









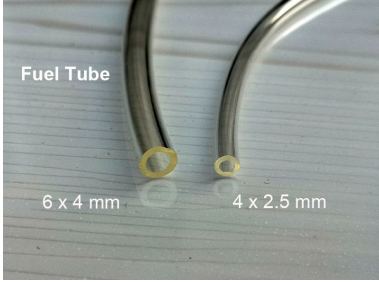

# SW400Pro Turbojet Engine Specifications

## Advantages:

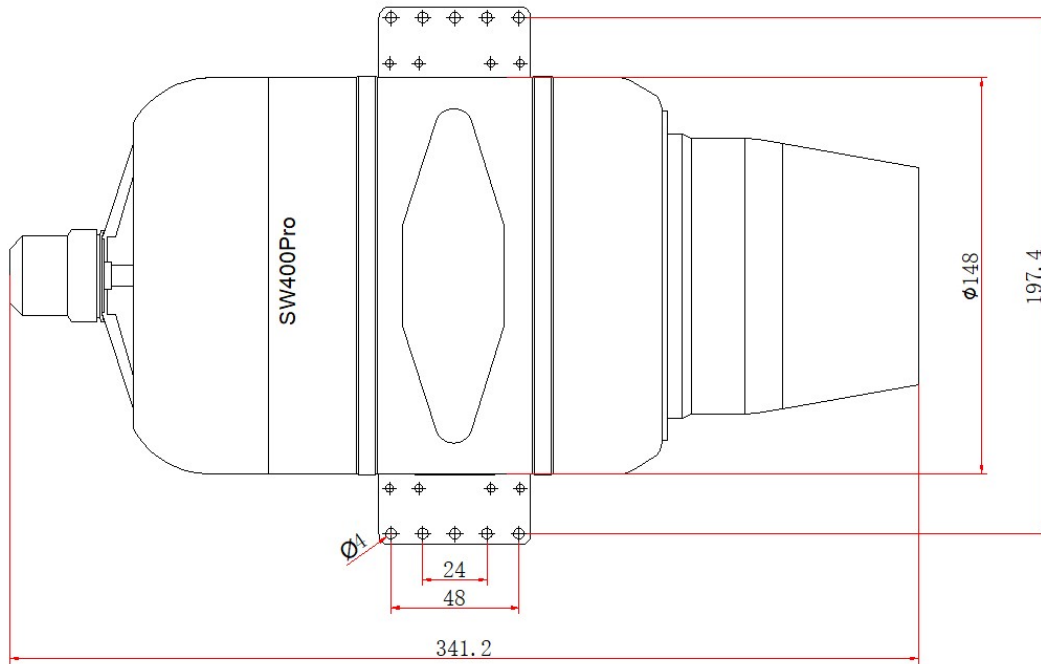
- **Compact size and weight:2500g**
- **Twin glowplug ignition system:can startup below -30°C**
- **High compression ration 3.6:lower fuel consumption**
- **High altitude Startup:over 4500m altitude**
- **Telemetry protocol support:controlled by computer or auto-pilot**
- **Diesel/kerosene(Jet a1) or mix use, no need extra adjust parameters**
- **High flying altitude:>8000m altitude**
- **High flying speed:>300m/s**

## SW400pro component list:

No.	Item	Picture	Qty
1	Engine and fix ring		1
2	Engine controller (V4 ECU)		1
3	Data terminal (GSU)		1

4	Power battery cable		1
5	Throttle/Switch/ RS-232 cable		1
6	Ball valve		1
7	Fuel line		<b>4x2.5mm 2m</b> <b>6x4mm 2m</b>
8	Fuel filter		6x4mm

**Install Dimension:**



### Specifications:

<b>Model name</b>	<b>SW400pro</b>
<b>Diameter</b>	<b>148mm</b>
<b>Length</b>	<b>340mm</b>
<b>Body weight</b>	<b>3200g</b>
<b>V4 ECU weight</b>	<b>350g</b>
<b>Maintenance intervals</b>	<b>After running 25 hours</b>
<b>Maximum service height</b>	<b>9000m</b>
<b>Cruise accelerator</b>	<b>80%</b>
<b>Maximum ejection overload</b>	<b>6G</b>
<b>Maximum flight speed</b>	<b>300m/s</b>
<b>Power battery voltage</b>	<b>14.8V(4S Lipo)</b>
<b>Startup</b>	<b>Full automatic fuel startup (no gas)</b>
<b>RPM range</b>	<b>35,000 - 97,000 RPM</b>
<b>Operation temp</b>	<b>-40 - 50 centigrade</b>
<b>Thrust</b>	<b>400N (centigrade 15, sea level)</b>
<b>Exhaust temp</b>	<b>centigrade 780</b>
<b>Max fuel consumption</b>	<b>980 g/m (97,000RPM)</b>
<b>Fuel type</b>	<b>Diesel or Kerosend (Jet A1)</b>
<b>Lubricating oil</b>	<b>5% Mobil jet oil</b>

### Control:

1 .Throttle signal:

The throttle adopts a pulse width (PWM) control mode. The pulse width is 1ms - 2ms, and 1ms corresponds to the minimum throttle (0%), 2ms corresponds to the maximum throttle (100%), and the pulse high level is 3.3V and 5V (3.3V And 5V electricity is available on average), and the low level of pulse is 0V.

**2. Switch startup signal:**

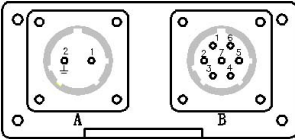
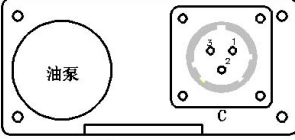
The starting switch adopts a pulse width (PWM) control mode, with a pulse width of 1ms - 2ms, 1ms for It shall be off, and it shall be startup correspondingly within 2ms. The pulse high level is 3.3V and 5V (3.3V and 5V are available on average)The low level is 0V.

**3 .Telemetry function:**

- 1) ECU with telemetry control / monitor function,interface RS-232 , Serial port baud rate 9600bps - 57600bps.
- 2) Telemetry data includes engine rpm, throttle, pump voltage,engine temp, engine status, error message. Or add functions from communication protocol.
- 3) The communication protocol is open, firmware upgrade able,control / monitor program provided.

**4 .Running data recorder:**

- 1) The ECU has the data recording function, which can record engine running data 2 hours.
- 2) ECU recorder includes engine rpm, throttle, pump voltage,engine temp, engine status, error message. Or add functions from communication protocol.
- 3) Provide engine data analysis software to facilitate post flight data analysis

<p><b>Plugs function:</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">  </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <p>A : ECU power 1 : (+)11.5-17V 10A 2 : (-) GND</p> </div> <div style="width: 45%;"> <p>B : ECU data 1 : Switch PWM 2 : Throttle Switch (+) 6V 3 : RS232 TX 4 : RS232 GND 5 : RS232 RX 6 : Throttle PWM 7 : Throttle Switch (-)</p> </div> </div> <div style="display: flex; justify-content: center; align-items: center; margin-top: 20px;">  </div> <div style="margin-top: 10px;"> <p>C : ECU to Turbine 1 : (-) 2 : (+) 3 : Data</p> </div>	<p><b>GSU error message:</b></p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <thead> <tr> <th>No.</th> <th>Error message</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>No Error</td> <td></td> </tr> <tr> <td>1</td> <td>Time out</td> <td>1.Temp not increase over 20 sec duing ignition 2.Throttle stick cooling over 60 sec</td> </tr> <tr> <td>2</td> <td>Low Battery</td> <td>1.Turbine battery low voltage(setting from GSU) 2.Receiver battery below 4V</td> </tr> <tr> <td>3</td> <td>GlowPlug Bad</td> <td>1.no current of glow plug</td> </tr> <tr> <td>4</td> <td>Pump Anomaly</td> <td>1.Don't detect pump driver(pump,cable,ECU pump driver bad)</td> </tr> <tr> <td>5</td> <td>Starter failure</td> <td>1.Starter can't increase to ignition rpm</td> </tr> <tr> <td>6</td> <td>RPM Low</td> <td>1.When ignition:rpm drop down to 50% of ignition rpm 2.When preheat:rpm drop down below ignition rpm 3.When fuel ramp:rpm drop down below preheat rpm 4.When running:rpm drop down below stop rpm</td> </tr> <tr> <td>7</td> <td>RPM Instability</td> <td>1.when fuel ramp:rpm jumping up and down 2.when fuel ramp:rpm quickly drop down</td> </tr> <tr> <td>8</td> <td>High Temp</td> <td>1.When ignition:temp over high temp setting 2.When preheat: temp over high temp setting 3.When fuel ramp: temp over high temp setting &gt; 4sec</td> </tr> <tr> <td>9</td> <td>LowTemp</td> <td>1.When preheat:temp quickly drop down 2.When fuel ramp: temp quickly drop down</td> </tr> <tr> <td>10</td> <td>TempSensorFail</td> <td>X</td> </tr> <tr> <td>11</td> <td>Gas Valve Bad</td> <td>X</td> </tr> <tr> <td>12</td> <td>Fuel Valve Bad</td> <td>X</td> </tr> <tr> <td>13</td> <td>Lost Signal</td> <td>Lost PPM signal from receiver</td> </tr> <tr> <td>14</td> <td>Starter Temp High</td> <td>High temp of starter driver</td> </tr> <tr> <td>15</td> <td>Pump Temp High</td> <td>High temp of pump driver</td> </tr> <tr> <td>16</td> <td>Clutch Failure</td> <td>X</td> </tr> <tr> <td>17</td> <td>Current overload</td> <td>ECU detect current overload</td> </tr> <tr> <td>18</td> <td>Engine Offline</td> <td>ECU can't connect to turbine</td> </tr> </tbody> </table>	No.	Error message	Description	0	No Error		1	Time out	1.Temp not increase over 20 sec duing ignition 2.Throttle stick cooling over 60 sec	2	Low Battery	1.Turbine battery low voltage(setting from GSU) 2.Receiver battery below 4V	3	GlowPlug Bad	1.no current of glow plug	4	Pump Anomaly	1.Don't detect pump driver(pump,cable,ECU pump driver bad)	5	Starter failure	1.Starter can't increase to ignition rpm	6	RPM Low	1.When ignition:rpm drop down to 50% of ignition rpm 2.When preheat:rpm drop down below ignition rpm 3.When fuel ramp:rpm drop down below preheat rpm 4.When running:rpm drop down below stop rpm	7	RPM Instability	1.when fuel ramp:rpm jumping up and down 2.when fuel ramp:rpm quickly drop down	8	High Temp	1.When ignition:temp over high temp setting 2.When preheat: temp over high temp setting 3.When fuel ramp: temp over high temp setting > 4sec	9	LowTemp	1.When preheat:temp quickly drop down 2.When fuel ramp: temp quickly drop down	10	TempSensorFail	X	11	Gas Valve Bad	X	12	Fuel Valve Bad	X	13	Lost Signal	Lost PPM signal from receiver	14	Starter Temp High	High temp of starter driver	15	Pump Temp High	High temp of pump driver	16	Clutch Failure	X	17	Current overload	ECU detect current overload	18	Engine Offline	ECU can't connect to turbine
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**System connection:**

