

3.1 BELT TEMPERATURE GAUGE

R AZORBACK TECHNOLOGY

RIDE WITH CONFIDENCE



USER MANUAL

USER MANUAL

BELT TEMPERATURE GAUGE WITH SCREEN DIMMER

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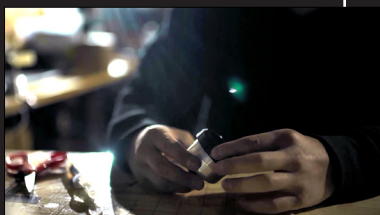
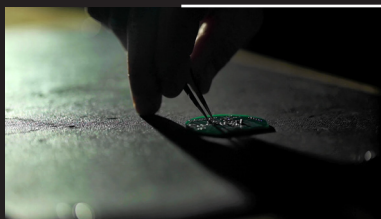
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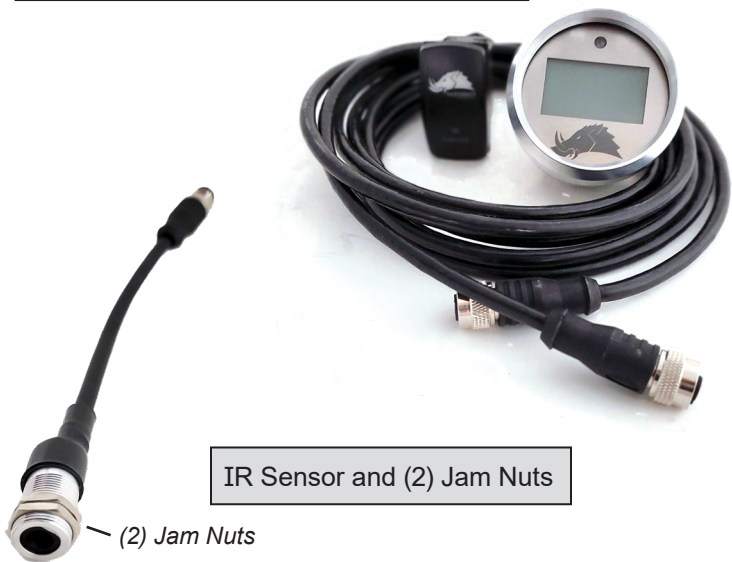
The following items are included with your new gauge and are required before you install.

For affixing gauge during installation to mount or dash.

Knurled Ring



3.1 Belt Temperature Gauge with Rocker Switch and IR Sensor Harness



IR Sensor and (2) Jam Nuts

(2) Jam Nuts

Power / Rocker Switch Harness



(Male connector)

PRODUCT OVERVIEW

Thank you for your purchase!

Your Razorback Technology Belt Temperature Gauge has been designed to alert you when your belt reaches certain temperatures as you ride. For maximum belt life, be cautious of temperatures higher than 200-210 F°; temperatures beyond this point begin to damage your belt and reduce its use-life.

To lower the risk of possible heat damage, avoid riding at extreme temperatures or minimize the time you spend riding at extreme temperatures.

Questions regarding the installation or operation of your gauge? Call (888) 525-2858 Ext. 2 or reach out to us at techsupport@razorbackUSA.com.

Register your new gauge at razorbackUSA.com/warranty.

Serial Number _____ Date _____

Assembled by _____

DO NOT PRESSURE WASH GAUGE

Excessive force from pressure washer can compromise water resistance allowing moisture to penetrate the gauge cup. Water damage due to cleaning with excessive force will void the warranty. **Do Not Open Gauge** (*Opening or altering your gauge will void its warranty*).

LED Alerts And What They Mean

Green	Temp is below 200° F (90° C)
Orange	Temp is between 200° and 225° F (90°-107° C)
Red	Temp is between 225° and 245° F (107°-118° C)
Red Strobe	Temp is between 245° and 260° F (118°-127° C)
Fast Red Strobe	Temp is over 260° F (127° C)
Pink 3-Pulse Blink	Sensor Disconnected

If your belt does reach a temperature that can damage it, **do not shut the engine off!** The clutches are very hot and can “bake” the belt as they clamp down. The best way to allow your belt to cool is by driving at a reduced pace on flat ground or revving in neutral.

Your new gauge now has two new features.

1. Dimmable display that can be cycled through five brightness level settings.
2. Programmable unit of measure (*Fahrenheit / Celsius*).

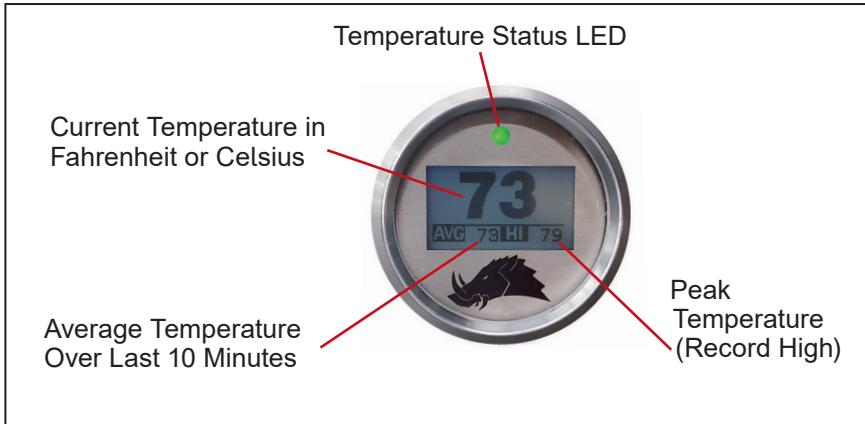
Level	% Brightness	Notes
*5	100	*The screen is set to the Brightest level by default.
4	55	
3	35	
2	15	
1	2	Dimmest

Operation

Press the Rocker Switch to increase brightness by one level (*e.g. from level 1 to level 2*). Pressing the Rocker Switch from the level 5 position, will reset the display back to level 1 (dimmest).

Once powered off, the gauge will remain at the last brightness setting once powered back on.

3.1 Belt Temperature Gauge Display Overview



Programming the Unit of Measure

The Unit of Measure may be toggled by pressing and hold the Rocker switch for ten (10) seconds. After ten seconds, the gauge will display the sensed temperature in the new unit of measure.

The chosen Unit of Measure will be retained in memory even when the gauge is powered off.

Pressing and holding the Rocker switch for ten (10) seconds will also adjust the display brightness by one (1) level. After the Unit of Measure has been toggled, you may restore the original brightness level by pressing the Rocker switch four (4) times.

REQUIRED TOOLS

- 2 $\frac{1}{16}$ in Hole Saw (For in-dash installation only)
- ½" Drill Bit & Drill
- 10mm Socket and Driver
- Blue Loctite®
- Clutch Spreader Tool
- Crimpers
- Eyelets (For power wire)
- Push Pin Pliers (Flat head will work)
- Voltmeter
- Wire Strippers
- Zip-ties
- Terminal Connectors



Clutch Spreader Tool (Right)



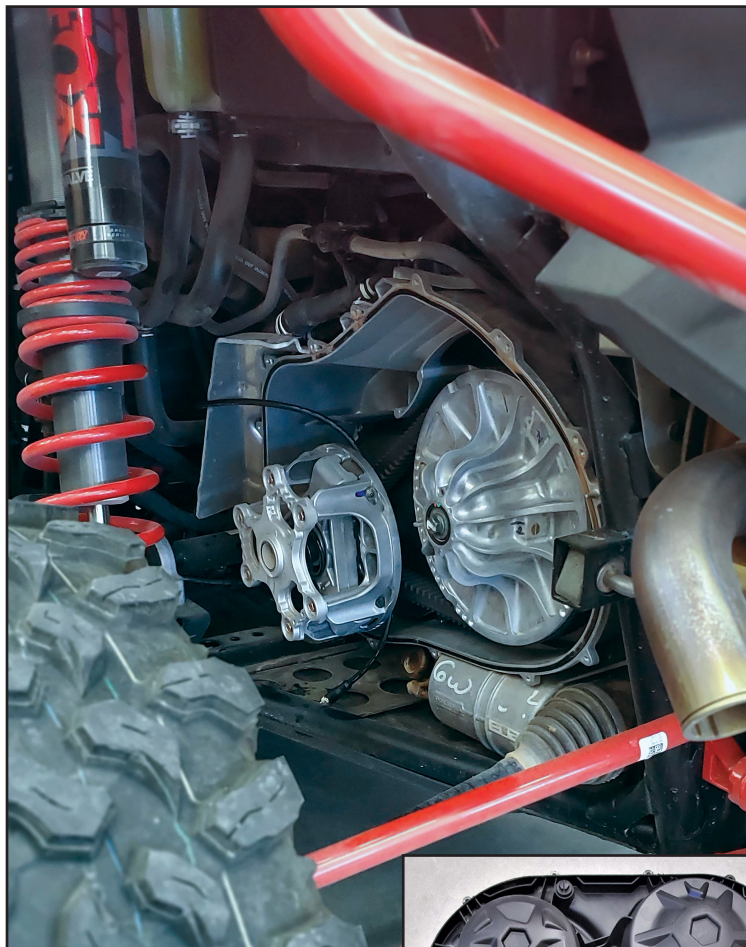
Eyelets and Terminal Connectors (Left)



INSTALLATION GUIDE

STEP 1

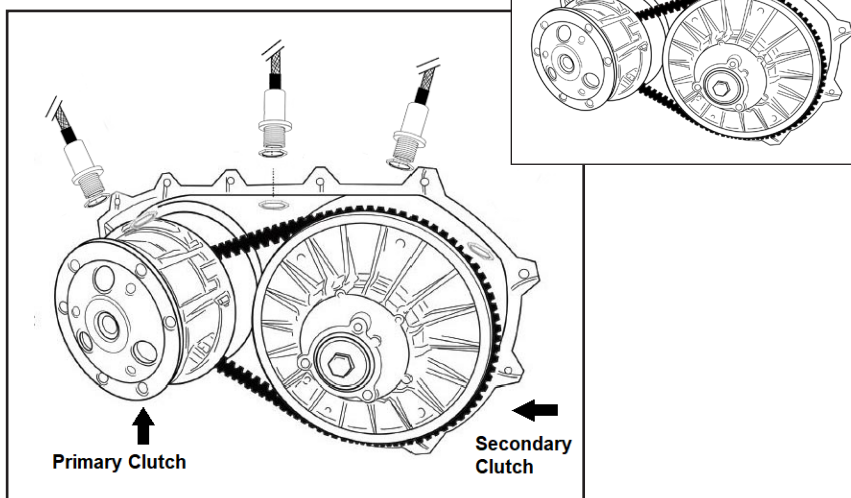
Remove all necessary seats and shrouds to gain access to the clutch cover.



STEP 2

Remove the clutch cover and then drill a 1/2" hole in the housing directly above where the CVT belt would be located. *(We recommend removing the belt prior to drilling.)*

The hole should be located above and perpendicular (90 degrees) to the surface of the belt to prevent dust from collecting on the surface of the sensor.



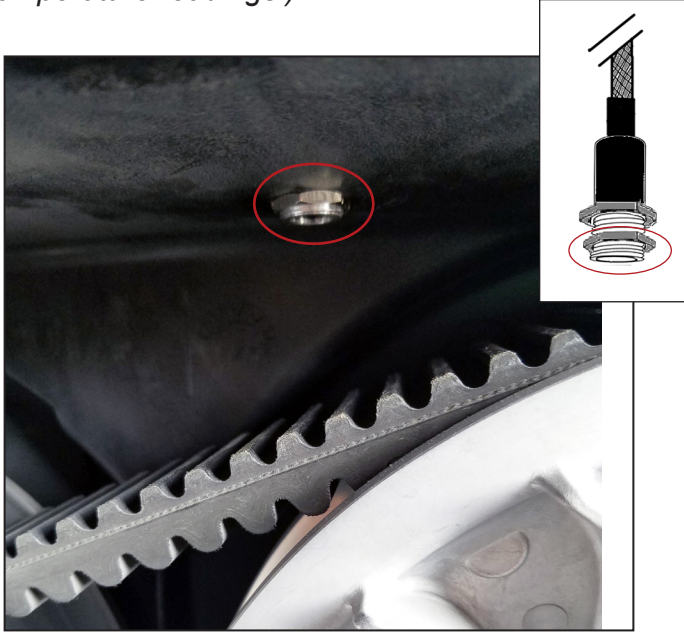
For Polaris Owners

We recommend placing the sensor at the 3-4 o'clock position on the secondary half of the removable clutch cover. This location allows you to avoid having to drill through metal, and offers a direct view of the belt's surface.

Note: *Models 2019 and older* can use the Polaris mounting procedure. *Models 2020 and after:* recommended mounting location is at the 1 o'clock position above the secondary clutch.

STEP 3

Insert sensor to a depth allowing one to three threads to be exposed past the jam nut inside the clutch cover. Avoid mounting the sensor in a position where dust can easily settle on the surface. *(Keep in mind that mounting the sensor near a CVT intake or exhaust port may affect the accuracy of your belt temperature readings.)*



STEP 4

Use the Jam-nuts to secure the sensor in the 1/2" hole. Use *Blue Loctite®* on the nuts to keep them secure.

Next step: Run the wire harnesses for the gauge and Power/Rocker Switch

STEP 5

Attach the female end of the M12 IR Sensor harness to back of gauge. Run IR Sensor harness to clutch cover and connect to the IR Sensor.

STEP 6

Attach the male end of the M12 Power/Rocker Switch harness to the female receptacle on the back of the gauge. Black sheathing wires attach to the power source. Grey sheathing wires run to the Rocker Switch.

Connectors (M12)

- Female receptacle is for the Power/Rocker Switch.
- Male receptacle is for the IR Sensor Harness.



On the Power/Rocker Switch harness there is an overall black sheathing, inside that sheathing is a red wire and a black wire. The Red wire is positive (12V+) and the black wire is negative (12V-).

The Gray sheathing for the Rocker Switch Harness contains a red and black wire which are reversible (it doesn't matter which pin on the back of the dimmer switch is connected to red or black, as long as both are connected to the switch it will work).



Wires

- Black sheathing with eyelets to power source.
- Grey sheathing with Terminal Connector to Rocker Switch.



STEP 7

Mount the gauge in a suitable place and connect the sensor wiring harness to the gauge pod. When mounting the gauge, be careful to not overtighten the knurled ring. Use Blue Loctite® to keep things secure.

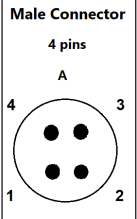


Questions during the installation process?

Call (888) 525-2858 Ext. 2

Email techsupport@razorbackusa.com

FREQUENTLY ASKED QUESTIONS

QUESTION	ANSWER
Where is the best place to mount the IR Sensor?	The sensor should be mounted above the belt, perpendicular to the belt's surface. Avoid placing the sensor near intake or exhaust ports as they will skew temperature readings.
Gauge has no power?	Testing for Power to Gauge Power/Rocker Harness <u>Volt meter</u> - Red lead on pin 1, Black lead on pin 4. You should have battery voltage. If no voltage check connections at the harness end. 
How far should the IR sensor be installed in the CVT case?	When mounting the sensor you want one to three threads exposed passed the jam nut on the inside of the clutch cover
What size is necessary to use for a fuse?	A fuse is not necessary. If one is installed a 5 amp inline fuse is recommended.
What to do with excess IR harness length?	If you have an abundance of harness, said harness can be coiled and zip tied away from any major power cables.
What size is the gauge cup for mounting?	Gauge dimensions are 2 $\frac{1}{16}$ ". If using a hole saw you can use a 2 $\frac{1}{8}$ " hole saw as it is more commonly found.
Is the gauge waterproof?	No, the gauge is water resistant; able to resist the penetration of water to some degree but not entirely.
Can I pressure wash it?	No. Excessive force from pressure washer can compromise water resistance allowing moisture to penetrate the gauge cup.
How should it be cleaned?	Wipe down with a damp towel.

WARRANTY INFORMATION

Your Razorback Technology Belt Temperature Gauge is covered by a 1-year warranty. To activate, please register your gauge at razorbackUSA.com/warranty.

During this 12-month warranty period, your gauge is covered from faulty parts, manufacture or workmanship.

Do Not Pressure Wash Gauge

Excessive force from pressure washer can compromise water resistance allowing moisture to penetrate the gauge cup. Water damage due to cleaning with excessive force will void the warranty. ***Do Not Open Gauge*** (*Opening or altering your gauge will void its warranty*).

If you experience issues with your gauge, please submit a warranty claim by emailing or calling us. Once your claim is received and reviewed, we will work towards a resolution immediately!

Questions or comments regarding our program?

techsupport@razorbackUSA.com

(888) 525-2858 Ext. 2



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3.2 INFRARED BELT TEMP GAUGE

SENSOR
CABLE

POWER/SWITCH/FAN
HARNESS

INFRARED
BELT TEMP
SENSOR
PRO
EDITION

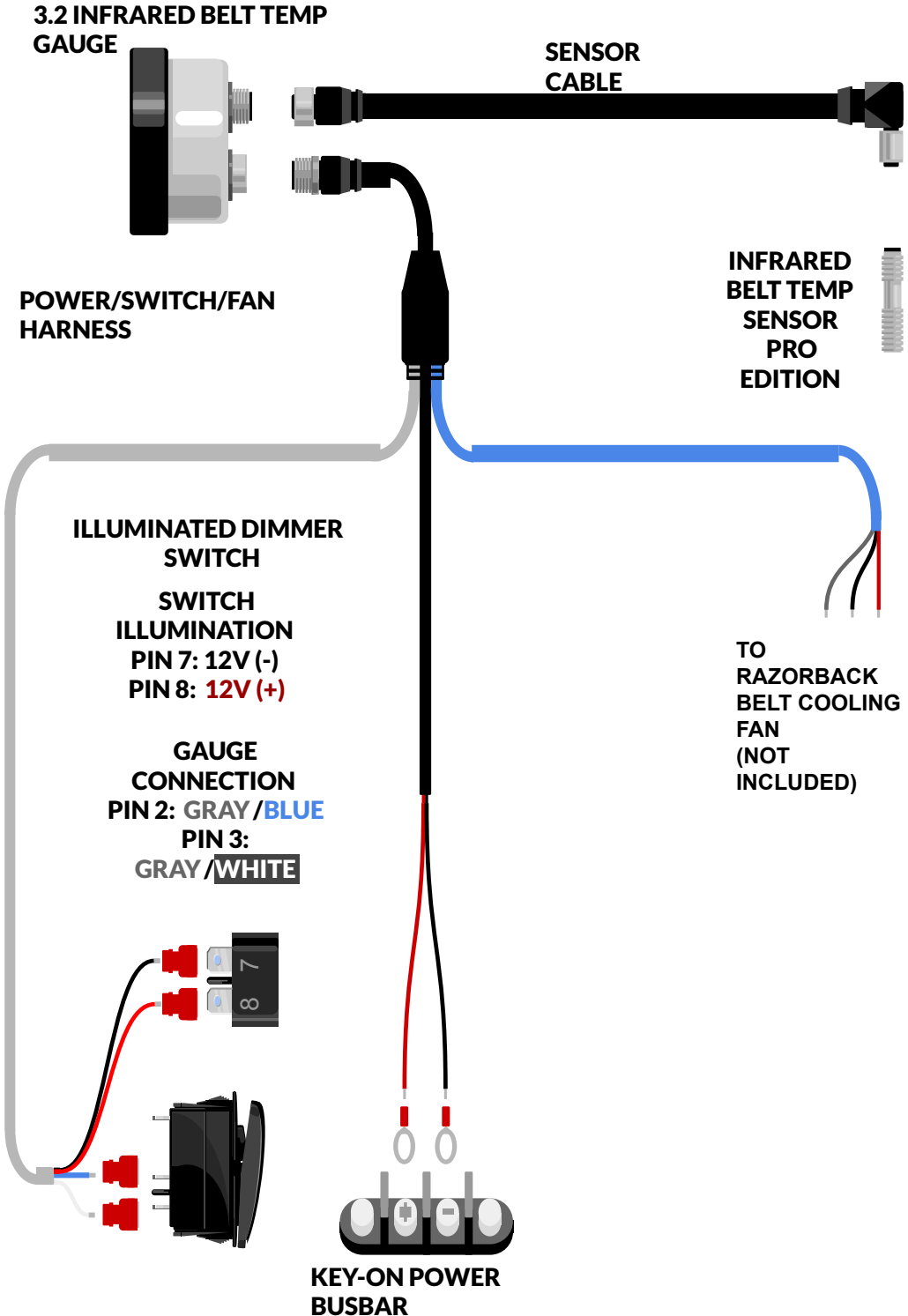
ILLUMINATED DIMMER
SWITCH

SWITCH
ILLUMINATION
PIN 7: 12V (-)
PIN 8: 12V (+)

GAUGE
CONNECTION
PIN 2: GRAY/BLUE
PIN 3:
GRAY/WHITE

TO
RAZORBACK
BELT COOLING
FAN
(NOT
INCLUDED)

KEY-ON POWER
BUSBAR



TROUBLESHOOTING		
Observation	Possible Conditions	Recommended Actions
"Sensor Disconnected" message is displayed and/or temp indicator LED flashes pink in a 3-pulse pattern.	Sensor harness does not have a good electrical connection.	Verify that the sensor harness M12 connectors are firmly fastened to the sensor and the gauge display.
"Sensor Disconnected" message is displayed even when sensor and harness are properly connected to the gauge display.	Internal sensor circuitry is damaged.	Replace sensor.
Display backlight brightness flickers / dims when sensor cable is plugged in.	Internal sensor circuitry is damaged.	Replace sensor.
When powered on, the gauge display lights up but appears blank.	Internal gauge display circuitry is damaged. Gauge was exposed to direct pressure washer spray.	Replace gauge display.
Gauge has no power.	Power supply is not connected. Power leads are not connected to the right terminals. Power supply voltage is below 12 volts. Inner switch and gauge power supply wires were reversed. Rocker Switch and gauge power supply wires were reversed. Internal gauge display circuitry is damaged.	Make sure that the Power/ Dimmer switch harness M12 connector is properly connected to the gauge display and that the Black-sheathing wire with eyelets is connected to the power source. Test male end of power cable with voltmeter. Positive lead inside plug, negative lead on metal sheathing around plug. Should be above 12.4 volts. Make sure that the black-sheathing wire with eyelets is connected to the power source and the grey-sheathing with terminal connectors is connected to the dimmer switch. Replace gauge display
Sensor readings are jumpy / inaccurate.	Sensor is mounted near an exhaust port or an intake. Sensor is mounted to the side of the belt or at a tilted angle to the belt surface	Mount the sensor far from intake and exhaust ports as they will skew temperature readings Mount the sensor above the belt, perpendicular to the belt's surface
Pressing Dimmer switch does not change the brightness.	Dimmer switch does not have good connection to the gauge cup	Check that the grey-sheathing with terminal connectors are connected to the dimmer switch and that the Female connector is for IR sensor harness is connected to the gauge display

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CONTACT@RAZORBACKUSA.COM | (888) 525-2858

609 DENNIS DRIVE, PAUL, ID 83347