y, z
Physical shock: (according to IEC 68 part 2 – 27)	100 g, 6ms, 2 mal x, y, z
Operating hours counting:	99999,9 h max (nonresettable)
Indication accuracy at room temperature: Illuminated or no illumination	–40°C to +85°C: ±5s. per day max. –10s per day

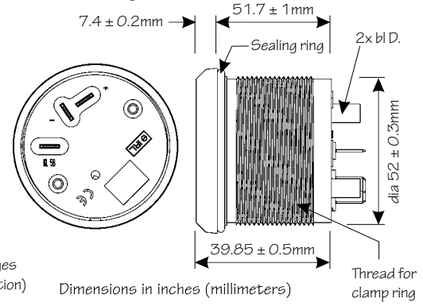
(Illustration without illumination)

Pin assignment:

Pin +: Alternator Terminal D+

Pin -: Ground terminal 31

Pin KL 58: Illumination (only by gauges with illumination)



Dimensions in inches (millimeters)

Mounting hole dimension: 2 1/16" (52 mm)

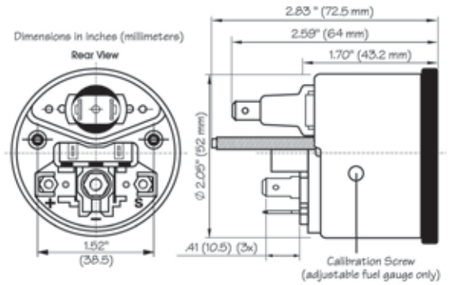
K Electric Fuel - Adjustable

(stud mount) Applicable for Cockpit International Gauges

Specifications

(Common to all Electric 2 1/16" (52 mm) Gauges ***with Stud Terminals*** and ***Stud Mounting***)

Operating Temperature:	–22° F...+185° F (–30° C...+85° C)
Storage Temperature:	–40° F...+194° F (–40° C...+90° C)
Illumination:	Push-in wedge-type lamp socket; 12 volt: VDO #600 815
Connection:	¼" brass blade 24 volt: VDO #600 826
Bezel Material:	See product line for specific information ***Lens:*** Window glass, clear
Dial Graphics:	See product line for specific information
Connection:	**1/4" brass blade**
Mounting Bracket:	Steel, zinc chromate plated ***Mounting Nut:*** Hexagon; steel, zinc chromate plated
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0 – 90°
Operating Voltage:	11 – 16 volts (12v.) or 21.5 – 30 volts (24v.)
Nominal Voltage:	12 volts or 24 volts, insulated return (floating ground)
Torque Values:	For M4 nuts: 2.2 –4.2 in.lb. (.25 – .47 Nm)



Mounting hole dimension: 2 1/16" (52 mm)

L Ammeter

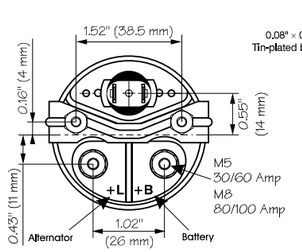
Applicable for Vision, Cockpit International and Series 1 Gauges **Mounting hole dimension: 2 1/16" (52 mm)**

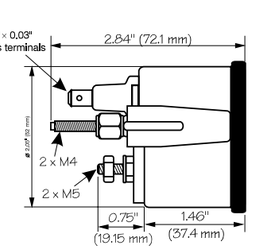
Dimensions in inches (millimeters)

Specifications

(Common to all ***Ammeters***)

Operating Temperature:	–22° F...+185° F (–30° C...+85° C)
Storage Temperature:	–40° F...+194° F (–40° C...+90° C)
Illumination:	12 volt: VDO #600 815 24 volt: VDO #600 826
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Dial Graphics:	See product line for specific information
Connection:	Stud
Mounting Bracket:	Steel, zinc chromate plated
Mounting Nut:	Hexagon; steel, zinc chromate plated
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristic
Nominal Position:	0 – 90°
Torque Values:	For M4 nuts: 2.2 – 4. 2 **in. lb.** (.25 – .47 Nm)





M Shunted Ammeter

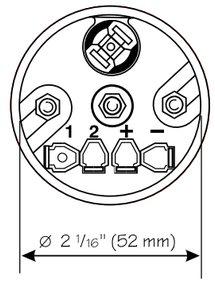
Applicable for Vision and Cockpit International Gauges

Mounting hole dimension: 2 1/16" (52 mm)

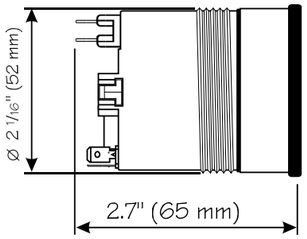
Specifications

(Common to all 2 1/16" [52 mm] ***Shunted Ammeters)***

Operating Temperature:	–4° F...+158° F (–20° C...+70° C)
Storage Temperature:	–22° F...+185° F (–30° C...+85° C)
Illumination:	Push-in, wedge-type lamp sockets; 12 volt: VDO #600 809 24 volt: VDO #600 829
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Connection:	¼" brass blade
Mounting:	Mounting clamp. Clamping range: 0 - 0.8" (0 - 20 mm). Or, with optional 2 brackets with 2 bolts (M4x45) and nuts (M4x10). Clamping range: 0-½" (0-12mm)
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0° to 90°
Operating Voltage:	10,8 to 16 volts
Nominal Voltage:	12v with insulated return
Current Consumption:	< 100 mA, without illumination
Torque Values:	For Spin-Lok™ Mounting Clamp: 2.2 – 2.4 ft. lb. (3 – 8 Nm)



Dimensions in inches (millimeters)



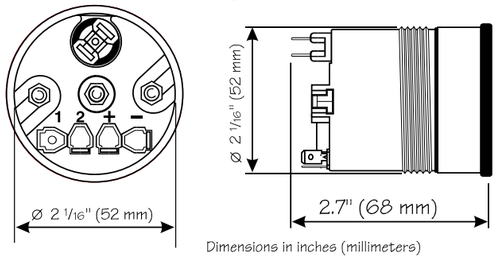
N Outside Temperature

Applicable for Vision Gauges

Mounting hole dimension: 2 1/16" (52 mm)

Specifications
(Common to all 2 1/16" [52 mm] ***Outside Temperature Gauges***)

Operating Temperature:	–4° F...+158° F (–20° C...+70° C)
Storage Temperature:	–22° F...+185° F (–30° C...+85° C)
Illumination:	Push-in, wedge-type lamp sockets; 12 volt: VDO #600 809 24 volt: VDO #600 829
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Connection:	½" brass blade
Mounting:	Mounting clamp. Clamping range: 0 - 0.8" (0 - 20 mm). Or, with optional 2 brackets with 2 bolts (M4x45) and nuts (M4x10). Clamping range: 0-½" (0-12mm)
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0° to 90°±
Operating Voltage:	10,8 to 16 volts
Nominal Voltage:	12v with insulated return
Current Consumption:	< 100 mA, without illumination
Torque Values:	For Spin-Lok™ Mounting Clamp: 2,2 – 2,4 ft. lb. (3 – 8 Nm)



Dimensions in inches (millimeters)

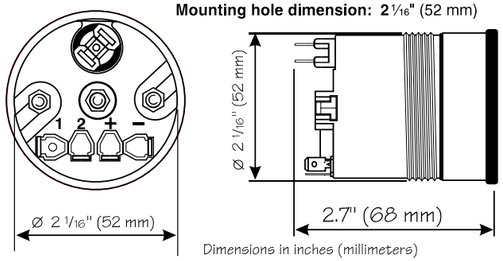
O Pyrometer

Applicable for Vision and Cockpit International Gauges

Mounting hole dimension: 2 1/16" (52 mm)

Specifications
(Common to all 2 1/16" [52 mm] ***Pyrometers***)

Operating Temperature:	–4° F...+158° F (–20° C...+70° C)
Storage Temperature:	–22° F...+185° F (–30° C...+85° C)
Illumination:	Push-in, wedge-type lamp sockets; 12 volt: VDO #600 809 24 volt: VDO #600 829
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Connection:	½" brass blade
Mounting:	Mounting clamp. Clamping range: 0 - 0.8" (0 - 20 mm). Or, with optional 2 brackets with 2 bolts (M4x45) and nuts (M4x10). Clamping range: 0-½" (0-12mm)
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0° to 90°±
Operating Voltage:	10,8 to 16 volts
Nominal Voltage:	12v with insulated return
Current Consumption:	< 100 mA, without illumination
Torque Values:	For Spin-Lok™ Mounting Clamp: 2,2 – 2,4 ft. lb. (3 – 8 Nm)



Dimensions in inches (millimeters)

P Cylinder Head Temperature Gauge

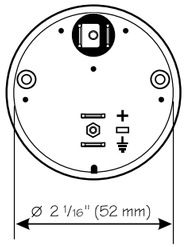
Applicable for Cockpit International Gauges

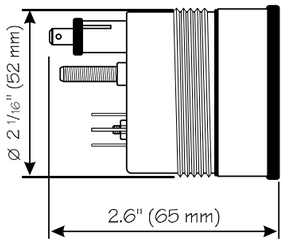
Mounting hole dimension: 2 1/16" (52 mm)

Dimensions in inches (millimeters)

Specifications
(Common to all 2 1/16" [52 mm] ***Cylinder Head Temperature Gauges***)

Operating Temperature:	–4° F...+158° F (–20° C...+70° C)
Storage Temperature:	–22° F...+185° F (–30° C...+85° C)
Illumination:	Push-in bulb; 12 volt: VDO #600 802 24 volt: VDO #600 807
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Connection:	½" brass blade
Mounting:	Mounting clamp. Clamping range: 0 - 0.8" (0 - 20 mm). Or, with optional 2 brackets with 2 bolts (M4x45) and nuts (M4x10). Clamping range: 0-½" (0-12mm)
Product Marking:	Date of manufacture (Julian); part number; nominal voltage; gauge characteristics
Nominal Position:	0° to 90°±
Current Consumption:	< 100 mA, without illumination
Torque Values:	For Spin-Lok™ Mounting Clamp: 2,2 – 2,4 ft. lb. (3 – 8 Nm)

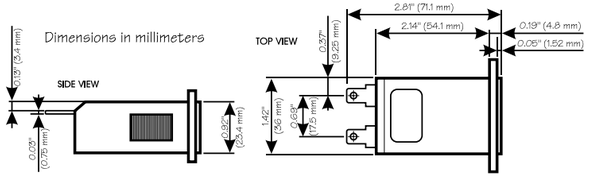




Q Mini Hourmeter

Specifications
(Common to all ***Mini Hourmeters***)

Temperature:	–40° F...+185° F (–40° C...+85° C)
Vibration Resistance:	Withstands 10 to 75 Hz at 1to 8 g's
Terminations:	6,35 mm Male Blade Terminals
Protected From:	Alternator Load Dump, Inductive Switching and Reverse Polarity
Mounting:	Panel Mount with 2 holes (front or back)
Gauge Face:	White Characters on black background
Identification:	VDO P/N (1 763 003 213A) and description stamped on label; position of label as shown

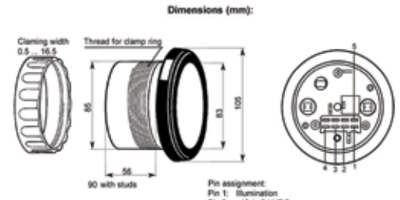


R Programmable Tachometers (with hourmeter)
(Severe Duty)

Technical Data:

Operating voltage:	12 / 24 VDC
Current consumption (without illumination):	max. 90 mA
Pickup:	Inductive sensor or:
Petrol engine:	Term. 1 ignition coil
Diesel engine:	Term. W alternator
Operating temperature:	– 20°C to + 70°C
Storage temperature:	– 30°C to + 85°C
Nominal position:	NL 0 to NL 90, DIN 16 257
Indication tolerance:	+/- 1.5% of final scale value at 14 VDC / 28 VDC, 23°C and NL 45
Protection:	IP65 DIN 40 050 from the front, after installation in acc. with IEC 529
Vibration resistance:	1g eff. max., 25Hz to 500Hz (duration 8 h)
Shock:	15g, 1.5 ms semi-senusoidal
EMC:	used standards EN 50082-1, EN 50081-1 acc. to EMC direction 89/336/EWG
LCD:	permanent illuminated

Dimensions (mm):



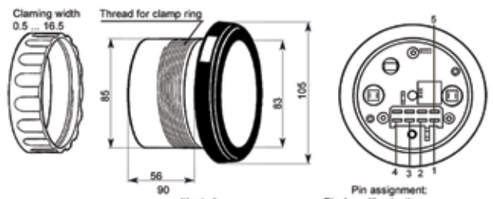
Pin assignment:
Pin 1: Illumination
Pin 2: +12 / +24 VDC
Pin 3: Ground
Pin 4: Tacho-signal (tm. W / tm. 1, inductive sensor 1)
Pin 5: + Illumination
Pin 6: Tacho-signal inductive sensor 2

S Programmable Tachometers (without hourmeter)
(Severe Duty)

Technical Data:

Operating voltage:	12 / 24 VDC
Current consumption (without illumination):	max. 90 mA
Pickup:	
Petrol engine	Term. 1 ignition coil
Diesel engine:	Term. W alternator
Operating temperature:	– 20°C to + 70°C
Storage temperature:	– 30°C to + 85°C
Nominal position:	NL 0 to NL 90, DIN 16 257
Indication tolerance:	+/- 2.5% of final scale value at 14 VDC / 28 VDC, 23°C and NL 45
Protection:	IP65 DIN 40 050 from the front, after installation in acc. with IEC 529
Vibration resistance:	1g eff. max., 25Hz to 500Hz (duration 8 h)
Shock:	15g, 1.5 ms semi-senusoidal
EMC:	used standards EN 50082-1, EN 50081-1 acc. to EMC direction 89/336/EWG

Dimensions (mm):



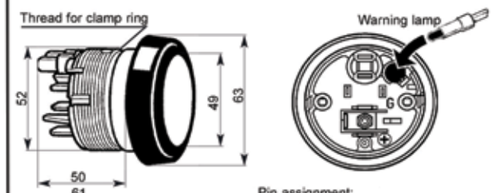
Pin assignment:
Pin 1: - Illumination
Pin 2: +12 / +24 VDC
Pin 3: Ground
Pin 4: Tacho-signal
Pin 5: + Illumination

T Electric Fuel, Volt, Temp, Pressure
(Severe Duty)

Technical Data:

Operating voltage:	12 VDC or 24 VDC
Current consumption (without illumination):	max. 90 mA
Operating temperature:	– 20°C to + 70°C
Storage temperature:	– 30°C to + 85°C
Nominal position:	NL 0 to NL 90, DIN 16 257
Indication tolerance:	+/- 3,6° (14 V, 23°C, NL 45) +/- 4,6° (28 V, 23°C, NL 45)
Protection:	IP65 DIN 40 050 from the front, after installation in acc. with IEC 529
Vibration resistance:	1g eff. max., 25Hz to 500Hz (duration 8 h)
Shock:	15g, 1.5 ms semi-senusoidal
EMC:	used standards EN 50082-1, EN 50081-1 acc. to EMC direction 89/336/EWG

Dimensions of indicator (mm):



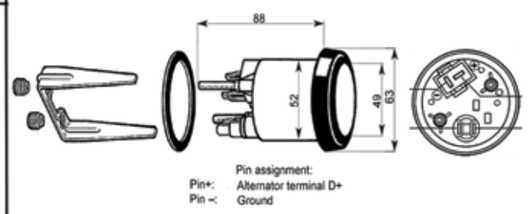
Pin assignment:
Pin +: + 12 V or + 24 V
Pin G: Sensor terminal 4

U Hourmeter (Severe Duty)

Technical Data:

Operating voltage:	12 / 24 VDC
Current consumption (without illumination):	< 5 mA (12 V) < 15 mA (24 V)
Operating temperature:	– 20°C to + 70°C
Storage temperature:	– 30°C to + 85°C
Nominal position:	NL 0 to NL 90, DIN 16 257
Running precision:	+/- 5 sec./day at 14 VDC, 23°C and NL 45
Protection:	IP65 DIN 40 050 from the front, after installation in acc. with IEC 529
Vibration resistance:	1 g eff. max., 25Hz to 500Hz (duration 8 h)
Shock:	15 g, 1.5 ms semi-senusoidal
EMC:	used standards EN 50082-1, EN 50081-1 acc. to EMC direction 89/336/EWG
Measuring Range	0 ... 99999,9 Std. / hours

Dimensions (mm):



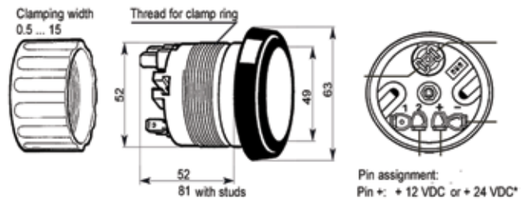
Pin assignment:
Pin+: Alternator terminal D+
Pin –: Ground

V Pyrometer (Severe Duty)

Technical Data:

Operating voltage:	10.8 ... 16 VDC*
Current consumption (without illumination):	< 100 mA
Operating temperature:	– 20°C to + 70°C
Storage temperature:	– 30°C to + 85°C
Indication tolerance:	+/- 2.5% of final scale value at 14 VDC, 23°C and NL 45
Nominal position:	NL 0 to NL 90, DIN 16 257
Protection:	IP65 DIN 40 050 from the front, after installation in acc. with IEC 529
Vibration resistance:	1g eff. max., 25Hz to 500Hz (duration 8 h)
Shock:	15g, 1.5 ms semi-senusoidal
EMC:	used standards EN 50082-1, EN 50081-1 acc. to EMC direction 89/336/EWG

* An external compensating resistor (option) is needed when conneced to 24 VDC.



Pin assignment:
Pin +: + 12 VDC or + 24 VDC*
Pin –: Ground
Pin 1: Sensor cable white
Pin 2: Sensor cable blue

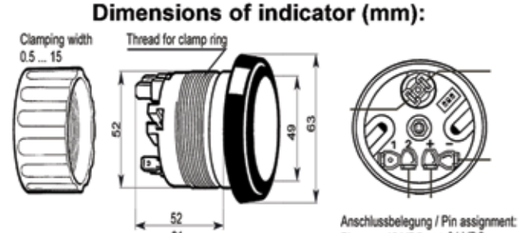
W Ammeter (Severe Duty)

Technical Data (Indicator):

Operating voltage:	10.8 ... 16 VDC*
Current consumption (without illumination):	< 100 mA
Operating temperature:	– 20°C to + 70°C
Storage temperature:	– 30°C to + 85°C
Indication tolerance:	+/- 2.5% of final scale value at 14 VDC, 23°C and NL 45
Nominal position:	NL 0 to NL 90, DIN 16 257
Protection:	IP65 DIN 40 050 from the front, after installation in acc. with IEC 529
Vibration resistance:	1g eff. max., 25Hz to 500Hz (duration 8 h)
Shock:	15g, 1.5 ms semi-senusoidal
EMC:	used standards EN 50082-1, EN 50081-1 acc. to EMC direction 89/336/EWG

* An external compensating resistor (option) is needed when conneced to 24 VDC.

Dimensions of indicator (mm):

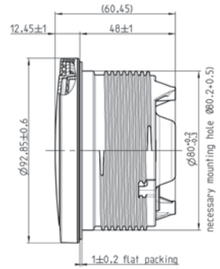


Anschlussbelegung / Pin assignment:
Pin +: + 12 VDC or + 24 VDC
Pin –: Ground
Pin 1: Signal +
Pin 2: Signal -

X 85mm Viewline Speedometer and Tachometer

Specifications

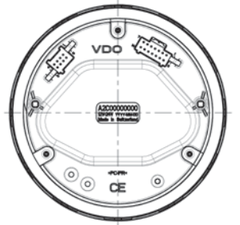
Operating voltage:	8 – 32V
Current consumption:	<175 mA w/o illumination
Operating temperature:	-25°C to +70°C
Storage temperature:	-40°C to +85°C
Protection:	IP67 frontside, IP54 backside acc to IEC 60 529 (2001-02), reverse polarity protection
EMC:	ISO 7637-1/2, 7637-3
Vibration resistance:	Sinus 2g, Noise 4.2g
Physical shock resistance:	Continuous 25g, Single Shock 100g
Electrical connection:	TYCO or HIRSCHMANN 8-pin female connector, 2-lines / TYCO 14-pin female connector, 2-lines
Contact System:	TYCO MQS Receptacle Contacts, tin plated, e.g. part No. 963715-1
Nominal position:	NL 0 to 90 acc to DIN 16257 (1987-03)

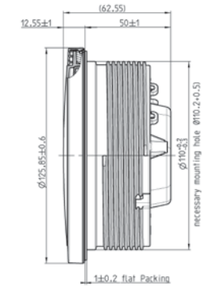


Y 100mm Viewline Speedometer and Tachometer

Specifications

Operating voltage:	8 – 32V
Current consumption:	<175mA
Operating temperature:	-25°C to +70°C
Storage temperature:	-40°C to +85°C
Protection:	IP67 frontside, IP54 backside acc to IEC 60 529 (2001-02), reverse polarity protection
EMC:	ISO 7637-1/2, 7637-3
Vibration resistance:	Sinus 2g, Noise 4.2g
Physical shock resistance:	Continuous 25g, Single Shock 100g
Electrical connection:	TYCO or HIRSCHMANN 8-pin female connector, 2-lines / TYCO 14-pin female connector, 2-lines
Contact System:	TYCO MQS Receptacle Contacts, tin plated, e.g. part No. 963715-1
Nominal position:	NL 0 to 90 acc to DIN 16257 (1987-03)

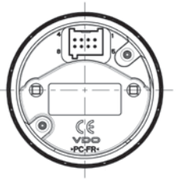


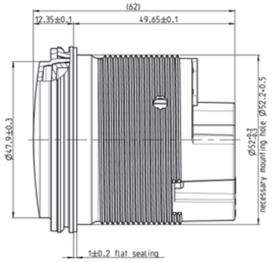


Z 52mm Viewline Fuel, Volt, Temp, Pressure

Specifications

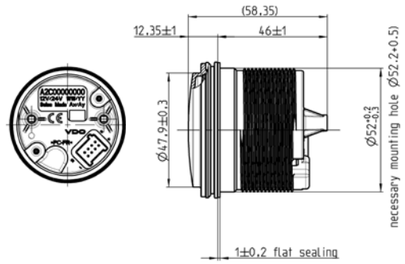
Operating voltage:	10 – 16V, 18 – 32V (with dropping resistor for 24V gauge)
Current consumption:	< 100mA w/o illumination < 150mA with illumination
Operating temperature:	- 30° C to +80°C (max. 70°C for plated bezel)
Storage temperature:	- 30°C to +80°C (max. 70°C for plated bezel)
Protection:	IP67 frontside, IP52 backside acc to IEC 60 529 (2001-02), revere polarity protection
EMC:	DIN EN 61000-6-2, DIN EN 61000-4-3, DIN EN 61000-4-6, DIN EN 61000-4-8
Vibration resistance:	2 g rms for sinusoidal, 3 g rms for random vibrations
Physical shock resistance:	TPV – UP 13
Electrical connection:	TYCO or HIRSCHMANN 8-pin female connector, 2 – lines
Contact system:	TYCO or Molex Receptacle Contacts, tin plated for single lens or gold plated for double lens
Nominal position:	NL 0 to 90 acc to DIN 16257 (1987-03)





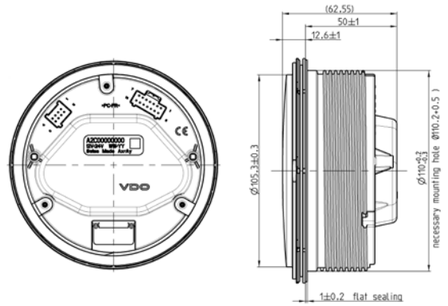
AA 52mm Viewline Ammeter, Pyrometer, Waste Water, Cap. Fresh Water

Specifications	
Operating voltage:	8.5 – 32V DC
Current consumption:	Max. 100 mA
Operating Temperature:	-40°C / to +85°C Plated bezel max. +70°C
Storage Temperature:	-40° / to +85°C Plated bezel max. +70°C
Protection:	IP67 frontside, IPX2 rearside acc to IEC 60 529 (2001-02), reverse polarity protection EMC in compliance to VDO TPV UP08, UP09, according to ISO 7637-1, -2, -3
Electrical connection – Not included in delivery:	TYCO 965601-1 + 1-965600-1 or HIRSCHMANN 772-660-511: 8-pin female, 2-lines
Contact System – Not included in delivery:	TYCO MQS Receptacle Contacts, according to Tyco drawing: C-929454 – For double lens-gauges gold plated connectors are mandatory
Nominal position:	NL 0 to 90 acc to DIN 16257 (1987-03)



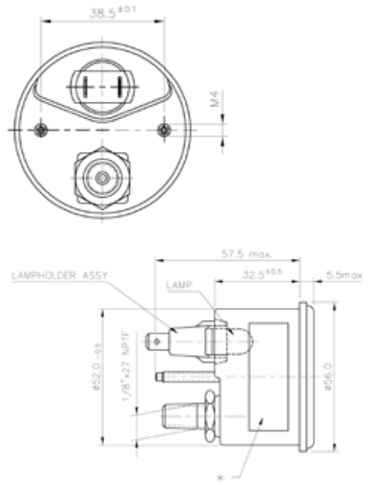
AB 110mm Viewline Quad

Specifications	
Operating voltage:	10-16V DC
Current consumption:	Max. 175 mA
Operating temperature:	-25°C to +80°C (max. 70°C for plated bezel)
Storage temperature:	-40°C to +85°C (max. 70°C for plated bezel)
Protection:	IP67 frontside, IP52 backside acc to IEC 60 529 (2001-02), reverse polarity protection
EMC:	DIN-EN60945, DIN-EN 61000-6-2, DIN-EN 61000-6-3, DIN-EN 61000-6-4; SAE J1455, SAE J1810
Vibration resistance:	2 g rms for sinusoidal, 3 g rms for random vibrations
Physical shock resistance:	TPV-UP13
Electrical connection:	8-pin female connector, 2-lines; 14-pin female connector, 2-lines; gold plated
Contact system:	TYCO Receptacle Contacts, gold plated
Nominal position:	NL 0 to 90 acc to DIN 16257 (1987-03)



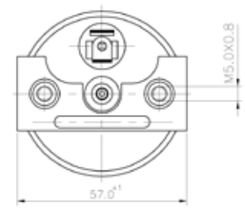
AC Series 1 Mechanical Pressure Gauge

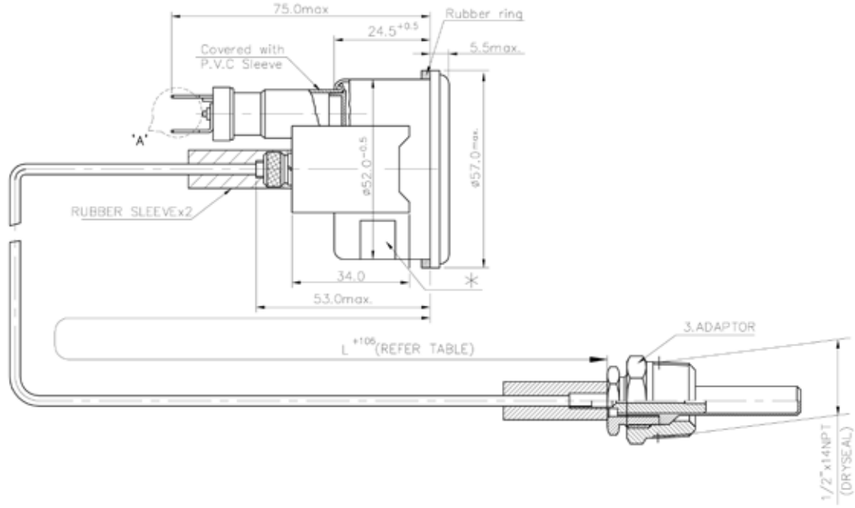
Specifications	
Range:	0 – 80 Psi
Tol. On Indication:	Refer To Table
Bezel:	Nicle Chrome Plated
Inner Ring:	Black
Dial:	Base: black, Printing: white
Pointer:	Cap:black, Leaf: White
Case:	Zinc Plated & Blue Passivated
Case Bolt:	Zinc Plated & Blue Passivated
Clamp:	Zinc Plated & Blue Passivated
Nut-Hex(M4):	Zinc Plated & Blue Passivated
****Other Details:***	Print Customer Part No. & Julian Date/ Inspector Code & Vdo India On The Side Of The Housing.



AD Series 1 Temperature Gauge

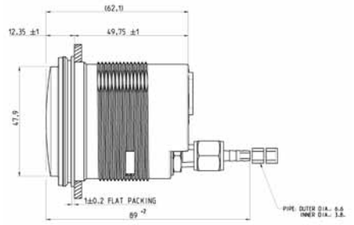
Specifications	
Range:	40° - 130°C
Tol. On Indication:	Refer Table
Bezel:	Chrome Plated
Inner Ring:	Black
Dial:	Base: black, Printing: white
Pointer:	Hub: black, Leaf: white
Case:	Zinc Plated And Yellow Passivated
Case Bolt:	Zinc Plated And Yellow Passivated
Clamp:	Zinc Plated And Yellow Passivated
Nut-Hex:	Zinc Plated And Yellow Passivated
****Other Details:***	Print Part No. & Julian Date / Inspector Code & Vdo India On The Side Of The Housing





AE Viewline Mechanical Water Pressure Gauge

Specifications	
Operating voltage:	10-16V DC
Current consumption:	40mA with illumination
Operating temperature:	-40°C to +85°C (max. 70°C for plated bezel)
Storage temperature:	-40°C to +85°C (max. 70°C for plated bezel)
Protection:	IP67 frontside, IP52 rearside acc to IEC 60 529 (2001-02), VDO TPV SP03/ C (fogging test), reverse polarity protection
EMC:	DIN-EN60945, DIN-EN 61000-6-2, DIN-EN 61000-6-3, DIN-EN 61000-6-4; SAE J1455, SAE J1810
Vibration resistance:	2 g rms for sinusoidal, 3 g rms for random vibrations
Physical shock resistance:	TPV-UP13
Electrical connection:	TYCO 965601-1 + 1-965600-1 or Hirchmann 722-660-511: 8-pin female connector, 1-lines
Contact system:	TYCO Receptacle Contacts, according to TYCO drawing: C-929454. Gold plated connectors are mandatory.
Nominal position:	NL 0 to 90° acc to DIN 16257 (1987-03)



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