

DP 1000

Brushless Smoke Pump

Instruction Manual

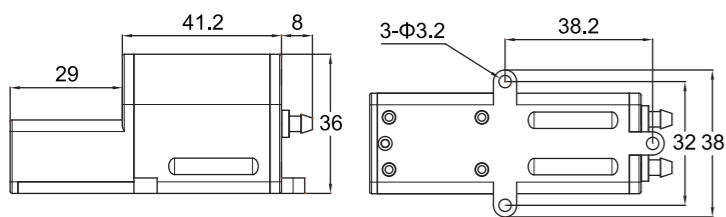
Specifications

| | |
|-------------------------------|---|
| Dimension | L 70 x W 26 x H 36 mm |
| Weight | 89g |
| Nominal Voltage | 7.4V,2S Lipo |
| Working Current | 0.9A @7.4V |
| Motor | XM1806PU, Outrunner Brushless |
| Drive Module | HM-ESC, Brushless Sensorless |
| Singal Format | PWM, 1150µs to 1850µs |
| Quantity of Flow (QoF) | 1000CCM @7.4V 1330CCM @8.0V |
| Fully Aluminium Case | YES, CNC-made |
| Gear pump | YES, Carbon composites |
| Accessories | 1x Festo PK-4 Filter 1x Oil Tube 1x Check valve 3x Mount Screws 1x T-connection 2x Sponge tape |
| Recommended battery | XP10002ECO, 25C, 7.4V, 1000mAh |
| Applications | Smoking Systems for Giant or Jet Models |

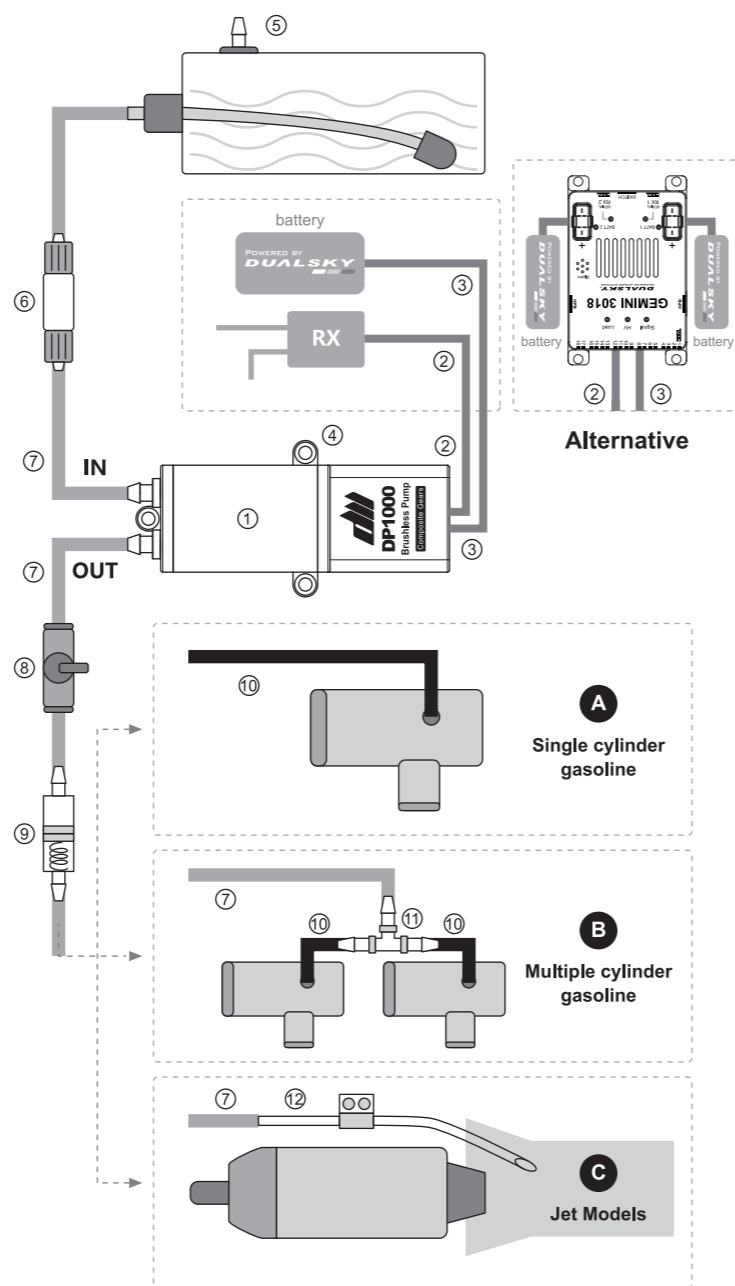
Cautions

- Never reverse the polarity of input power. Even for a short time, it can cause permanent damage.
- Disconnect the power after all-day flight. The pump's circuit has a milliamp self-consumption.
- The pump may be damaged if it runs dryly. Special reminder : when the smoke oil is used up during flight, remember to turn off the pump.
- Work with thin smoke oil or fuel containing lubricant oil only. It is not recommended for use as a water pump.
- Do not disassemble pump body. It may cause leakage and warranty void.
- Use the correct tubing (TPU 6x4mm) to ensure the maximum flow.
- The thinner tubing reduces the flow. Due to over tightening, the nozzle of pump could be loosened during installation.
- Do not connect the "three-way" valve between pump and tank. The pressure of filling causes oil spill from oil-out of pump.
- For gasoline engine: Excessive smoke oil entering the exhaust pipe may cause flameout.

Dimensions



Connection Diagram



Connection Description

- Smoke pump body**
- Flow control signal wire** - Connect to the flow control channel of the receiver, the black line is the ground wire (GND), and the white wire is the signal line.
- Power input wire** - Connect 5.8V-12V power supply (for example: 2S Lipo battery) ②③ can also be connected to power distributor, for example: Dualsky Gemini 3018. Eliminate the pump's battery. Plug the flow signal wire ② to the flow control channel of power distributor, and the power input wire ③ to any free port to get power.
- Smoke pump mount** - Use self-tapping screws to fix the pump body to the internal deck of model. If it's a gasoline engine powered model, the pump must be far away from the engine and the firewall. Apply shock-absorbing double-sided tape to the bottom and fix near the tanks.
- Smoke tank** - The smoking oil is usually thick, and a separate oil filler should be used.
- Oil filter PK-4** - It is installed between the smoke tank and pump inlet.
- Oil tube** - Corrosion resistant, large flow type (Size 6x4mm).
- Oil valve** - Optional part (sold separately), traditional safety component.

Alternative

- Self-closing check valve** - To prevent the smoke oil from being reflued by the exhaust pressure and avoid the oil leakage due to the higher position of the smoke tank.
- High temperature resistant tube** - Used to connect high temperature exhaust nozzle of gasoline engine.
- TPU three-way** - The oil bifurcates before reaching each exhaust of multi-cylinder engine.
- Stainless steel outlet pipe** - High-temp resistant, for jets. Sold separately.

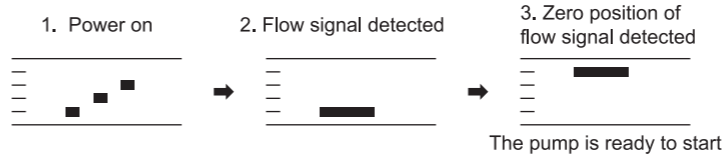
Flow Adjustment

The built-in brushless drive module of DP1000 controls ON/OFF and flow through a channel of the receiver. On the transmitter side, this channel can be associated with a physical switch or knob. Advanced radio control equipment can active it through flight mode or throttle mixing accurately.

The control signal specification is the standard PWM format, the frequency is from 50 to 433Hz. the minimum value is 1150µs, the smoke pump doesn't run. The maximum value is 1850µs, the pump runs at full power.

Fail safe protection: when the control signal is interrupted, the pump will stop working. Once recovered, pump must return to minimum(zero) to work.

- Power-on prompt procedure :



- Recommended flow / power value for various models :

| Model type (Typical) | Single cylinder gasoline model (60cc) | Dual cylinder gasoline model (120cc) | Jet airplane Dry weight <18kg | Jet airplane Dry weight ≥18kg |
|-----------------------------|---------------------------------------|--------------------------------------|-------------------------------|-------------------------------|
| Suggested Flow @7.4V | 50% * | 60% * | 75% | 100% |

* The flow of pump synchronizes with throttle

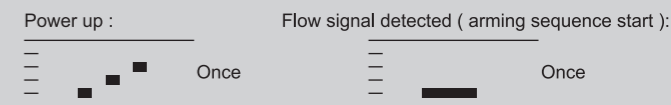
Failures and Countermeasures

| Malfunction | Analysis | Solution |
|---|-----------------------------------|--|
| Smoke pump is running, But there is no smoke. | The connection is incorrect | Key inspections: 1.Tubes of tank and the plug of vent 2.Direction of check valve (for the first time) 3.Status of the oil valve (if any) |
| | There is no oil in the inlet tube | It is usually the first time to use pump. Run the pump at low and medium power to suck the oil. |
| Smoke pump is running, Smoke intermittently | The connection incorrect | Check whether the oil tube is bent or air leak |
| | The tubing is too thin | Use the original accessories |
| | Internal parts loosed | Related to vibration, return to factory |
| Oil leakage | Nozzle loosed | Clean by alcohol, reinstall with LOCTITE |
| | Oil tube is aging or worn | Replace the oil tube or cut the bad tube and reinstall |
| | Internal leakage | Seal failure, return to factory |
| After power on, the arming tone is abnormal | Beep one group only | No radio control signal is detected |
| | Beep one group and once | No zero position signal is detected 1.The switch or knob is not at the zero position, just reset. 2.For the first time, the signal may be reversed, change it by the transmitter. |
| | Beep multiple times | Signal calibration procedure entered 1.The signal is in the high position.Power off firstly, reset the position of switch or knob 2.For the first time, the signal maybe reversed. Power off firstly, then change it by the transmitter. 3.Refer to section [Flow Signal Calibration Process] |
| Interval reminder tone | Idle standby overtime | Running the smoke pump can eliminate it, or disconnect the power of pump |

Flow Signal Calibration Process

【 Only applicable to batches before the 46th week of 2019 】

Put the flow signal above the middle position before turning on the power



When flow signal is above midstick (measuring max flow signal) :



If flow signal is above midstick for 3 seconds :



When flow signal is below midstick (measuring min flow signal) :



If flow signal is below midstick for 3 seconds :



At this point flow signal calibration values are stored. You may remove power from the DP1000, or just continue running your DP1000.

Disclaimer

Thank you very much for using this product. Please use this product strictly in accordance with the manual. We do not assume any liability arising out of the use of this product or illegal modification or improper operation, including but not limited to indirect damage or joint liability, the maximum compensation is not higher than the price of the product itself. By using this product, you agree to the terms of this statement.

Warranty

Dualsky electronic products warranty is for 12 months from the date of sale. If you want to claim during the warranty period, please contact your dealer immediately. The cashier receipt at the model store can prove whether the goods are under warranty. Please note that the warranty period will not be extended under any circumstances. Warranty service is provided free of charge for any functional defects, production failures or material defects during the warranty period. We will not accept any further claims, such as the user is responsible to pay the return shipping cost of the indirect damaged goods, we will pay for the return shipping cost to the user. If the shipping costs are not prepaid, we will not accept the goods. We do not accept the damage caused by transportation and do not make up for the loss of transportation. We recommend you to buy transportation insurance and send your equipment to the service center. We can process your claim if the following conditions are met:

- Provide cashier receipts
- Operate the equipment correctly according to the instructions
- Use recommended power supplies and accessories
- The damage is not caused by water, reverse polarity, or over load
- Please provide a concise and accurate description of the fault to help us solve the problem

DUALSKY
ADVANCED POWER SYSTEMS