

# VL1040 Propulsion System Specifications

(VL1040 power system is recommended for compound-wing quadcopters with a takeoff weight of 65~70 kg.)

## 一、Parameters

|                     |                                  |                                      |
|---------------------|----------------------------------|--------------------------------------|
| Motor<br>Parameters | Item No.                         | VL1040                               |
|                     | Voltage (V)                      | 14S                                  |
|                     | KV (RPM/V)                       | KV150                                |
|                     | Idle Current (A/15V)             | ≤4.1A                                |
|                     | Idle RPM (RPM/15V)               | 2280±5%                              |
|                     | Interphase Resistance (mΩ)       | 8±5mΩ<br>(Wire length: 150mm 0/+5mm) |
|                     | Max Current (A)                  | 245A                                 |
|                     | Max Power                        | 14690W                               |
|                     | Wire length (mm)                 | 150±5mm                              |
|                     | Wire Material, wire Gauge, Color | Power wires: Leads                   |
|                     | Ingress protection               | IPX5                                 |
|                     | Motor Weight (Incl. Cable) (g)   | 1100±5%                              |
|                     | Ambient Temperature (°C)         | -30 ~ 50°C                           |
|                     | Model No.                        | VL248A 14S                           |
|                     | Throttle Pos. Range              | 1100~1940us                          |
|                     | Protocol                         | CAN                                  |

|                         |                            |                                                   |
|-------------------------|----------------------------|---------------------------------------------------|
| ESC                     | Control                    | PWM/CAN                                           |
| Parameters              | Max Voltage (V)            | 63V                                               |
|                         | Max Continuous Current (A) | 125A                                              |
|                         | Max Current (A)            | 250A (Open environment<br>and temperature ≤ 60°C) |
|                         | Weight (Excl. Cable) (g)   | 455 ± 5%g                                         |
| Propeller<br>Parameters | Model No.                  | VZ32*12                                           |
|                         | Length (mm)                | 814.1 ± 2                                         |
|                         | Weight (g)                 | 133 ± 5                                           |

## 二、Test report

### 2-1、Thrust data

| VL1040 KV150+VL248A 14S+50V+VZ32 |             |             |             |                      | Ambient<br>temperature    | 34°C |
|----------------------------------|-------------|-------------|-------------|----------------------|---------------------------|------|
| Throttle (%)                     | Thrust (gf) | Voltage (V) | Current (A) | Motor Efficiency (%) | Overall Efficiency (gf/W) |      |
| 30                               | 5657        | 50.04       | 13.48       | 77.3                 | 8.4                       |      |
| 35                               | 7465        | 50.04       | 19.65       | 79.2                 | 7.6                       |      |
| 40                               | 9692        | 50.07       | 27.38       | 80.9                 | 7.1                       |      |

|     |       |       |        |      |     |
|-----|-------|-------|--------|------|-----|
| 45  | 12071 | 50.03 | 36.69  | 82.5 | 6.6 |
| 50  | 14472 | 50.04 | 47.33  | 83.8 | 6.1 |
| 55  | 17124 | 50.02 | 60.29  | 84.1 | 5.7 |
| 60  | 19707 | 50.00 | 74.87  | 83.6 | 5.3 |
| 65  | 22575 | 49.97 | 91.76  | 83.1 | 4.9 |
| 70  | 25339 | 49.93 | 109.63 | 82.5 | 4.6 |
| 75  | 27992 | 49.91 | 128.91 | 81.7 | 4.4 |
| 80  | 30733 | 49.91 | 149.32 | 81.0 | 4.1 |
| 85  | 33050 | 49.85 | 170.75 | 79.2 | 3.9 |
| 90  | 35945 | 49.80 | 193.73 | 78.6 | 3.7 |
| 95  | 38226 | 49.80 | 215.32 | 77.8 | 3.6 |
| 100 | 39300 | 49.82 | 227.43 | 76.9 | 3.5 |

**VL1040 KV150+VL248A 14S+60V+VZ32**

Ambient  
temperatu  
re

34°C

| Throttle (%) | Thrust (gf) | Voltage (V) | Current (A) | Motor Efficiency (%) | Overall Efficiency (gf/W) |
|--------------|-------------|-------------|-------------|----------------------|---------------------------|
| 30           | 8.657       | 60.03       | 19.19       | 79.9                 | 7.5                       |
| 35           | 11.358      | 60.03       | 27.91       | 81.5                 | 6.8                       |
| 40           | 14.346      | 59.99       | 38.73       | 82.8                 | 6.2                       |
| 45           | 17.588      | 60.01       | 52.05       | 83.3                 | 5.6                       |

|     |        |       |        |      |     |
|-----|--------|-------|--------|------|-----|
| 50  | 20.928 | 60.00 | 67.47  | 83.2 | 5.2 |
| 55  | 24.299 | 59.94 | 85.27  | 82.7 | 4.8 |
| 60  | 27.874 | 59.90 | 105.49 | 81.9 | 4.4 |
| 65  | 31.269 | 59.88 | 126.71 | 80.9 | 4.1 |
| 70  | 34.527 | 59.86 | 149.26 | 79.9 | 3.9 |
| 75  | 37.718 | 59.82 | 172.21 | 78.9 | 3.7 |
| 80  | 40.561 | 59.79 | 195.86 | 77.5 | 3.5 |
| 85  | 42.8   | 59.75 | 216.43 | 76.3 | 3.3 |
| 90  | 45.022 | 59.78 | 235.15 | 75.6 | 3.2 |
| 95  | 45.797 | 59.77 | 245.86 | 73.9 | 3.1 |
| 100 | 45.539 | 59.78 | 244.59 | 73.6 | 3.1 |

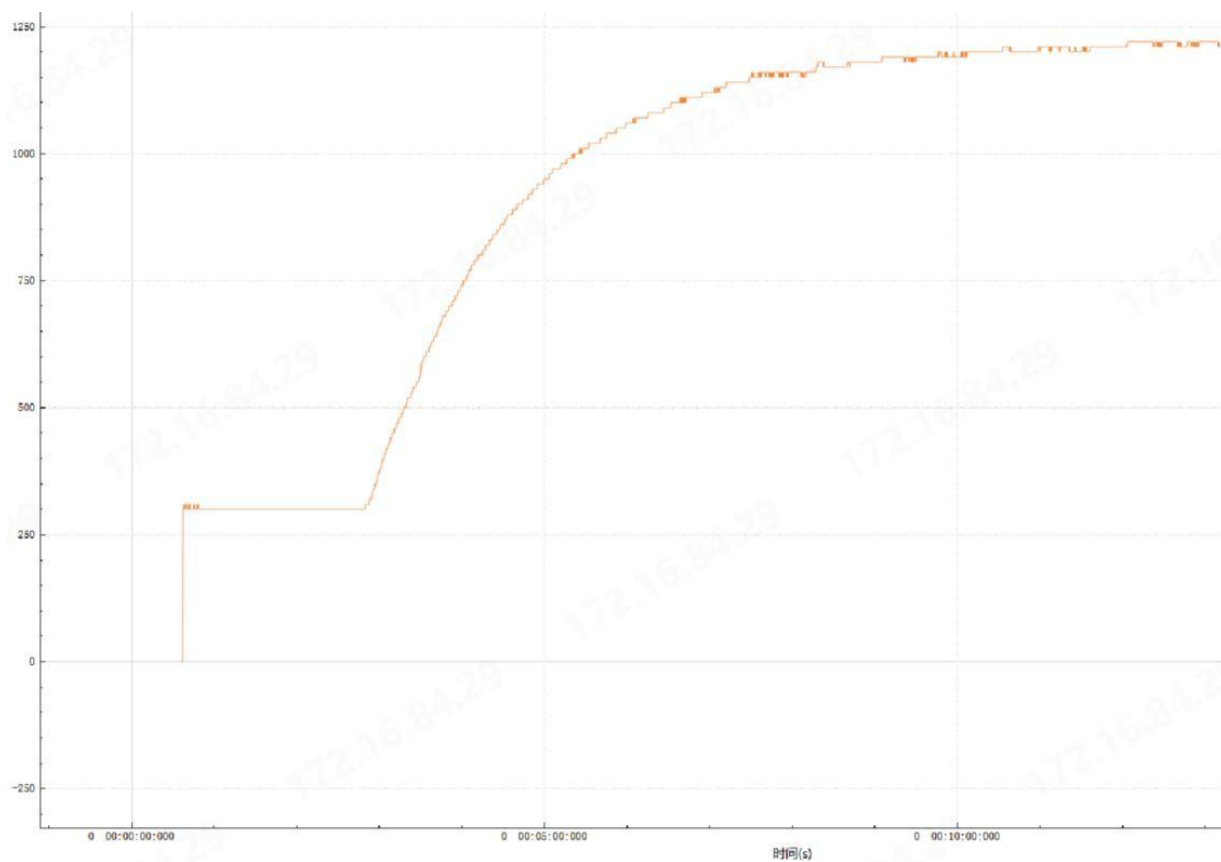
The above data are measured by the professional bench of the laboratory for reference  
for model selection only.

## 2-2、Temperature data

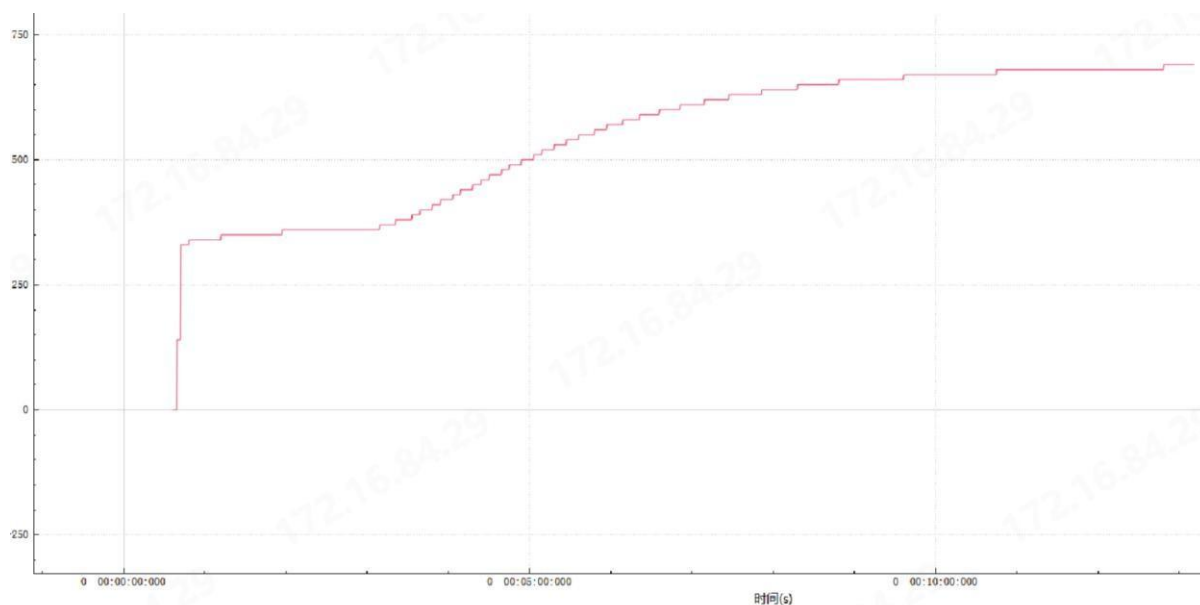
**Test Conditions: 50V, sustained 20kg thrust for 10 minutes (Graph temperature: x0.1°C),**

**Ambient Temperature: 34°C**

Motor Temperature (Coil Temperatur: 122°C)



ESC Temperature (ESC MOS Temperature: 68°C)



### 三、 Drawings (mm)

