SENSOR DOCKING STATION MANUAL 40383 | 40384

40383 Sensor Docking Station

40384 Sensor Docking Station with Pyrometer

WORKS WITH:

40420 GT Platinum Diesel

40417 GT Platinum Gas

40410 GT Gas (50 state legal version)

40428 GT (Canada Only)

(Units must be at software version 1.1.4.0 or later)

46500 Heavy Duty GT

46501 Heavy Duty WatchDog

(Units must be at software version 1.0.3.6 or later)

BULLY DOG™

Introduction

The Bully Dog Sensor Docking Station connects aftermarket sensors to your GT or WatchDog. The Sensor Docking Station does not work with monitoring or tuning products that are not manufactured by Bully Dog. See page 6 for information about the types of sensors that will work with the Sensor Docking station.

IMPORTANT NOTE: To work properly with the Sensor Docking Station, all GTs and HD WatchDogs must be updated to the following software version (or newer):

Light Duty: 1.1.4.0 **Heavy Duty: 1.0.3.6**

Installing a pyrometer can be difficult because the exhaust manifold or post-turbo exhaust downpipe must be drilled and tapped. Welding may also be required. Bully Dog recommends that you utilize professional assistance if you have not had experience with these procedures.

Table of Contents

Parts List

40383 (No O_2 sensor support - Pyrometer not included)

- Sensor Docking Station with Power Harness ..... (4-40383)
- Ring Terminal ..... (40383-4)
- Fuse Tap ..... (40400-20)
- Spade ..... (40400-21)
- Dielectric Grease ..... (40383-3)
- 2" Square Hook and Loop Fastener ..... (40390-94)
- Zip Ties (6) ..... (1-NYTIE6)

40384 (Pyrometer included - No O_2 sensor support)

- Sensor Docking Station with Power Harness ..... (4-40383)
- Pyrometer ..... (40383-2)
- Ring Terminal ..... (40383-4)
- Fuse Tap ..... (40400-20)
- Spade ..... (40400-21)
- Dielectric Grease ..... (40383-3)
- 2" Square Hook and Loop Fastener ..... (40390-94)
- Zip Ties (6) ..... (1-NYTIE6)

Tools Needed (Italic tools are required only for pyrometer installation)

- Crimpers
- Drill
- 5/16" Drill Bit
- 1/8" Pipe Tap
- 9/16" Wrench
- 5/8" Wrench

Recommended Sensors

- Additional Bully Dog Pyrometer
- Three-wire analog sensor
- Two-wire frequency pulse sensor
- Two-wire 0-5 volt temperature sensor

Parts Description

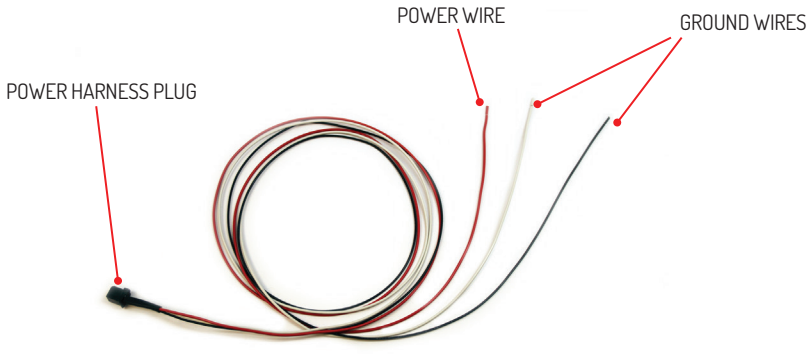
Sensor Docking Station (40383 and 40384)

The Sensor Docking Station provides a way to connect your GT or WatchDog to aftermarket sensors that you have installed on your vehicle. In addition to the docking ports (which are explained on page 6), the Sensor Docking Station has five important features which are clearly labeled on the photograph below.

NOTE: Part numbers 40383 and 40384 do not support O_2 sensors.

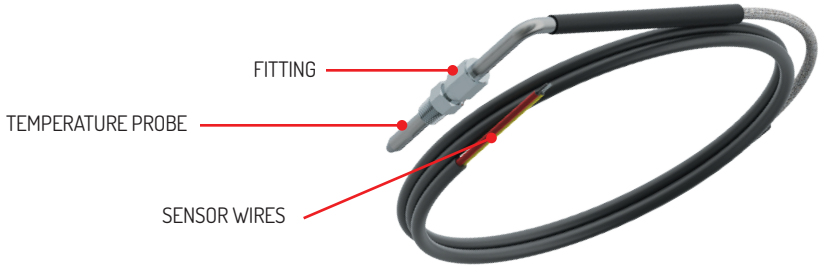
Power Harness

The power harness connects the Sensor Docking Station to the fuse box and the battery and chassis grounds in your vehicle. For more information about installing the power harness, see page 10.



Pyrometer

This analog sensor will measure exhaust gas temperature. The Bully Dog pyrometer has three important features: (1) the temperature probe with the top nut, (2) the fitting and (3) the sensor wires that connect to the Sensor Docking Station.



NOTE: The pyrometer cannot be extended with ordinary wire.

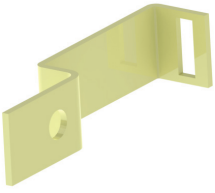
IMPORTANT NOTE: It is possible to accidentally reverse the fitting. When installing, make sure that the tapered side of the fitting is threaded into the exhaust system and the straight side of the fitting is connected to the top nut on the temperature probe.

Ring Terminal

The ring terminal provides a secure ground connection for the ground wires in the power harness.

Fuse Tap and Spade

Use these to connect the power cable to your vehicle's fuse box. For step-by-step instructions, see page 13.



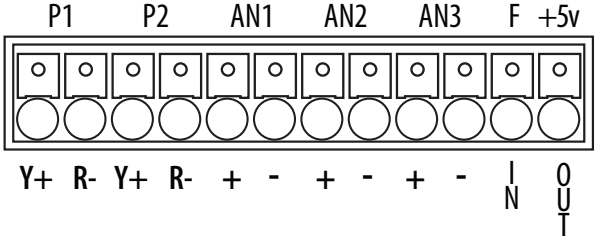
Dielectric Grease

Use the dielectric grease to prepare the power harness plug and create a water resistant connection.

Docking Ports and Sensors

The Sensor Docking Station has 12 ports that will accept 22-12 gauge wire (stripped). The length of exposed wire for successful docking is 3/8".

NOTE: For information about purchasing compatible sensors, go to page 30.



P1 and P2: These are pyrometer docking ports; they will appear as Pyro 1 and Pyro 2 on the GT or WatchDog Gauge Setup menu. Use this port to connect a Bully Dog pyrometer probe. The P1 docking port includes two openings: Y+ is the positive connection for the yellow wire on the pyrometer probe and R- is the negative connection for the red wire on the pyrometer probe. Bully Dog Type K pyrometers are the only approved pyrometer for this port; it is not compatible with any other type of sensor.

AN1, AN2 and AN3: These ports support 0-5 volt three-wire analog sensors; they will appear as AUX 1, AUX 2 and AUX 3 on the Gauge Setup menu on the GT or WatchDog. NOTE: For the information from analog sensors to be displayed properly, further setup and specifications from the sensor manufacturer are required. See page 22 for information about the analog sensor wiring setup. See page 23 for more information about calibration.

F (IN): The F/IN port supports 5 volt and 5000 Hertz pulse output sensors; it will appear as FREQUENCY in the Gauge Setup menu on the GT or WatchDog. A two-wire speed sensor (optical or magnetic) is the typical sensor type that would be used with this port. **NOTE: For the information from frequency sensors to be displayed properly, further setup and specifications from the sensor manufacturer are required.** See page 24 for more information about the frequency sensor wiring and setup with a GT or HD WatchDog.

+5V (OUT): This port supports a two-wire 0-5 volt temperature sensor; it will appear as AUX Temp on the Gauge Setup menu on the GT or WatchDog. Bully Dog recommends the GM Delphi 15326386 fluid temperature sensor; the Sensor Docking Station is calibrated for this sensor by default. Although other brands of sensors are supported, they will require additional calibration and are not recommended. See page 27 for more information about wiring and setup.

Pyrometer Installation

Installing a pyrometer can be difficult because the exhaust system must be drilled and tapped. Bully Dog recommends that you utilize professional assistance if you have not had experience with drilling and tapping.

Choosing a Location: Pre-Turbo vs. Post-Turbo

The location of the pyrometer probe will make a significant difference in the exhaust gas temperature that is measured and displayed on the GT or HD WatchDog. An incorrect interpretation based on this information can lead to vehicle damage. Be sure to consider the following points when choosing a place to install your pyrometer:

Horsepower Output

If the vehicle is running significantly more horsepower than stock (100+ horsepower), it is strongly advised that both pre-turbo and post-turbo

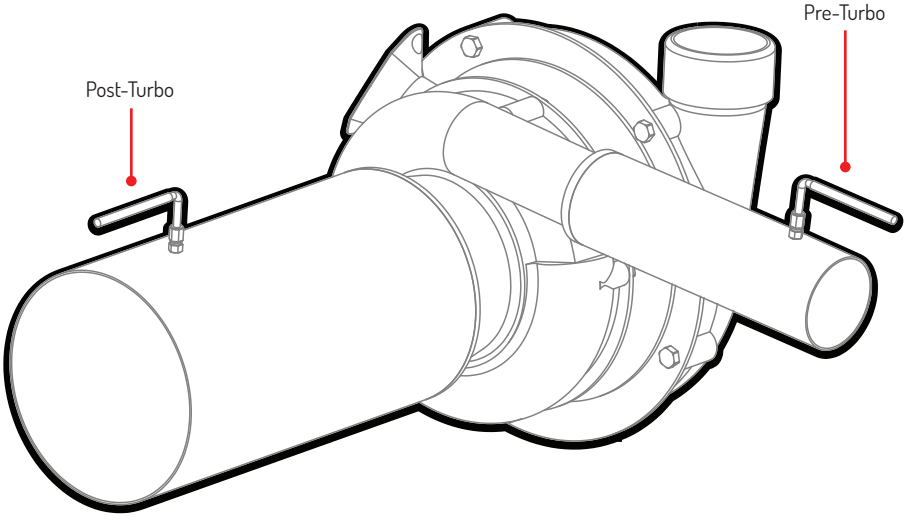
pyrometers be installed. (Both pyrometers should be installed within the recommended distance from the turbocharger.)

Preferable Mounting Location

Pre-turbo mounting is generally recommended because it provides the most accurate vehicle operating temperature.

Determining a Safe Range of Operation

Regardless of the location of your probe, the Pyrometer Calibration Procedure on page 21 will help you determine a safe range of temperatures for your vehicle so you can set up automated warnings or defuel points (if available).



Installing the Pyrometer

Pre-Turbo

1. Choose the pyrometer location. It should be about 3" in front of the turbo charger exhaust inlet where all the exhaust runners of the manifold have come together into a single pipe. Try to be within 1" of the 3" target.

2. Drill a $^{5}/_{16}$" hole into the exhaust system. (See the tool tips on page 9 for important strategic hints.)

3. Use a $^{1}/_{8}$" pipe tap to thread the hole.

4. Place the pyrometer probe in the hole.

5. Use a $^{9}/_{16}$" wrench to tighten the tapered end of the fitting to the exhaust downpipe.

6. Use a $^{5}/_{8}$" wrench to tighten the top nut on the pyrometer to the fitting.

7. Run the pyrometer cable through the engine bay to the place where it will be connected to the Sensor Docking Station.
   - Be sure to protect the cable from extreme heat and moving parts.
   - Use some of the included zip ties to keep the cable secure inside the engine bay. (You may want to set some zip ties set aside for mounting the Sensor Docking Station.)

Tool Tips: When drilling into the exhaust manifold, debris like metal shavings and broken drill bits can fall inside. Try following these steps to prevent debris from falling into the exhaust manifold:

- Use a high-quality twist drill bit and a slow speed drill (about 500-800 RPM).
- Use a magnetized drill bit.
- Start with a small pilot bit (about $^{1}/_{8}$"). Then use a full $^{5}/_{16}$" bit after the smaller one has punched through.
- Catch flying shavings as they are cut by greasing your drill bit (in addition to the normal lubricant).
- Right before you punch through into the pre-turbo exhaust pipe, start the engine and build up exhaust pressure (this will blow the metal shavings away from the manifold instead of letting them fall inside).

Post-Turbo

1. Choose the pyrometer location. It should be about 3" downstream from the turbocharger exhaust outlet. Try to be within 1" of the 3" target.

2. Drill a 5/16" hole into the exhaust downpipe.

3. Use a 1/8" pipe tap to thread the hole.

4. Mount the pyrometer probe in the hole.

5. Use a 9/16" wrench to tighten the tapered end of the fitting to the exhaust downpipe.

6. Use a 5/8" wrench to tighten the top nut on the pyrometer to the fitting.

7. Run the pyrometer cable through the engine bay to the place where it will be connected to the Sensor Docking Station.

    - Be sure to protect the cable from extreme heat or moving parts.
    - Use some of the included zip ties to keep the cable secure inside the engine bay.

Tool Tips: For some vehicles, it will be impossible to reach the turbo downpipe with a drill and a pipe tap. In these situations, the downpipe may have to be removed. The ideal time to install a post-turbo pyrometer is when a new exhaust is being installed on the vehicle.

Sensor Docking Station Installation

IMPORTANT: Physical installation of the Sensor Docking Station should always begin with installing the pyrometer (and any other sensors). This is because the pyrometer cable length is limited and will affect the final position of the sensor docking station. For more information on installing the pyrometer, see pages 7.

1. Prepare the power harness.
    a. Crimp a ring terminal on the **black** chassis ground wire.
    b. Crimp a ring terminal on the **white** battery ground wire.
    c. Crimp the spade on the **red** power wire.

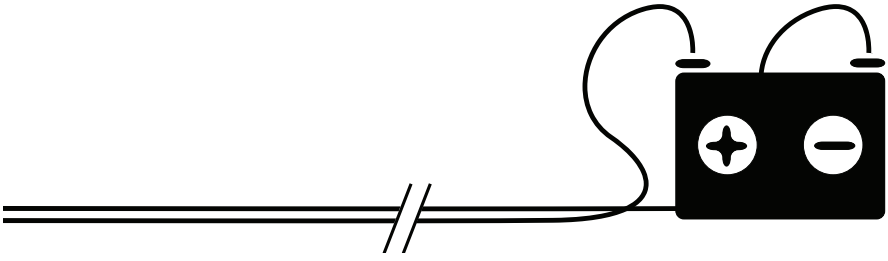
2. Locate a key-on fuse.
    a. It only has power when the key is in the "on" (or "run") position.
    b. Use a 12 volt test light and/or your vehicle manual to locate one.

3. Locate a firewall hole.
    a. You will need to run a USB cable from the Sensor Docking Station in the engine compartment to your GT or WatchDog in the cab.
    b. An unused firewall hole might be covered with a rubber grommet. If so, it might be necessary to use a straightened wire hanger to punch through.

4. Choose a secure location for the Sensor Docking Station.
    a. All of the wires must reach the location (pyrometer, power and additional sensors).
    b. Make sure that the USB cable will reach through the firewall hole to the adapter plug (Light Duty) or HDMI pigtail port (Heavy Duty) on your GT or WatchDog.
    c. Keep the Sensor Docking Station and any wires or cables away from extreme heat and moving parts.

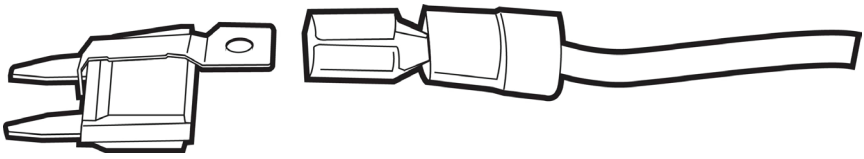
5. Mount the Sensor Docking Station.
    a. Use the zip ties and/or hook and loop fastener strips.
    b. Fasten the Sensor Docking Station securely to your vehicle.

6. Disconnect the vehicle battery at the negative terminal. Failure to disconnect the battery could result in personal injury and/or damage to your vehicle.



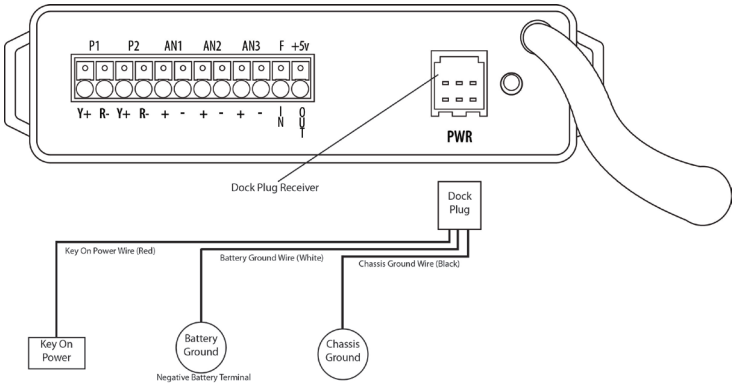
7. Attach the power harness ground connections.
    a. Fasten the **black** chassis ground wire to the vehicle frame.
        - Use the designated ground bolt.
        - If the designated ground bolt is not available, use a stock frame bolt.
    b. Fasten the **white** battery ground wire to the negative battery terminal.

8. Connect the power harness to the fuse box.
    a. Remove the key-on fuse that you located during Set Up (see page 11).
    b. Slide the fuse tap over one metal prong on the fuse.
    c. Slide the spade (that is attached to the power wire) over the fuse tap.
    d. Put the fuse back in the fuse box.

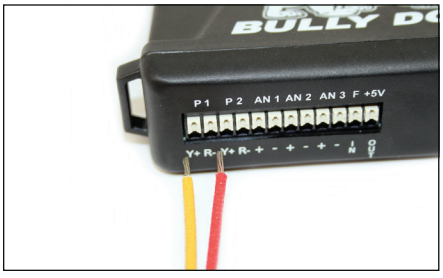


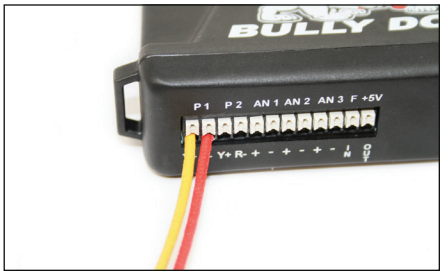
9. Connect the power harness to the Sensor Docking Station.
    a. Apply a reasonable amount of dielectric grease on the power harness plug. (Apply the grease to the electric connections on the plug.)
    b. Insert the power harness plug into the power port on the Sensor Docking Station.
        • (The power port is labeled PWR.)

POWER WIRE HARNESS INSTALLATION DIAGRAM



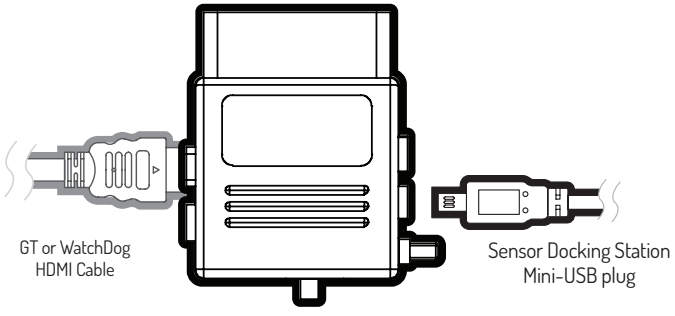
10. Connect the sensor(s) to the Sensor Docking Station.
    a. Simply insert the bare wire leads straight into the docking ports.
    b. An internal mechanism will clamp down on the leads to hold them in place.



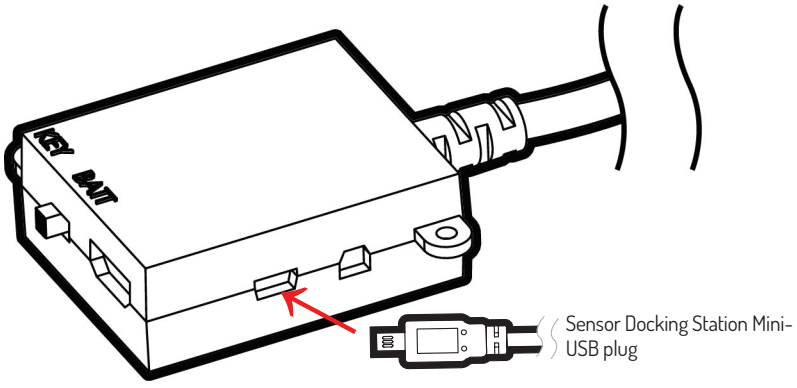


11. Connect the Sensor Docking Station to the Adapter Plug for your GT or HD WatchDog. DO NOT connect the Mini-USB plug directly to the GT or WatchDog.
    c. Run the USB cable through the firewall hole.
    d. **Light Duty:**
    Insert the Mini-USB plug into the port on the adapter plug for the GT or HD WatchDog.

FIRST GENERATION ADAPTER PLUG

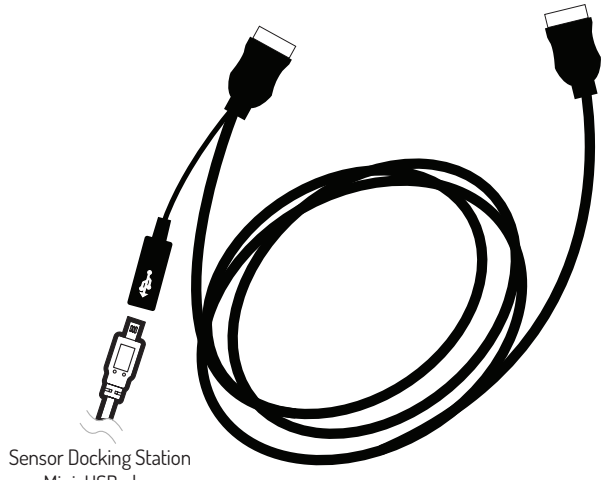


SECOND GENERATION ADAPTER PLUG



Heavy Duty:
Insert the Mini-USB plug into the pigtail port on the HDMI cable for the GT or Watchdog.
If your HDMI cable does not have a pigtail, contact technical support (see page 32).

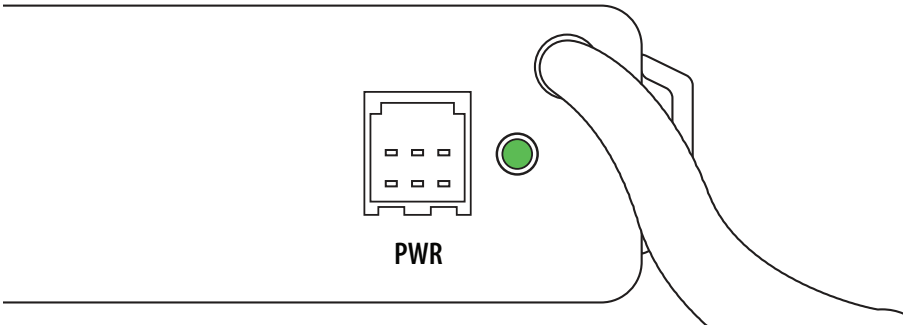
HEAVY DUTY HDMI CABLE WITH MINI-USB PIGTAIL PORT



12. Complete the **System Status Check** described in the next section (page 16).

Status Check

The Sensor Docking Station (SDS) has a green light that will light up in different ways depending on how the SDS is working and communicating with your GT or WatchDog.



Solid Green Light

The Sensor Docking Station is working and communicating properly with the GT or WatchDog.

Blinking Green Light

The Sensor Docking Station is powered up and trying to communicate with the GT or WatchDog.

- Check the connection to the GT or Watchdog.
- Make sure that the GT or WatchDog is working properly.
- Ensure that the GT or WatchDog is updated (see page 1).

No Light

The Sensor Docking Station is not getting power.

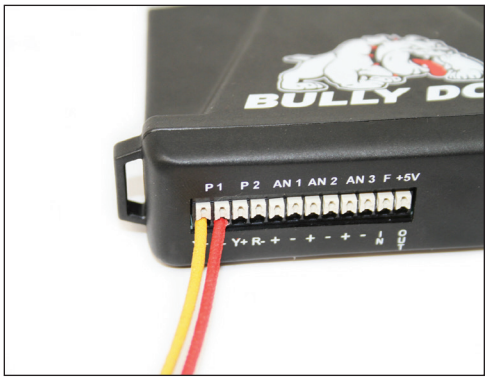
- Make sure that the key is in the "on" (or "run") position.
- Check the power connection.
  * Make sure the power harness is properly installed.
  * Make sure that the power harness is securely connected (all of the ends).
  * Make sure that the fuse is good (not blown) and is properly seated.

Sensor Setup and Calibration

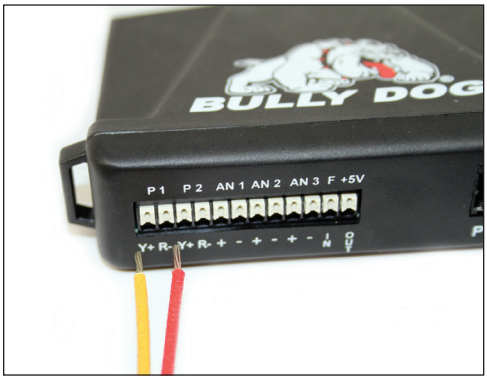
IMPORTANT NOTE: All Light Duty GTs and WatchDogs must be updated to software version 1.1.4.0 or later to work properly with the Sensor Docking Station. All Heavy Duty GTs and WatchDogs must be updated to software version 1.0.3.6 or later to work properly with the Sensor Docking Station.

Pyrometer Wiring

There are two openings on each pyrometer docking port. Plug the yellow wire into the Y+ opening. Plug the red wire into the R- opening.



(Reminder: The pyrometer connection consists of a short length of bare wire on the end of each cable. To plug in the pyrometer, or any sensor, simply insert the bare wire end straight into the dock opening. An internal mechanism will clamp down and hold the wire in place)



Pyrometer Setup

There are two options for the pyrometer setting: factory or BD (Bully Dog) pyro. All GTs and Watchdogs have the factory pyro selected as a default setting and are only available for 2007.5 and newer. You will need to change this setting to have the GT or WatchDog display the temperature readings from the Bully Dog pyrometer and Sensor Docking Station.

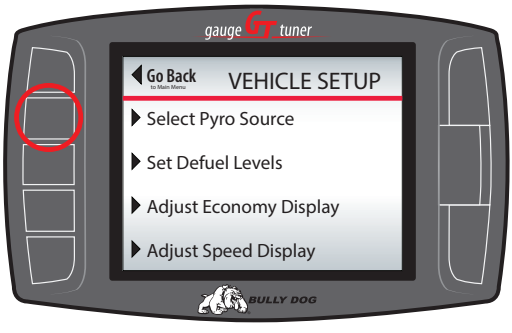
Light Duty

Gas GT:

13. Choose **Vehicle Settings** from the Main Menu.
14. Choose **Select Pyro Source** from the Vehicle Setup menu.
15. Highlight **Bully Dog Pyros** by pressing the left side button next to it.
16. Press the top left button to **Go Back**. (You will need to press it more than once to get back to the Main Screen.)

Diesel GT:

1. Choose **Vehicle Setup** from the Main Menu.
2. Choose **Select Pyro Source** from the Vehicle Setup menu.
3. Highlight **Bully Dog Pyros (or Pyro Kit)** by pressing the left side button next to it.
4. Press the top left button to **Go Back**. (You will need to press it more than once to get back to the Main Screen.)

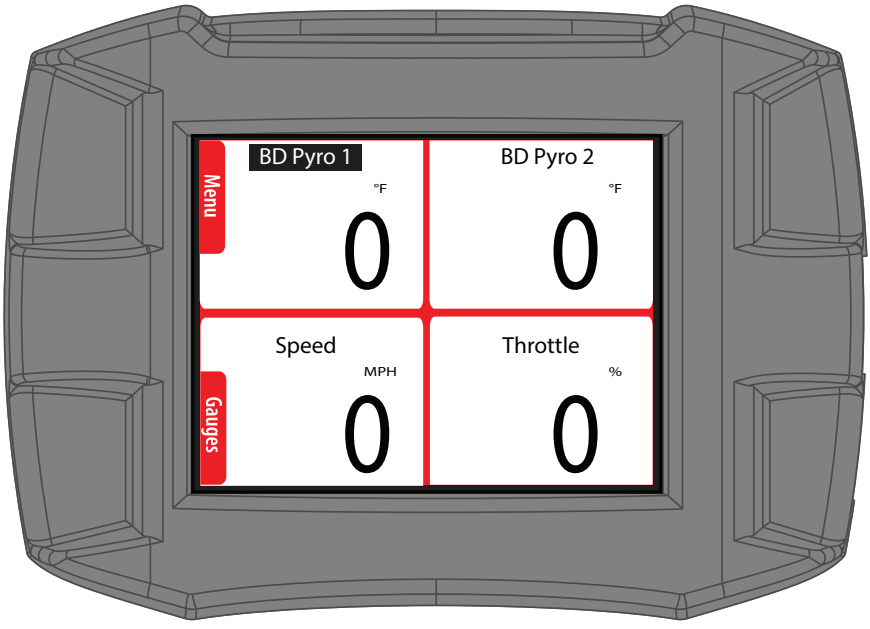


Heavy Duty

Display Bully Dog Pyro on Main Screen:

You may have to change the main screen to show at least two gauges. To do this, hold down the bottom left button until the screen shows the gauge arrangement that you prefer.

1. Press the lower left button to highlight the gauge spot where you want to display the Bully Dog pyrometer temperature.
2. Use the buttons on the right to scroll until BD Pyro 1 (or 2) is shown.



The gauge that you have changed will remain highlighted until the Main Screen arrangement is changed or the GT/HD WatchDog is restarted.

Pyrometer Setup: Heavy Duty (continued)

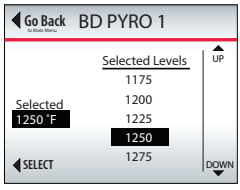
Use the Bully Dog Pyrometer for Warning Levels:

You can use the Bully Dog pyrometers in addition to (or instead of) the factory installed pyrometers for the temperature warnings on your GT or HD WatchDog.

- Choose **Vehicle Setup** or **Vehicle Settings** from the Main Menu.
- Choose **Set Warning Levels** from the Vehicle Settings menu.
- Use the buttons on the right to scroll through the options and highlight **BD Pyro 1 (or 2) Temp. Level.**

8. Press the bottom left button to select the option you have highlighted.

3. Use the buttons on the right to scroll through the different values and select the temperature that you want for the Warning Level.



- The current setting will be displayed on the left side of the screen.
- If you do not want to use the Bully Dog pyrometer for the Warning Level option with your GT or WatchDog, scroll all the way up and highlight **OFF.**
- Press the bottom left button to **SELECT** the value that you have highlighted.
- If you want to leave this screen without changing the current setting, press the top left button to **Go Back.** (You will have to press the button more than once to return to the Main Screen.)

Pyrometer Calibration

In order to prevent heat damage to your engine, use the following calibration procedure to determine the best temperature to use for your GT or WatchDog defueling or temperature warning level setting.

1. **Make sure that your vehicle is running at stock horsepower.**
    - If you have installed a tune it will need to be uninstalled (see your GT owner's manual for more information on how to do this).
    - A "stock" power level is not the same as uninstalling the tune and will affect the outcome of the calibration procedure. Make sure to completely uninstall the tune.

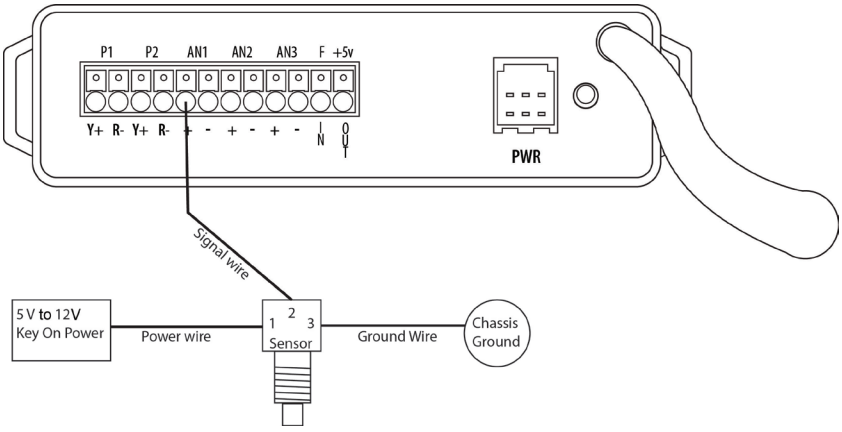
2. **Put your engine under a 100% work load.**
    - You want to achieve the maximum stock exhaust gas temperature.
    - A good way to do this is to complete the following steps:
        a. Find a steep hill with a long road and a high speed limit.
        b. Wait for a hot day.
        c. Set up a heavy load on your vehicle.
        d. Haul the load to the top of the hill.

3. **Check and record the highest temperature read by the pyrometer during step two.**
    - This is the upper limit of the safe temperature region for your engine.
    - Use this value as the safety defuel or warning level setting for your GT or WatchDog.

Analog Sensor Wiring

There are two openings on each analog sensor docking port. The AN+ dock supports a 0-5 volt signal wire from the sensor. The AN- dock is an optional ground connection; however, it is recommended that you use the chassis ground if a sensor requires a ground connection. (This should be the same chassis ground used for the power harness.)

The diagram below illustrates the wiring configuration for a three-wire analog sensor.



1. Power in to the sensor. Key-on power only (5-12 volts).
2. Signal out from the sensor (0-5 volts).
3. Ground connection. (This must be connected to the same ground location as the Sensor Docking Station chassis ground wire.)

Analog Sensor Calibration

The Bully Dog Sensor Docking Station is capable of supporting different brands of analog sensors. In order to make sure that the information from your particular sensor is being displayed correctly, you will need to change settings in your GT or HD WatchDog based on the specifications of your sensor. To calibrate the Sensor Docking Station for an analog pressure sensor, you will need to know the ratiometric output.

Access the calibration settings through the following path on your GT or WatchDog:

Main Menu > User Options > SENSOR Settings

Set Input Low/High

This is the setting for the range of signal strength sent out by the sensor. Manufacturers provide this information in the specifications for each sensor; it is listed as ratiometric output, and it must be between 0 and 5 volts.

Set Output Low/High

This is the setting for the scaling for the output for each sensor: in other words, how the sensor's electric signal should be interpreted. This information is listed with the ratiometric output in the specifications provided by the sensor manufacturer, usually in parenthesis.

Example

You have installed an analog pressure sensor (oil, fuel or air) with the following information listed in the manufacturer's specifications:

0.5 to 4.5 volt ratiometric output

(0 psi at 0.5 volts and 100 psi at 4.5 volts,linear between these points)

You should enter the following information into the GT or WatchDog:

Set Input Low: 0.5 (volts)

Set Input High: 4.5 (volts)

Set Output Low: 0 (units)

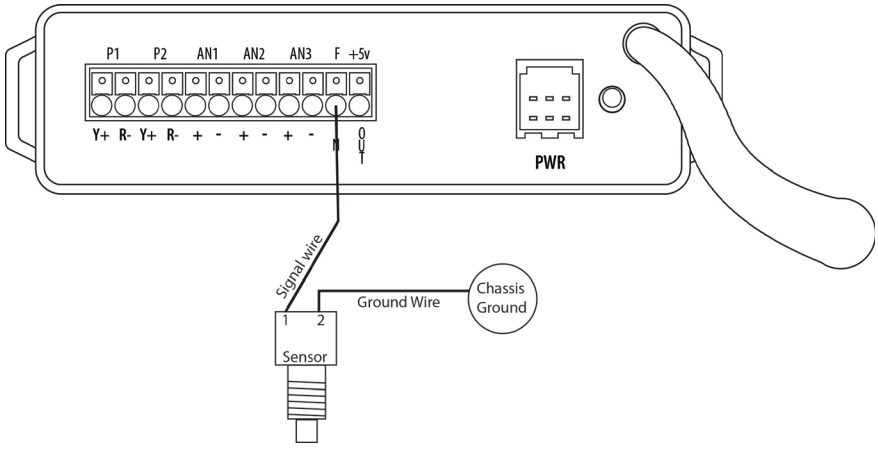
Set Output High: 100 (units)

Frequency Sensor Wiring

There is only one opening for the frequency sensor docking port. The F IN dock supports a 5 volt, 5000 Hertz pulse output sensor.

The ground wire on a typical two-wire frequency sensor should be connected to the same chassis ground that you used for the power harness.

The diagram below illustrates the wiring configuration for a two-wire frequency sensor.



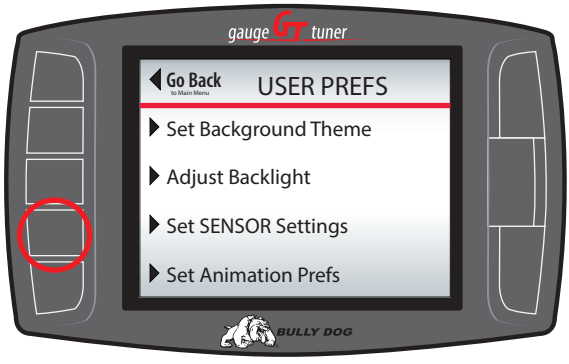
1. Signal out from the sensor (5 volt, 5000 Hertz).
2. Ground (must go to the same chassis ground location as the Sensor Docking Station chassis ground).

Frequency Sensor Set Up (on GT or HD WatchDog)

Normally, your Sensor Docking Station and GT or WatchDog will display information from a frequency sensor on a 1:1 ratio. If you want to change the format of the information, you can multiply or divide that frequency.

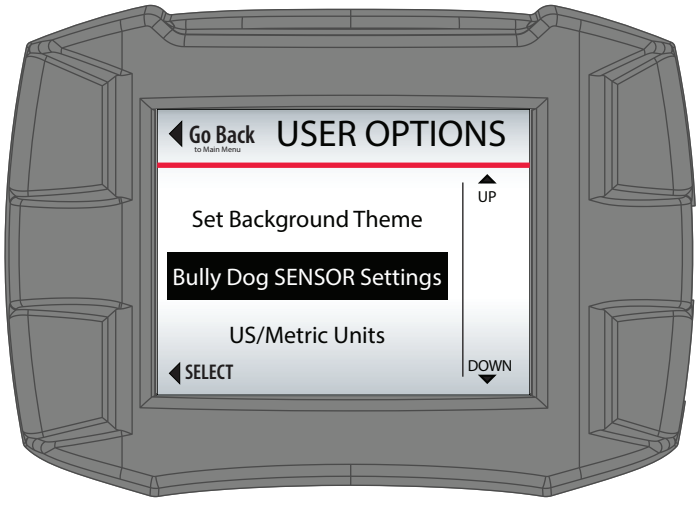
Light Duty

The frequency sensor input settings are located under Set SENSOR Settings in the User Options menu.



Heavy Duty

The frequency sensor input settings are located under Bully Dog SENSOR Settings under the User Options menu.



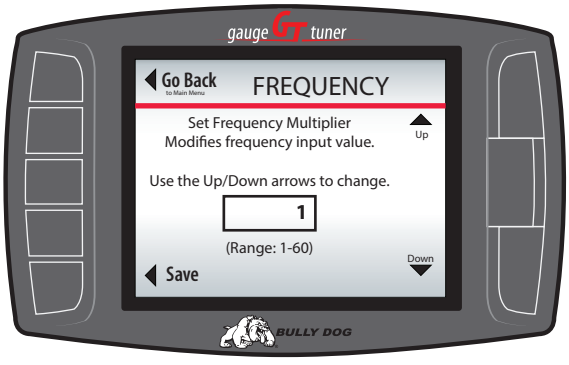
Frequency Sensor Setup (continued)

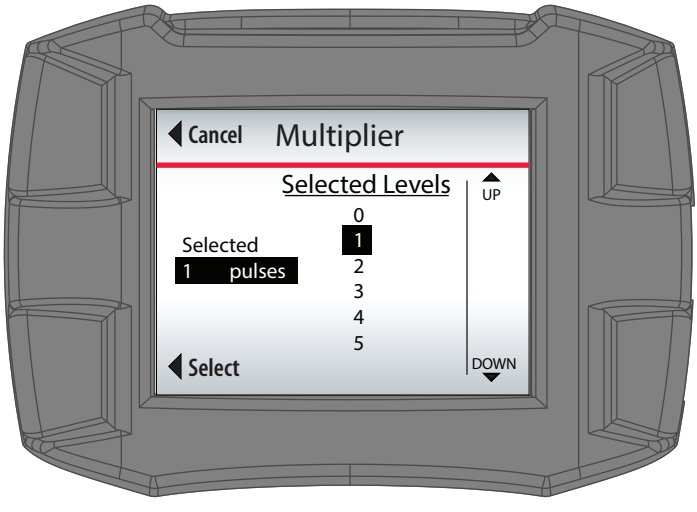
The signals for multipliers and divisors can be adjusted from 1-60.

Example(s)

If your sensor provides data as pulses per second and you want to know how many pulses per minute, set a multiplier of 60.

If your sensor provides data as pulses per hour and you want to know how many pulses per minute, set a divisor of 60.



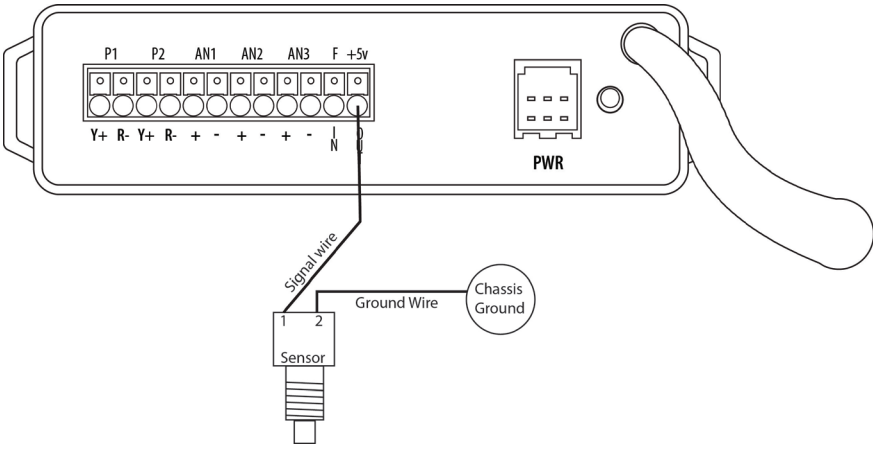


Temperature Sensor Wiring

There is only one opening for the auxiliary temperature sensor docking port. The +5V OUT dock supports a 0-5 volt temperature sensor.

The ground wire on a typical two-wire temperature sensor should be connected to the same chassis ground that you used for the power harness.

The diagram below illustrates the wiring configuration for a two-wire temperature sensor.



1. Signal out from the sensor (0-5 volt).
2. Ground (must go to the same chassis ground location as the Sensor Docking Station chassis ground).

Temperature Sensor Calibration

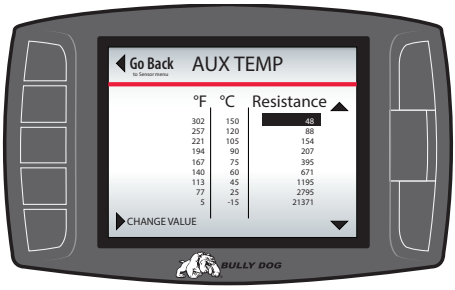
Bully Dog recommends the GM Delphi 15326386 fluid temperature sensor; the Sensor Docking Station is calibrated for this sensor by default and no additional calibration is required.

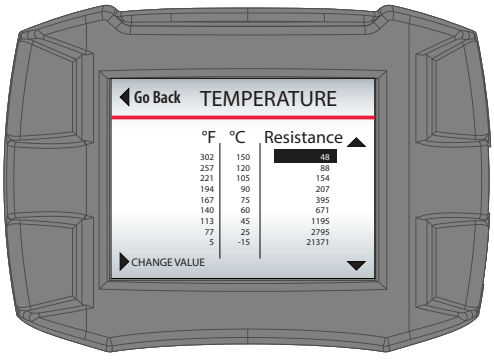
If a different temperature sensor has been installed, the GT or WatchDog settings need to be changed to the specifications of the sensor. Calibrating the Sensor Docking Station for a fluid temperature sensor requires the calibration resistance of the sensor.

Access the calibration settings through the following path on the GT or WatchDog:

Main Menu > User Options > SENSOR Settings

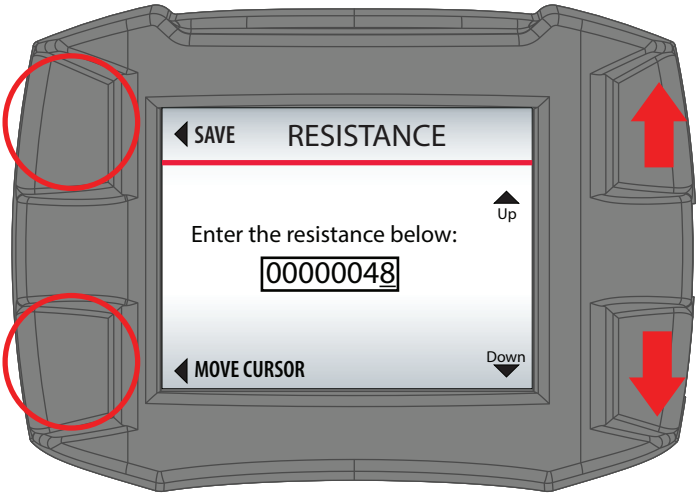
1. Use the buttons on the right to highlight a resistance value.
2. Press the bottom left button to CHANGE VALUE.





3. Enter the new resistance value:
   - Change the digit above the cursor (right buttons).
   - Light Duty: Use the bottom left buttons to move the cursor left and right.

   - Heavy Duty: Use the bottom left button to move the cursor to the left. To change a digit to the right of the cursor, use the bottom left button to scroll through all the digits until the cursor is in the right place.



4. Press the top left button to SAVE the new resistance value.

Purchasing Compatible Sensors

The only pyrometer that the Sensor Docking Station supports is manufactured by Bully Dog (part #40387). It is available online at www.bullydog.com.

For all other sensor types, the Sensor Docking Station will support sensors made by different manufacturers. Go to:

http://www.bullydog.com/documents/SensorsForSensorDockingStation.xlsx

for a list of recommended sensors.

NOTE: The list is not exclusive. The sensors included in the list are intended as examples; other sensors will also work with the Sensor Docking Station if the requirements are met.

More Information

FAQ

Q. Why is the green status check light still blinking?

A. Sporadic blink:

The power connection is not secure. Check and/or reseat the power cable connections.

Constant blink:

The GT or WatchDog is not connecting. Update the GT or WatchDog. Check and/or reseat the data connections.

- If the light continues to blink, contact technical support.

Contacting Technical Support

Before Calling Technical Support complete the following steps:

- Visit bullydog.com, click on the Support tab located at the top of the page and the select "support"
- If you questions aren't anwered in the FAQ's list, click on chat with a tech and fill out the required information.

Technical Support is open Monday-Friday, 8 a.m. – 5 p.m., Mountain Standard Time.

Light Duty: (940)783-9915

Heavy Duty: (888)844-6260

You should have all of the following items available when contacting technical support:

- Your vehicle.
- Your Sensor Docking Station and GT or HD WatchDog.
- A computer with Internet access.

NOTES

NOTES

See More Products from Bully Dog.

Cold Air Intakes

More air,
Colder and
More dense air,
More power,
Better efficiency.

Custom Pod Mounts

Custom A-pillar adapter
and dash mounts for
Bully Dog Tuners.

Manual Doc #: 40383-99 V2.9

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Free Technical Support at:
866-285-5936
WWW.BULLYDOG.COM