



Special OEM Catalog



2002 Catalog

Part #SOC0302 (Supersedes 2001 Catalog #010201)

...handling a complex world

Bringing the United Power of Automotive Electronics to the Special OEM Marketplace

As a leader in the electronic instrumentation, control and sensor technology, the VDO brand name means quality, reliability and performance to our customers.

When you combine those same attributes, powerful name and innovation of one of the world's largest suppliers of automotive electronics/electrical systems technologies, you have a true winner in the marketplace.

Siemens VDO Automotive is committed to better serve our Special OEM customers through engineering expertise, advanced technology and a never ending commitment to service and quality.

To illustrate this commitment, we have recently united our product distribution operations to the Siemens VDO facility in Allentown, PA. This state-of-the-art facility has the latest generation computers for inventory and shipping support, plus provides more space for better inventory management. We anticipate that you will soon see a result of faster order processing and improved product availability.

Additionally, the merger of Siemens Automotive and VDO North America LLC will allow us to offer you a broader product portfolio. Built into each Blower Motor, Radiator Fan Motor, Condenser Fan Motor and Window Lift Motor is our OEM innovative technology, design and manufacturing expertise. With motor technologies positioned for the 21st century, you can rely on Siemens VDO to provide the quality, dependability and performance you expect from an industry leader. Feel free to visit the website at www.siemensvdo.com for additional information about the full line of Siemens VDO Automotive products .

We have published this new catalog with the consideration of a more market-driven product offering. Siemens VDO Automotive believes that you will be pleased with our improvements to our 2002 catalog.

Although our face has changed a bit, as always, we are committed and now better prepared to helping our customers meet the challenges of the increasingly competitive world-wide markets.

SIEMENS VDO
A u t o m o t i v e

Siemens VDO Automotive...still coming through for the customer.

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VDO Limited Warranty

VDO North America warrants all merchandise against defect in factory workmanship and materials for a period of 24 months after purchase. This warranty applies to the first retail purchaser and covers only those products exposed to normal use or service. Provisions of this warranty shall not apply to a VDO product used for a purpose for which it was not designed, or which has been altered in any way that would be detrimental to the performance or life of the product, or misapplication, misuse, negligence or accident. On any part or product found to be defective after examination by VDO North America VDO North America will only repair or replace the merchandise through the original selling dealer or on a direct basis. VDO North America assumes no responsibility for diagnosis, removal and/or installation labor, loss of vehicle use, loss of time, inconvenience or any other consequential expenses. The warranties herein are in lieu of any other expressed or implied warranties, including any implied warranty of merchantability or fitness, and any other obligation on the part of VDO North America, or selling dealer.

Note: This is a "Limited Warranty" as defined by the Magnuson-Moss Warranty Act of 1975.

Severe Duty

When an extreme working environment calls for a tough gauge, Severe Duty will get the job done. Specially designed for industrial applications, these instruments feature legendary VDO quality by incorporating our patented air core and stepper motor movements.

For additional protection against the elements, we incorporated corrosion proof materials, silver contact connectors and special seals with dual lenses. The dual lens system is made up of contoured

impact-proof plastic that not only prevents gauge fogging, but also minimizes reflections, making the instrument readable in almost any condition.

For versatility, Severe Duty instruments also feature built-in warning lights and are available in 12/24-volt applications. As a finishing touch, we incorporated our unique Spin-Lok™ mounting system for fast, positive instrument mounting. Instruments can also be adapted to a square bezel gauge by using an accessory kit.



PROGRAMMABLE TACHOMETERS w/LCD hourmeter

For use with all current electronic control unit (DDEC, etc.), inductive, alternator, standard ignition, electronic ignition and hall-effect applications. Engine hours are displayed in the LCD window.

Description	Size	Terminal	Voltage	Part No.
3,000 RPM w/EHM	3 3/8" (85 mm) dia.	Spade	12/24	02 012 126
4,000 RPM w/EHM	3 3/8" (85 mm) dia.	Spade	12/24	02 012 150

For 24V applications, use bulb #600 829D (2x).

PROGRAMMABLE TACHOMETERS w/o hourmeter

For use with alternator.

Description	Size	Terminal	Voltage	Part No.
3,000 RPM w/o EHM	3 3/8" (85 mm) dia.	Spade	12	02 012 426
4,000 PRM w/o EHM	3 3/8" (85 mm) dia.	Spade	12	02 012 430

For 24V applications, use bulb #600 829D (2x) and resistor kit #391 031D.

PRESSURE GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Terminal	Sender Table	Voltage	Part No.
30 PSI	VDO	Pressure	Spade	8	12	02 124 122
30 PSI	VDO	Pressure	Spade	8	24	02 124 522
80 PSI	VDO	Oil symbol	Spade	1	12	02 124 126
150 PSI	VDO	Oil symbol	Spade	5	12	02 124 166
150 PSI	VDO	Oil symbol	Spade	5	24	02 124 566
400 PSI	VDO	Trans. symbol	Spade	7	12	02 124 168
400 PSI	VDO	Trans. symbol	Spade	7	24	02 124 568

See pages 26 & 27 for sender tables.

Severe Duty cont.

TEMPERATURE GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Terminal	Sender Table	Voltage	Part No.
250°F / 120°C	VDO	"Water"	Spade	A	24	02 321 728
250°F / 120°C	VDO	"Water"	Spade	A	12	02 321 628

See pages 28 & 29 for sender tables.

Note: Warning lights must be ordered separately.

FLUID LEVEL GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	Terminal	Sender Table	Voltage	Part No.
Fuel gauge	240-33	Spade	12	12	02 222 306
Fuel gauge	240-33	Spade	12	24	02 222 106
Fuel gauge	VDO	Spade	11	12	02 222 112
Fuel gauge	VDO	Spade	11	24	02 222 312
Fuel, adjustable tube type (90-0 Ohms)		Spade	14	12	02 222 512
Fuel, adjustable tube type (90-0 Ohms)		Spade	14	24	02 222 712
Water gauge	VDO	Spade	15	12	02 230 712
Water gauge	VDO	Spade	15	24	02 230 812

See page 31 for sender tables.

VOLTMETERS, 2 1/16" (52 mm) dia.

Description	Range	On Dial	Terminal	Voltage	Part No.
12V	8-16V	"Symbol"	Spade	12	02 410 806
24V	16-32V	"Symbol"	Spade	24	02 410 906

AMMETERS (Shunted), 2 1/16" (52 mm) dia.

Description	Range	On Dial	Terminal	Voltage	Part No.
80 Amp gauge, illuminated	-80/0/+80	"Amp"	Spade	12	02 420 712
Kit	-80/0/+80	"Amp"	Spade	12	02 400 310
Shunt only	-	-	-	12	03 320 116

For 24V applications, use resistor kit #391 101.

ANGLE INDICATOR GAUGE w/Sender, 2 1/16" (52 mm) dia.

Description	Range	Terminal	Voltage	Part No.
Position indicator	VDO	Spade	12	03 200 514

CLOCK, 2 1/16" (52 mm) dia.

Description	Range	Terminal	Voltage	Part No.
Analog	9-28V	Spade	12/24	03 270 612

ACOUSTICAL WARNING ALARM, 2 1/16" (52 mm) dia.

Description	Terminal	Voltage	Part No.
Buzzer (Piezo)	Spade	12/24	03 230 702

WARNING LIGHTS

Description	Terminal	Voltage	Part No.
For volt, temp, pressure and fuel	Spade	12	05 800 762
For volt, temp, pressure and fuel	1/8" (.125")	24	05 800 764

Cockpit International

These world-class instruments are designed to be the standard in the industry at an economical price. All instruments feature VDO's latest generation patented air core and steeper motor movements for the reliability and durability you've come to expect from a leader in instrumentation.

These instruments are made for durability with a choice of two terminals: M4 studs and .250" male

spade. All 52 mm instruments feature zinc-plated metal housing and black painted, brass bezels for rugged, reliable service.

Each instrument in this product line incorporates standard flood-lit illumination and is available in 12/24-volt applications.



PROGRAMMABLE SPEEDOMETERS w/resettable LCD trip odometer

Feature a unique auto-calibration function for easy adjustment through the LCD display. Odometer and trip odometer are clearly displayed in the LCD window.

For use with hall-effect, inductive, OEM electronic output and generator senders.

Description	Size	Dwg.	Terminal	Voltage	Part No.
120 MPH	3 1/8" (80 mm) dia.	A	Spade	12	437 050D
45 MPH / 75 KMH	3 3/8" (85 mm) dia.	A	Spade	12	437 950D
130 KMH / 85 MPH	3 3/8" (85 mm) dia.	A	Spade	12	437 956D
120 MPH / 200 KMH	3 3/8" (85 mm) dia.	A	Spade	12	437 954D
120 MPH	3 3/8" (85 mm) dia.	A	Spade	12	437 052D
160 MPH	3 3/8" (85 mm) dia.	A	Spade	12	437 053D

For 24V applications, use bulb #600 826D (2x).

PROGRAMMABLE TACHOMETERS w/LCD hourmeter

For use with all current electronic control unit (DDEC, etc.), inductive, alternator, standard ignition, electronic ignition and hall-effect applications. Engine hours are displayed in the LCD window.

Description	Size	Dwg.	Terminal	Voltage	Part No.
7,000 RPM	3 1/8" (80 mm) dia.	-	Spade	12	333 051D
3,000 RPM	3 3/8" (85 mm) dia.	B	Spade	12	333 962D
4,000 RPM	3 3/8" (85 mm) dia.	B	Spade	12	333 963D
7,000 RPM	3 3/8" (85 mm) dia.	-	Spade	12	333 055D

For 24V applications, use bulb #600 826D (2x).

Cockpit International cont.

PROGRAMMABLE TACHOMETERS w/o hourmeter

For use with alternator, 4/6/8 cylinder ignition and 12V square wave applications.

Description	Size	Dwg.	Terminal	Voltage	Part No.
4,000 RPM (400-1300 Hz)	2 1/16" (52 mm) dia.	D	Spade	12	333 035 029C
4,000 RPM (800-2400 Hz)	2 1/16" (52 mm) dia.	D	Spade	12	333 965D
6,000 RPM	2 1/16" (52 mm) dia.	D	Spade	12	333 958D
8,000 RPM	2 1/16" (52 mm) dia.	D	Spade	12	333 959D
8,000 RPM (1 & 2 Cyl.)	2 1/16" (52 mm) dia.	-	Spade	12	333 968D
3,000 RPM	3 3/8" (85 mm) dia.	C	Spade	12	333 952D
4,000 RPM	3 3/8" (85 mm) dia.	C	Spade	12	333 953D
7,000 RPM	3 3/8" (85 mm) dia.	C	Spade	12	333 055D

For 24V applications, use resistor kit #391 101D, 2 1/16".

For 24V applications, use resistor kit #391 103D, 3 3/8".

TEMPERATURE GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Voltage	Part No.
240°F / 110°C	U.S.	Water symbol	G	Stud	-	12	310 907D
250°F / 120°C	VDO	Water symbol	G	Stud	A	12	310 909D
250°F	VDO	"Water"	E	Spade	A	12	310 039D
250°F / 120°C	VDO	Water symbol	G	Spade	A	12	310 934B
250°F / 120°C	VDO	Water symbol	G	Stud	A	24	310 910D
280°F / 140°C	U.S.	Water symbol	G	Stud	-	12	310 911D
300°F / 150°C	VDO	Water symbol	-	Spade	B	12	310 030 024C
300°F / 150°C	VDO	Oil symbol	G	Stud	B	12	310 915D
300°F / 150°C	VDO	"Oil"	G	Spade	B	12	310 936B
300°F / 150°C	VDO	Oil symbol	G	Stud	B	24	310 916D
300°F	VDO	"Oil"	E	Spade	B	12	310 012D
400°F	VDO	Trans symbol	G	Spade	C	12	310 015D
600°F	VDO	Cyl. head temp	G	Spade	-	12	310 033B

See pages 28 & 29 for sender tables.

Mechanical, 2 1/16" (52 mm) dia.

Description	Length	Dwg.	Fitting Size	Voltage	Part No.
265°F/130°C	72" cap.	H	1/2-14 NPT	12	180 901D
265°F/130°C	96" cap.	H	1/2-14 NPT	12	180 902D
265°F/130°C	144" cap.	H	1/2-14 NPT	12	180 903D

For 24V applications, use bulb #600 826D.

Adapters

Description	Part No.
1/2-14 NPT	180 066D
3/8-18 NPT	180 067D

Note: For mechanical temperature gauges.

Cylinder Head Temperature, 2 1/16" (52 mm) dia.

Description	Dwg.	Voltage	Part No.
600°F, complete kit	P	12	310 901D
14 mm dia. thermal sender (included in kit)	-	-	323 701D
12 mm dia. thermal sender	-	-	323 705D

For 24V applications, use bulb #600 807D.

Cockpit International cont.

PYROMETERS, 250°–1650°F, 2 1/16" (52 mm) dia.

Description	Dwg.	Voltage	Part No.
12' kit	O	12	310 953D
Gauge only	O	12	310 951D
Pyrometer sender only	O	–	323 892D
30' extension	–	–	240 092D

For 24V applications, use resistor kit #391 101D.

PRESSURE GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Voltage	Part No.
80 PSI / 5 bar	VDO	Oil symbol	G	Stud	1	12	350 901D
80 PSI (single scale)	VDO	"Oil"	E	Spade	1	12	350 040D
80 PSI (single scale)	VDO	"Oil"	E	Spade	1	12	350 934B
100 PSI (single scale)	VDO	Oil symbol	G	Stud	3	12	350 905B
150 PSI / 10 bar	VDO	Oil symbol	G	Stud	5	12	350 909D
150 PSI / 10 bar	VDO	Oil symbol	E	Spade	5	12	350 030 009C
150 PSI (single scale)	VDO	–	E	Spade	5	12	350 041D
400 PSI (single scale)	VDO	Gear symbol	G	Stud	7	12	350 913D
80 PSI / 5 bar	VDO	Oil symbol	G	Stud	1	24	350 902D
150 PSI / 10 bar	VDO	Oil symbol	G	Stud	5	24	350 910D

See pages 26 & 27 for sender tables.

Mechanical, 2 1/16" (52 mm) dia.

Description	On Dial	Dwg.	Fitting Size	Voltage	Part No.
15 PSI	"Boost"	I	1/8–27 NPT	12	150 051D
30 PSI	"Boost"	I	1/8–27 NPT	12	150 052D
100 PSI	"Oil"	I	1/8–27 NPT	12	150 030D
150 PSI / 10 bar	Oil symbol	I	1/8–27 NPT	12	150 904D
150 PSI / 10 bar	Air symbol	I	1/8–27 NPT	12	150 905D
400 PSI / 25 bar	Oil symbol	I	1/8–27 NPT	12	150 906D

For 24V applications, use bulb #600 826D.

DUAL AIR PRESSURE GAUGES, Mechanical

Description	Size	On Dial	Fitting Size	Voltage	Part No.
Red / Green pointer	2 1/16" (52 mm) dia.	"Air"	1/8–27 NPT	12	151 910D
Red / Green pointer	3 1/8" (80 mm) dia.	"Air"	1/8–27 NPT	24	151 002D

For 12V applications, use bulb #600 803D (2x).

VACUUM, 2 1/16" (52 mm) dia.

Description	On Dial	Dwg.	Fitting Size	Voltage	Part No.
30" Hg. / 1 bar	"Vacuum"	I	1/8–27 NPT	12	150 042D

For 24V applications, use bulb #600 826D.

Tubing kit not included, see page 33.

TURBO BOOST, 2 1/16" (52 mm) dia.

Description	Dwg.	Fitting Size	Voltage	Part No.
30" Hg. / 20 PSI	I	1/8–27 NPT	12	150 921D

For 24V applications, use bulb #600 826D.

Tubing kit not included, see page 33.

Cockpit International cont.

FUEL LEVEL GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Voltage	Part No.
For VDO sender	10–180	"Fuel"	E	Spade	11	12	301 015D
For VDO sender	10–180	symbol	G	Stud	11	12	301 901D
For U.S. sender	240–33	"Fuel"	G	Stud	12	12	301 903D
For GM sender, (from 1965)	0–90	"Tank"	E	Spade	13	12	301 030D
For Tube Type sender	90–0	"Fuel"	–	Spade	14	12	301 905D
For Tube Type sender	90–0	"Fuel"	–	Spade	14	24	301 906D
For O.E.M. sender	0–90	symbol	–	Spade	13	12	301 930B
For VDO sender	10–180	symbol	G	Stud	11	24	301 902D
For U.S. sender	240–33	symbol	G	Stud	12	24	301 904D

See page 31 for sender tables.

VOLTMETERS, Electrical, 2 1/16" (52 mm) dia., w/ISO symbol

Description	Range	Dwg.	Terminal	Voltage	Part No.
12V	8–16V	G	Stud	12	332 901D
12V	8–16V	G	Spade	12	332 932B
12V, w/colorband	8–16V	E	Spade	12	332 041D
24V	18–32V	G	Spade	24	310 040 004C
24V	18–32V	G	Stud	24	332 902D

AMMETERS (Non-shunted), 2 1/16" (52 mm) dia.

Description	Range	On Dial	Dwg.	Terminal	Voltage	Part No.
30 Amp	30/0/30	"Amp"	L	Stud	12	190 903D
60 Amp	60/0/60	"Amp"	L	Stud	12	190 904D

For 24V applications, use bulb #600 826D.

AMMETER (Shunted), 2 1/16" (52 mm) dia., complete kit w/shunt

Description	Range	On Dial	Dwg.	Terminal	Voltage	Part No.
300 Amp kit	300/0/300	"Amp"	M	Spade	12	190 966D

For 24V applications, use resistor #391 101D.

Accessories

Description	Part No.
300 Amp, shunt only	391 009D

CLOCK, 2 1/16" (52 mm) dia.

Description	Range	Dwg.	Terminal	Voltage	Part No.
Analog	9–28V	J	Spade	12/24	370 951D

For 24V applications, use bulb #600 807D.

Vision

VDO Vision represents a true technological advancement in instrument illumination. Using light piping techniques, we have created fully-backlit "through dial lighting" and pointer illumination with an unmatched level of nighttime readability.

Vision instruments also feature our innovative Spin-Lok™ mounting system for fast and easy installation. Using our unique spin-on clamp,

it provides a full 360 degrees of mounting force when installed, preventing panel warping and gauge rotation.

As with all VDO instruments, Vision incorporates the use of our own patented air core or stepper motor movements. Designed and used worldwide exclusively by VDO.



PROGRAMMABLE SPEEDOMETERS w/resetttable LCD tripodometer

Vision speedometers feature a unique auto-calibration function, allowing for easy adjustment through the LCD display. Odometer and tripodometer are clearly displayed in the LCD window, and the operator may toggle between these modes with the push of a button.

For use with hall-effect, inductive, OEM electronic output and generator senders.

Description	Size	Dwg.	Terminal	Voltage	Part No.
85 MPH / 130 KMH	3 ³ / ₈ " (85 mm) dia.	A	Spade	12/24	437 152D
120 MPH	3 ³ / ₈ " (85 mm) dia.	A	Spade	12/24	437 153D
120 MPH	4" (100 mm) dia.	A	Spade	12/24	437 155D

For 24V applications, use bulb #600 826D (2x).

PROGRAMMABLE TACHOMETERS w/LCD hourmeter

For use with all current electronic control units (DDEC, etc.), inductive, alternator, standard ignition, electronic ignition and hall-effect applications. Engine hours are displayed in the LCD window.

Description	Size	Dwg.	Terminal	Voltage	Part No.
3,000 RPM	3 ³ / ₈ " (85 mm) dia.	B	Spade	12/24	333 162D
4,000 RPM	3 ³ / ₈ " (85 mm) dia.	B	Spade	12/24	333 163D
6,000 RPM	3 ³ / ₈ " (85 mm) dia.	B	Spade	12/24	333 164D

For 24V applications, use bulb #600 826D (2x).



Trioptic™ technology for superior illumination.



VDO's Spin-Lok™ mounting system secures the instrument with 360° of force.

Vision cont.

PROGRAMMABLE TACHOMETERS w/o hourmeter

For use with alternator, 4/6/8 cylinder ignition and 12V square wave applications.

Description	Size	Dwg.	Terminal	Voltage	Part No.
4,000 RPM	2 ¹ / ₁₆ " (52 mm) dia.	D	Spade	12/24	333 156D
6,000 RPM	2 ¹ / ₁₆ " (52 mm) dia.	D	Spade	12/24	333 158D
8,000 RPM	2 ¹ / ₁₆ " (52 mm) dia.	D	Spade	12/24	333 159D
7,000 RPM	3 ¹ / ₈ " (80 mm) dia.	C	Spade	12/24	333 151D
3,000 RPM	3 ³ / ₈ " (85 mm) dia.	C	Spade	12/24	333 152D
7,000 RPM	3 ³ / ₈ " (85 mm) dia.	C	Spade	12/24	333 155D
8,000 RPM	4" (100 mm) dia.	C	Spade	12/24	333 160D

For 24V applications, use resistor kit #391 101D, 2¹/₁₆".

For 24V applications, use resistor kit #391 103D, 3¹/₈", 3³/₈" and 4".

TEMPERATURE GAUGES, Electrical, 2¹/₁₆" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Voltage	Part No.
250°F	VDO	"Water"	E	Spade	A	12	310 105D
300°F	VDO	"Oil"	E	Spade	B	12	310 106D
400°F	VDO	"Trans"	E	Spade	C	12	310 107D

For 24V applications, use bulb #600 826D.

See pages 28 & 29 for sender tables.

Mechanical, 2¹/₁₆" (52 mm) dia.

Description	Length	On Dial	Dwg.	Fitting Size	Voltage	Part No.
110°F/265°C	72" cap.	"Water"	H	1/2-14 NPT	12	180 101D

For 24V applications, use bulb #600 826D.

Adapters

Description	Part No.
1/2-14 NPT	180 066D
3/8-18 NPT	180 067D

Note: For mechanical temperature gauges.

OUTSIDE TEMPERATURE GAUGE, Electrical, 2¹/₁₆" (52 mm) dia.

Description	On Dial	Dwg.	Voltage	Part No.
Complete kit, Fahrenheit	-10°F-120°F	N	12	397 154D

For 24V applications, use resistor kit #391 101D.

PYROMETERS, Electrical, 2¹/₁₆" (52 mm) dia., 250°F-1650°F

Description	Dwg.	Voltage	Part No.
12' Kit	O	12	310 153D
Gauge only	O	12	310 151D
Pyrometer sender only	O	-	323 892D
30' extension	-	-	240 092D

For 24V applications, use resistor kit #391 101D.

PRESSURE GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Voltage	Part No.
80 PSI	10 – 180	"Oil"	E	Spade	1	12	350 104D
80 PSI	240 – 33	"Oil"	E	Spade	2	12	350 105D
100 PSI	10 – 180	"Oil"	E	Spade	3	12	350 106D
100 PSI	240 – 33	"Oil"	E	Spade	4	12	350 107D
150 PSI	10 – 180	"Oil"	E	Spade	5	12	350 108D
150 PSI	240 – 33	"Oil"	E	Spade	–	12	350 109D
150 PSI	10 – 180	"Front Air"	E	Spade	5	12	350 111D
150 PSI	10 – 180	"Rear Air"	E	Spade	5	12	350 112D
400 PSI	10 – 180	"Trans"	E	Spade	7	12	350 110D

For 24V applications, use bulb #600 826D.
See pages 26 & 27 for sender tables.

PRESSURE GAUGES, Mechanical, 2 1/16" (52 mm) dia.

Description	On Dial	Dwg.	Fitting Size	Voltage	Part No.
15 PSI	"Boost"	I	1/8–27 NPT	12	150 101D
30 PSI	"PSI"	I	1/8–27 NPT	12	150 103D
30 PSI	"Boost"	I	1/8–27 NPT	12	150 104D
100 PSI	"Oil"	I	1/8–27 NPT	12	150 107D
150 PSI	"Front Air"	I	1/8–27 NPT	12	150 105D
150 PSI	"Rear Air"	I	1/8–27 NPT	12	150 106D
150 PSI	"Oil"	I	1/8–27 NPT	12	150 111D
150 PSI	"Air"	I	1/8–27 NPT	12	150 112D

For 24V applications, use bulb #600 826D.
Tubing kit not included, see page 33.

FUEL GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Voltage	Part No.
For VDO sender	10 – 180	Fuel symbol	E	Spade	11	12	301 104D
For U.S. sender	240 – 33	Fuel symbol	E	Spade	12	12	301 105D
For GM sender	0 – 90	Fuel symbol	E	Spade	13	12	301 106D
Adjustable, for tube type sender only	90 – 0	Fuel symbol	E	Spade	14	12	301 107D

See page 31 for sender tables.

TURBO BOOST, Mechanical, 2 1/16" (52 mm) dia.

Description	On Dial	Dwg.	Fitting Size	Voltage	Part No.
0 – 30 in. Hg. to 0 – 25 PSI	"Turbo"	I	1/8–27 NPT	12	150 121D

For 24V applications, use bulb #600 826D.
Tubing kit not included, see page 33.

VACUUM GAUGE, Mechanical, 2 1/16" (52 mm) dia.

Description	On Dial	Dwg.	Fitting Size	Voltage	Part No.
0 – 30 in. Hg.	"Vacuum"	I	1/8–27 NPT	12	150 131D

For 24V applications, use bulb #600 826D.
Tubing kit not included, see page 33.

VOLTMETERS, 2 1/16" (52 mm) dia.

Description	On Dial	Dwg.	Terminal	Voltage	Part No.
8 – 16V	"Volt"	E	Spade	12	332 103D
8 – 16V	Volt symbol	E	Spade	24	332 104D

AMMETERS (Non-shunted), Electrical, 2 1/16" (52 mm) dia.

Description	Range	On Dial	Dwg.	Terminal	Voltage	Part No.
60 Amp	60/0/60	"Amp"	L	Stud	12	190 104D
100 Amp	100/0/100	"Amp"	L	Stud	12	190 105D

For 24V applications, use bulb #600 826D.

AMMETERS (Shunted), Electrical, 2 1/16" (52 mm) dia.

Description	Range	On Dial	Dwg.	Terminal	Voltage	Part No.
150 Amp, gauge only	150/0/150	"Amp"	M	Spade	12	190 151B
150 Amp, shunt only	–	–	–	–	–	391 007D

For 24V applications, use resistor #kit 391 101D.

CLOCK, Electrical, 2 1/16" (52 mm) dia.

Description	Range	Dwg.	Terminal	Voltage	Part No.
Analog	9 – 28V	J	Spade	12/24	370 152D

For 24V applications, use bulb #600 826D.

Notes _____

Series 1

VDO Series 1 instruments feature standard scales with step-type, chrome-plated brass bezels. Series 1 instruments utilize edge-lit dials and feature easy-to-read white numerals and pointers on black faces. All

housings are constructed of zinc-plated steel and have U-bracket mounting and stud-type connections except where noted in the technical specifications and dimensions section of this catalog.



PROGRAMMABLE SPEEDOMETERS w/resettable LCD trip odometer

Series 1 speedometers feature a unique auto-calibration function, allowing for easy adjustment through the LCD display. Odometer and trip odometer readings are clearly displayed in the LCD window, and the operator may toggle between these modes with the push of a button.

For use with hall-effect, inductive, OEM electronic output and generator senders.

Description	Size	Dwg.	Terminal	Voltage	Part No.
120 MPH	3 ³ / ₈ " (85 mm) dia.	A	Spade	12/24	437 353D
160 MPH	3 ³ / ₈ " (85 mm) dia.	A	Spade	12/24	437 354D

For 24V applications, use bulb #600 826D (2x).

MECHANICAL SPEEDOMETER w/o trip odometer, ⁵/₈-18 thread, 1.0 ratio

Description	Size	Voltage	Part No.
120 MPH / 200 KMH	3 ³ / ₈ " (85 mm) dia.	12	120 302D

PROGRAMMABLE TACHOMETER w/LCD hourmeter

For use with all current electronic control unit (DDEC, etc.), inductive, alternator, standard ignition, electronic ignition and hall-effect applications. Engine hours are displayed in the LCD window.

Description	Size	Dwg.	Terminal	Voltage	Part No.
4,000 RPM	3 ³ / ₈ " (85 mm) dia.	B	Spade	12/24	333 363D

For 24V applications, use bulb #600 826D (2x).

PROGRAMMABLE TACHOMETERS w/o hourmeter

For use with alternator, 4/6/8 cylinder ignition and 12V square wave applications.

Description	Size	Dwg.	Terminal	Voltage	Part No.
4,000 RPM	3 ³ / ₈ " (85 mm) dia.	C	Spade	12	333 353D
7,000 RPM	3 ³ / ₈ " (85 mm) dia.	C	Spade	12	333 355D

For 24V applications, use resistor kit #391 103D.

Series 1 cont.

TEMPERATURE GAUGES, Electrical, 2¹/₁₆" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Voltage	Part No.
250°F	VDO	"Water"	G	Stud	A	12	310 304D
300°F	VDO	symbol	G	Stud	B	12	310 305D
400°F	VDO	"Transmission"	G	Stud	C	12	310 303D

For 24V applications, use bulb #600 826D.

See pages 28 & 29 for sender tables.

Mechanical, 2¹/₁₆" (52 mm) dia.

Description	Length	On Dial	Dwg.	Fitting Size	Voltage	Part No.
110°F / 265°F	48" cap.	"Water"	I	1/2-14 NPT	12	180 310D
110°F / 265°F	72" cap.	"Water"	I	1/2-14 NPT	12	180 301D
110°F / 265°F	144" cap.	"Water"	I	1/2-14 NPT	12	180 302D
110°F / 265°F	288" cap.	"Water"	I	1/2-14 NPT	12	180 308D

For 24V applications, use bulb #600 826D.

Mechanical, oil temperature, 2¹/₁₆" (52 mm) dia.

Description	Length	On Dial	Dwg.	Fitting Size	Voltage	Part No.
120°F / 340°F	72" cap.	"Oil"	I	1/2-14 NPT	12	180 315D
120°F / 340°F	144" cap.	"Oil"	I	1/2-14 NPT	12	180 317D

For 24V applications, use bulb #600 826D.

Adapters

Description	Part No.
1/2-14 NPT	180 066D
3/8-18 NPT	180 067D

Note: For mechanical temperature gauges.

PRESSURE GAUGES, Electrical, 2¹/₁₆" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Voltage	Part No.
80 PSI	VDO	"Oil"	G	Stud	1	12	350 303D
100 PSI	VDO	"Oil"	G	Stud	3	12	350 306D

For 24V applications, use bulb #600 826D.

See pages 26 & 27 for sender tables.

Mechanical, 2¹/₁₆" (52 mm) dia., 1/8-27 NPT connection

Description	On Dial	Dwg.	Fitting Size	Voltage	Part No.
100 PSI	"Oil"	I	1/8-27 NPT	12	150 330D
150 PSI	"Air"	I	1/8-27 NPT	12	150 307D
150 PSI	"Oil"	I	1/8-27 NPT	12	150 306D

For 24V applications, use bulb #600 826D.

Tubing kit not included, see page 33.

TURBO BOOST, Mechanical, 2¹/₁₆" (52 mm) dia.

Description	On Dial	Dwg.	Fitting Size	Voltage	Part No.
30 in. Hg. to 15 PSI	"Turbo"	I	1/8-27 NPT	12	150 361D

For 24V applications, use bulb #600 826D.

Tubing kit not included, see page 33.

Series 1 cont.

VACUUM GAUGES, Mechanical, 2 1/16" (52 mm) dia.

Description	On Dial	Dwg.	Fitting Size	Voltage	Part No.
0-30 in. Hg. complete kit	"Vacuum" & "in./Hg."	I	1/8-27 NPT	12	150 302D
0-30 in. Hg., gauge only	"Vacuum" & "in./Hg."	I	1/8-27 NPT	12	150 301D

For 24V applications, use bulb #600 826D.
Tubing kit not included, see page 33.

FUEL GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Voltage	Part No.
For VDO sender	10-180	"Fuel"	G	Stud	11	12	301 301D
For U.S. sender	240-33	"Fuel"	G	Stud	12	12	301 302D
For GM sender (from 1965)	0-90	"Fuel"	G	Stud	13	12	301 303D

For 24V applications, use bulb #600 826D.
See page 31 for sender tables.

VOLTMETERS, Electrical, 2 1/16" (52 mm) dia.

Description	Range	On Dial	Dwg.	Terminal	Voltage	Part No.
12V	8-16V	-	G	Stud	12	332 341D
12V	8-16V	w/color band	G	Stud	12	332 342D

AMMETER (Non-shunted), Electrical, 2 1/16" (52 mm) dia.

Description	Range	On Dial	Dwg.	Voltage	Part No.
60 Amp	60/0/60	"Amp"	L	12	190 301D

For 24V applications, use bulb #600 826D.

CLOCK, Electrical, 2 1/16" (52 mm) dia.

Description	Range	Dwg.	Terminal	Voltage	Part No.
Analog	9-28V	K	Spade	12/24	370 301D

For 24V applications, use bulb #600 829D.

Notes _____

Industrial (service parts only)



PROGRAMMABLE TACHOMETERS w/LCD hourmeter

For use with all current electronic control unit (DDEC, etc.), inductive, alternator, standard ignition, electronic ignition and hall-effect applications. Engine hours are displayed in the LCD window.

Description	Size	Dwg.	Terminal	Voltage	Chrome	Black
3,000 RPM	3 3/8" (85 mm) dia.	A	Spade	12/24	333 561D	333 562D
4,000 RPM	3 3/8" (85 mm) dia.	A	Spade	12/24	333 563D	333 564D

For 24V applications, use bulb #600 826D (2x).

PROGRAMMABLE TACHOMETERS w/o hourmeter

For use with magnetic pickups.

Description	Size	Terminal	Voltage	Chrome	Black
3,000 RPM	3 3/8" (85 mm) dia.	Spade	12/24	333 531D	333 532D
4,000 RPM	3 3/8" (85 mm) dia.	Spade	12/24	333 533D	333 534D

For 24V applications, use bulb #600 807D.

PROGRAMMABLE TACHOMETER w/o hourmeter

For use with 4/6/8 cylinder ignition and 12V square wave application.

Description	Size	Terminal	Voltage	Chrome	Black
6,000 RPM	3 3/8" (85 mm) dia.	Spade	12	333 535D	333 536D

For 24V applications, use bulb #600 826D (2x) and resistor #391 032D.

ALTERNATOR TACHOMETER w/o hourmeter

Description	Size	Terminal	Voltage	Chrome	Black
4,000 RPM*	2 1/16" (52 mm) dia.	Spade	12/24	333 515D	-

*For 24V applications, use resistor #391 032D and bulb #600 807D, 2 1/16".

MECHANICAL TACHOMETER w/rev. counter, 3,500 RPM

Description	Size	Voltage	Chrome	Black
1:2 Ratio	3 3/8" (85 mm) dia.	12	128 501B	-

Industrial (service parts only) cont.

TEMPERATURE GAUGES, 12V, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Chrome	Black
250°F / 120°C	VDO	"Water"	F	Spade	A	310 501D	310 502D
300°F / 150°C	VDO	"Engine Oil"	F	Spade	B	310 511D	310 512D
400°F / 200°C	VDO	"Trans Oil"	F	Spade	C	—	310 514D

For 24V applications, use resistor kit #391 704D.
See pages 28 & 29 for sender tables.

TEMPERATURE GAUGES, Mechanical, 2 1/16" (52 mm) dia.

Description	Length	On Dial	Dwg.	Fitting Size	Voltage	Chrome	Black
265°F / 130°C	72" cap.	"Water"	H	1/2-14 NPT	12	180 501D	—
265°F / 130°C	144" cap.	"Water"	H	1/2-14 NPT	12	180 503D	180 504D
265°F / 130°C	180" cap.	"Water"	H	1/2-14 NPT	12	180 505D	—

For 24V applications, use bulb #600 826D.

Adapters

Description	Part No.
1/2-14 NPT	180 066D
3/8-18 NPT	180 067D

Note: For mechanical temperature gauges.

PRESSURE GAUGES, 12V, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Sender Table	Chrome	Black
80 PSI / 5 kp/cm ²	VDO	"Engine Oil"	F	Spade	1	350 515D	350 516D
80 PSI / 5 kp/cm ²	U.S.	"PSI"	F	Spade	2	350 505D	350 506D
100 PSI / 7 kp/cm ²	VDO	"Engine Oil"	F	Spade	3	350 519D	350 520D
150 PSI / 10 kp/cm ²	VDO	"Engine Oil"	F	Spade	5	350 507D	350 508D
150 PSI / 10 kp/cm ²	VDO	"Air"	F	Spade	5	—	350 510B
350 PSI / 25 kp/cm ²	VDO	Gear symbol	F	Spade	6	350 511D	350 512D
400 PSI / 28 kp/cm ²	VDO	Gear symbol	F	Spade	7	350 513D	—

For 24V applications, use resistor kit #391 704D.
See pages 26 & 27 for sender tables.

Mechanical, 2 1/16" (52 mm) dia.

Description	On Dial	Dwg.	Fitting Size	Voltage	Chrome	Black
30 PSI / 2 kp/cm ²	Oil symbol	I	1/8-27 NPT	12	150 505D	150 506D
100 PSI / 7 kp/cm ²	Oil symbol	I	1/8-27 NPT	12	150 507D	150 508D
150 PSI / 10 kp/cm ²	ISO Oil symbol	I	1/8-27 NPT	12	150 509D	150 510D
150 PSI / 10 kp/cm ²	"Air"	I	1/8-27 NPT	12	150 513D	150 514D
400 PSI / 28 kp/cm ²	—	I	1/8-27 NPT	12	150 511D	—
150 PSI / 10 kp/cm ²	"Front Air"	I	1/8-27 NPT	12	—	150 518D
150 PSI / 10 kp/cm ²	"Rear Air"	I	1/8-27 NPT	12	—	150 520D

For 24V applications, use bulb #600 826D.
Tubing kit not included, see page 33.

FUEL GAUGES, Electrical, 2 1/16" (52 mm) dia.

Description	Ω Range	On Dial	Dwg.	Terminal	Voltage	Chrome	Black
For VDO sender	10-180	"Fuel"	F	Spade	12	301 501D	301 502D
For U.S. sender	240-33	"Fuel"	F	Spade	12	301 505D	301 506D
Adjustable, for tube type sender	90-0	"Fuel"	F	Spade	12	301 509D	301 510D

For 24V applications, use resistor kit #391 704D.

Industrial (service parts only) cont.

VOLTMETERS, Electrical, 2 1/16" (52 mm) dia.

Description	Range	Dwg.	Terminal	Voltage	Chrome	Black
12V	8-16V	F	Spade	12	332 501D	332 502D
24V	18-32V	F	Spade	24	332 503D	332 504D

AMMETER (Non-shunted), Electrical, 2 1/16" (52 mm) dia.

Description	Range	On Dial	Dwg.	Terminal	Voltage	Chrome	Black
60 Amp	60/0/60	"Amp"	L	Spade	12	190 501D	190 502D

For 24V applications, use bulb #600 826D.

AMMETERS (Shunted)

Description	Range	On Dial	Dwg.	Terminal	Voltage	Chrome	Black
150 Amp, complete kit	150/0/150	"Amp"	M	Spade	12	190 953D	—
150 Amp, shunt only w/lead wire	—	—	—	—	—	391 003D	—
200 Amp, shunt only w/lead wire	—	—	—	—	—	391 004D	—
200 Amp, gauge only	200/0/200	"Amp"	M	Spade	12	—	190 514D
200 Amp, shunt only	—	—	—	—	—	391 009D	—

For 24V applications, use bulb #600 826D.

Notes _____

DC Hourmeters (12/24V)

VDO has long since been a leading producer of hourmeters, setting the standard for quality and reliability worldwide. In fact, each hourmeter is factory "burnt-in" assuring you of its reliability and accuracy.

Our selection is second-to-none in the industry, allowing you to match your other instrument styles, bezels and mounting configurations. We pay attention to detail by providing several units in illuminated, non-illuminated and waterproof versions.



DC HOURMETERS, Electrical, 2 1/16" (52 mm) dia.

Cockpit International*

Description	On Dial	Terminal	Voltage	Chrome	Black
Non-illuminated	"Hours"	J	12/24	331 955D	331 953D
Illuminated	"Hours"	K	12/24	-	331 020D

LCD Hourmeter, 2 1/16" (52 mm) dia.**

Description	On Dial	Terminal	Voltage	Part No.
Non-illuminated	"Hours"	Spade	9-64	331 523D

Waterproof

Description	On Dial	Terminal	Voltage	Chrome	Black
Non-illuminated	"Hours"	Spade	12/24	331 511D	331 512D

Three-hole flange

Description	On Dial	Terminal	Voltage	Part No.
Non-illuminated, waterproof	"Hours"	Spade	12/24	331 514D

Mini hourmeter

Description	On Dial	Terminal	Voltage	Part No.
Rectangular, non-illuminated	"Hours"	Q	9/64	331 534D

*For 24V applications, use bulb #600 826D.

**For 24V applications, use bulb #600 807D.

BAI (Bus Analog Interface) System

The BAI (Bus Analog Interface) System from VDO is the simple, economical solution to bridging the gap between electronic engines and analog instrumentation. BAI interprets and converts your electronic engine's digital signals and sends them directly to your vehicle's existing analog gauges.

BAI saves you money because it eliminates the need to buy and install new gauges. BAI saves you time because it's easy to install on any diesel engine. There is no clumsy wire harness to stuff under the hood or dash. BAI requires only two wires to run from the ECM (Electronic Control Module) output plug to the unit.

With BAI, you can monitor up to 10 engine and chassis functions—including speedometer,

tachometer and hourmeter. BAI includes 8 programmable channels for warning lights, shutdowns and alarm systems, plus 3 additional analog inputs to monitor air pressure, transmission fluid and fuel levels, etc. BAI also allows you to pre-set warnings, alarms and even shutdowns to prevent engine damage.

BAI comes complete with easy-to-use, Windows-based software that you can program for any diesel system application based on SAE J1708/1587 protocols. Using your desktop or laptop computer, you can program the system for one engine or an entire fleet.

BAI SYSTEM

Description	Voltage	Part No.
BAI extended w/3 analog inputs	8-34	N03 321 008

Note: All units require programming.

Connector Housings/Connectors

Description	# Required per Application	Part No.
Female connector housing	1	06 034 950
Female connector	11	8 851 030 652D
Male connector housing	2	06 034 940
Male connector	22	8 850 939 004D

Note: All units require programming.



N03 321 008

BAI Technical Specifications

A multi-functional modular device that interprets signals and data from electronic engines for interface to predetermined gauges, sound alarms and warning lamps.

Dimensions: Length: 104 mm (4.09 in.)
Width: 107 mm (4.29 in.)

Diagnostics: Coded blink light

Instrument Channels: Operates up to 10 analog or newer 4-20ma instruments including tachometer, speedometer and hourmeter.

Alarm Outputs
8 Programmable Channels: for warning lights, shut downs and alarm systems

7 Auxiliary Analog Inputs: for monitoring additional chassis functions

Max. Alarm Outputs: 300ma

Electronic Capabilities
SAE J1708 /J1587 interface
CAN v2.0A (B passive) interface
EMC compatible

Electrical Capabilities
Operating Voltage: 8-34v
Current Consumption: 100ma (no load)
Output Voltage: 30v (continuous)
Input Voltage: 5-15v (ignition switched)

Environmental Capabilities
Sealed/fluid resistant to IEC IP-65 (IP-67 pending)
Sealed connectors (as desired)

Thermal Operating Temperature
-10° to 70°C (14°-158°F)

Thermal Storage Temperature
-30° to 85°C (-22°-185°F)

D'Mac System (for use on mechanical engines only)

Visibility and more of it is the trend in design of today's off-highway equipment. More glass all around the cab means there's less room for gauges and monitoring equipment and the wiring they require. This is why VDO developed the D'Mac System.

D'Mac gives you a full display of vital engine and chassis data in one compact instrument and warning package. In fact, D'Mac's LCD monitor is only 100 mm square, about the size of a slice of bread. It can easily be mounted centrally, so the operator can check it with a quick glance.

D'Mac is one wire easy. No need for complicated wire harnesses. With D'Mac CAN bus technology, you run just one wire from the sensor to the display. Fewer wires mean better reliability. Plus, you save both space and installation time.

D'Mac includes visual pre-alarm systems to warn of potential engine and chassis problems. You can also program D'Mac to shut down your vehicle before damage occurs. You can monitor up to 8 signal inputs with a single D'Mac unit. Check vehicle speed, engine speed, temperatures, pressures, liquid levels and more. Add more sensor units and you can monitor as many as 24 channels of information. Plus, D'Mac gives you additional data including an hourmeter, working hours, trip distance and total distance.

With the optional data archiving unit, you can store and review all warnings and alarms that occurred during equipment operation. Program service information into D'Mac and the system alerts the operator when it's time for regular check-ups and maintenance.

D'Mac Technical Specifications

Display Unit
(L = 100 mm, W = 100 mm, D = 73 mm)
Rated Voltage: 12–24v DC
Operating Voltage: 10.5–32v DC
EMC: DIN 40839, part 1, 3, 4
EN 50081, part 2
EN 50082, part 1

CE Certified to: 89/336 EWG
KBA Registration: 72/245 resp. 95/54
Vibration Strength: 1g, 25–2,000 Hz
Permanent Shock: 25g, 1 Hz, 6ms
Oper./Storage Temp.: -20° to 80°C
Protection: IP65 DIN 40 050 front
IP20 DIN 40 050 back

Input Signal Illum.: 10, 8–32v
Type of Connection: AMP MTA 156 pin connector

Display LCD: Dim.: 72x72 mm visible
Illum.: LED white (life cap. 60,000h)

Color: green
Projection: non-inverse
Pickup: segment multiplex oper.
Segments No.: 204
Visual Angle: NL 10–80,
DIN 16 257

Sensor Unit
(L = 112 mm, W = 132 mm, D = 35 mm)
Rated Voltage: 12–24v DC
Operating Voltage: 10.5–32v DC voltage
hall sensor at 24v=12v
EMC: DIN 40839, part 1, 3, 4
EN 50082, part 2
EN 50082, part 1

CE Certified to: 89/336 EWG
KBA Registration: 72/245 resp. 95/54
Vibration Strength: 3g, 25–2,000 Hz
Permanent Shock: 25g, 1 Hz, 6ms
Oper./Storage Temp.: -40° to 85°C
Protection: IP65 DIN 40 050
Type of Connection: AMP Econoseal 156 pin connector

Keypad
(L = 54 mm, W = 54 mm, D = 20 mm)
Control Field: Keypad foil (protected by plastic frame)
Protection: IP65 DIN 40 050 front
Type of Connection: AMP MTA 156 pin connector

Data Recorder
(L = 130 mm, W = 137.5 mm, D = 33 mm)
Rated Voltage: 12–24v DC
Operating Voltage: 10.5–32v DC
EMC: DIN 40839, part 1, 3, 4
EN 50081, part 2
EN 50082, part 1

CE Certified to: 89/336 EWG
KBA Registration: 72/245 resp. 95/54
Vibration Strength: 5g, 10–500 Hz, 1 octave/min.
Permanent Shock: 25g, 1 Hz, 6ms
Oper./Storage Temp.: -40° to 85°C
Protection: IP53 DIN 40 050
Type of Connection: AMP, 25-pole



D'Mac System
(sensor unit, LCD display, keypad)



Full representation of the display

Please call for part numbers and details.

E-Gas® Electronic Actuator System

Here is the affordable way to add safety and comfort... plus solve the technical issues associated with mechanically actuated cable systems—the E-Gas® System from VDO. E-Gas can be used for engine acceleration or anywhere that you need electronic actuation for smooth, controlled operation. The system consists of a fully programmable regulator

and electronic actuator that can be driven by any PWM signal device. Available options include a foot pedal or set-point sensor for level operation.

With E-Gas, you get simple, PC-based programmability, integrated diagnostics, actuator limitations, the ability to regulate or limit working speed and frequency/analog inputs for great control.



E-Gas Technical Specifications

Electronic Regulator (Electronics)
Normal Voltage: 12–24V
Test Voltage: 14–28V
Operating Voltage: 9.5–30V
Oper.Temp. Range: -40°C to +70°C
Storage Temp.: -40°C to +80°C
Standards: protection IP 53/
DIN 40050
Fault Memory: in EEPROM
Fault Output: via flasher or
diagnostics interface
driver's cab
Installation Site:

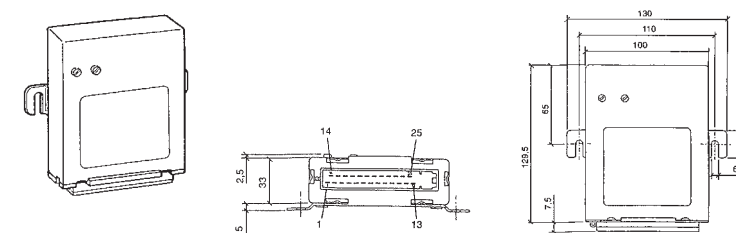
Electric Actuator
Normal Voltage: 24V
Oper.Temp. Range: -25°C to +90°C
Storage Temp.: -35°C to +115°C
Rated Torque: 250 Ncm
Response Time: ≤ 1 sec.
(typical): 750 ms
Positioning Angle: 87° ± 3°
Standards: protection IP 56A/
DIN 40050
Normal Voltage: 12V
Response Time: < 2 sec.

Set-Point Sensor
Oper. Voltage: supplied thru regulator
Oper. Temp. Range: -30°C to +80°C
Storage Temp.: -30°C to +90°C
Initial Torque: 160 Ncm + 20 Ncm/
-30 Ncm
Final Torque: 280 Ncm ± 40 Ncm
Kickdown Torque: 550 Ncm ± 40 Ncm
Standards: protection IP 66/
DIN 40050

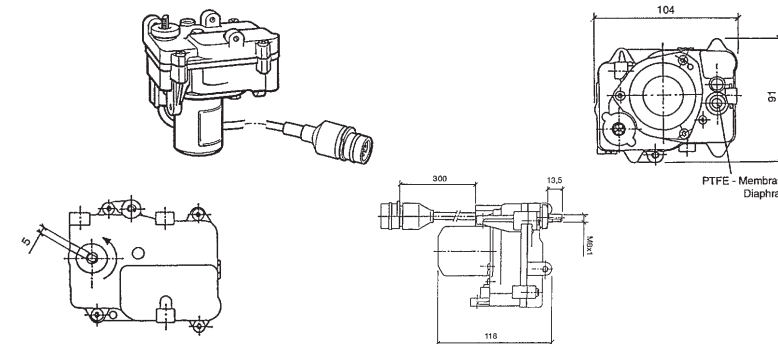
Pedal Unit
Service Voltage: supplied thru regulator
Oper. Temp. Range: -40°C to +80°C
Storage Temp.: -40°C to +100°C
Standards: protection IP 54/
DIN 40050
Signal: PWM

Please call for part numbers and details.

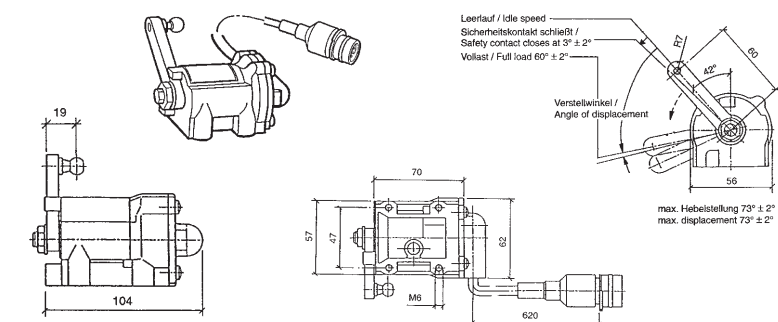
Electronic Regulator (Electronics)



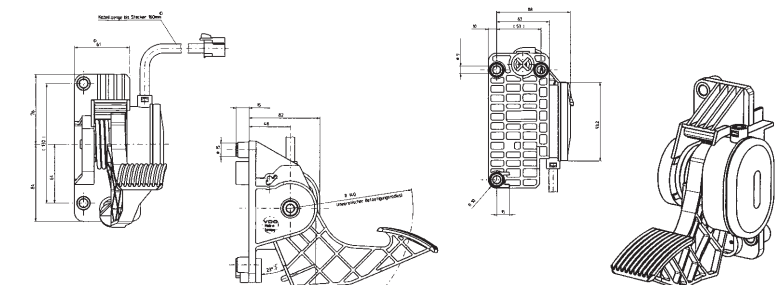
Electric Actuator



Set-Point Sensor



Pedal Unit



Windshield Washer System

VDO Windshield Washer Systems were developed to meet the demanding requirements of construction and agricultural equipment and specialty vehicles.

The system is comprised of a washer container with integrated pump, filter, mounting hardware and optional low level sensor. Available in 12- and 24-volt models both for single and dual washer applications.

The fully adjustable single and dual nozzles are made of high-quality chrome plated brass for long-term durability, less clogging and versatility for use in any application. Installation kits include hose, hose fittings, check valve and wiring harness complete with pump connector.

Washer System, 1.5 Liter / 1.6 Quarts

Description	Pkg. Qtys.	Part No.
Windshield only, 12V	10	X10 246 001 007
Windshield only, 24V	10	X10 246 001 008
Dual two window, 12V	10	X10 246 001 009
Windshield only, 12V, with warning switch	10	X10 246 001 010
Dual two window, 12V, with warning switch	10	X10 246 001 011

Washer System, 4.0 Liter / 4.24 Quarts

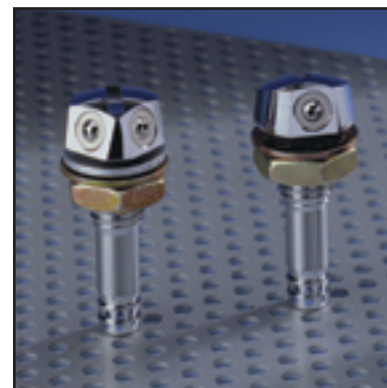
Description	Pkg. Qtys.	Part No.
Windshield only, 12V	6	X10 246 001 012
Windshield only, 24V	6	X10 246 001 013
Dual two window, 12V	6	X10 246 001 014

Washer System, 6.0 Liter / 6.36 Quarts

Description	Pkg. Qtys.	Part No.
Windshield only, 12V	10	X10 246 001 015
Windshield only, 24V	10	X10 246 001 016
Dual two window, 12V	10	X10 246 001 017

Accessories

Description	Pkg. Qtys.	Part No.
Installation kit, 12V applications	1	X10 246 001 018
Installation kit, 24V applications	1	X10 246 001 019
Single squirt adjustable nozzle	1	246 068 003 001G
Dual squirt adjustable nozzle	1	246 069 006 006G
"Heated," dual squirt adjustable nozzle, 12V	1	(ask for information)
Momentary push button	1	4 633 030 007B



Shown on Left:
246 069 006 006G
Shown on Right:
246 068 003 001G

Windshield Washer System Technical Specifications

Bottle		Connecting Elements
Content:	1.5L (1.6 Quarts) 4.0L (4.24 Quarts) 6.0L (6.36 Quarts)	Material: weather-resistant and aging-resistant
Materials:	Temperature-resistant from -30°C to +100°C, weather-resistant and aging-resistant	VDO Monopump, 12V Pressure: P= +2.2 bar Flow Rate: V= 2.0 i/min Current Consumption: V= 2.0 i/min
VDO Dual Pump, 12V	Pressure: P= +2.1 bar Flow Rate: V= 2.0 i/min Current Consumption: V= 2.0 i/min	VDO Monopump, 24V Pressure: P= +1.8 bar Flow Rate: V= 1.0 i/min Current Consumption: I= max = 1.2A

230 Series Heavy-Duty Pressure Switch

The Series 230 Heavy-Duty Pressure Switches provide an economical and reliable choice for a multitude of pressure switch applications. Available in a variety of part numbers to cover most commonly demanded set points. Optional set points may also be field set to meet customer requirements.

Series 230 Pressure Switches are compact and compatible with a wide variety of fluids, making them ideal for most engine, brake, hydraulic and air system applications. All switches are provided with an insulated ground terminal to assure a quality ground circuit.

Normally Open – Single Circuit; 2 terminals, insulated ground

Range	Part No.
4 PSI	230 404D
15 PSI	230 415D
60 PSI	230 460D

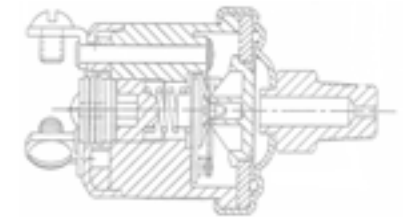
Normally Closed – Single Circuit; 2 terminals, insulated ground

Range	Part No.
4 PSI	230 504D
15 PSI	230 515D
60 PSI	230 560D

Dual Circuit – normally open, normally closed, insulated ground

Range	Part No.
4 PSI	230 604D
15 PSI	230 615D
60 PSI	230 660D

Overall Dimensions: Length = 2.52" / Width = 1.47"



(2 terminal configuration)



(3 terminal configuration)

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

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

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

Temperature Range: -40°F to 250°F

Base: Steel plated

Diaphragm: Polyimide film

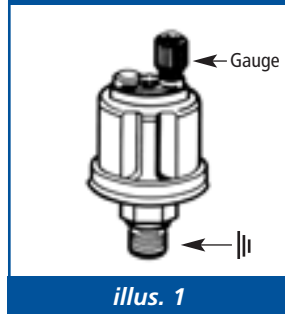
Cover: Glass reinforced polyester

Terminals: #8–32 screws

Thread Size: 1/8–27 NPT

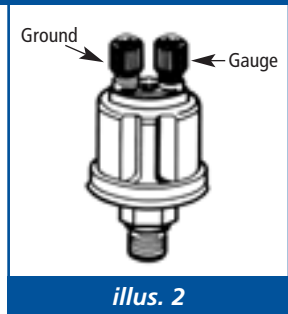
Pressure Senders

Types of Connections



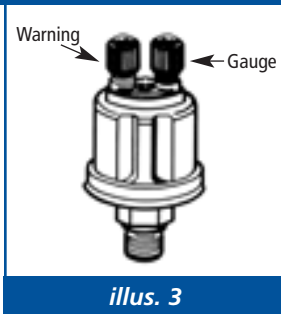
illus. 1

Standard Ground: sender case to common ground



illus. 2

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



illus. 3

Standard Ground with Warning Contact

Table 1: 80 PSI / 5 bar (10–180 OHM)

Thread	Warning Contact (illus. 3)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 1)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender	Washer Required
1/8–27 NPT	–	360 003D	–	–	–	29/4	–
1/8–27 NPT	–	–	360 410D	–	–	32/1	–
1/8–27 NPT	–	–	–	–	362 001D	1/1	–
1/8–27 NPT	7.0 PSI	360 009D	–	–	–	30/23	–
1/8–27 NPT	–	–	–	362 033D	–	3/1	–
1/4–18 NPT	–	360 005D	–	–	–	29/8	–
1/4–18 NPT	8.0 PSI	360 019D	–	–	–	30/20	–
1/4–18 NPT	–	–	360 441B	–	–	32/16	–
1/8–28 BSP	–	360 080D	–	–	–	29/61	–
M10 x 1K	–	360 001D	–	–	–	29/1	–
M10 x 1K	7.0 PSI	360 006D	–	–	–	30/2	–
M10 x 1K	10.0 PSI	360 034D	–	–	–	30/4	–
M12 x 1.5	–	360 002D	–	–	–	29/85	X
M12 x 1.5	8.5 PSI	360 007D	–	–	–	30/6	X
M14 x 1.5	–	360 027D	–	–	–	29/26	X
M15 x 1.5	7.1 PSI	360 028D	–	–	–	30/28	X

Universal Sender Kit includes 360 003 sender, 1/4–18", 3/8–18" and 1/2–14" bushing. **360 900D**

Table 2: 80 PSI / 5 bar (240–33 OHM)

Thread	Warning Contact (illus. 3)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 1)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender
1/8–27 NPT	–	360 801D	–	–	–	AT 84200

Table 3: 100 PSI / 7 bar (10–180 OHM)

Thread	Warning Contact (illus. 3)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 1)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender
1/8–27 NPT	–	360 086D	–	–	–	655

Table 4: 100 PSI / 7 bar (240–33 OHM)

Thread	Warning Contact (illus. 3)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 1)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender
1/8–27 NPT	–	360 811D	–	–	–	734

Table 5: 150 PSI / 10 bar (10–180 OHM)

Thread	Warning Contact (illus. 3)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 1)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender	Washer Required
1/8–27 NPT	–	360 004D	–	–	–	29/12	–
1/8–27 NPT	–	–	360 430D	–	–	32/14	–
1/8–27 NPT	–	–	–	362 034D	–	3/2	–
1/8–27 NPT	–	–	–	–	362 002D	1/2	–
1/8–27 NPT	11.4 PSI	360 025D	–	–	–	30/15	–
1/8–28 BSP	–	360 081D	–	–	–	29/62	–
1/4–18 NPT	–	360 021D	–	–	–	29/20	–
M10 x 1K	–	360 015D	–	–	–	29/10	–
M10 x 1K	7.0 PSI	360 023D	–	–	–	30/9	–
M10 x 1K	29.6 PSI	360 033D	–	–	–	30/41	–
M12 x 1.5	–	360 016D	–	–	–	29/13	X
M12 x 1.5	7.0 PSI	360 024D	–	–	–	30/22	X

Universal Sender Kit includes 360 004 sender, 1/4–18", 3/8–18" and 1/2–14" bushing. **360 905D**

Table 6: 350 PSI / 25 bar (10–180 OHM)

Thread	Warning Contact (illus. 3)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 1)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender	Washer Required
1/8–27 NPT	–	–	360 431D	–	–	38/3	–
1/8–27 NPT	–	–	–	362 035D	–	4/1	–
1/8–27 NPT	–	–	–	–	362 003D	2/1	–
3/8–18 NPT	–	–	360 432D	–	–	38/2	–
3/8–18 NPT	–	–	–	–	362 007D	2/2	–
M14 x 1.5	–	–	360 442D	–	–	38/1	X

Table 7: 400 PSI / 28 bar (10–180 OHM)

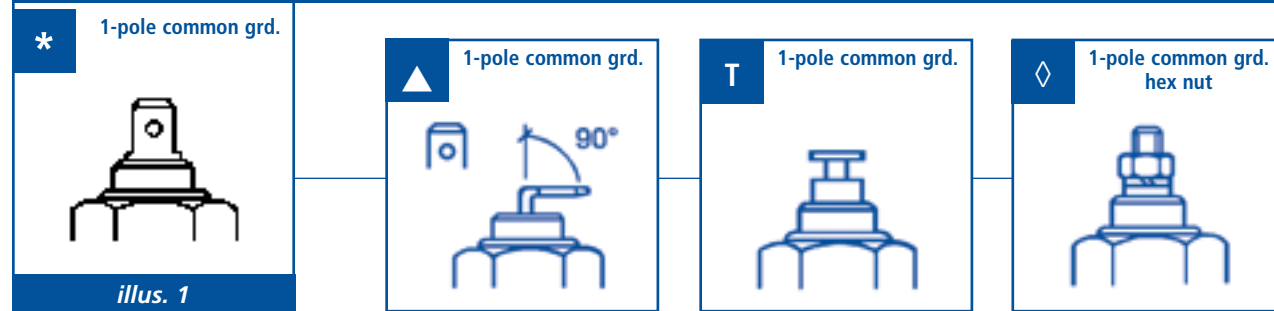
Thread	Warning Contact (illus. 3)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 1)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender
1/8–27 NPT	–	–	360 406D	–	–	38/8
1/8–27 NPT	–	–	–	362 004D	–	2/3

Table 8: 30 PSI / 2 bar (10–180 OHM)

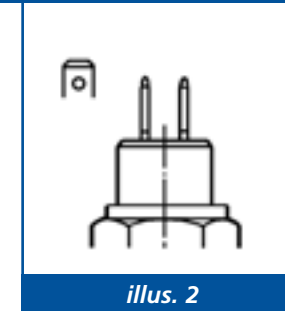
Thread	Warning Contact (illus. 3)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 1)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender
1/8–27 NPT	–	–	360 043D	–	–	32/25

Temperature Senders

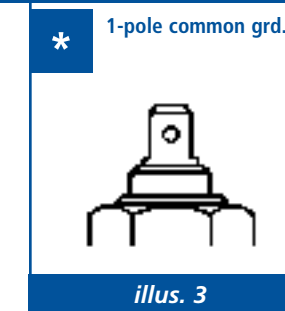
Types of Connections



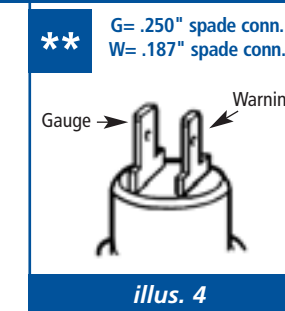
illus. 1
Standard Ground:
sender case to
common ground



illus. 2
Floating Ground:
isolated terminal to
common ground



illus. 3
Dual Station:
2 gauges operation
from single sender



illus. 4
Dual Station
Floating Ground:
same as Dual Station;
however, isolated
terminal to ground

Connection Key

- * Straight .250" spade terminal
- ◇ 4 mm screw stud
- ▲ 90° angle .250" spade terminal
- T .250" "posi lock" terminal
- * 56 Series "Packard" female terminal, unsealed w/terminal housing
- ** Gauge .250" spade terminal; Warning .187" spade terminal

Table A: 250°F / 120°C

Thread	Terminal Type	Warning Contact (illus. 4)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 3)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender	Washer Required
1/8-27 NPT	T	-	323 095D	-	-	-	801/5/1	-
1/4-18 NPT	*	-	323 420D	-	-	-	801/1/9	-
1/4-18 NPT	*	-	-	323 477D	-	-	805/1/7	-
1/4-18 NPT	*	-	-	-	325 001D	-	801/2/1	-
1/4-18 NPT	*	-	-	-	-	325 002D	805/3/1	-
3/8-18 NPT	*	-	323 094D	-	-	-	801/1/7	-
3/8-18 NPT	◇	-	323 421D	-	-	-	801/1/38	-
3/8-18 NPT	*	-	-	323 479D	-	-	805/1/5	-
3/8-18 NPT	*	-	-	-	325 008D	-	801/2/4	-
3/8-18 NPT	*	-	-	-	-	325 007D	805/3/3	-
1/2-14 NPT	*	-	323 093D	-	-	-	801/1/10	-
1/2-14 NPT	◇	-	323 419D	-	-	-	801/1/16	-
1/2-14 NPT	**	195°F ± 5°F	323 097D	-	-	-	803/1/37	-
1/2-14 NPT	**	205°F ± 5°F	323 098D	-	-	-	803/1/19	-
1/2-14 NPT	**	217°F ± 5°F	323 099D	-	-	-	803/1/25	-
1/2-14 NPT	**	230°F ± 5°F	323 100D	-	-	-	803/1/32	-
1/2-14 NPT	*	-	-	323 478D	-	-	805/1/4	-
5/8-18 NF-3	**	209°F ± 5°F	323 026D	-	-	-	803/1/2	-
5/8-18 UNF	◇	-	323 422D	-	-	-	801/1/25	-
5/8-18 UNF	*	-	-	-	-	325 003D	805/3/2	-
5/8-18 UNF	*	-	-	323 483D	-	-	805/1/2	-
5/8-18 NF-3	*	203°F ± 5°F	323 487D	-	-	-	803/1/11	-
M10 x 1	T	-	323 088D	-	-	-	801/17/1	X
M14 x 1.5	◇	-	323 416D	-	-	-	801/1/26	X
M14 x 1.5	*	-	-	323 425D	-	-	805/1/1	X
M16 x 1.5	**	203°F ± 5°F	323 028D	-	-	-	803/1/7	X
M16 x 1.5	◇	-	323 417D	-	-	-	801/1/29	X
M18 x 1.5	*	-	323 418D	-	-	-	801/1/22	X

Universal Sender Kit includes 323 095D sender, 1/4-18", 3/8-18" and 1/2-14" bushing and .250 (1/4") spade terminal

323 900D

Table B: 300°F / 150°C

Thread	Terminal Type	Warning Contact (illus. 4)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 3)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender	Washer Required
1/8-27 NPT	T	-	323 057D	-	-	-	801/9/1	-
1/4-18 NPT	◇	-	323 058D	-	-	-	801/4/17	-
1/4-18 NPT	*	-	-	323 485D	-	-	805/3/2	-
3/8-18 NPT	*	-	323 059D	-	-	-	801/4/15	-
1/2-14 NPT	◇	-	323 060D	-	-	-	801/4/6	-
1/2-14 NPT	**	250°F ± 5°F	323 120D	-	-	-	803/2/15	-
5/8-18 UNF	◇	-	323 061D	-	-	-	801/4/9	-
5/8-18 UNF	*	-	-	323 43D1	-	-	805/3/3	-
M10 x 1	T	-	323 423D	-	-	-	801/9/3	X
M12 x 1.5	T	-	323 092D	-	-	-	801/10/3	X
M14 x 1.5	▲	-	323 055D	-	-	-	801/12/2	X
M16 x 1.5	▲	-	323 056D	-	-	-	801/12/1	X
M18 x 1.5	▲	-	323 064D	-	-	-	801/12/3	X
M22 x 1.5	▲	-	323 066D	-	-	-	801/12/4	X

Universal Sender Kit includes 323 057D sender, 1/4-18", 3/8-18" and 1/2-14" bushing and .250 (1/4") spade terminal

323 905D

Table C: 400°F / 200°C

Thread	Terminal Type	Warning Contact (illus. 4)	Std. Ground (illus. 1)	Floating Ground (illus. 2)	Dual Station (illus. 3)	Dual Station Floating Ground (illus. 2)	# Stamped on Sender	Washer Required
1/8-27 NPT	T	-	323 050D	(Long probe, 5/8" long) Ford			801/13/1	-
1/8-27 NPT	T	-	323 086D	(Short probe, 3/8" long) GM			801/18/1	-
M10 x 1.5	T	-	323 091D	-	-	-	801/3/1	X
M10 x 1	T	-	323 090D	-	-	-	801/3/2	X

232 Series Temperature Switches

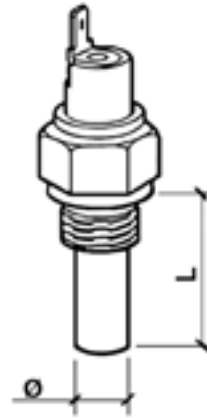
Temperature Switch Technical Specifications

Switching Capacity: 1.2W to 3W, non-inductive for monitoring various mediums
Normally Open, Single Circuit, Standard Ground Systems

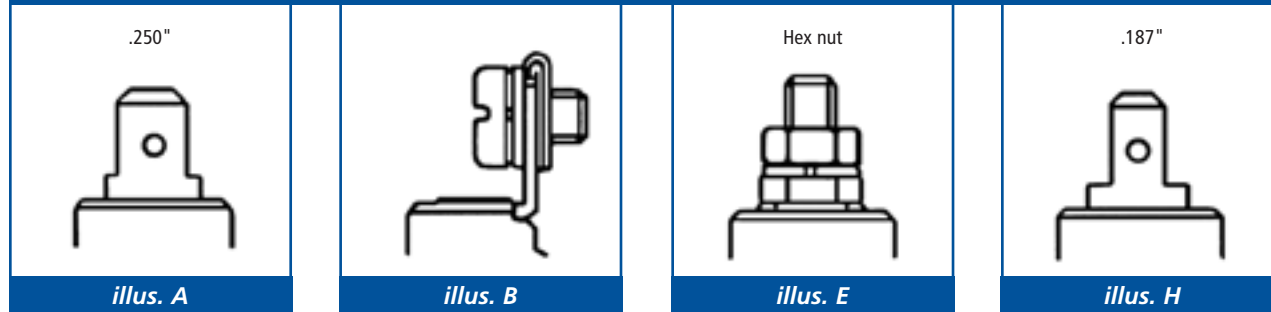
Rated Voltage: 6V to 24V

Type of Contact:
 SS=contact close as temperature rises
 OS=contact open as temperature rises

Break Point: 5°C max. below make point
Contacting Mode: Slow-acting



Types of Connections



Temperature Switches Table						
Make Point +°C	Thread	Max.	Type	L (mm)	Ø (mm)	Order No.
210 ± 10 SS	M10 x 1.5	240	E	38.5	6.9	232 011 005 012D
195 ± 10 SS	M10 x 1.5	250	E	38.5	6.9	232 011 019 003D
170 ± 5 SS	M10 x 1.5	220	E	38.5	6.9	232 011 005 004D
150 ± 5 SS	M10 x 1.5	200	E	38.5	6.9	232 011 005 017D
145 ± 5 SS	M10 x 1.5	210	E	38.5	6.9	232 011 005 005D
135 ± 10 SS	M10 x 1.5	180	E	38.5	6.9	232 011 005 015D
125 ± 5 SS	M10 x 1.5	155	E	38.5	6.9	232 011 005 011D
120 ± 5 SS	M10 x 1.5	170	E	38.5	6.9	232 011 005 014D
120 ± 3 SS	1/2-14 NPTF	130	B	29	10	232 011 017 005D
110 ± 3 SS	M10 x 1	150	E	33	6.9	232 011 005 024D
105 ± 3 SS	M14 x 1.5	150	E	29	10	232 011 017 136D
105 ± 3 SS	1/2-14 NPTF	120	A	29	10	232 011 017 041D
105 ± 3 SS	3/8-27 NPTF	120	E	33	6.9	232 011 005 020D
105 ± 3 SS	3/8-18 NPTF	120	H	29	10	232 011 017 145D
103 ± 3 SS	1/2-14 NPTF	120	A	29	10	232 011 017 131D
103 ± 3 SS	3/8-18 NPTF	120	A	29	10	232 011 017 139D
96 ± 3 SS	1/8-27 NPTF	120	E	33	6.9	232 011 005 019D
95 ± 3 SS	1/2-14 NPTF	120	A	29	10	232 011 017 039D
93 ± 3 SS	3/8-18 NPTF	120	A	29	10	232 011 017 088D
90 ± 3 SS	M10 x 1.5	120	E	38.5	6.9	232 011 005 003D

Fuel Level Senders

Table 11: Fuel Level Senders

Lever Arm Fuel Senders (10–180 OHM), adjustable for tank depths 6" to 23"	
Description	Part No.
Fuel sender, VDO OHM range	226 001D
Replacement gasket, 2 1/8" (54 mm), neoprene	226 053D
Bolt on flange kit for all swing arm senders	360 801D



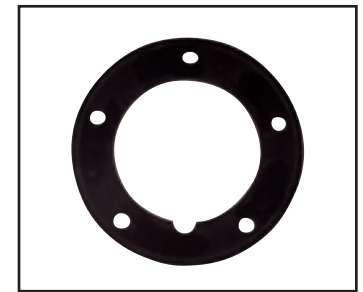
226 001D

Table 12: Fuel Level Senders

Lever Arm Fuel Senders (240–33 OHM), adjustable for tank depths 6" to 23"	
Description	Part No.
Fuel sender, U.S. OHM range	226 007D
Replacement gasket, 2 1/8" (54 mm), neoprene	226 053D
Bolt on flange kit for all swing arm senders	360 801D

Table 13: Fuel Level Senders

Lever Arm Fuel Senders (0–99 OHM), adjustable for tank depths 6" to 23"	
Description	Part No.
Fuel sender, GM OHM range	226 008D
Replacement gasket, 2 1/8" (54 mm), neoprene	226 053D
Bolt on flange kit for all swing arm senders	360 801D



226 053D

Table 14: Fuel Level Senders

Tube Type Fuel Level Sender w/neg. ground (90–0 OHM), adjustable fuel gauges only			
Length (inch)	Length (mm)	Stamped on Sender	Part No.
5 1/8"	131.5 mm	82/8/17	224 058D
8 11/16"	221.5 mm	82/8/21	224 061D
9 15/16"	251.5 mm	82/6/97	224 062D
11"	279.5 mm	82/7/22	224 055D
12 1/4"	310.5 mm	82/5/136	224 063D
14 5/8"	372 mm	82/7/4	224 065D
15 15/16"	404.5 mm	82/5/142	224 054D
17 1/16"	433.5 mm	82/5/98	224 066D
19 5/8"	498.5 mm	82/5/117	224 067D
22"	559 mm	82/7/58	224 003D
23 7/8"	596 mm	82/7/17	224 069D
27 1/4"	692 mm	82/5/11	224 004D
31"	787.5 mm	82/5/72	224 049D
32 7/8"	835 mm	82/5/34	224 051D
Replacement gasket, 2 1/8" (54 mm), bolt circle, neoprene			226 053D
Replacement gasket, 3 1/8" (80 mm), bolt circle, cork			600 525D



224 055D

Table 15: Fresh Water Level Senders

Lever Arm Water Senders (10–180 OHM), adjustable for tank depths 8" to 24"	
Description	Part No.
Stainless steel water level sender, VDO OHM range	226 452D
Replacement gasket, 2 1/8" (54 mm), bolt circle, neoprene	226 053D

Speedometer & Tachometer Senders

Generator Senders

For use with VDO speedometers and tachometers designated as generator-type.

Without odometer/revolution counter terminal

Description	Part No.
7/8-18 thread	340 001D
M22 x 1.5 thread	340 002D

Drive keys for generator senders listed above

Description	Part No.
.152" - tang	340 060D
.187" - tang	340 061D
.203" - tang	340 062D
.104" - square	340 065D
.200" - Perkins	340 064D



340 001D



340 060D



340 020D



340 011D



340 013D

Inductive/Magnetic Pick-Up Sender

For inductive and programmable speedometers and tachometers.

Description	Part No.
2" long, 3/4-16 thread	340 020D

Hall-Effect

For electronic, programmable speedometers, 7/8-18 thread, 16 pulse.

Description	Part No.
Standard, GM	340 011D
GM, through-drive, for cruise control hook-up	340 012D
Ford, plug-in	340 013D
Ford, plug-in, through-drive	340 014D

Gauge Accessories

Tubing Kits

Description	Fitting Size	Part No.
6' plastic tubing	1/8-27 and 1/4-18 NPT adapters	150 851D
16' plastic tubing	1/8-27 and 1/4-18 NPT adapters	150 855D
6' copper tubing	1/8-27 and 1/4-18 NPT adapters	150 856D



Tubing Kits

Pressure Sender Adapters

Includes hose adapter and clamp for remote mounting pressure senders. Designed especially for high-vibration applications.

Description	Length	Part No.
1/8-27 NPT	16"	240 902D



Pressure Sender Adapters

T-Adapters

Description	Part No.
Male 1/8-27 NPT	240 855D
Male M10 x 1	240 850D



T-Adapters

Shock Mount Grommet

Description	Part No.
For 2 1/16" (52 mm) diameter instruments	240 832D



Shock Mount Grommet

Safety Mount Brackets for 2 1/16" (52 mm) dia. instruments

Made of a flexible, rubber material for cockpit safety. Matte black.

Description	Dimensions (H x D x L)	Part No.
1 opening	3 7/8" x 1 1/4" x 2 1/2"	240 802D
2 openings	3 7/8" x 1 1/4" x 4 7/8"	240 803D
3 openings	3 7/8" x 1 1/4" x 7 1/2"	240 804D



Safety Mount Brackets

Mounting Cups

Steel mounting cups with smooth black or chrome finishes.

Description	Chrome	Black
For 2 1/16" (52 mm) dia. gauge	240 017D*	240 016D*
For 3 3/8" (85 mm) dia. gauge	240 019D	240 018D

*Will not work with 2 1/16" dia. clocks, tachometers, outside temp. gauges or pyrometers.



Mounting Cups

Gauge Accessories cont.

Mounting Brackets for 2 1/16" (52 mm) dia. instruments

VDO mounting brackets are metal with smooth black or chrome finishes. 1, 2 and 3 opening units.

Description	Dimensions (H x D)	Chrome	Black
1 opening	2 7/8" x 2 11/16"	240 034D	240 027D
2 openings	2 7/8" x 5 3/16"	240 035D	240 028D
3 openings	2 7/8" x 7 1/2"	240 036D	240 029D

Custom Mini-Console for 2 1/16" (52 mm) dia. instruments

Consoles are made of durable ABS plastic with black leather-like finish. Can be surface mounted to nearly any flat surface, horizontally or vertically. Consoles are angled toward driver for maximum readability.

Description	Dimensions (H x D x L)	Part No.
1 opening	2" x 3 1/8" x 4 1/2"	110 860D
2 openings	2" x 3 3/8" x 8"	110 861D
3 openings	2" x 3 3/8" x 11 1/2"	110 862D

PLEASE NOTE: An additional 2 1/2" of depth is required beneath console to ensure proper installation of gauges.

Adjustable Mounting Cups

In durable ABS plastic with matte black finish.

Description	Part No.
For all 2 1/16" dia. electrical gauges, except outside temp. gauge, pyrometer, clock, ammeter and 2 1/16" dia. tach.	240 100D
2 1/16" dia., long version for outside temp. gauge, pyrometer, clock, ammeter and 2 1/16" dia. tach.	240 101D

Blind Covers

Description	Part No.
2 1/16" (52 mm) dia.	240 864D
3 3/8" (85 mm) dia.	240 866B

Reducing Rings

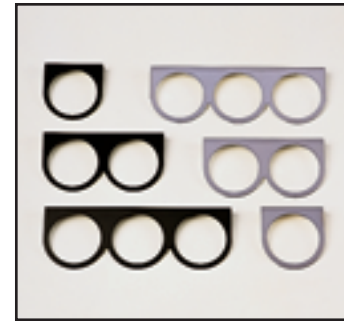
VDO's matte black mounting rings permit the installation of smaller units in larger existing dashboard openings.

Description	Part No.
From 2 3/8" to 2 1/16"	600 851D
From 3 3/8" to 3 1/8"	600 885D

Rudder Angle Indicator Senders

For use with VDO 12/24V gauges.

Description	Part No.
Single station transmitter, for operating one VDO indicator	440 003D
Dual station transmitter, for operating two VDO indicators from one sender	440 004D
Installation kit, connects transmitter arm assembly to rudder cable	440 050D
Replacement arm	440 100D



Mounting Brackets



Custom Mini Consoles



Adjustable Mounting Cups

Gauge Accessories cont.

Resistors

For conversion of 12V electrical instruments (except clocks and hourmeters) to 24V systems. Conversion of instruments to 24V systems may require installing a new bulb. See page 36 for bulb listings.

Description	Part No.
Resistor only for tachometers w/o hourmeters, 2 1/16" (52 mm) dia. tachometers, outside temperature gauges, pyrometers and shunted ammeters.	391 101D
Resistor only for all 2 1/16" (52 mm) dia. instruments except clocks, hourmeters, 52 mm dia. tachometers, outside temperature gauges, pyrometers and shunted ammeters. Includes additional terminals for use with stud terminal instruments.	391 102D

Resistor, 3 3/8" tachometers w/o hourmeter

For 2 1/16" alternator tachometers.

Description	Part No.
Resistor	391 032D

Resistor Kit

For 3 3/8" programmable tachometers w/o hourmeter.

Description	Part No.
Resistor and two (2) 24V bulb	391 103D

Resistor Kit

For Industrial Line instruments only.

Description	Part No.
Resistor and 24V bulb	391 704D
32V Resistor, 150 Ω, 5 watt	391 702D

Stud Mounting Kits

For converting Spin-Lok™ mounted instruments to stud type mounting.

Gauge Diameter	Part No.
2 1/16" (52 mm)	600 402D
3 1/8" (80 mm), 3 3/8" (85 mm)	600 401D

Replacement Spin-Lok™ Mounting Rings

Gauge Diameter	Part No.
2 1/16" (52 mm)	600 404D
3 1/8" (80 mm)	600 405D
3 3/8" (85 mm)	600 406D
4" (100 mm)	600 407D

Push-On Connectors

Provides convenient installation for 2 1/16" (52 mm) dia. temperature, pressure and fuel gauges with three-prong connectors.

Description	Part No.
Housing w/crimp connectors	240 026D
Housing w/o crimp connectors for use on Cockpit and Industrial	600 814D
Housing w/crimp connectors	240 025D
Housing w/o crimp connectors for use on Vision and Cockpit International w/spade terminals	999 115 015D

Push-On Amp Connector for Speedometers and Tachometers

Description	Part No.
Amp connector (amp part #163 007D)	999 115 016D
Terminal (not shown) (part #421 001-1)	



391 704D



600 402D



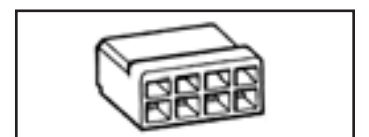
600 405D



600 404D



240 026D



999 115 016D

Light Bulbs and Sockets

Type A: Fits sockets #600 813D, #600 816D and #600 817D

Description	Part No.
9/32" 12V, 2W	600 802D
9/32" 24V, 3W	600 807D

Type B: Fits sockets #600 818D and #600 819D

Description	Part No.
1 1/32" 12V, 2W	600 804D
1 1/32" 12V, 4W	600 806D

Type C: Fits socket #600 821D

Description	Part No.
3/8" 12V, 2W	600 820D

Type D: (peanut type): Fits socket #600 823D

Description	Part No.
Peanut bulb, 12V, 1.2W	600 809D
Peanut bulb, 24V, 1.2W	600 829D

Type E: Fits socket #600 840D

Description	Part No.
Wedge-base bulb, 12V	600 815D
Wedge-base bulb, 24V	600 826D

INSULATED LIGHT BULB SOCKETS

Description	Part No.
3/8", uses bulb type A	600 813D
1 5/32", uses bulb type B	600 819D
Uses peanut-type bulb D	600 808D
Uses wedge-type bulb E	600 840D
Uses peanut-type bulb D	600 823D

LIGHT BULB SOCKETS

Description	Part No.
3/8" steel, uses bulb type A	600 816D
3/8" brass, uses bulb type A	600 817D
5/8" steel, uses bulb type C	600 821D
1 5/32" steel, uses bulb type B	600 818D

LIGHT DIFFUSERS

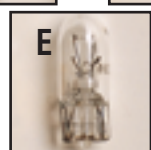
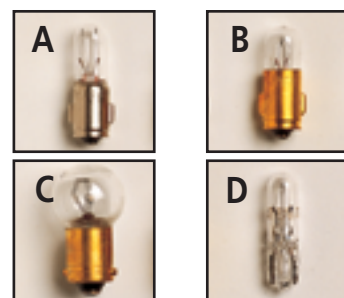
The easy and convenient way to change the lighting color in your VDO gauge. Simply slips over light bulb to give your dash a whole new color at night.

Description	Part No.
Red, Type A, 9/32" bulb	600 853D
Green, Type A, 9/32" bulb	600 856D
Red, Type B, 1 1/32" bulb	600 857D
Green, Type B, 1 1/32" bulb	600 858D
Red, Type D, "peanut" bulb	600 859D
Green, Type D, "peanut" bulb	600 860D
Red, Types E and C bulbs	600 861D
Green, Types E and C bulbs	600 862D

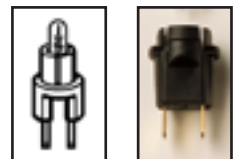
WARNING LIGHTS

12V snap-in warning lights with bulb. Requires 9/32" hole.

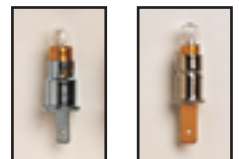
Description	Part No.
Red lens	600 844D
Green lens	600 845D
Yellow lens	600 846D
Blue lens	600 847D



600 813D 600 819D



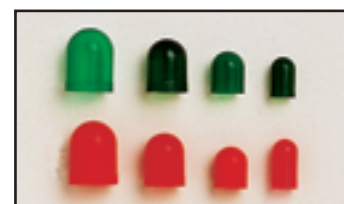
600 823D 600 840D



600 816D 600 817D



600 821D 600 818D



Light Diffusers

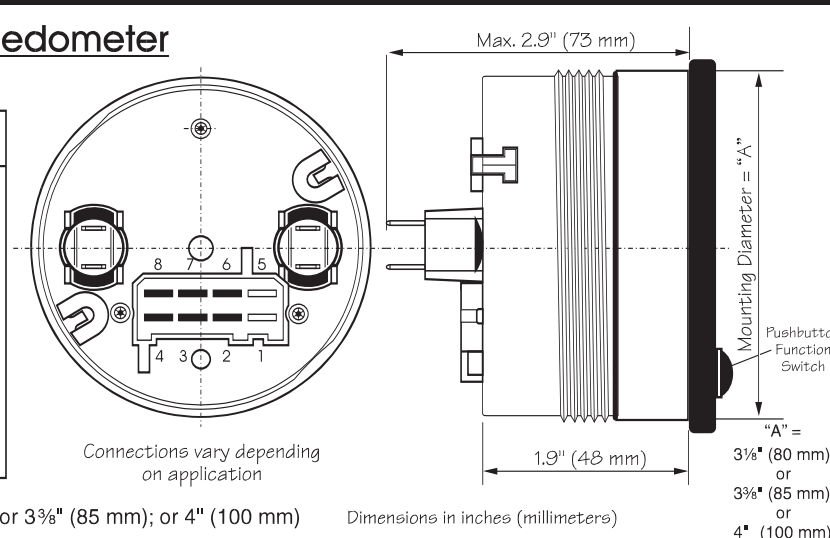


Warning Lights

Technical Specifications and Dimensions

A Programmable Speedometer

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 Sph-Lok™ Mounting Clamp: 2.2 - 2.4 ft. lb. (3 - 8 Nm)

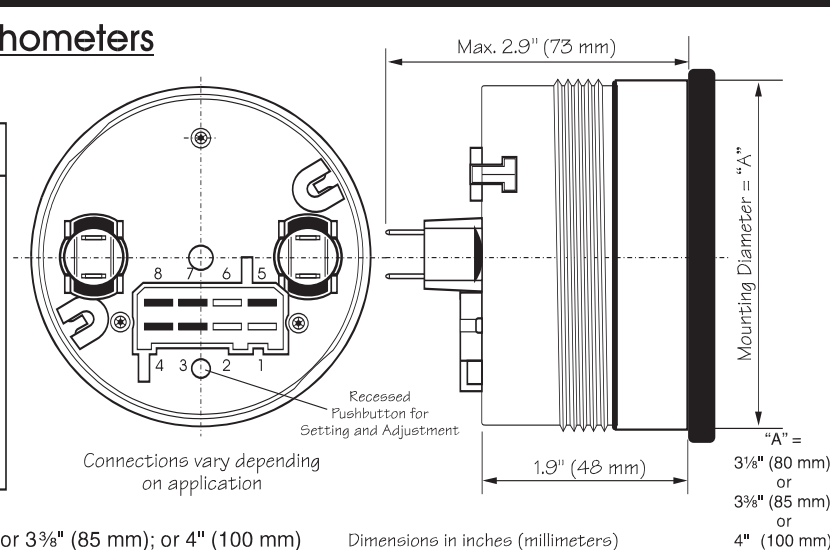


Mounting hole dimension: 3 1/8" (80 mm); or 3 3/8" (85 mm); or 4" (100 mm)

Dimensions in inches (millimeters)

B Programmable Tachometers (with hourmeters)

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 Sph-Lok™ Mounting Clamp: 2.2 - 2.4 ft. lb. (3 - 8 Nm)

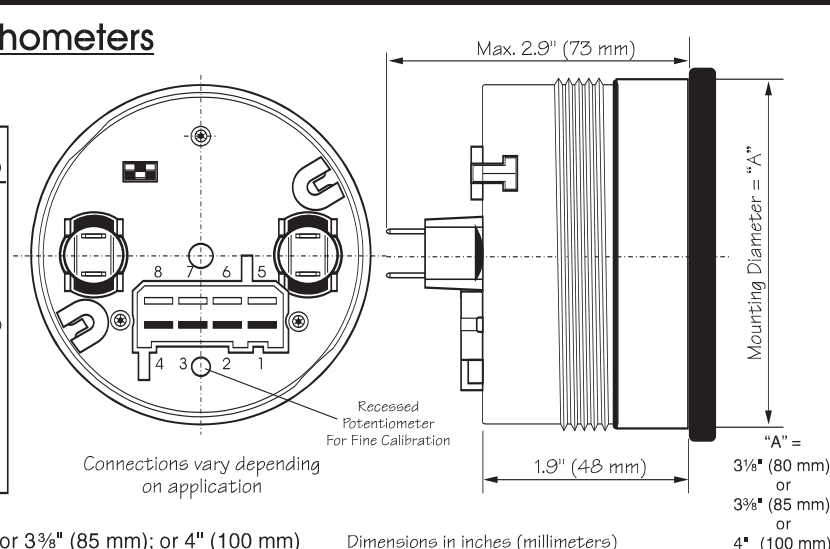


Mounting hole dimension: 3 1/8" (80 mm); or 3 3/8" (85 mm); or 4" (100 mm)

Dimensions in inches (millimeters)

C Programmable Tachometers (without hourmeters)

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 Sph-Lok™ Mounting Clamp: 2.2 - 2.4 ft. lb. (3 - 8 Nm)



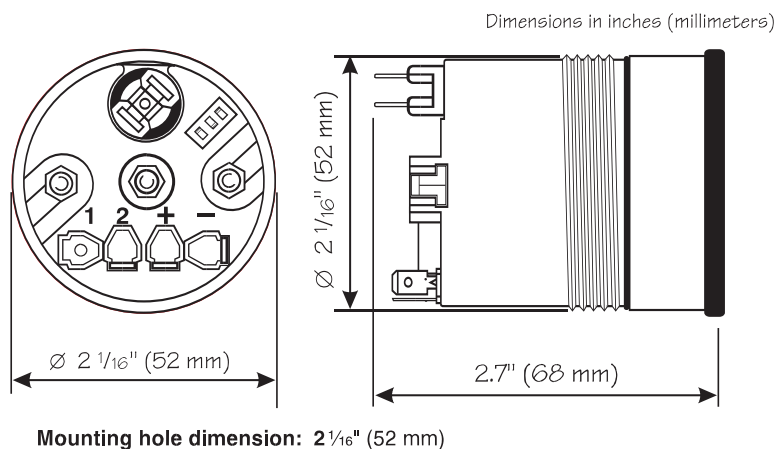
Mounting hole dimension: 3 1/8" (80 mm); or 3 3/8" (85 mm); or 4" (100 mm)

Dimensions in inches (millimeters)

Technical Specifications and Dimensions

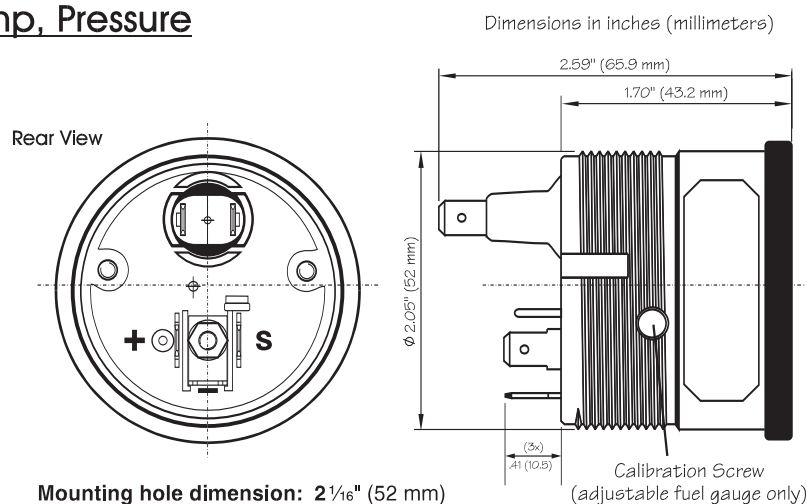
D Electronic Tachometer (2 1/16" (52 mm))

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:	1/4" 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: 0-1/2" (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)



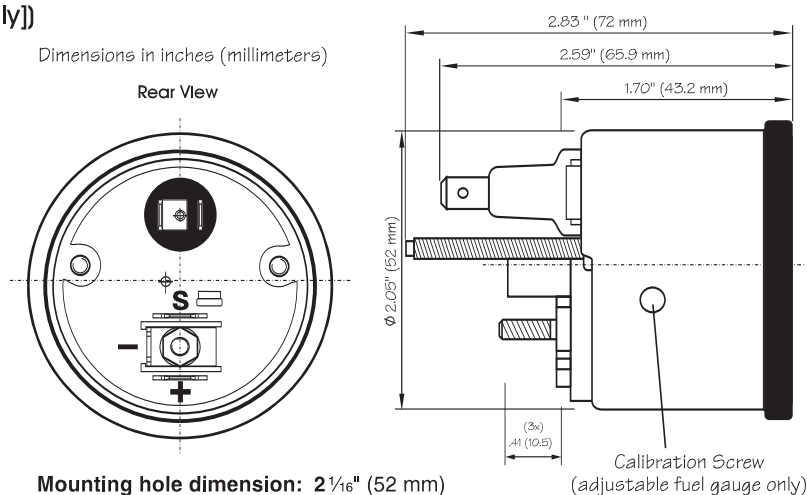
E Electric Fuel, Volt, Temp, Pressure (Spin-Lok™ clamp mount)

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...+105° 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:	1/4" 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 (12 v) or 21.5 - 30 volts (24 v)
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)



F Electric Fuel, Volt, Temp, Pressure (stud mount [Industrial Line Only])

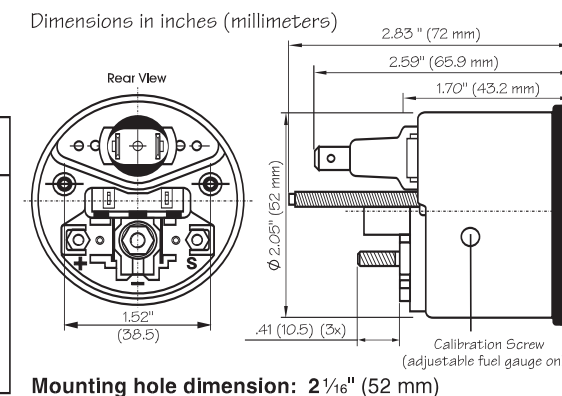
Specifications (Common to all Electric 2 1/16" (52 mm) Gauges with Stud Terminals and Stud Mounting)	
Operating Temperature:	-22° F...+185° F (-30° C...+85° C)
Storage Temperature:	-40° F...+194° F (-40° C...+90° C)
Illumination:	Push-in wedge type lamp socket; 12 volt: VDO #600 802 24 volt: VDO #600 807
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 characteristic
Nominal Position:	0 - 90° ↺
Operating Voltage:	11 - 16 volts (12v)
Nominal Voltage:	12v, insulated return (floating ground)
Torque Values:	For M4 nuts: 2.2 - 4.2 in. lb. (.25 - .47 Nm)



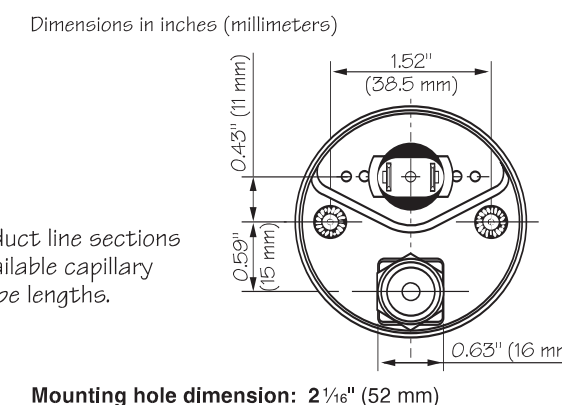
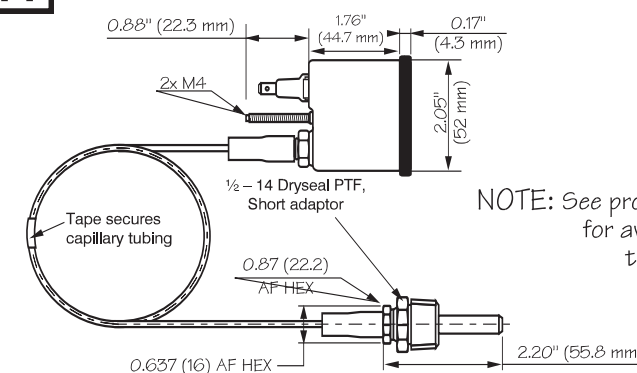
Technical Specifications and Dimensions

G Electric Fuel, Volt, Temp, Pressure (stud mount)

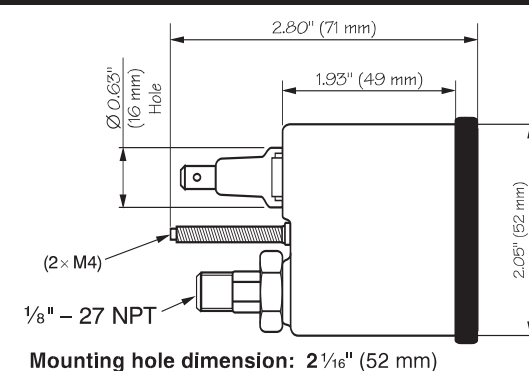
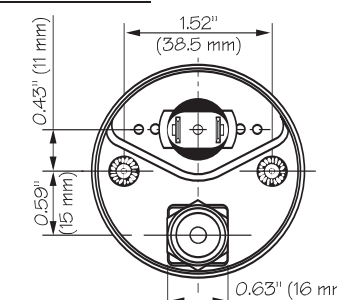
Specifications (Common to all Electric 2 1/16" (52 mm) Gauges with Stud Terminals and Stud Mounting)	
Operating Temperature:	-22° F...+185° F (-30° C...+85° C)
Storage Temperature:	-40° F...+194° F (-40° C...+90° C)
Illumination:	Push-in wedge-type lamp socket; 12 volt: VDO #600 815 24 volt: VDO #600 826
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
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)



H Mechanical Temperature



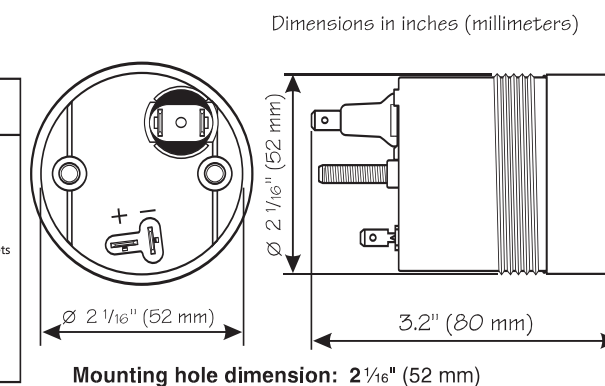
I Mechanical Pressure



Dimensions in inches (millimeters)

J Clocks & Hourmeters (Cockpit International and Vision Lines Only)

Specifications (Common to all 2 1/16" [52 mm] Clocks and Hourmeters)	
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 socket; 12 volt: VDO #600 815 24 volt: VDO #600 826
Bezel Material:	See product line for specific information
Lens:	Window glass, clear
Connection:	1/4" 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: 0-1/2" (0-12mm)
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)



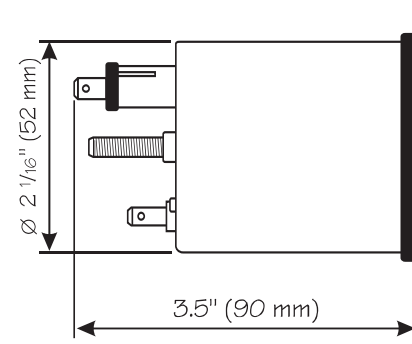
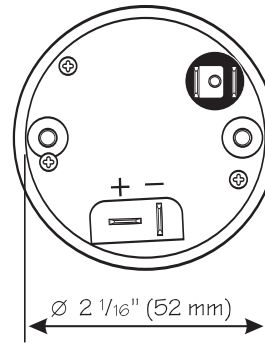
Technical Specifications and Dimensions

K Clocks & Hourmeters

(Series 1, Industrial and Cockpit Lines Only)

Dimensions in inches (millimeters)

Specifications (Common to all 2 1/16" [52 mm] Clocks and Hourmeters)	
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 #600 802	
24 volt: VDO #600 807	
Bezel Material: See product line for specific information	
Lens: Window glass, clear	
Connection: 1/4" 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: 0-1/2" (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 M4 nuts: 2.2 - 4.2 In.Lb. (.25 - .47 Nm)	

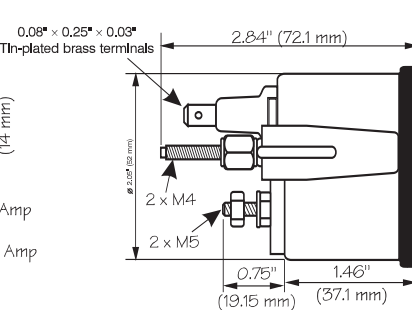
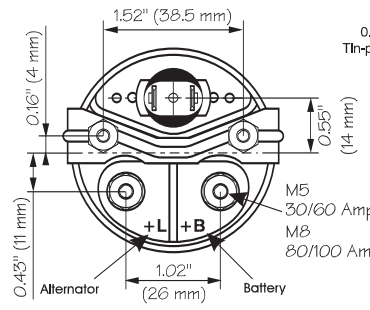


Mounting hole dimension: 2 1/16" (52 mm)

L Ammeter

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)	

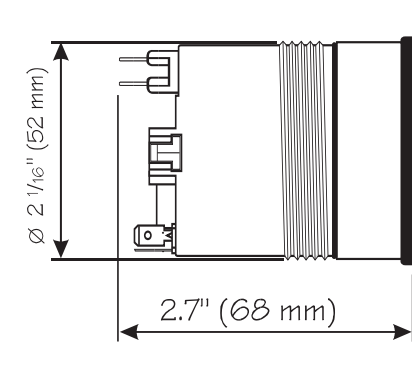
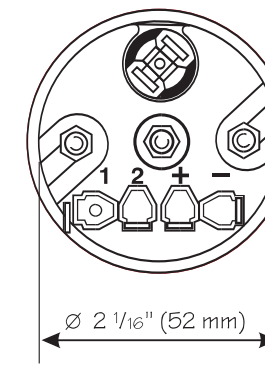


Mounting hole dimension: 2 1/16" (52 mm)

M Shunted Ammeter

Dimensions in inches (millimeters)

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: 1/4" 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: 0-1/2" (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)	



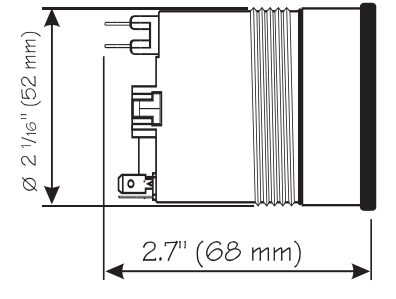
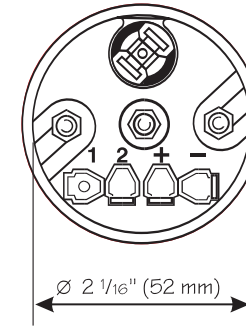
Mounting hole dimension: 2 1/16" (52 mm)

Technical Specifications and Dimensions

N Outside Temperature

Dimensions in inches (millimeters)

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: 1/4" 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: 0-1/2" (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	
Current Consumption: < 100 mA, without illumination	
Torque Values: For Spin-Lok™ Mounting Clamp: 2.2 - 2.4 ft. lb. (3 - 8 Nm)	

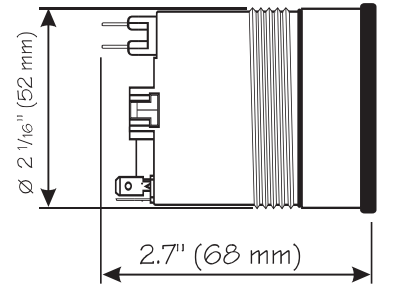
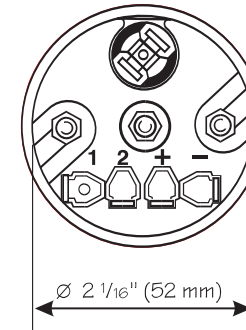


Mounting hole dimension: 2 1/16" (52 mm)

O Pyrometer

Dimensions in inches (millimeters)

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: 1/4" 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: 0-1/2" (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)	

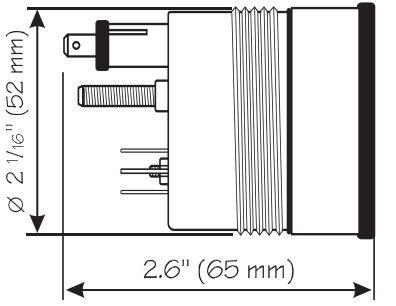
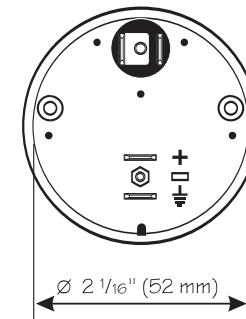


Mounting hole dimension: 2 1/16" (52 mm)

P Cylinder Head Temperature Gauge

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: 1/4" 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: 0-1/2" (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)	

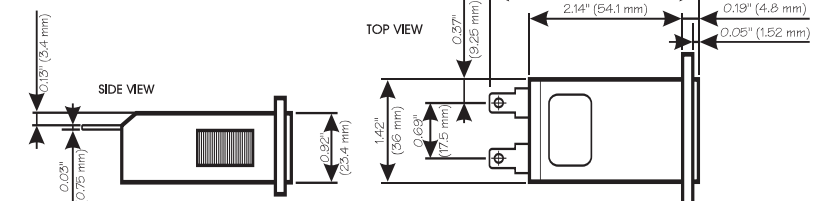


Mounting hole dimension: 2 1/16" (52 mm)

Q Mini Hourmeter

Dimensions in millimeters

Specifications (Common to all Mini Hourmeters)	
Temperature: -40° F...+185° F (-40° C...+85° C)	
Vibration Resistance: Withstands 10 to 75 Hz at 1 to 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	



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