Product description

DITUPA

Rail pressure sensor BMW M57

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Product information

Product name:	DiTuPa rail pressure sensor 3000bar
Connector style:	straight
Weight:	53g
Tightening torque:	75Nm
Function:	extending rail pressure measurement range
Usable items:	rail pressure sensor, copper washer
Controller:	DDE5, DDE6, DDE7
Known engine compatibility:	306D2, 306D3, 306D4, 306D5
Absolute voltage limit:	4900mV
Sectional allowed voltage:	185mV to 4815mV
Initializing voltage:	420mV to 615mV
Rail pressure:	up to 3200bar

Warnings

The bought item is an electronic and high technology part that has to be handled with high care and in a mindful way. Improper usage might lead to damage or failure.

This document gives you an overview and assistance during the installation of the product. It was created with best knowledge and conscience, however DiTuPa will not cover any guarantee about this document being compete and without mistakes.

No responsibility will be taken for any damage occurred by the usage of this product.

IMPORTANT

After the installation of this product it is necessary to change the calibration / software of the Engine Control Unit. This product comes with a different sensor characteristic, so the engine might not start, or hardly start. The changes in software calibration of the Engine Control Unit should be performed by trained professionals only. DO NOT drive the car without having the right characteristic curve applied to the Engine Control Unit.

If it should not be possible to program the Engine Control Unit right after the installation of this product, **DO NOT INSTALL IT**.

Table of contents

1. Introduction

1.1 Notice

DiTuPa tries to deliver the best possible product and user experience. For this it is crucial that the buyer carefully follows all the given instructions.
If the installation is done by another person, it is urgent to have this person read the instruction before any work is done. Should there be any uncertainties, please read the instruction again with extra attention.

If installation and calibration of the product is not done with care it might can damage the engine. The vehicle might become temporarily or permanently unusable.

1.2 Preparation

For the correct function of the DiTuPa rail pressure sensor it is absolutely necessary to have it installed the right way and with correct tightening torque.
Also the engine management controller needs to be reprogrammed.
The following chapters will deliver all information needed and guide how to setup the dataset correctly.

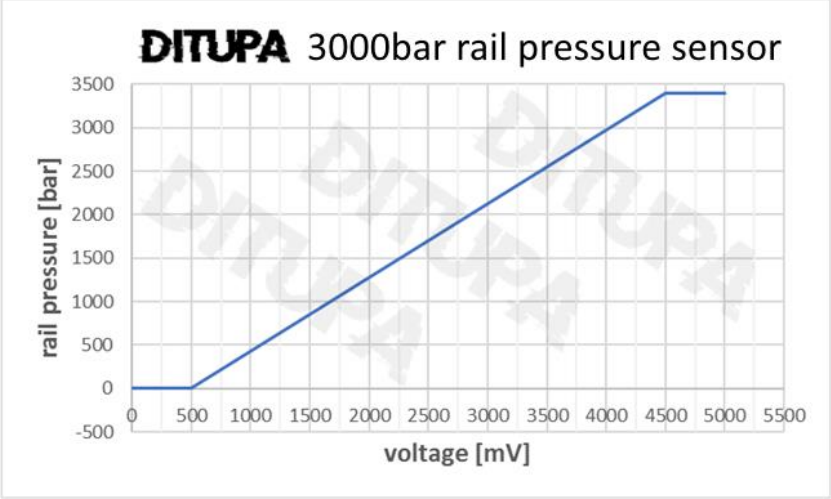
Working with care and conscientious is crucial for the successful installation. It is recommended to take enough time and obey all instructions.

2. Characteristic curve

As the DiTuPa rail pressure sensor has an extended range of measurement, which differs significantly from the stock sensor, the characteristic curve of the new sensor needs to be programmed into the engine control unit.

2.1 Characteristic curve as transfer function

The following diagram shows the characteristic curve of the DiTuPa rail pressure sensor.



The transfer function is:

Y(X) = 0,850078084331078 * X - 425,039042165539

Please substitute the voltage value in Milli-Volt [mV] for X. The function returns the corresponding value of rail pressure [bar] for Y.

2.2 Characteristic curve inside the engine control unit

Based on the used map size inside the engine control unit there are two different approaches possible for applying the characteristic curve. Both approaches are presented in the following figures.

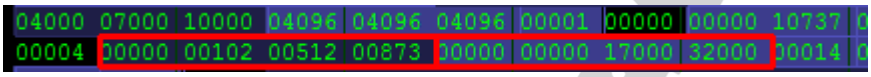
map size 4x1				
voltage [mV]	0,00	500,00	2500,00	4265,00
pressure [bar]	0,00	0,00	1700,16	3200,54

map size 2x1		
voltage [mV]	500,00	4265,00
pressure [bar]	0,00	3200,54

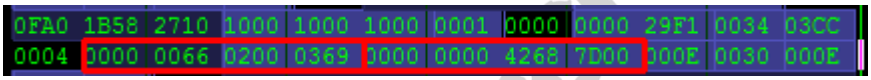
The corresponding changes of the HEX dump are shown in the next pictures. Once the decimal and once the hexadecimal view is presented. Relevant parts of the dump are marked in red color.

4x1 Map

DEC:

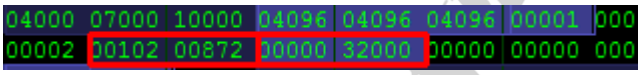


HEX:



2x1 Map

DEC:



HEX:

The ***sectional voltage limits*** of the measurement range are shown on page product information. Changing the diagnostic limits during bootup and shutdown of the engine control unit are recommended, so that no diagnostic trouble codes are stored. The ***initialization voltage values*** are also listed on the product information page.

If there are any questions or uncertainties please read this document again with attention. Are there still questions left feel free to send an email to shop@dieseltuningparts.com

Dieseltuningparts wishes a pleasant drive and sportive successes with the purchased item.