

TIMELESS INSTRUMENTS

VL 2-in-1 VOLTMETER HOUR COUNTER

USER MANUAL

rev. AA



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ABOUT

INTRODUCTION

The ViewLine 2-in-1 instrument features a bright and well readable LCD designed to display both your engine hours and a digital voltmeter to have your battery information always under control.

Its extended operating voltage up to 60 V makes it a perfect solution for the most diverse applications, from marine engines to static generators, material handling machines, and many more.

The display automatically toggles between the two values every 10 seconds for a completely hands-free operation.

Black and white variants are available and customizable with nine styling rings in different shapes and colors.

VARIANTS

Part No	Description
B00005302	Black – round bezel
B00005303	Black – triangular bezel
B00006302	White – round bezel
B00006303	White – triangular bezel

TECHNICAL DATA

Nominal Voltage	12 V / 24 V / 48 V
Operating Voltage	9 – 60 V (with reverse polarity and over voltage protection)
Protection class	IP 67 front side, IP 52 rear side acc. IEC60529
Material	Housing: PC (black) Lens: PMMA double lens Bezel: ABS (Chrome), PC (Black, White)
Installation depth	46 mm
Operating temperature	-40°C to +80°C
Storage temperature	-40°C to +85°C
Flammability	flame retardant acc. UL94-V0
Connector	Tyco / Hirschmann MQS connector 8 pins
Mounting	Spinlock Nut – locking height 0.5 – 20 mm Optional Studs and Brackets – locking height 2 – 15 mm
Certifications	CE, UKCA, Reach, RoHS

SAFETY INFORMATION

WARNING

- No smoking! No open fire or heat sources!
- The product was developed, manufactured, and inspected according to the basic safety requirements of EC Guidelines and state-of-the-art technology.
- The instrument is designed for use in grounded vehicles and machines as well as in pleasure boats, including non-classified commercial shipping.
- Use our product only as intended. Use of the product for reasons other than its intended use may lead to personal injury, property damage or environmental damage. Before installation, check the vehicle documentation for vehicle type and any possible special features!
- Use the assembly plan to learn the location of the fuel/hydraulic/compressed air and electrical lines!
- Note possible modifications to the vehicle, which must be considered during installation!
- To prevent personal injury, property damage or environmental damage, basic knowledge of motor vehicle/shipbuilding electronics and mechanics is required.
- Make sure that the engine cannot start unintentionally during installation!
- Modifications or manipulations to veratron products can affect safety. Consequently, you may not modify or manipulate the product!
- When removing/installing seats, covers, etc., ensure that lines are not damaged and plug-in connections are not loosened!
- Note all data from other installed instruments with volatile electronic memories.

SAFETY DURING INSTALLATION

- During installation, ensure that the product's components do not affect or limit vehicle functions. Avoid damaging these components!
- Only install undamaged parts in a vehicle!
- During installation, ensure that the product does not impair the field of vision and that it cannot impact the driver's or passenger's head!
- A specialized technician should install the product. If you install the product yourself, wear appropriate work clothing. Do not wear loose clothing, as it may get caught in moving parts. Protect long hair with a hair net.
- When working on the on-board electronics, do not wear metallic or conductive jewelry such as necklaces, bracelets, rings, etc.
- If work on a running engine is required, exercise extreme caution. Wear only appropriate work clothing as you are at risk of personal injury, resulting from being crushed or burned.
- Before beginning, disconnect the negative terminal on the battery, otherwise you risk a short circuit. If the vehicle is supplied by auxiliary batteries, you must also disconnect the negative terminals on these batteries! Short circuits can cause fires, battery explosions and damages to other electronic systems. Please note that when you disconnect the battery, all volatile electronic memories lose their input values and must be reprogrammed.
- If working on gasoline boat motors, let the motor compartment fan run before beginning work.
- Pay attention to how lines and cable harnesses are laid so that you do not drill or saw through them!
- Do not install the product in the mechanical and electrical airbag area!
- Do not drill holes or ports in load-bearing or stabilizing stays or tie bars!
- When working underneath the vehicle, secure it according to the specifications from the vehicle manufacturer.

SAFETY INFORMATION

- Note the necessary clearance behind the drill hole or port at the installation location. Required mounting depth: 65 mm.
- Drill small ports; enlarge and complete them, if necessary, using taper milling tools, saber saws, keyhole saws or files. Deburr edges. Follow the safety instructions of the tool manufacturer.
- Use only insulated tools, if work is necessary on live parts.
- Use only the multimeter or diode test lamps provided, to measure voltages and currents in the vehicle/machine or boat. Use of

conventional test lamps can cause damage to control units or other electronic systems.

- The electrical indicator outputs and cables connected to them must be protected from direct contact and damage. The cables in use must have enough insulation and electric strength and the contact points must be safe from touch.
- Use appropriate measures to also protect the electrically conductive parts on the connected consumer from direct contact. Laying metallic, uninsulated cables and contacts is prohibited.

SAFETY AFTER INSTALLATION

- Connect the ground cable tightly to the negative terminal of the battery.
- Reenter/reprogram the volatile electronic memory values.

- Check all functions.
- Use only clean water to clean the components. Note the Ingress Protection (IP) ratings (IEC 60529).

ELECTRICAL CONNECTION

- Note cable cross-sectional area!
- Reducing the cable cross-sectional area leads to higher current density, which can cause the cable cross-sectional area in question to heat up!
- When installing electrical cables, use the provided cable ducts and harnesses; however, do not run cables parallel to ignition cables or to cables that lead to large electricity consumers.
- Fasten cables with cable ties or adhesive tape. Do not run cables over moving parts. Do not attach cables to the steering column!
- Ensure that cables are not subject to tensile, compressive or shearing forces.
- If cables are run through drill holes, protect them using rubber sleeves or the like.
- Use only one cable stripper to strip the cable. Adjust the stripper so that stranded wires are not damaged or separated.
- Use only a soft soldering process or commercially available crimp connector to solder new cable connections!

- Make crimp connections with cable crimping pliers only. Follow the safety instructions of the tool manufacturer.
- Insulate exposed stranded wires to prevent short circuits.
- Caution: Risk of short circuit if junctions are faulty or cables are damaged.
- Short circuits in the vehicle network can cause fires, battery explosions and damages to other electronic systems. Consequently, all power supply cable connections must be provided with weldable connectors and be sufficiently insulated.
- Ensure ground connections are sound.
- Faulty connections can cause short circuits. Only connect cables according to the electrical wiring diagram.
- If operating the instrument on power supply units, note that the power supply unit must be stabilized and it must comply with the following standard: DIN EN 61000, Parts 6-1 to 6-4.

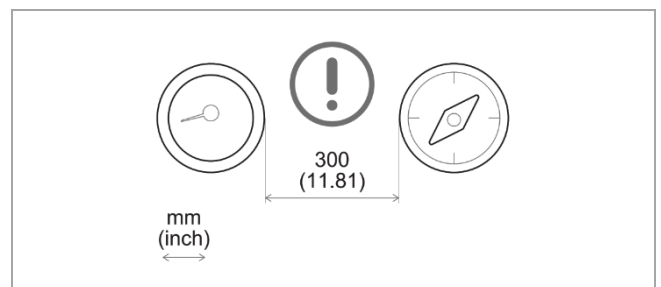
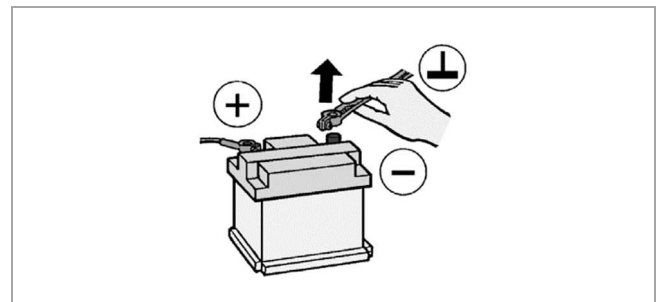
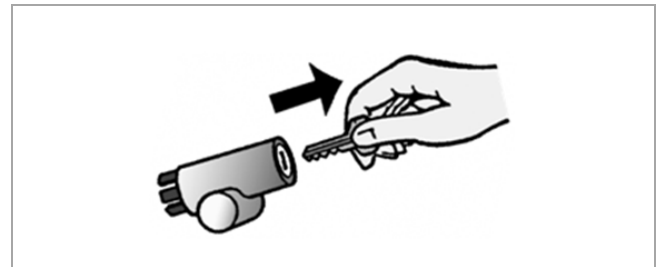
MECHANICAL INSTALLATION

WARNING

Before beginning, disconnect the negative terminal on the battery, otherwise you risk a short circuit. If the vehicle is supplied by auxiliary batteries, you must also disconnect the negative terminals on these batteries! Short circuits can cause fires, battery explosions and damages to other electronic systems. Please note that when you disconnect the battery, all volatile electronic memories lose their input values and must be reprogrammed.

BEFORE THE ASSEMBLY

1. Before beginning, turn off the ignition and remove the ignition key. If necessary, remove the main circuit switch
2. Disconnect the negative terminal on the battery. Make sure the battery cannot unintentionally restart.
3. Place the device at least 300 mm away from any magnetic compass.



INSTALLATION WITH SPINLOCK

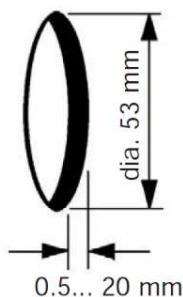
Conventional assembly. (Instrument is put into the drill hole from the front). The panel width may be within a range of 0.5 to 20 mm. The drill hole must have a diameter of 53 mm [B].

WARNING

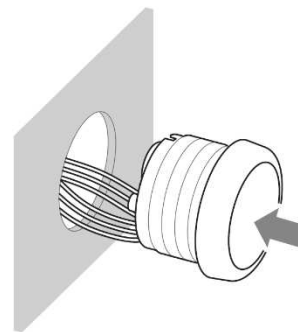
- Do not drill holes or ports in load-bearing or stabilizing stays or tie bars!
- Note the necessary clearance behind the drill hole or port at the installation location. Required mounting depth: 55 mm.
- Drill small ports; enlarge and complete them, if necessary, using taper milling tools, saber saws, keyhole saws or files. Deburr edges. Follow the safety instructions of the tool manufacturer.

1. Create a circular hole in the panel considering the device dimensions. **[A]**
2. Remove the spinlock and insert the device from the front. **[B]**
3. Adjust the spinlock as shown in picture **[C]** according to the panel thickness
4. Carefully screw in the spinlock by hand at least two turns.
5. Insert the connector.

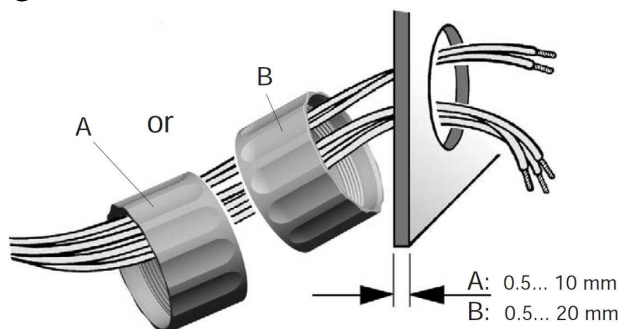
A



B



C



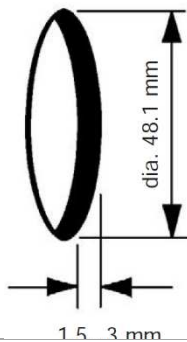
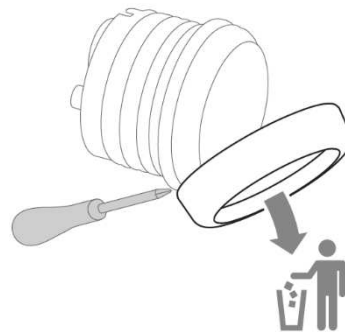
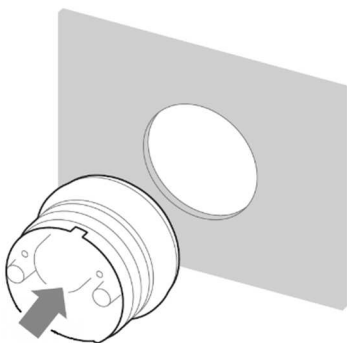
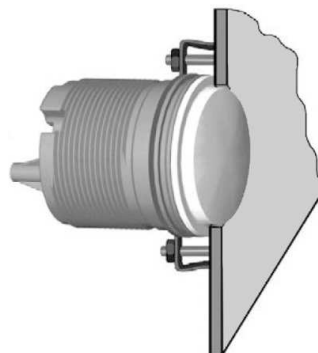
FLUSH MOUNTING

The recommended panel thickness is 1.5 to 3 mm. The drill hole must have a diameter of 48.1 mm. [A] Ensure that the installation location is level and has no sharp edges.

WARNING

- Do not drill holes or ports in load-bearing or stabilizing stays or tie bars!
- Note the necessary clearance behind the drill hole or port at the installation location. Required mounting depth: 65 mm.
- Drill small ports; enlarge and complete them, if necessary, using taper milling tools, saber saws, keyhole saws or files. Deburr edges. Follow the safety instructions of the tool manufacturer.

1. Create a circular hole in the panel considering the device dimensions. **[A]**
2. Remove the spinlock.
3. Gently remove the bezel using a screwdriver. **[B]**
Note: the bezel cannot be used after removal since it can be damaged.
4. Place the flush mount seal A2C53215640 (not included) on the instrument glass.
5. Put the instrument into the drill hole from the back **[C]**.
6. Insert the connector.
5. Adjust the instrument so that the gauge is level and fasten it to the stud bolts on the rear side of the panel, using the flush mount fixing bracket A2C59510864 (not included) **[D]**.

A**B****C****D**

INSTALLATION WITH BRACKETS

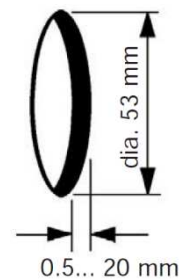
Conventional assembly. (Instrument is put into the drill hole from the front).

The panel width may be within a range of 0.5 to 20 mm. The drill hole must have a diameter of 53 mm.

WARNING

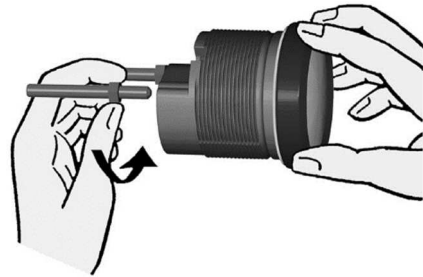
- Do not drill holes or ports in load-bearing or stabilizing stays or tie bars!
- Note the necessary clearance behind the drill hole or port at the installation location. Required mounting depth: 65 mm.
- Drill small ports; enlarge and complete them, if necessary, using taper milling tools, saber saws, keyhole saws or files. Deburr edges. Follow the safety instructions of the tool manufacturer.

1. Create a circular hole in the panel considering the device dimensions.
2. Remove the spinlock and insert the device from the front.

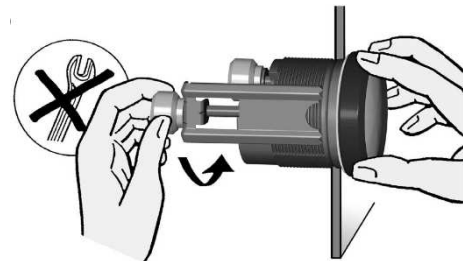


3. Screw the stud bolts into the provided drill holes in the enclosure.

Max. stud bolt torque is 1.5 Nm.



4. Place the bracket on the stud bolt and hand-tighten the knurled nut.
5. Make sure the seal lays flat between the panel and the front ring.



ELECTRICAL INSTALLATION

⚠ WARNING

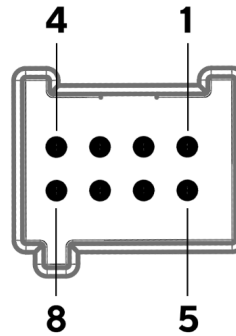
- Refer to the safety rules described in the electrical connections section of the safety information chapter of this document!

Depending on the configuration, insert the cable into the 8-pin contact enclosure according to the following pin assignment.

The contacts must audibly lock into place.

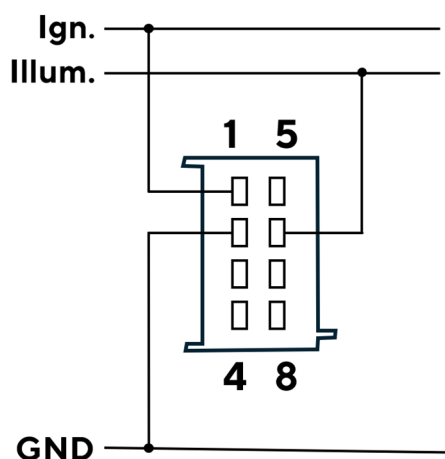
Now insert the plug into the gauge.

Note the inverse polarity protection nose in the process.



Pin No.	Wire color	Description
1	Red	Supply voltage
2	Black	Ground
3	-	n.c.
4	-	n.c.
5	-	n.c.
6	Blue / Red	Illumination
7	-	n.c.
8	-	n.c.

WIRING DIAGRAMM



To power the gauge the red and black wires must be connected to ground and the switched plus (ignition).

While there is power on the ignition signal, the time is being count upwards.

To turn on the LCDs backlight the illumination port must be connected to 12-48V. (Use the terminal 58 if available.)

ACCESSORIES

Description	Part Number
Spinlock Nut 52 mm	A2C5205947101
Flush mount mounting kit	A2C59510864
Flush mount seal	A2C53215640
Bracket assembly mounting kit	A2C59510854
Connector set 8 pins	A2C59510850
Blind plug for 52 mm	A2C5312164501
Bezel – Round Black	A2C5318602701
Bezel – Round White	A2C5318602801
Bezel – Round Chrome	A2C5318602901
Bezel – Triangular Black	A2C5318602401
Bezel – Triangular White	A2C5318602501
Bezel – Triangular Chrome	A2C5318602601
Bezel – Flat Black	A2C5318604001
Bezel – Flat White	A2C5318602201
Bezel – Flat Chrome	A2C5318602301

Visit <http://www.veratron.com> for the complete list of accessories.



veratron AG
Industriestrasse 18
9464 Rüthi, Switzerland

T +41 71 7679 111
info@veratron.com
veratron.com

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