



Micro Gear Fuel Pump System

User Manual

V1.7

ECOTRONS LLC

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Note: If you are not sure about any specific details,
please contact us at info@ecotrons.com.

Index	Page	Revision	Date	Note
1		First Edition	8.15.2017	V1.2
2		Second Edition	2.25.2018	V1.3
3		Third Edition	7.21.2018	V1.4
4		Fourth Edition	3.9.2018	V1.5
5		Sixth Edition	7.11.2018	V1.6
6		Seventh Edition	4.12.2018	V1.7

Gear Pump controller General

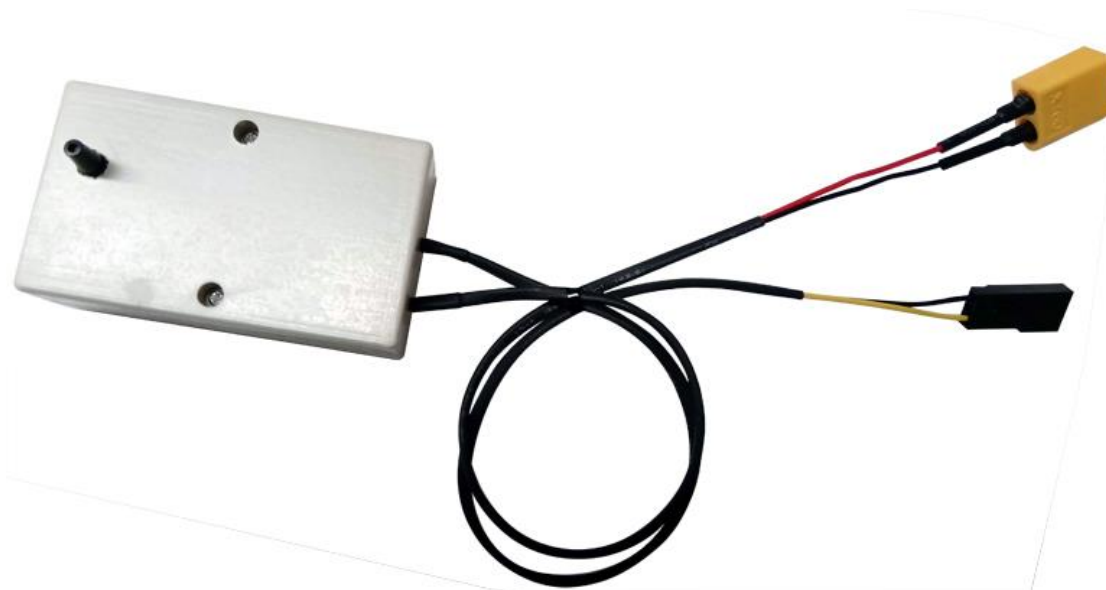
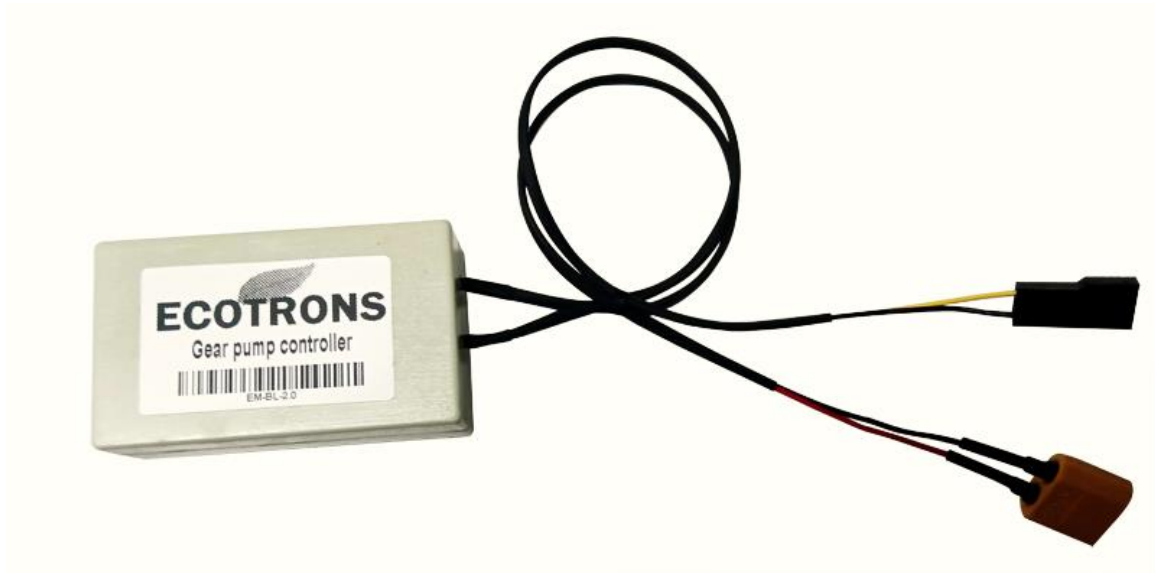
The Gear Pump Controller is a small, lightweight device. And it can be installed in-line with the gear pump's own wiring harness, and it is used to provide a variable output controls.

EMCU-BL-2 is the controller from ECOTRONS, which is designed for EFI micro gear pump controls to provide constant fuel pressure (3Bar or 43.5psi). Gear Pump Controller can keep constant fuel pressure, and you do not need an external fuel pressure regulator.

The controller has a pressure sensor to measure the fuel pressure, to achieve a constant fuel pressure function. Please plug the tubing into the connector of the controller to ensure that the function is working properly.

1 Characteristic of the Controller

1.1 Controller picture



EMCU-BL-2.0

1.2 Electrical Characteristics

Controller	
Supply voltage	(+11~15) VDC
Working current	<1.5A
Weight	45g
Installation Style	External
Working temperature	(-25~+70) ° C
Storage Temp Range	-20~50 ° C
Size	73x43x34mm

1.3 Pin-out definitions

Input: Red wire 12V+

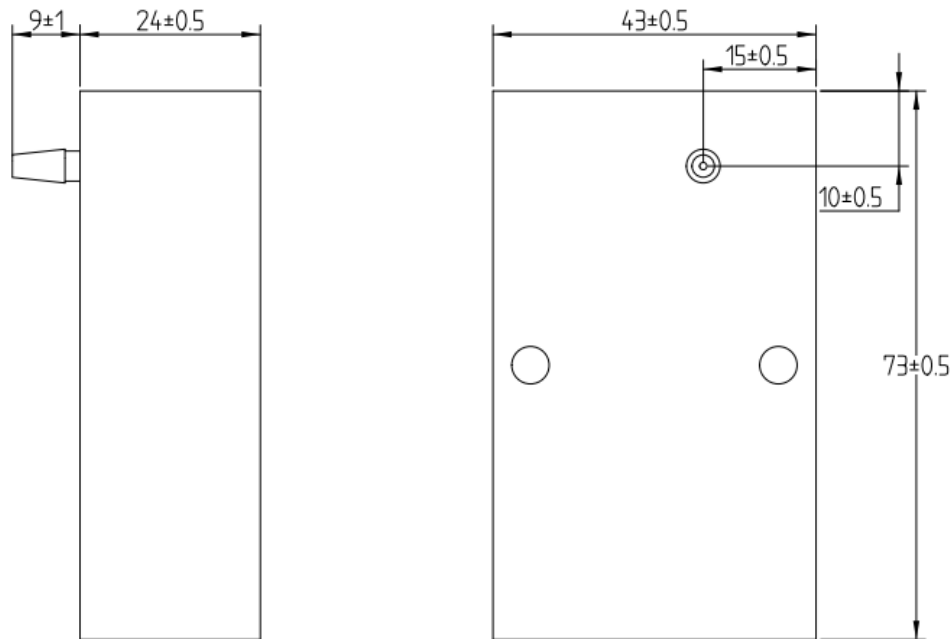
Black wire 12V-

Output: Yellow wire signal

Black wire GND

1. Connect the output connector to the gear pump.
2. Connect the Red/Black input wires to the 12V power.

1.4 Mechanical Dimensions of the controller (Unit: mm)



2 Characteristic of the gear pump

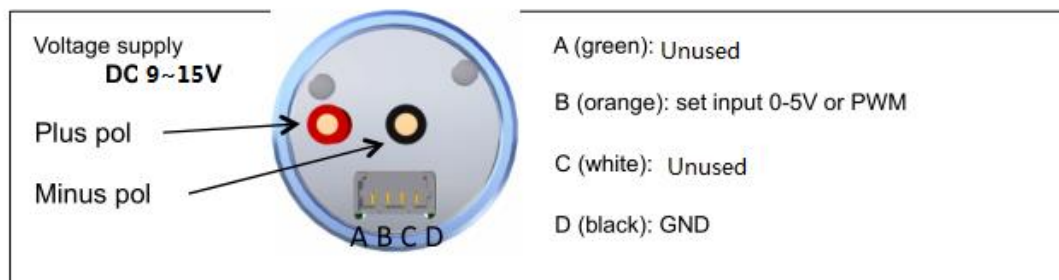
2.1 Picture of gear pump



2.2 Electrical Characteristics

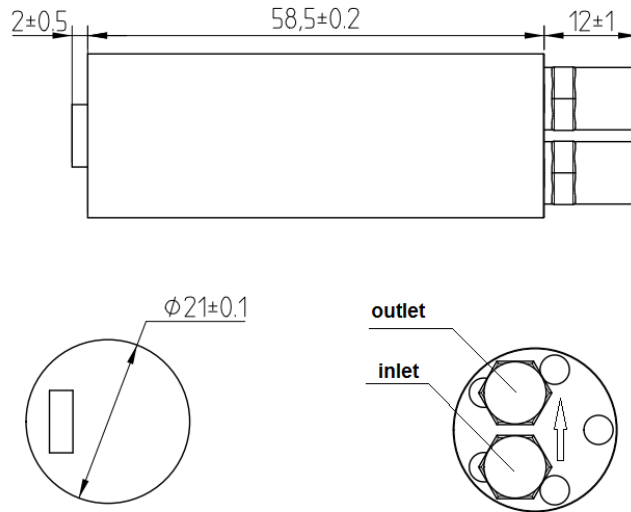
Gear Pump	
Supply voltage	(+11~15) VDC
Working current	<1.5A
Flow	≥12L/h@3bar
Weight	80g
Installation Style	External
Working temperature	(-25~+70) ° C
Fuel type	Gasoline Gasoline with ≤20% ethanol
Storage Temp Range	-20~50 ° C
Time before Overhaul (TBO)	≥500h
Size	external diameter: 21 mm length: 58mm pressure/ intake connection: M5 thread

2.3 Pin-out definitions



1. Connect the 'B' and 'D' connector to the Controller.
2. Connect the Plus/ Minus input wires to the pump harness of EFI.

2.4 Mechanical Dimensions of the gear pump (Unit: mm)



3 Gear pump system installation

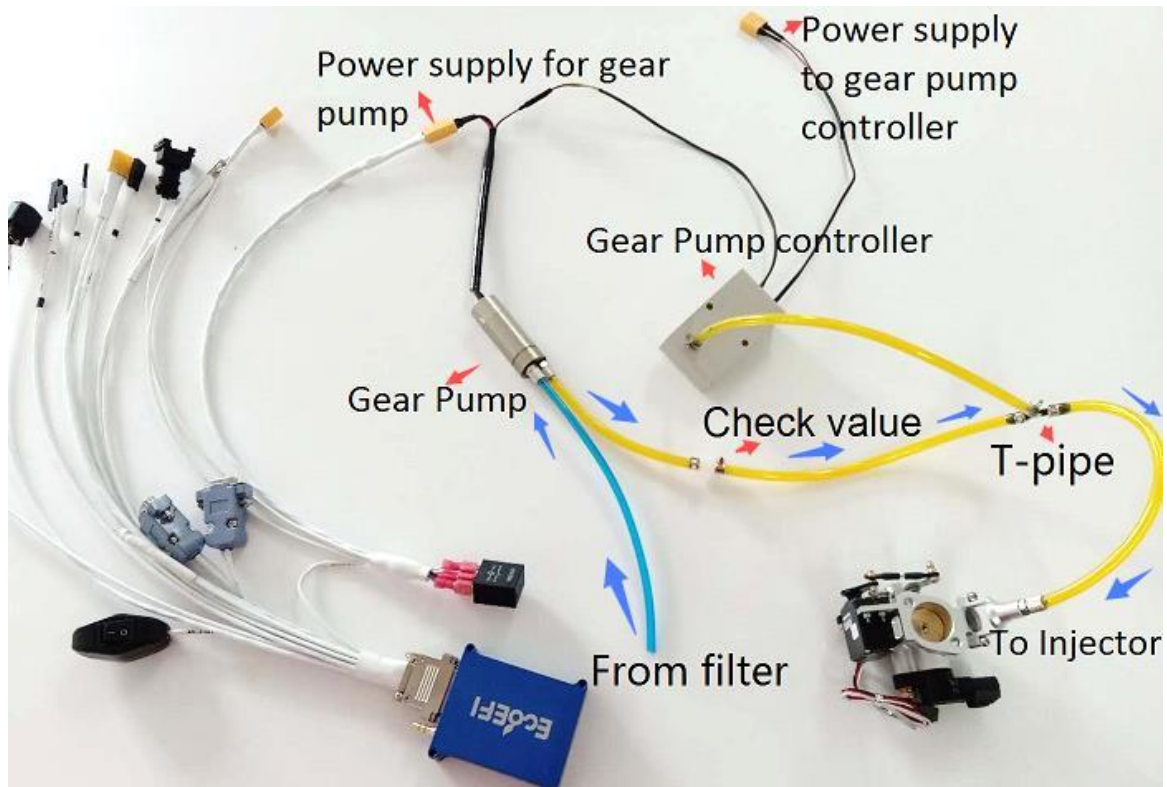
3.1 Connect tubing

Please connect the tubing as shown below.

Please note the direction of gear pump connecting! The inlet of gear pump connects the fuel filter with fuel hose.

Please connect the output connector of gear pump controller to the gear pump.

The all connecting from the gear pump system need to be clamped with the clamp.



EMCU-BL-2.0

Note

1. Pay attention to the direction of the fuel filter and the check valve.

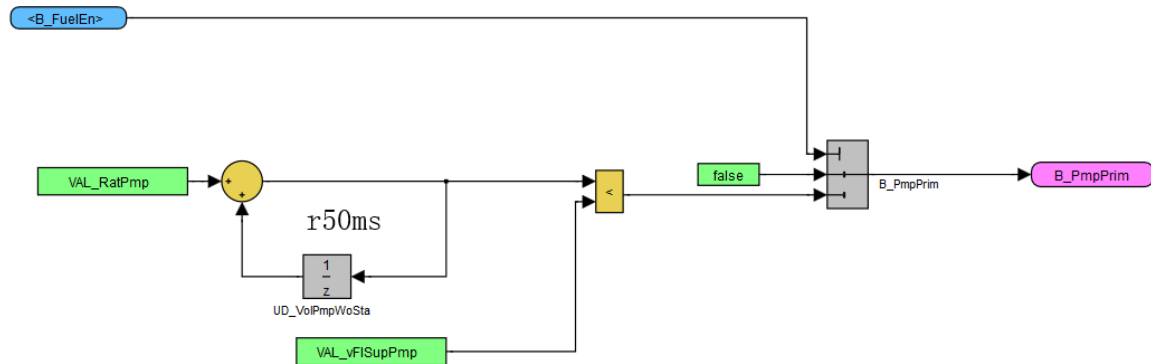
We recommend that you add one fuel filter in the fuel supply system, and it will extend the life of the pump. The Fuel filter is self-provided, we recommend using 20 micron filter. The gear pump should be installed in a good location. By default, the gear pump should be lower than the fuel tank.

2. The gear pump is needed 12VDC power supply

We recommend that the EFI system is responsible for powering the gear pump. The power wire of gear pump can be connected to relay of EFI harness. For the fuel pressure maintained, we need to modify the time of fuel pump prime on to 10s. You can modify these calibration variables to set the time. The following picture is control strategy.

VAL_vFISupPmp = 40

VAL_RatPmp = 0.2



3.2 Purge the bubbles in the fuel lines

The first time you use the gear pump, it is common to have air bubbles in the tubing. After power on, the gear pump will suck out the fuel from the tank to fill the whole tubing, so the air bubbles will be purged when you unplug the injector. Pay attention to safety, and be away from the fire in the all process.

3.3 Connect the Controller to the power

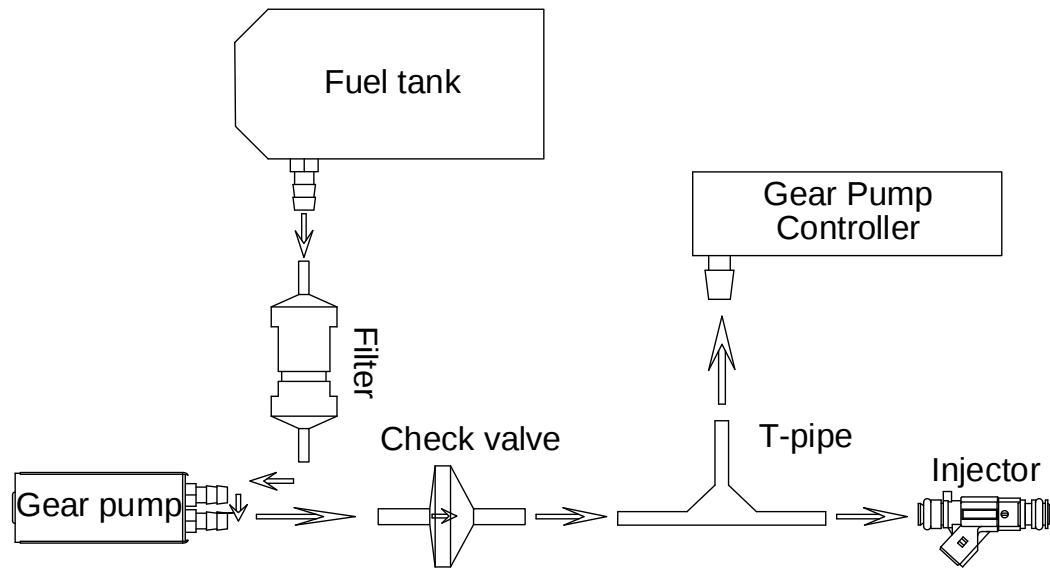
Please connect the red wire labeled 12V+ to the positive wire of 12V battery, and the black wire connects to the 12V negative.

Note:

Do not reverse-connect the 12V+ or 12V- wires of the power supply.

The gear pump will not work correctly or could be damaged even if the power supply voltage is more than the operating range (+11V to +16V range).

Gear pump system schematics



EMCU-BL-2.0