Instructions

INTERMOTIVE VEHICLE CONTROLS
An ISO 9001:2015 Registered Company

TempGuard TG752/TG753

TG752 2020 - 2021 RAM ProMaster
TG753 2022 RAM ProMaster

System Overview

Introduction

TempGuard serves as a means of monitoring engine coolant temperature (ECT) and notifying the vehicle operator that the vehicle's ECT has reached abnormally high levels. TempGuard will alert the vehicle operator that ECT levels have reached/surpassed a (configurable) temperature threshold by lighting up an LED and will flash a second LED if ECT goes above an even higher temperature. A piezo buzzer will also chime when ECT surpasses the thresholds. The LEDs and buzzer will alert as long as ECT levels stay above the temperature threshold (for a set amount of time) and go OFF once ECT levels stay below a temperature threshold for a set amount of time.

IMPORTANT — READ BEFORE INSTALLATION

It is the installer's responsibility to route and secure all wiring harnesses where they cannot be damaged by sharp objects, mechanical moving parts and high heat sources. Failure to do so could result in damage to the system or vehicle and create possible safety concerns for the operator and passengers.
Avoid placing the module where it could encounter strong magnetic fields from high current cabling connected to motors, solenoids, etc. Avoid radio frequency energy from antennas or inverters next to the module. Avoid high voltage spikes in vehicle wiring by always using diode clamped relays and solenoids when installing upfitter circuits.

CAUTION

All electronic products are susceptible to damage from Electrostatic Discharge or ESD. Ground yourself before handling or working with the module and harnessing by first touching chassis ground, such as the barrel of the cigarette lighter.

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Installation Instructions

Disconnect vehicle battery before proceeding with installation.

WARNING
Disconnect the battery to prevent setting a check engine light.

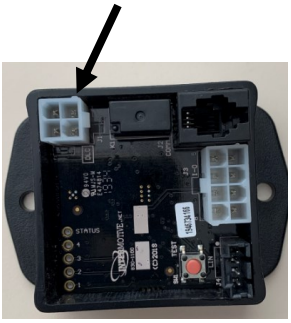
TempGuard Module

Remove the lower dash panel below the steering column and find a suitable location to mount the module. Locate the module in an area away from excessive heat sources (engine, heater ducts, etc.). Ensure when routing harnesses that the tilt steering column does not contact them in the full down position. When installing the harnesses, leave several inches of take-out so the module can be removed if necessary. Do not mount module until all wire harnesses are routed and secure. The last step of the installation is to mount the module.

Data Link Harness — 4 pin connector

The ProMaster has an OEM Gateway module located behind the glovebox. Follow the steps below to access it:

1. Open the glovebox door.
2. Locate the 2 release tabs on the inside of the glovebox (one on the left and one on the right) and drop the door into the full down position.
3. Locate the two fasteners securing the glovebox assembly to the vehicle and remove them.
4. Locate the 4 fasteners on the outside of the glovebox assembly and remove them.
5. Remove the glove box assembly.
6. The Gateway module is located behind the glove box assembly as shown in the picture.
7. Remove the 12-pin and 8-pin connectors from the Gateway module and plug in the 12-pin and 8-pin connectors from the InterMotive TempGuard Data Link harness. Plug the OEM 12-pin and 8-pin connectors into the mating connectors on the TempGuard Data Link harness.
8. Plug the free end of the 4-pin Data Link harness into the mating 4-pin connector on the 4 foot extension harness. Plug the other end of the extension harness into the mating 4-pin connector on the TempGuard module.



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I/O Installation and Description (J3 8-Pin Connector)

LED Indicator

Mount the LED indicator on the dash in view of the driver.

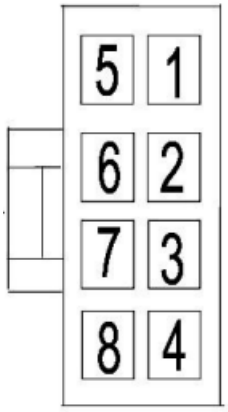
Buzzer

Mount the buzzer in a location that is close enough for the driver to hear, even when the engine is on.

Plug the 8-pin connector into the mate on the TempGuard module at location J3.

8-Pin Output Connector (J3) Definition

- Pin #1— output to buzzer
- Pin #2— output to LED indicator
- Pin #3— output to LED indicator
- Pin #4— not used
- Pin #5— not used
- Pin #6— output to LED indicator
- Pin #7— output to LED indicator
- Pin #8— not used



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System Operation

While the Key is in the RUN position, TempGuard monitors the vehicle's ECT. TempGuard operates in one of three states depending on the engine coolant temperature reading.

State 1

TempGuard monitors CAN traffic and checks whether ECT has reached a threshold value (defaulted at 228 deg F (109 deg C)). If ECT stays below 228F or if key position is not in RUN, TempGuard will remain in the first state and both LEDs and the buzzer will remain OFF.

State 2

Once TempGuard detects that ECT has reached 228 deg F (and has stayed at or above that threshold temperature for at least 30 seconds) the "HIGH COOLANT TEMP" LED will illuminate (solid) and stay illuminated. The buzzer alarm sounds off periodically at a configurable rate. The described conditions are present as long as ECT stays at or above 228 F, and the key is in the RUN position. Note: In order to transition back to state 1 (both LEDs OFF), the ECT value reported by the vehicle must stay below 228F for at least 30 seconds or the key needs to be rolled to a position other than RUN.

State 3

If ECT continues to increase and reaches a second threshold temperature (defaulted at 230 deg F (110 deg C)), TempGuard will illuminate (blinking) the "ENGINE WARNING" LED (if ECT has been at or above that threshold temperature for at least 30 seconds). The buzzer alarm chimes at a faster rate when in this state. As long at ECT stays at or above 230 deg F with the key in RUN, the solid LED and blinking LED will continue to be illuminated and the buzzer will be on constantly.

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Diagnostics

The module can be put into its diagnostic mode by pressing the RED test button (SW1). Each time the button is pressed the next sequential page is selected. There are 2 pages currently defined, and each page uses the on-board LEDs (1-4) and STATUS LED to display status. The STATUS LED will "blink out" the currently-selected page:

PAGE 1 – displays status of VIN, ECT PID reception, and ECT Warning LEDs. Putting the module in this state also reduces the hysteresis time from 30 seconds to 1 second:

LED 1 - ON when Valid VIN received
LED 2 - ON when receiving ECT data from the vehicle
LED 3 - ON when ECT has surpassed threshold to turn on solid LED
LED 4 - BLINKING when ECT has surpassed threshold to turn on blinking LED
STATUS – blinks out currently selected page

PAGE 2 – **Diagnostic Test**. Used to verify module functionality without having to actually overheat a RAM ProMaster. With the vehicle's engine is off, the user would put the module into diagnostic page 2 and then start the engine. If the vehicle ECT is below 160 deg F (71 deg C), the module will read and save the current ECT value. It will add three degrees to the saved value and use it as the 1st threshold value (above which SOLID LED turns ON). It will add 4 degrees to the saved value and use that as the 2nd threshold value (above which BLNKING LED turns ON). These temporary threshold values are reset to the default values after the user exits diagnostic page 2. If the ECT is above 60 deg C when the user goes to this page, all module LEDs will flash to indicate that the vehicle needs to cool down before performing this diagnostic test. Putting the module in this state also reduces the hysteresis time from 30 seconds to 1 second:

LED 1 – always OFF
LED 2 – always OFF
LED 3 – ON (solid) when ECT has surpassed 1st (temporary) threshold
LED 4 – ON (blinking) when ECT has surpassed 2nd (temporary) threshold
STATUS – blinks out currently selected page

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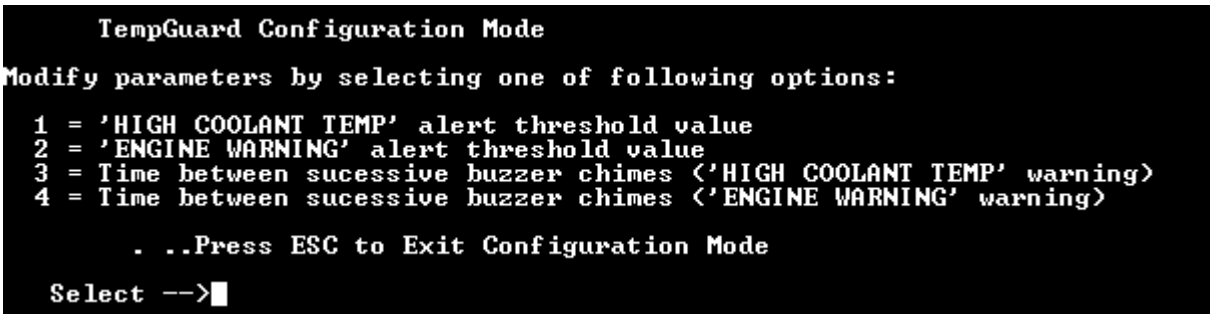
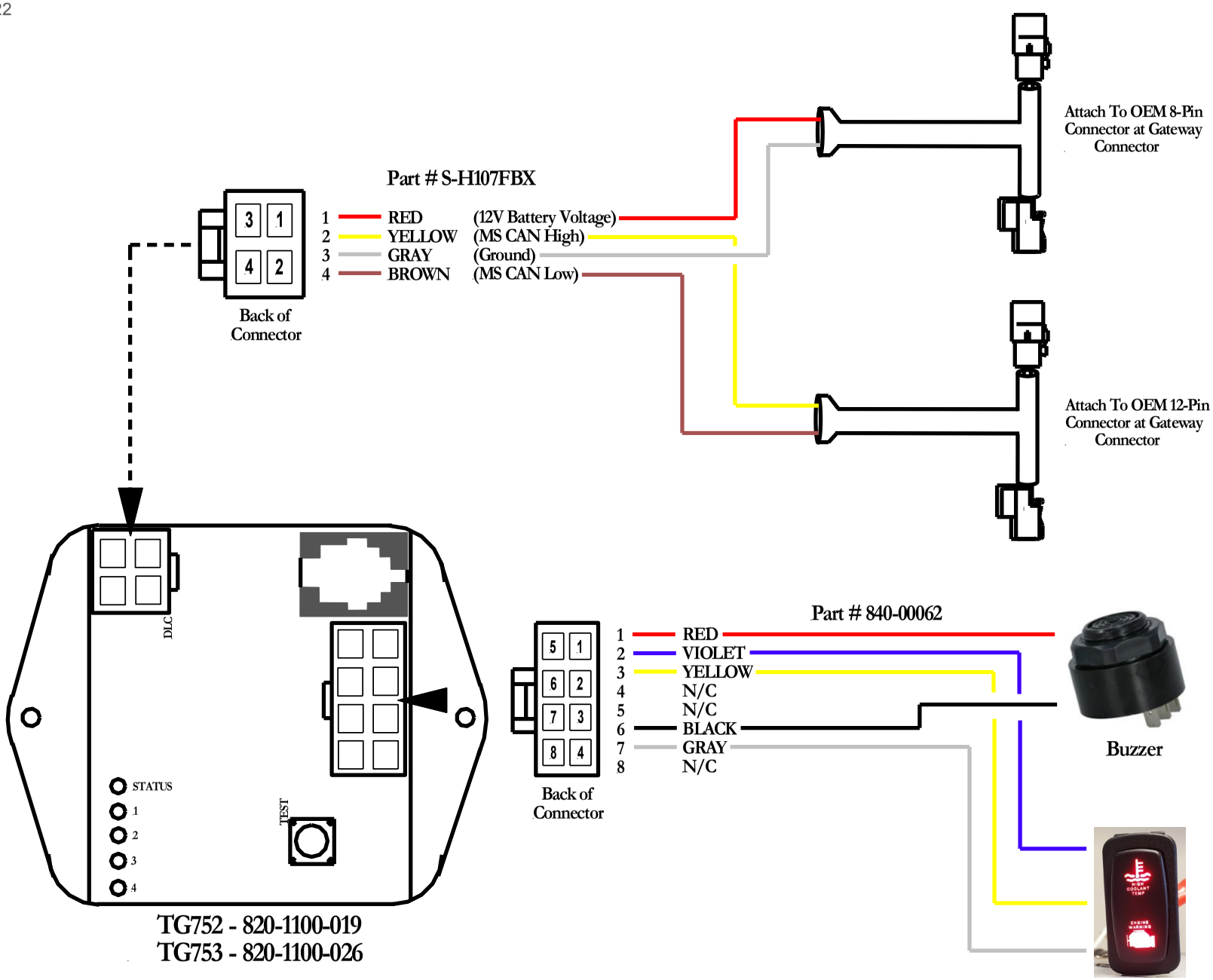
Configurations

The ECT threshold values, used to trigger on and off the warning LEDs, can be configured outside of the default values by using TeraTerm and an InterMotive Download Cable (IDC). When the user types “cfg” into TeraTerm configuration menu (below) will display. From here the user can modify the threshold values that will cause the warning LEDs to turn on. The user can also configure the frequency at which the buzzer will chime.





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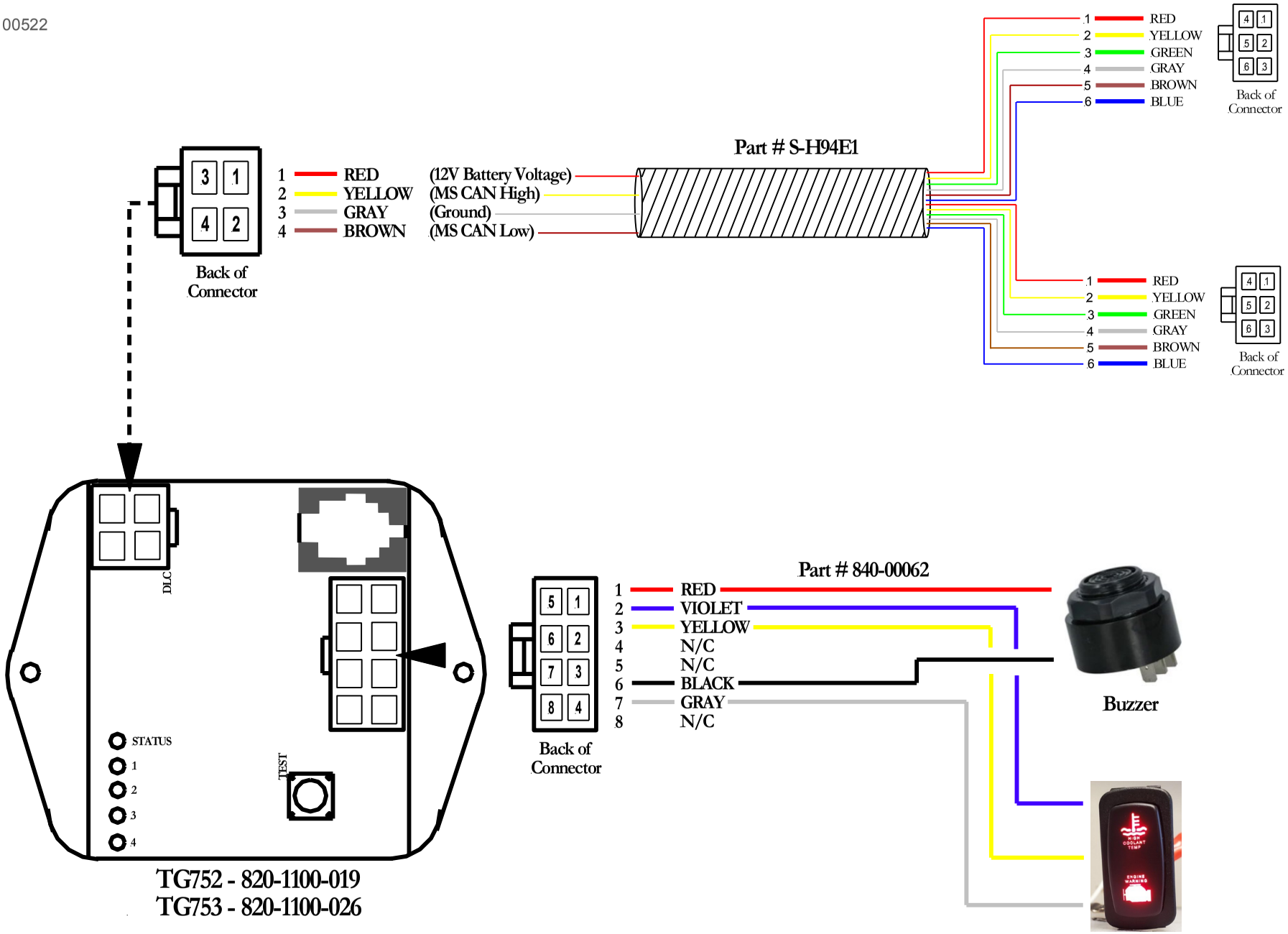
If the TG75x fails any step in the Post Installation Check List, review the installation instructions and check all connections. If necessary, call InterMotive Technical Support at (530) 823-1048.



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