



elektronika systemów autogaz
autogas electronic systems

INSTALLATION MANUAL

Fuel Pressure Emulator

FPE-V

(variable pressure)

ver. 1.12

2013-06-13



Manufacturer:

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1. Technical parameters

Supply voltage:	12V ±25%
Operating temperature:	-40°C ÷ +70°C
Protection rating:	IP40

2. Applications

The emulator of fuel pressure FPE-V (variable pressure) is designed for vehicles with recurring errors of the pressure regulator circuit on the fuel rail. The emulator works with STAG-300 controller series.

It can be used for the following vehicle models:

VOLVO equipped with 2.5 Turbo engines: S40, S60, S60R, S80, XC70, XC90
(vehicle models are listed in tables below).

3. Operating principle

When the engine is fueled with autogas, there is no petrol fed by the fuel rail, which makes rail pressure exceed the nominal value. As a result, the controller of petrol (ECM) makes injection pulses shorter (and/or reports an error). If it is emulated with a constant voltage value, the ECM identifies a problem with the circuit of pressure regulator on the fuel rail and reports an error that may make further operation impossible. The FPE-V is coordinated with the regulator circuit to solve the problem.

4. Wiring diagram and installation notes

The unit should be installed in accordance with the below diagram, close to ECM (engine control module), using the harness supplied with the FPE-V emulator.

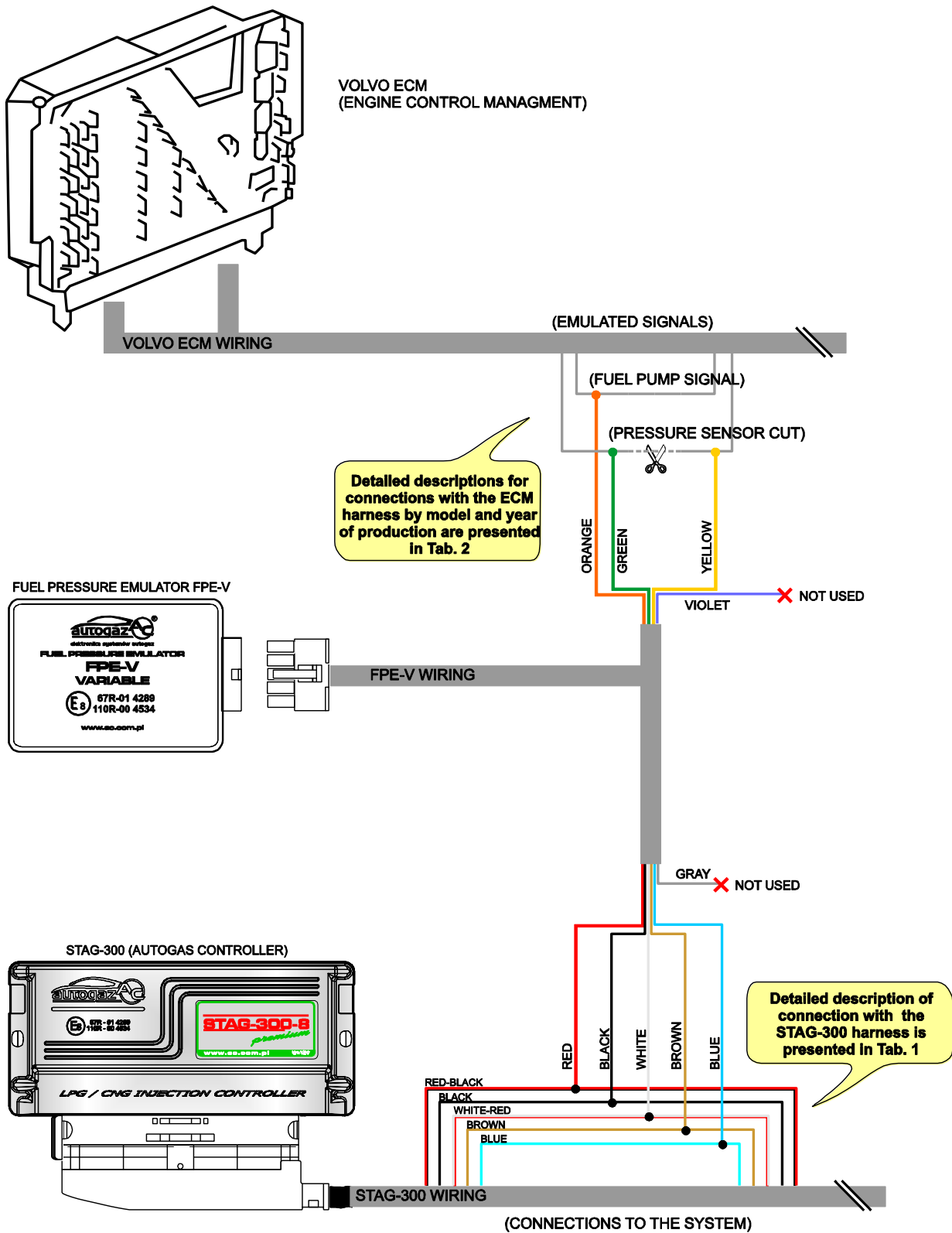


Fig.1 Connection of the PFE-V fuel pressure emulator to the vehicle system.

Connection with the cut STAG-300 harness should be made as presented in Tab. 1.

Pressure emulator FPE-V harness			STAG-300 harness		
Pin No.	Wire colour		Pin No.	Wire colour	Signal
1	red	↔	15	red-black	+12V IGNITION
2	white	↔	53	white-red	MAP
3	blue	↔	41	blue	+12V - LPG valve
5	gray (not connected)	↔	-	-	-
6	black	↔	44	black	GROUND
7	brown	↔	28	brown	Rpm pulses

Tab. 1 Connection table.



Connection with the ECM for petrol should be made as presented in Tab. 2.

Wire colors and pins of the ECM connectors for required signals are identified based on car model and year of production. Having identified the wires, cut the pressure sensor signal line and follow the diagram to connect it to the green and yellow lines of the FPE-V emulator harness, while ensuring that the green wire (in the FPE-V harness) is connected on the ECM side!!! The yellow wire should be connected on the fuel rail pressure sensor side. Connect the second wire identified in Tab. 2 (fuel pump control signal) to the orange wire of the FPE-V emulator harness.



ATTENTION: incorrect installation can result in damage to the emulator, autogas system and/or electronic components of the vehicle.

Tab. 2 Connection of emulated signals.



- Installation group 3

Year	Engine	Supported models	Petrol ECM harness			
			Connector	Pin No.	Wire colour	Signal
2005	2,5 Turbo	S40	B	20	white-black	Control signal for the fuel pump 
			A	91	white-blue	Fuel pressure sensor signal 



- Installation group 4

Year	Engine	Supported models	Petrol ECM harness			
			Connector	Pin No.	Wire colour	Signal
2006	2,5 Turbo	S40	B	21	white-black	Control signal for the fuel pump 
2007	2,5 Turbo	S40				
2008	2,5 Turbo	S40				
2009	2,5 Turbo	S40				
2010	2,5 Turbo	S40	A	89	white-blue	Fuel pressure sensor signal 
2011	2,5 Turbo	S40				

- Installation group 5

Year	Engine	Supported models	Petrol ECM harness			
			Connector	Pin No.	Wire colour	Signal
2004	2,5 Turbo	S60,S60R,S80,XC70,	B	47	yellow	Control signal for the fuel pump 
2005	2,5 Turbo	XC90				
2006	2,5 Turbo	S60,S60R,S80,XC70,				
2007	2,5 Turbo	XC90				
2008	2,5 Turbo	S60,S60R,S80,XC70,	A	2	green-gray	Fuel pressure sensor signal 
2009	2,5 Turbo	XC90				
2010	2,5 Turbo	S60,S60R,XC70,XC9				
2011	2,5 Turbo	0 S60,XC90				

- Installation group 6

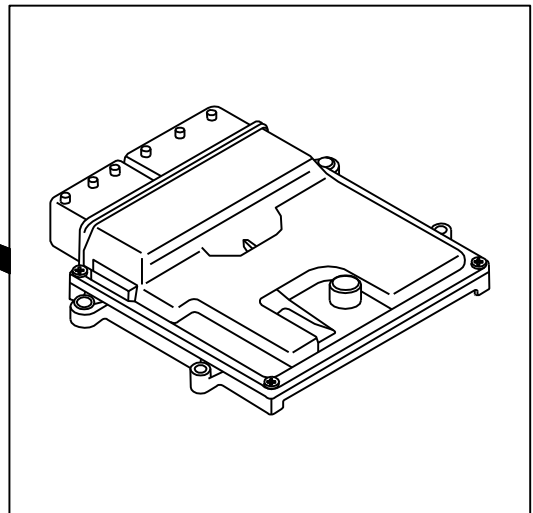
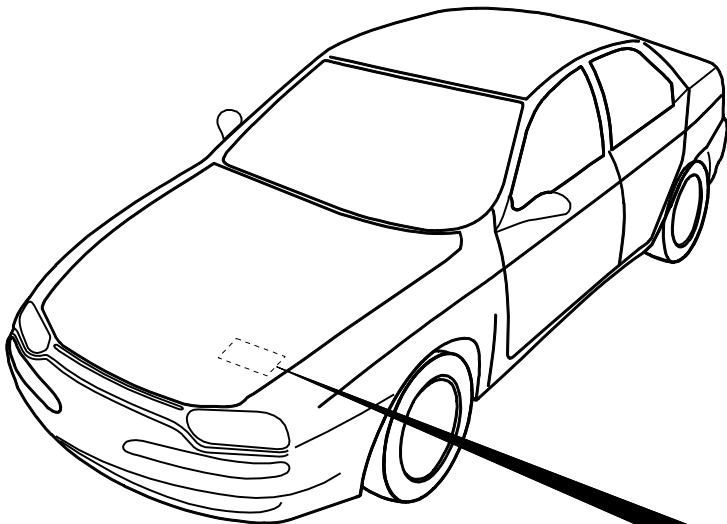
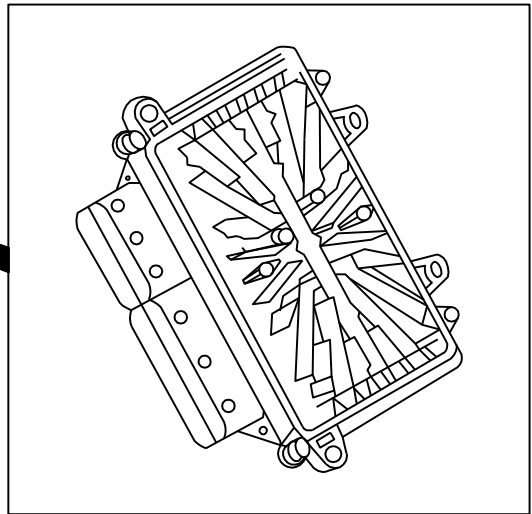
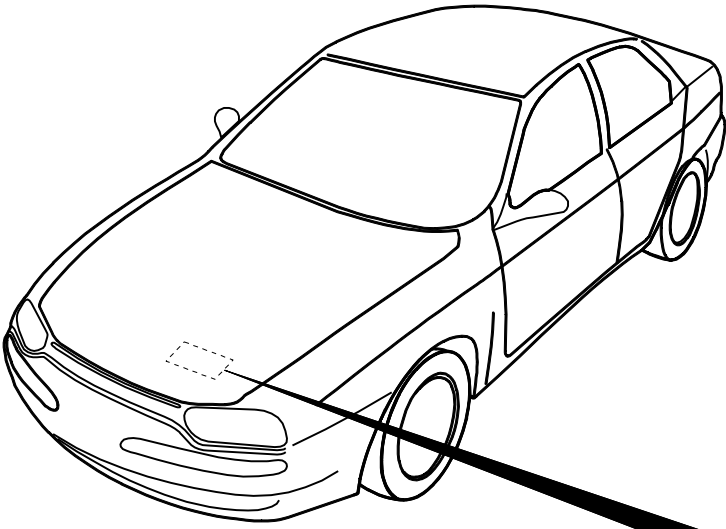
Year	Engine	Supported models	Petrol ECM harness			
			Connector	Pin No.	Wire colour	Signal
2007	2,5 Turbo	S80	B	21	yellow-orange	Control signal for the fuel pump 
2008	2,5 Turbo	S80,XC70				
2010	2,5 Turbo	S80,XC70				
2011	2,5 Turbo	S80,XC70				
			A	89	blue-brown	Fuel pressure sensor signal 

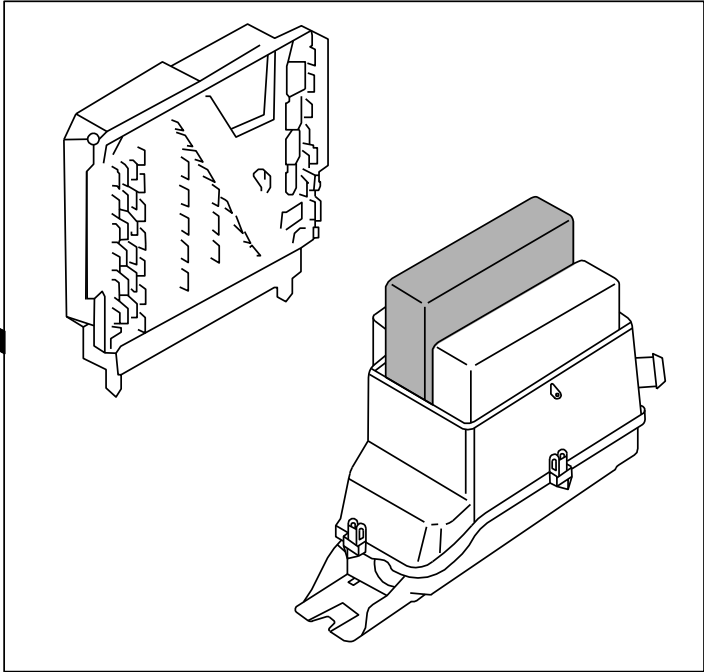
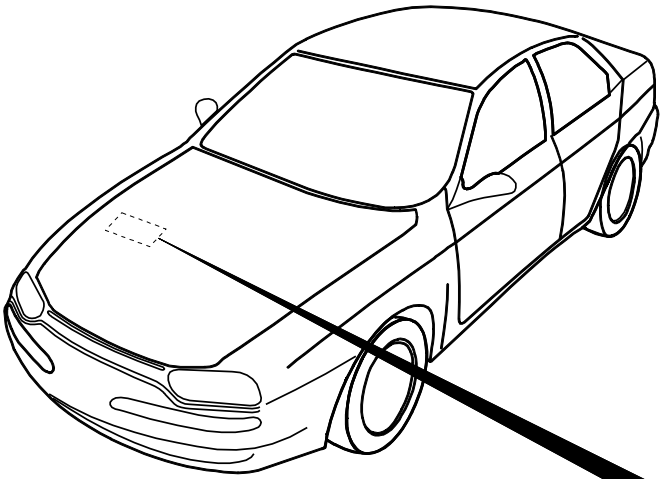
5. Emulator start

The emulator is operable directly after correct connection to the vehicle wiring (only in models listed in one of the groups). After installation of the emulator, start the engine and let it run idle for 2 up to 3 minutes with petrol fueling. After starting the engine and switching to autogas, the emulator is continuously analyzing the signal from the fuel pressure sensor in order to adjust the system to the conditions of the vehicle fuel supply system.

6. Locations of ECM controllers in vehicle.

Illustrations below present general locations of ECM controllers in various cars. Locate the ECM in the area shown.





7. Warranty card

Terms of quality warranty:

AC S.A. Białystok guarantees good quality, proper operation and performance of the product in the country of purchase that is covered by the Warranty Card. The warranty conditions are presented below:

1. WARRANTY SCOPE

- 1) The warranty covers proper operation of the unit and is valid within the country of purchase.
- 2) The warranty provider is responsible only for defects resulting from reasons related to the sold equipment and failures of such equipment occurring as a consequence of such defects.
- 3) The warranty does not cover:
 - a) Normal wear of the operated equipment.
 - b) Units that have been modified, incorrectly repaired or tampered with in any other way by the Customer or third parties.

2. WARRANTY TERMS AND PROCEDURE OF ACTING BY THE WARRANTY HOLDER

- 1) Warranty rights are provided only to holders of the original and properly filled Warranty Card.
- 2) For warranty rights to be granted, the identified defects should be reported without delay to the local distributor of AC S.A. (current list of Distributors available at www.ac.com.pl) and the defective product should be delivered together with the Warranty Card and a copy of the receipt. The distributor is responsible for delivering the defective goods to the Quality Control Department at AC S.A.

3. WARRANTY CLAIM PROCESSING TIME

- 1) All manufacturing defects should be eliminated and all inoperable components should be repaired or replaced within 14 days from the date of product collection at AC S.A. headquarters.
- 2) Non-standard repairs may require longer processing.

4. WARRANTY PERIOD

- 1) The warranty period covers 24 months from the date of purchase.
- 2) The warranty shall expire if the Customer fails to fulfill the provisions of the Warranty Card, particularly in case of:
 - a) using the unit for purposes other than intended,
 - b) mechanical damage,
 - c) performing any unauthorized repairs,
 - d) failure to follow the recommendations for use, especially those specified in the User Manual,
 - e) other damage caused by the user.

5. FINAL PROVISIONS

This warranty for the sold goods does not exclude, restrict or withhold any rights of the Customer related to product nonconformance.

All disputes under this warranty shall be settled by the court having jurisdiction over AC S.A. seat.

.....
date of sales

.....
stamp and signature
by seller