## MODEL 62000P 系列

### 特点

- 定功率操作下允许多种电压和电流组合输出
- 电压输出范围：0 ~ 600V；
  电流输出范围：0 ~ 120A；
  功率输出范围：600W, 1200W, 2400W, 5000W
- 数位旋钮、键盘及功能按钮操作
- 高功率因素到 0.95
- 高速可程式控制介面
- 精准的电压及电流量测
- 具有主/从控制介面于并联操作模式下达到均流
- 电压渐升/降功能:时间 (5ms~99hours)
- 具有 10 组可程式控制及 100 个步骤设定
  电压 / 电流 / 8 bit TTL 讯号输出
- 电压及电流斜率控制
- 过电压、限电流及过温度保护功能
- 电压补偿可达5V
- APG (Analog Programmable Interface)
  类比讯号控制介面
- 可选购 GPIB 或乙太网路控制介面
- 标准的 RS-232 & USB 控制介面
- LabView 及 Labwindows 控制驱动程式
- 具有 CE 认证

# 可程控直流电源供应器
# PROGRAMMABLE DC POWER SUPPLY
# MODEL 62000P SERIES

Chroma 62000P 系列可程控直流电流供应器，提供许多独特功能供ATE整合与测试使用。这些功能包括定功率操作范围、精准的输出电流和电压量测、输出触发信号，以及可模拟复杂的DC暂态波形以便测试设备的瞬断、压升与其他电压间偏差的能力。62000P是高准确度可程控直流电源供应器的新标准，专门设计予自动化测试于D2D转换器和其他类似产品使用。

62000P系列包含12个不同的机型，从600W到5000W以及120A到600V。由于单一仪器可提供的定功率操作范围包含高电压/低电流和低电压/高电流，因此可减少一般ATE应用所须的直流电源供应器数量。

62000P系列同时具备16 bit高解析度的准确电压和电流读值回读功能，这表示系统不再须要复杂额外的分流器/电压表，才能量测准确的待测物输入参数读值。62000P 电源供应器亦具有 I/O 埠可提供 8 bit TTLs、DC-ON、保护输出信号、远端抑制功能以及系统时序量测的输出触发信号。

62000P系列电源供应器另一个独特的功能为可建立复杂的 DC 暂态波形。此功能可对设备进行输入电压漏失、瞬断和其他电压变化等测试，是用于飞机设备测试、反用换流器测试和其他会产生电压中断之设备测试的理想选择。其应用的范围包括 DC/DC 转换器和逆变器的压降测试、引擎启动模拟、电池自动充电、电子产品生命周期测试等等。

USB　RS-232　GPIB　Ethernet　CE　RoHS2 Compliant

Chroma

## 定功率范围下提供宽广操作

62000P系列直流电源供应器提供宽广的操作范围。例如，62012P-80-60的输出规格为1200W/80V/60A可于不同的组合中灵活操作如图右侧所示。如普通的直流电源电源供应器显示提供所有的输出电压相同的额定电流，而62000P于低输出电压时提供较大的电流。这表示低电压/高电流及高电压/低电流两者的待测物可使用单台直流电源供应器测试输入稳定度，于一般的ATE系统内部避免多台直流电源供应器以节省成本与空间。



Chroma 62012P-80-60 operating region

Conventional Power Supply operating region
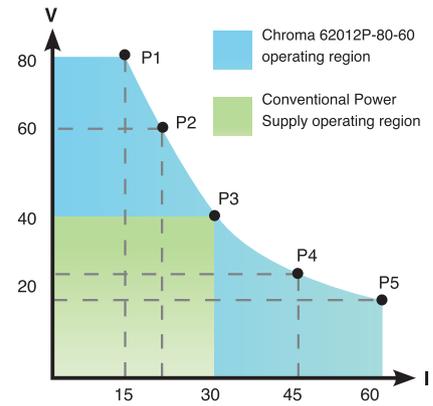
## 主/从并联&串联控制

当需要高功率时，一般以并联或串联连接两个或多个直流电源供应器。62000P系列直流电源供应器具有智慧型主/从式控制模式使串联/并联能快速并简单操作。于此模式中，主机测量数值可下载资料至从属仪器，因此，可简易编程并自动均流。



Front Panel
Remote GPIB
Master → RS-485 → Slave
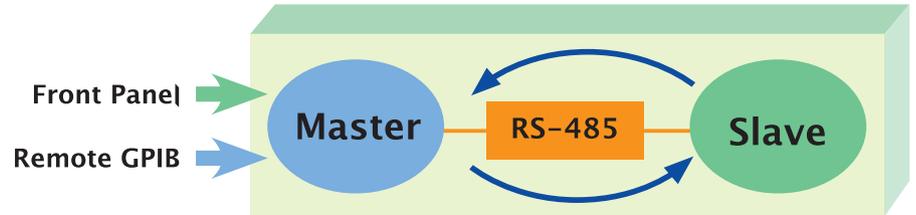
## 编程序列功能及应用

62000P系列直流电源供应器提供100个步阶，具有时间设定值的使用者可程控序列，范围为5ms　15000s，电压及电流斜率控制与自动化测试应用的 8 bit TTL 讯号输出。其应用的范围包括 DC/DC 转换器和逆变器的压降测试、引擎启动模拟、电池自动充电、产品寿命周期测试及飞机航空测试等等。
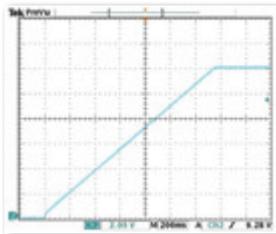

Soft Start Testing
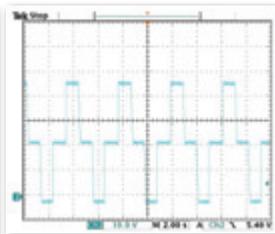

Voltage Step Waveform
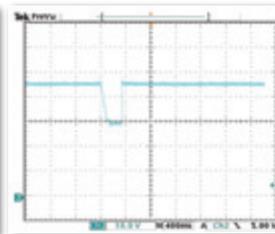

D/D Converter Sag Testing
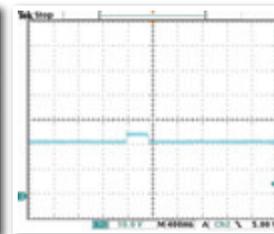

D/D Converter Surge Testing
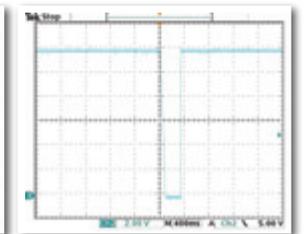

D/D Converter Cycle drop Testing
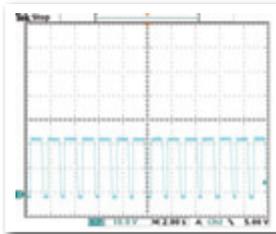

Pulse Charge of Battery
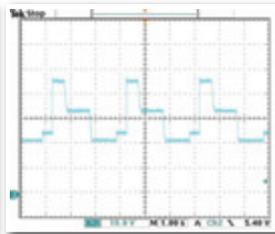

Life Cycle Testing
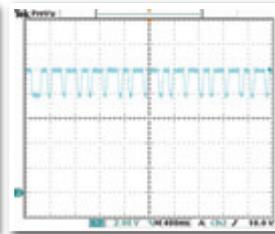

Line Regulation Testing
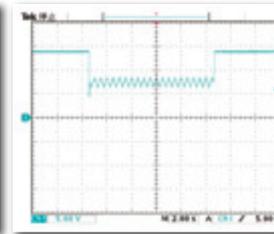

Starting Profile of ISO 16750-2
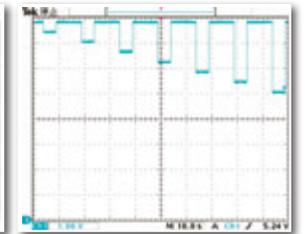

Reset Behavior at Voltage Drop of ISO 16750-2



VID code Simulation for VRM/VRD

VRM10.X VID Code    010100  001011  000011  111001
1.1500v
1.0500v
0.9500v
0.8375v
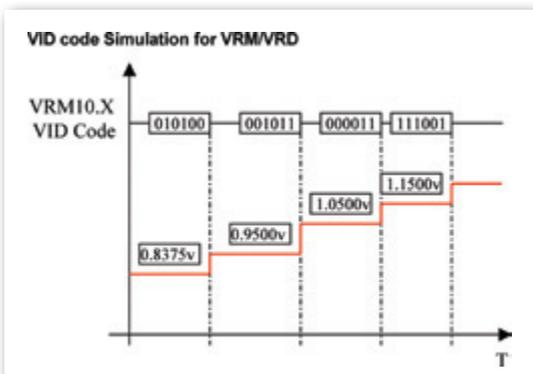
62000P供应器提供8个时序控制输出TTL位元。这些控制线可使用于VRM的VID控制或控制其他个别的信号。



62050P-100-100

Model : 62012P-80-60
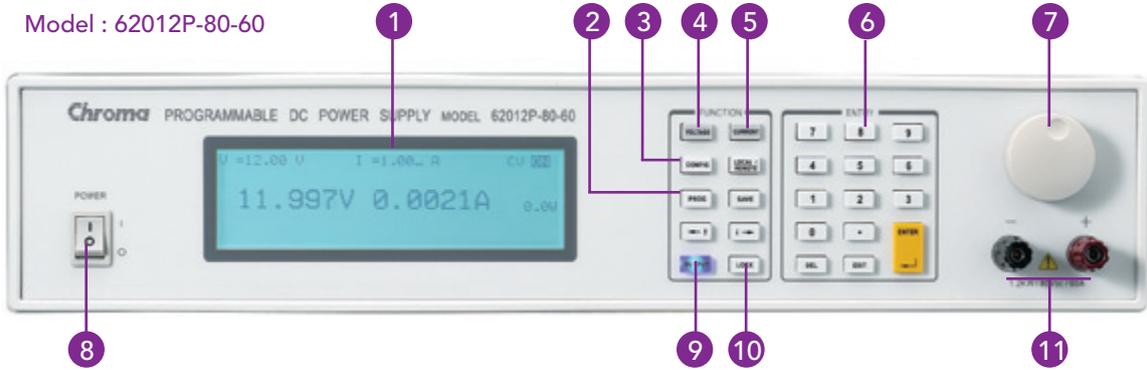


| | | |
|---|---|---|
| 1. LCD 显示器 | 显示设定, 量测及操作状态指示 |
| 2. PROG 功能键 | 程序步阶电压及电流设定选择 |
| 3. CONFIG 功能键 | 系统内部参数设定 |
| 4. 电压设定键 | 设定输出电压值 |
| 5. 电流设定键 | 设定输出限电流值 |
| 6. 数字键 | 数字输入 |
| 7. 旋钮 | 旋钮调整设定 |
| 8. AC电源开关 | 开关机控制 |
| 9. 输出ON/OFF控制键 | 输出启动及失能控制 |
| 10. 安全锁键 | 安全锁启动及失能控制 |
| 11. 前面板直流输出端 | 输出连接端子至负载 |

附注：40V, 300V及600V机种无前面板输出端子埠

Model : 62012P-80-60
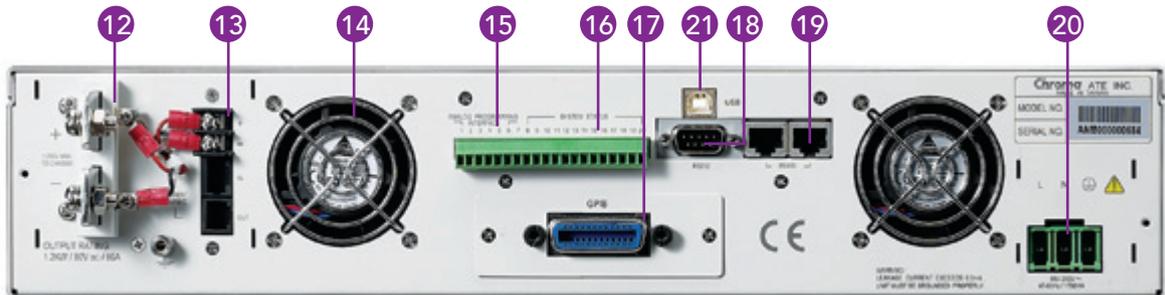


| | | |
|---|---|---|
| 12. 后背板直流输出端子 | 输出连接端子至负载 |
| 13. 远端回援端子 | 远端回援连接端子至负载 |
| 14. 系统散热风扇 | |
| 15. 类比控制介面 | 类比输入/出控制&监控电压及电流 |
| 16. 系统输入/出埠 | 系统输入/出讯号，如 8 bit TTL, DC-ON, 错误讯号输出及控制ON/OFF |
| 17. GPIB介面(选配) | GPIB & Ethernet (二选一) |
| 18. RS-232介面 | |
| 19. RS-485介面 | 主从串/并联用数位讯号沟通介面 |
| 20. AC输入端子 | |
| 21. USB介面 | |

| Model | 62006P-30-80 | 62006P-100-25 | 62006P-300-8 | 62012P-40-120 | 62012P-80-60 | 62012P-100-50 |
|---|---|---|---|---|---|---|
| Output Ratings | | | | | | |
| Output Voltage | 0~30V | 0~100V | 0~300V | 0-40V | 0~80V | 0~100V |
| Output Current | 0~80A | 0~25A | 0~8A | 0-120A | 0~60A | 0~50A |
| Output Power | 600W | 600W | 600W | 1200W | 1200W | 1200W |
| Line Regulation | | | | | | |
| Voltage | 0.01%+2mV | 0.01%+6mV | 0.01%+18mV | 0.01%+2mV | 0.01%+8mV | 0.01%+10mV |
| Current | 0.01%+25mA | 0.01%+5mA | 0.03%+20mA | 0.01%+25mA | 0.01%+10mA | 0.01%+12mA |
| Load Regulation | | | | | | |
| Voltage | 0.01%+3mV | 0.01%+10mV | 0.01%+50mV | 0.01%+3mV | 0.01%+12mV | 0.01%+18mV |
| Current | 0.01%+10mA | 0.01%+5mA | 0.03%+40mA | 0.01%+10mA | 0.01%+20mA | 0.01%+28mA |
| Voltage Measurement | | | | | | |
| Range | 6V/30V | 20V/100V | 60V/300V | 8V/40V | 16V/80V | 20V/100V |
| Accuracy | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. |
| Current Measurement | | | | | | |
| Range | 16A/80A | 5A/25A | 1.6A/8A | 24A / 120A | 12A/60A | 10A/50A |
| Accuracy | 0.1% + 0.2%F.S. | 0.1% + 0.2%F.S. | 0.1% + 0.1%F.S. | 0.1% + 0.1%F.S.. | 0.1% + 0.1%F.S. | 0.1% + 0.1%F.S. |
| Output Noise (0 ~ 20MHz) | | | | | | |
| Voltage Ripple (P-P) | 60 mV | 85 mV | 580 mV | 90 mV | 100 mV | 100 mV |
| Voltage Ripple (rms) | 8 mV | 10 mV | 80 mV | 10 mV | 10 mV | 15 mV |
| Current Ripple (rms) | 60 mA | 10 mA | 60 mA | 120 mA | 30 mA | 20 mA |
| OVP Adjustment Range | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax |
| Slew Rate Range | | | | | | |
| Voltage | 0.001V - 5V/ms | 0.001V - 10V/ms | 0.01V - 10V/ms | 0.001V - 5V/ms | 0.001V - 10V/ms | 0.001V - 10V/ms |
| Current | 0.001A - 1A/ms | 0.001A - 1A/ms | 0.001A - 1A/ms | 0.001A - 1A/ms | 0.001A - 1A/ms | 0.001A - 1A/ms |
| Programming Response Time (Typical) | | | | | | |
| Rise Time (Full & No Load) | 6 ms | 10 ms | 30 ms | 8 ms | 8 ms | 10 ms |
| Fall Time | 350ms (max) | 300 ms (max) | 2.5 s (max) | 460 ms (max) | 240 ms (max) | 300 ms (max) |
| Efficiency | 0.75 | 0.75 | 0.75 | 0.8 | 0.8 | 0.8 |
| Drift (8 hours) | | | | | | |
| Voltage | 0.02% of Vmax | 0.02% of Vmax | 0.02% of Vmax | 0.02% of Vmax | 0.02% of Vmax | 0.02% of Vmax |
| Current | 0.04% of Imax | 0.04% of Imax | 0.04% of Imax | 0.04% of Imax | 0.04% of Imax | 0.04% of Imax |
| Temperature Coefficient | | | | | | |
| Voltage | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ |
| Current | 0.04% of Imax/℃ | 0.04% of Imax/℃ | 0.04% of Imax/℃ | 0.04% of Imax/℃ | 0.04% of Imax/℃ | 0.04% of Imax/℃ |
| Transient Response Time | 3 mS | 3 mS | 3mS | 3mS | 3 mS | 3 mS |
| 10 % step change | 150 mV | 180 mV | 600 mV | 150 mV | 250 mV | 250 mV |
| Voltage limit @ Series Mode | 150V | 500V | 800V | 200V | 400V | 500V |
| AC Input Operating Voltage Ranges | 1Ø 100~240Vac ± 10% V$_{LN}$ , 47~63 Hz | | | | | |
| Operating Temperature | 0~40℃ | 0~40℃ | 0~40℃ | 0~40℃ | 0~40℃ | 0~40℃ |
| Dimension ( H x W x D) | 89 x 430 x 425 mm / 3.5 x 16.93 x 16.73 inch | | | | | |
| Weight | 12kg / 26.43 lbs | 12.1 kg / 26.65 lbs | 11.2 kg / 24.67 lbs | 12kg / 26.43 lbs | 13 kg / 28.63 lbs | 12.1 kg / 26.65 lbs |

所有规格如有变更，恕不另行通知。

## 图形化操作介面
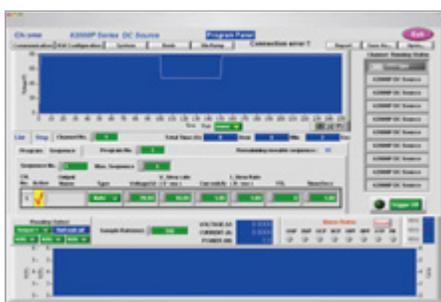


Transient Voltage Programming
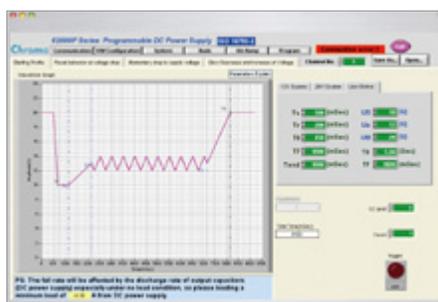


ISO 16750-2 4.5.3 启动电压试验曲线
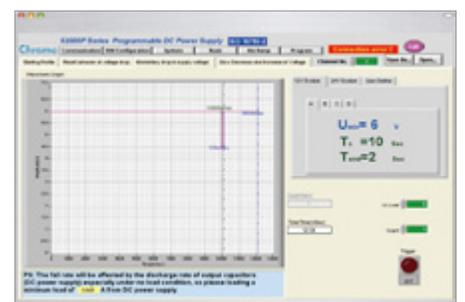


ISO 16750-2 4.5.1 电压瞬间中断试验曲线

## 电气规格表 -2

| Model | 62012P-600-8 | 62024P-40-120 | 62024P-80-60 | 62024P-100-50 | 62024P-600-8 | 62050P-100-100 |
|---|---|---|---|---|---|---|
| **Output Ratings** | | | | | | |
| Output Voltage | 0~600V | 0-40V | 0~80V | 0~100V | 0-600V | 0~100V |
| Output Current | 0~8A | 0-120A*1 | 0~60A | 0~50A | 0-8A | 0~100A |
| Output Power | 1200W | 2400W*1 | 2400W | 2400W | 2400W | 5000W |
| **Line Regulation** | | | | | | |
| Voltage | 0.01%+18mV | 0.01%+2mV | 0.01%+8mV | 0.01%+10mV | 0.01%+18mV | 0.01%+8mV |
| Current | 0.03%+20mA | 0.01%+25mA | 0.01%+10mA | 0.01%+12mA | 0.03%+20mA | 0.01%+24mA |
| **Load Regulation** | | | | | | |
| Voltage | 0.01%+50mV | 0.01%+3mV | 0.01%+12mV | 0.01%+18mV | 0.01%+50mV | 0.01%+12mV |
| Current | 0.03%+40mA | 0.01%+10mA | 0.01%+20mA | 0.01%+28mA | 0.03%+40mA | 0.01%+56mA |
| **Voltage Measurement** | | | | | | |
| Range | 120V/600V | 8V / 40V | 16V/80V | 20V/100V | 120V / 600V | 20V/100V |
| Accuracy | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. | 0.05% + 0.05%F.S. |
| **Current Measurement** | | | | | | |
| Range | 1.6A/8A | 24A / 120A | 12A/60A | 10A/50A | 1.6A / 8A | 20A/100A |
| Accuracy | 0.1% + 0.1%F.S. | 0.1% + 0.1%F.S. | 0.1% + 0.1%F.S. | 0.1% + 0.1%F.S. | 0.1% + 0.1%F.S. | 0.1% + 0.1%F.S. |
| **Output Noise (0 ~ 20MHz)** | | | | | | |
| Voltage Ripple (P-P) | 580 mV | 90 mV | 100 mV | 100 mV | 780 mV | 50 mV |
| Voltage Ripple (rms) | 140 mV | 10 mV | 10 mV | 15 mV | 200 mV | 15 mV |
| Current Ripple (rms) | 60 mA | 120 mA | 30 mA | 20 mA | 120 mA | 40 mA |
| OVP Adjustment Range | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax | 110% of Vset to 110% of Vmax |
| **Slew Rate Range** | | | | | | |
| Voltage | 0.01V - 10V/ms | 0.001V - 5V/ms | 0.001V - 10V/ms | 0.001V - 10V/ms | 0.01V - 10V/ms | 0.001V - 10V/ms |
| Current | 0.001A - 1A/ms | 0.001A - 1A/ms | 0.001A - 1A/ms | 0.001A - 1A/ms | 0.001A - 1A/ms | 0.001A - 2A/ms |
| **Programming Response Time (Typical)** | | | | | | |
| Rise Time (Full & No Load) | 60 ms | 8 ms | 8 ms | 10 ms | 60 ms | 10 ms |
| Fall Time | 5 s (max) | 460 ms (max) | 240 ms (max) | 300 ms (max) | 5 s (max) | 850 ms (max) |
| Efficiency | 0.8 | 0.8 | 0.85 | 0.85 | 0.8 | 0.85 |
| **Drift (8 hours)** | | | | | | |
| Voltage | 0.02% of Vmax | 0.02% of Vmax | 0.02% of Vmax | 0.02% of Vmax | 0.02% of Vmax | 0.02% of Vmax |
| Current | 0.04% of Imax | 0.04% of Imax | 0.04% of Imax | 0.04% of Imax | 0.04% of Imax | 0.04% of Imax |
| **Temperature Coefficient** | | | | | | |
| Voltage | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ | 0.02% of Vmax/℃ |
| Current | 0.04% of Imax/℃ | 0.04% of Imax/℃ | 0.04% of Imax/℃ | 0.04% of Imax/℃ | 0.04% of Imax/℃ | 0.04% of Imax/℃ |
| Transient Response Time | 3mS | 3mS | 3mS | 3mS | 3mS | 3mS |
| 10 % step change | 600 mV | 150 mV | 250 mV | 250 mV | 600mV | 250 mV |
| Voltage limit @ Series Mode | 800V | 200V | 400V | 500V | 800V | 500 V |
| AC Input Operating Voltage Ranges | 1Ø 100~240Vac ± 10% V_LN, 47~63 Hz | 1Ø 200~240Vac ± 10% V_LN, 47~63 Hz | | | | 3Ø 200~240Vac ± 10% V_LL, or 3Ø 380~400Vac ±10% V_LL, 47~63 Hz |
| Operating Temperature | 0~40℃ | 0~40℃ | 0~40℃ | 0~40℃ | 0~40℃ | 0~40℃ |
| Dimension ( H x W x D) | 89 x 430 x 425 mm / 3.5 x 16.93 x 16.73 inch | | | | | 176x428x566 mm / 6.93x16.85x22.28 inch |
| Weight | 11.2 kg / 24.67lbs | 13 kg / 28.63 lbs | 12.2 kg / 26.87 lbs | 13 kg / 28.63 lbs | 13 kg / 28.63 lbs | 28 kg / 61.67 lbs |

所有规格如有变更，恕不另行通知。

Note *1 : The Max. power limit of 2400W is under output 22V~40V , and see the diagram below for operating power envelope.

## 订购资讯

62006P-30-80: 可程控直流电源供应器, 30V/80A/600W
62006P-100-25: 可程控直流电源供应器, 100V/25A/600W
62006P-300-8: 可程控直流电源供应器, 300V/8A/600W
62012P-40-120: 可程控直流电源供应器, 40V/120A/1200W
62012P-80-60: 可程控直流电源供应器, 80V/60A/1200W
62012P-100-50: 可程控直流电源供应器, 100V/50A/1200W
62012P-600-8: 可程控直流电源供应器, 600V/8A/1200W
62024P-40-120: 可程控直流电源供应器, 40V/120A/2400W
62024P-80-60: 可程控直流电源供应器, 80V/60A/2400W
62024P-100-50: 可程控直流电源供应器, 100V/50A/2400W
62024P-600-8: 可程控直流电源供应器, 600V/8A/2400W
62050P-100-100: 可程控直流电源供应器, 100V/100A/5000W
A620004: 62000P系列GPIB 控制介面
A620006: 62000P 2U系列19"机框耳架
A620009: 62000P系列电脑图形化操作介面Softpanel
A620015: 62050P-100-100专用之19"机框耳架
A620023: 乙太网路控制介面



Model 62024P-40-120

图示内绿色区域为限制区，当使用于输出电压小于22V & 输出电流大于110A时，详细可操作范围如下：
(10V/120A), (11V/110A), (15V/110A), (20V/110A), (22V/109A), (24V/100A), (30V/80A), (40V/60A).
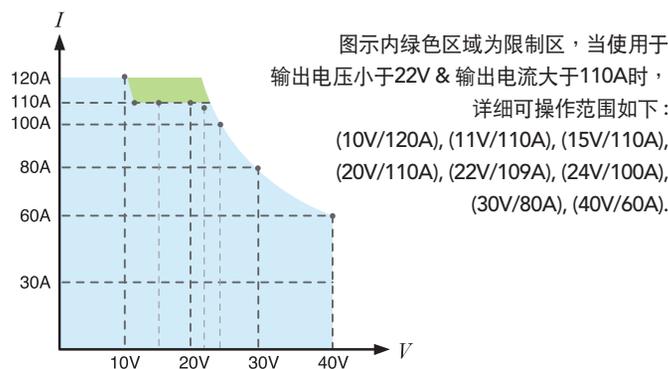
## 一般規格表

| Programming &Measurement Resolution | |
| --- | --- |
| Voltage (Front Panel) | 10 mV |
| Current (Front Panel) | 10 mA |
| Voltage (Remote Interface)) | 0.003% of Vmax |
| Current (Remote Interface)) | 0.002% of Imax |
| Voltage (Analog Programming Interface) | 0.04% of Imax |
| Current (Analog Programming Interface) | 0.04% of Imax |
| **Programming Accuracy** | |
| Voltage Programming (Front Panel and Remote Interface) | 0.1% of Vmax |
| Voltage Programming (Analog Programming Interface) | 0.2% of Vmax |
| Current Programming (Front Panel and Remote Interface) | 0.3% of Imax |
| Current Programming (Analog Programming Interface) | 0.3% of Imax |
| **Programming Response Time** | |
| Rise Time: For a programmed 5% to 95% step in output voltage. (Full & NoLoad) | See Electrical Specification |
| Fall Time: For a programmed 95% to 5% step in output voltage. (The fall time will be affected by the external loading from UUT.) | See Electrical Specification |
| Vout setting (USB send command to DC Power Supply receiver) | 10ms |
| Measure Voltage, Current (under USB command using Fetch) | 10ms |
| Measure Voltage, Current (under USB command using Measure) | 70ms |
| **Analog Programming Interface** | |
| Voltage and Current Programming inputs | 0~10Vdc or 0~5Vdc of F.S. |
| Voltage and Current monitor | 0~10Vdc or 0~5Vdc of F.S. |
| Isolation: Maximum working voltage of any analog programming signal with respect to chassis potential | 70Vdc |
| **Auxiliary Power Supply** | |
| Output Voltage | 12Vdc |
| Maximum current source capability | 10mA |
| **Remote Inhibit Function (I/O)** | |
| Use to disable the output of DC Power Supply; Active Low | TTL |
| **DC-ON Output Signal** | |
| Indicate the output status, Active High | TTL |
| **Fault Output Signal** | |
| Indicate if there is a fault/protection occurred, Active Low | TTL |
| **Series & Parallel operation function with Master / Slave control** | |
| Voltage limit @ Series Mode | See Electrical Specification |
| Number of DC Power Supplies allowed @ master / slave control mode | 5 |
| **Auto Sequencing Programmable Function** | |
| Number of program | 10 |
| Number of sequence | 100 |
| Time Range | 5ms ~ 15000S |
| TTL signal out | 8 bits |
| TTL source capability | 7 mA |
| **Auto Sequencing Programmable Function (Step Mode)** | |
| Start Voltage Range | 0 ~ full scale |
| End Voltage Range | 0 ~ full scale |
| Total Run Time Range (hhh:mm:ss.sss) | 10ms ~ 99 hours |
| **Slew Rate Control Function** | |
| Voltage slew rate range (The fall rate will be affected by the discharge rate of the output capacitors especially under no load condition.) | See Electrical Specification |
| Current slew rate range of current | See Electrical Specification |
| Minimum transition time | 0.5 ms |
| **Remote Sense** | |
| Line loss compensation | 5V |

所有規格如有變更，恕不另行通知。