

# Regulator Terminal Guide

## **F/DF: (Field/Digital Field)**

Bosch alternators with internal fan – This is a variable output of between 0V and 11V. This connection provides the ECU with information about the charge rate.

## **FR: (Computer Monitor)**

For early Japanese alternators – This is a variable output of between 0V and 11V. This connection provides the ECU with information about the charge rate.

## **F1/F2: (Field 1/Field 2)**

This type of connection is used on alternators without an internal regulator. The regulator is normally a separate unit or can be built into the vehicle ECU.

## **C: (Computer Controlled)**

This terminal is an input signal from the ECU which controls the charge rate. This signal will tell the alternator when to stop/start charging. This terminal can be tested by connecting into ground and the Voltage Set Point (VSP) should show a voltage of around 12.8V

## **D: (Externally Regulated)**

This type of connection is used on alternators without an internal regulator. The regulator is normally a separate unit or can be built into the vehicle ECU.

## **F/I: (Field)**

US and Korean Delco alternator has two codes for the same type of connection (F/I). This is a variable output of between 0V and 11V. This connection provides the ECU with information about the charge rate. If the vehicle does not have a warning lamp then this connection must be connected to the ignition.

## **RC/SIG/RLO/PHiN: (Computer Control)**

This type of connection is connected to the vehicle ECU which allows variation of the voltage set-point (known commonly as 'smart charge system') Some alternators can be tested standalone others require special equipment to fully test the alternator. RC and SIG connections are used on Ford, Volvo and Land Rover. The RLO connection is used on Toyotas.

## **DFM/M: (Digital Field Monitor/Monitor)**

This type of connection is connected to the vehicle ECU. Every alternator brand has a different abbreviation for the DFM connection: FR(Field Return) DF(Digital Field) DFM(Digital Field Monitor) M(Monitor) LI(Load Indicator) but all function in the same way. The connection has a positive and negative measurement which works with a block pulse. When the alternator load increases the block pulse dependant on the application will become wider or smaller. The vehicle ECU then knows the load at any specific moment during the charging process.

## **COM: (Computer Controlled)**

This type of connection is connected to the vehicle ECU using a data signal for communication. The ECU provides information about the required VSP and the alternator will respond with a DFM type signal. There are various type of COM connections which are; • COM (Various applications), • BSS-1 and BSS-2(Mercedes, Audi, BMW, VW, Mini, Rolls Royce and Renault), • LIN-1(Ford/Volvo), • LIN-2 (9K6) (Ford/Volvo) • LIN-2 (19K2) (Mercedes, Chrysler, Toyota, Fiat, Audi, VW, Porsche, Citroen and Peugeot) • Infineon VDA (BMW 2012)

## **L/D+/IND/16/15/61/R/1: (Warning Light)**

This type of connection is for the warning light circuit. This circuit must have a 12V supply on ignition which should go out when the alternator begins to charge.

## **S: (Battery Sense)**

This type of connection is a battery sense. This connection has a direct feed from the battery. If this connection is not there, it will create a charging fault.