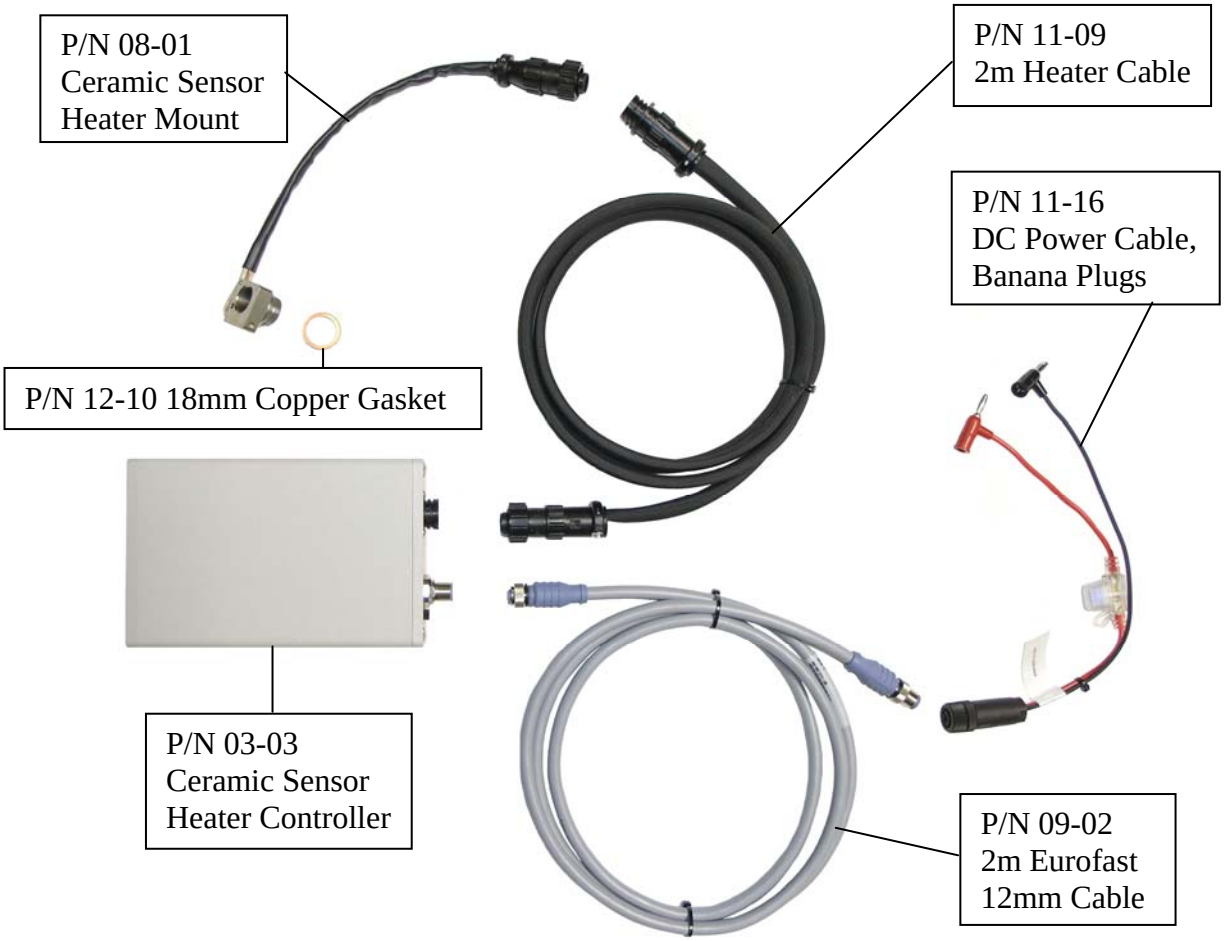
ECM Ceramic Sensor Heater Kit, P/N BTU200

The ceramic sensor heater kit controls the mount temperature of a ceramic exhaust sensor. By doing this, the effects of an exhaust sensor's sensitivity to changes in mounting boss temperature (i.e. drift due to changes in exhaust pipe temperature) can be reduced. The NOx sensor used with the NOx 5210 analyzer and the NOxCAN module can especially benefit from this kit.



Installation:

1. Screw the sensor heater mount (P/N 08-01) into an 18mm x 1.5 boss in the engine's exhaust. Use the supplied copper gasket (P/N 12-10) between the heater mount and the engine. Using an adjustable wrench across the flats of the heater mount, lightly tighten the mount to a maximum of 3 lbf-ft (4 N-m). The sensor heater mount has a thin cross-section to thermally isolate the sensor from the exhaust pipe, therefore this torque must not be exceeded to avoid shearing the mount into two pieces.

2. Screw the ceramic sensor into the mount. With the adjustable wrench held across the flats of the heater (to avoid further tightening of the mount), lightly tighten the sensor to a maximum of 3 lbf-ft (4 N-m) torque.

3. Connect the heater cable (P/N 11-09) to the heater and route the cable to the heater controller (P/N 03-03).

4. Tie the heater mount wires to something that moves with the stainless steel part of the mount itself. What you are trying to avoid here is the relative motion of the heater mount wires and the stainless steel mount that would result in fatiguing and ultimately breaking the wires.

5. Connect the eurofast cable (P/N 09-02) to the heater controller and a power supply. A DC power supply cable (P/N 11-16) is supplied which can be used to connect the eurofast cable to a power source. Alternatively, the eurofast cable can be directly connected to an AC/DC power supply (P/N 04-01) or a CAN bus (Note: the 12mm CAN bus is limited to carrying the current for one NOxCAN, one NOx 5210 display head, and one BTU200 kit).

Power Considerations:

The ceramic sensor heater works best with a 24 volt power supply. 24 V can come from an external supply, an AC/DC power supply (P/N 04-01), or a Vboost inverter (P/N 04-02) driven by a 12 V power supply. At 24 V, the heater kit draws 4 A. The problem with using a 12 V power supply directly is that there may be conditions in which the sensor mount cannot be maintained at the 250 deg C target temperature.

To avoid power problems, it is recommended in dynamometer applications that the BTU200 kit be powered by its own AC/DC power supply (P/N 04-01). In 12 V vehicle applications, it is recommended that the Vboost inverter (P/N 04-02) be used.

Operation:

The BTU200 kit attempts to control the ceramic sensor's mounting boss to 250 deg C. The temperature controller is pre-programmed as follows:

SP1 = 250 (the 250 deg C target)
H100 = N/A
A-t = N/A
inPT = Y_tC
unit = ºC
dP = no-dP
Pb = 16.6
ti = 23
td = 6.9
CYC1 = 0.1

The temperature controller is a Tempco Model TEC-220. A user's manual is available at www.tempco.com

Replacement Parts:

Ceramic Sensor Heater Controller, P/N 03-03

Ceramic Sensor Heater Mount for NTK Sensors, P/N 08-01

Heater cartridge: Tempco HDC04725 (www.tempco.com)
Thermocouple: Omega 5TC-GG-K-20-36 (www.omega.com)
Connector: AMP 206429-1 (www.digikey.com)
Cable clamp on connector: AMP 206358-1 (www.digikey.com)
Terminals in connector (4 required): AMP 66103-4 (www.digikey.com)

2m Heater Cable, P/N 11-09

2m Eurofast 12mm Cable, P/N 09-02

DC Power Cable, Banana Plugs, P/N 11-16

18mm Copper Gasket, P/N 12-10

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