

## MODEL 62000P SERIES

### KEY FEATURES

- Wide range of Voltage & Current Combinations with Constant Power
- Voltage range : 0 ~ 600V  
Current range : 0 ~ 120A  
Power Range : 600W, 1200W, 2400W, 5000W
- Digital Encoder Knobs, Keypad and Function Keys
- Power Factor Correction (0.95)
- High-speed Programming
- Precision V&I Measurements
- Current Sharing for Parallel Operation with Master/Slave Control
- Voltage Ramp Function : Time Range (5ms~99hours)
- Auto Sequencing Programming : 10 Programs / 100 Sequences / 8 bit TTL
- Voltage & Current Slew Rate Control
- OVP, Current Limit, Thermal Protection
- Remote sense, 5V Line Loss Compensation
- APG (Analog Programmable Interface) with Isolated Analog Interface Card
- Optional GPIB Control with SCPI
- Optional Ethernet/LXI interface
- Standard RS-232 & USB Interface
- LabView and Labwindows
- CE Certified

## PROGRAMMABLE DC POWER SUPPLY MODEL 62000P SERIES

Chroma's new 62000P Series of programmable DC power supplies offer many unique advantages for ATE integration and testing. These advantages include a constant power operating envelope, precision readback of output current and voltage, output trigger signals as well as the ability to create complex DC transients waveforms to test device behavior to spikes, drops, and other voltage deviations. Designed for automated testing DC-DC converters and similar products, the 62000P sets a new standard for high accuracy programmable DC supplies.

The 62000P Series includes 12 different models ranging from 600W to 5000W, up to 120A and up to 600V. Due to their constant power operating envelope a single instrument can provide both high voltage/low current AND low voltage/high current thereby reducing the number of supplies needed in typical ATE applications.

The 62000P Series also includes 16 bit readback capability for accurate voltage and current readings. This means systems no longer need complex shunt/multiplexers to make accurate readings of the UUT's input parameters. The instruments also include I/O ports providing 8 bit TTLs, DC-ON, fault output signal and remote inhibit as well as a output trigger signal for system timing measurements.

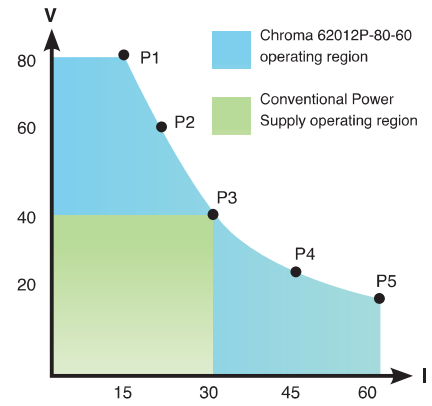
Another unique capability of the 62000P Series supplies is their ability to create complex DC transient waveforms. This capability allows devices to be tested to DC voltage dropouts, spikes and other voltage variations making them an ideal choice for airborne device testing, inverter testing and other devices which will experience voltage interrupts. Applications include DC/DC Converter & Inverter voltage drop test, engine start-up simulation, battery automated charging, electronic product life cycle test, and etc.



**Chroma**

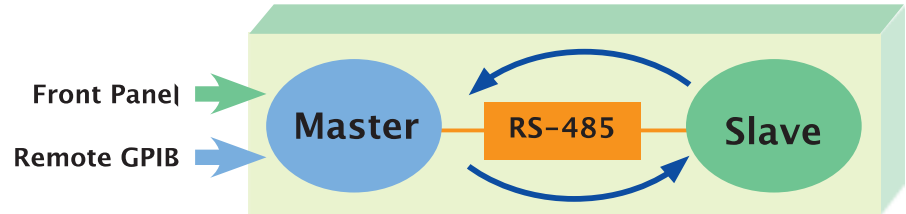
## WIDE OPERATING REGION WITH CONSTANT POWER

The 62000P Series supplies offer a wide operating region. For example, the output specification for model 62012P-80-60 is 1200W/80V/60A, it allows operating flexibly in various combinations as shown in the figure at the right. As shown conventional power supplies provide the same rated current at all output voltages, however, the 62000P provides greater current at lower output voltages. This means both low voltage/high current and high voltage/low current UUTs can be tested using a single supply avoiding the for multiple supplies saving cost and space within typical ATE systems.



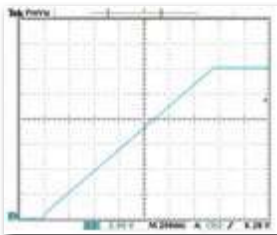
## MASTER/SLAVE PARALLEL & SERIAL CONTROL

When high power is required, it is common to connect two or more power supplies in parallel or series. The 62000P Series supplies have a smart Master / Slave control mode making series/parallel operation fast and simple. In this mode the master scales values and downloads data to slave units so programming is simple and current sharing automatic.

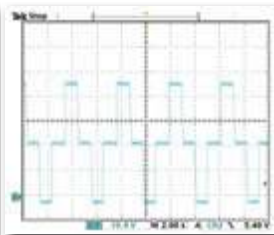


## PROGRAMMING SEQUENCES APPLICATIONS

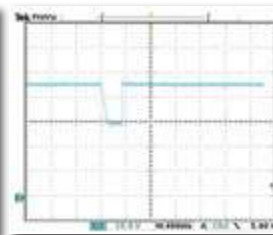
The 62000P Series supplies allow for 100 user programmable sequences with time settings ranging from 5ms to 15000s, voltage / current slew rate control and 8 bit TTL output for automated test applications. Applications include DC/DC Converter & Inverter voltage dropout testing, engine start-up simulation, battery automated charging, product life cycle testing and airborne avionics testing.



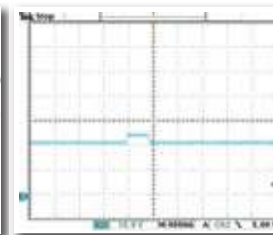
Soft Start Testing



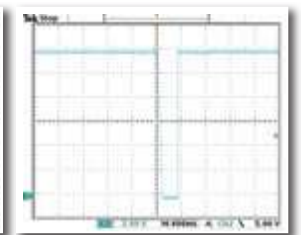
Voltage Step Waveform



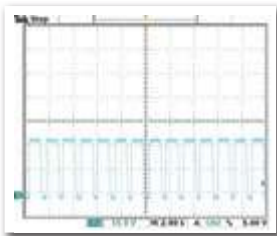
D/D Converter Sag Testing



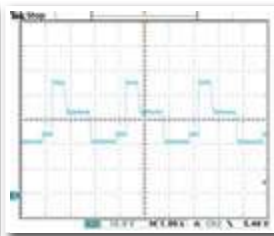
D/D Converter Surge Testing



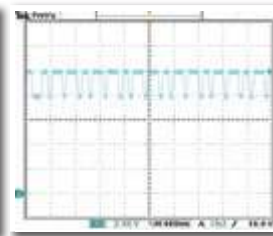
D/D Converter Cycle drop Testing



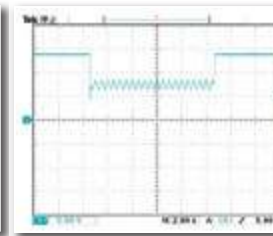
Pulse Charge of Battery



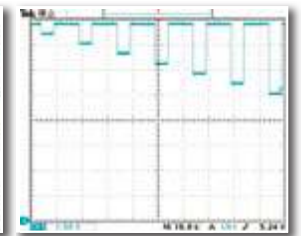
Life Cycle Testing



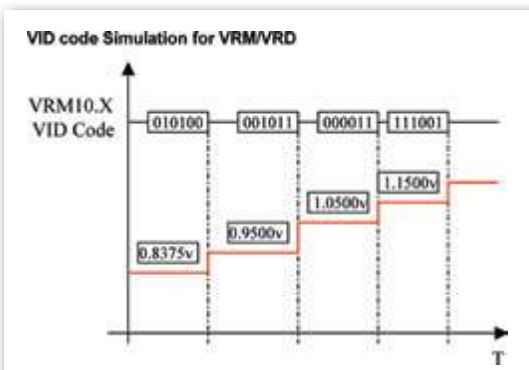
Line Regulation Testing



Starting Profile of ISO 16750-2



Reset Behavior at Voltage Drop of ISO 16750-2

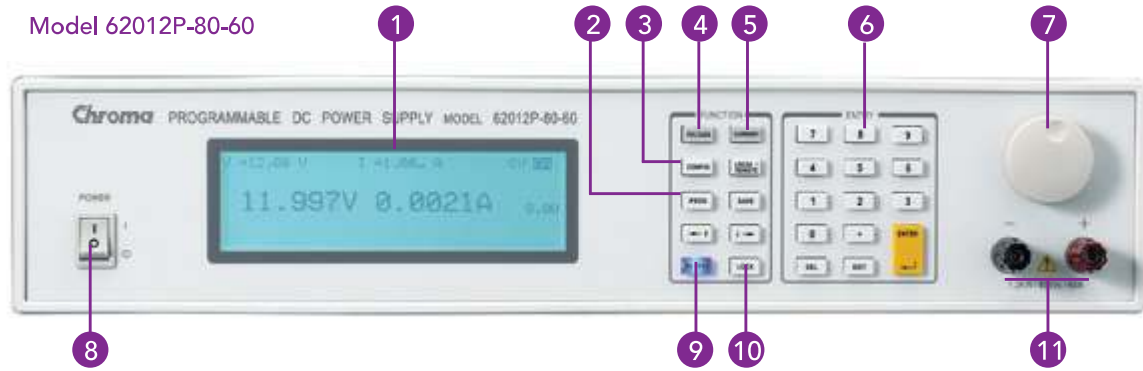


The 62000P Supplies provide 8 output TTL bits with timing control. These control lines can be used for VID control of VRM or to control other discrete signals.



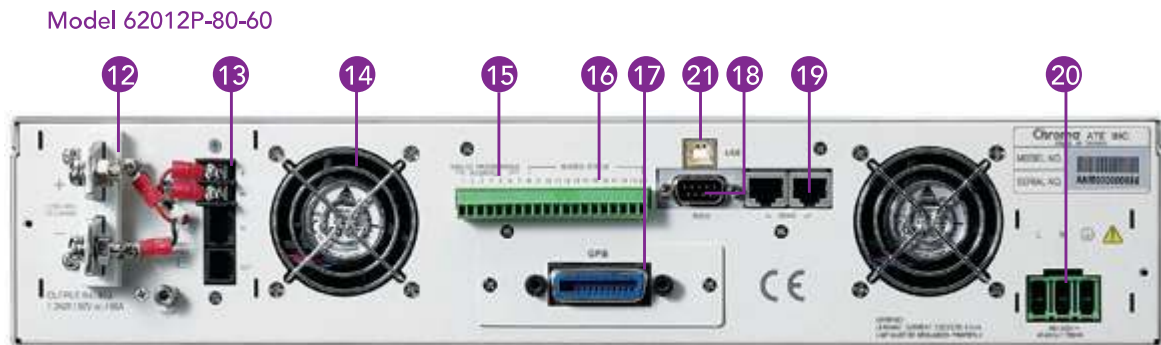
62050P-100-100

## PANEL DESCRIPTION



- |                     |  |
|---------------------|--|
| 1. LCD Display      | Display setting, readings and operating status |
| 2. PROG Key         | Program the sequence                           |
| 3. CONFIG Key       | Set the system configuration                   |
| 4. VOLTAGE Key      | Set the output voltage                         |
| 5. CURRENT Key      | Set the output current limit                   |
| 6. NUMERIC Key      | Set the data                                   |
| 7. ROTARY Key       | Adjust the V&I and set the parameter           |
| 8. POWER Switch     |  |
| 9. OUTPUT Key       | Enable or disable the output                   |
| 10. LOCK Key        | Lock all settings                              |
| 11. OUTPUT Terminal | Connect the output cable to a UUT              |

Note : 40V, 300V & 600V Model have no output terminal at the front panel.



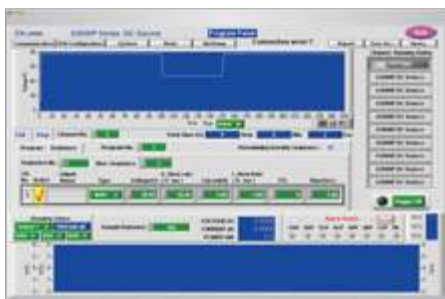
- |                                  |  |
|----------------------------------|--|
| 12. OUTPUT Terminal              | Connect the output cable to a UUT  |
| 13. Sense Terminal               | Connect the UUT for voltage compensation   |
| 14. System Fan                   |  |
| 15. Analog programming interface | For analog level to program and monitor output voltage & current                       |
| 16. System I/O port              | Send 8 bit TTL, DC-ON, fault output signal and remote inhibit and trigger input signal |
| 17. GPIB Connector(Optional)     | GPIB & Ethernet (alternative)  |
| 18. RS-232 Connector             |  |
| 19. RS-485 Connector             | For master/slave control   |
| 20. AC Input Terminal            |  |
| 21. USB Connector                |  |

## ELECTRICAL SPECIFICATIONS -1

Model	62006P-30-80	62006P-100-25	62006P-300-8	62012P-40-120	62012P-80-60	62012P-100-50
<b>Output Ratings</b>						
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
<b>Line Regulation</b>						
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
<b>Load Regulation</b>						
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
<b>Voltage Measurement</b>						
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.
<b>Current Measurement</b>						
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.
<b>Output Noise (0 ~ 20MHz)</b>						
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
<b>Slew Rate Range</b>						
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
<b>Programming Response Time (Typical)</b>						
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
<b>Drift (8 hours)</b>						
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
<b>Temperature Coefficient</b>						
Voltage	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C
Current	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C
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 <sub>LN</sub> , 47~63 Hz					
Operating Temperature	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C
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

All specifications are subject to change without notice. Please visit our website for the most up to date specifications.

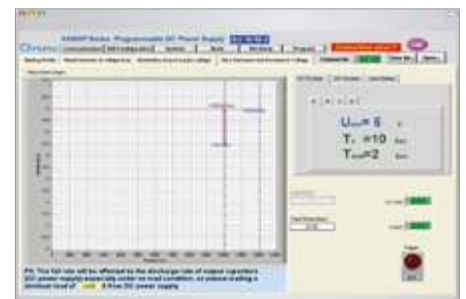
## SOFTPANEL



Transient Voltage Programming



ISO 16750-2 4.5.3 Starting Profile



ISO 16750-2 4.5.1 Momentary Drop In Supply Voltage

## ELECTRICAL SPECIFICATIONS -2

Model	62012P-600-8	62024P-40-120	62024P-80-60	62024P-100-50	62024P-600-8	62050P-100-100	
<b>Output Ratings</b>							
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	
<b>Line Regulation</b>							
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	
<b>Load Regulation</b>							
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	
<b>Voltage Measurement</b>							
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.	
<b>Current Measurement</b>							
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.	
<b>Output Noise (0 ~ 20MHz)</b>							
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	
<b>Slew Rate Range</b>							
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	
<b>Programming Response Time (Typical)</b>							
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	
<b>Drift (8 hours)</b>							
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	
<b>Temperature Coefficient</b>							
Voltage	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	
Current	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	
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 <sub>LNr</sub> , 47~63 Hz	1Ø 200~240Vac ± 10% V <sub>LNr</sub> , 47~63 Hz				3Ø 200~240Vac ± 10% V <sub>LL</sub> , or 3Ø 380~400Vac ± 10% V <sub>LL</sub> , 47~63 Hz	
Operating Temperature	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C	
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	

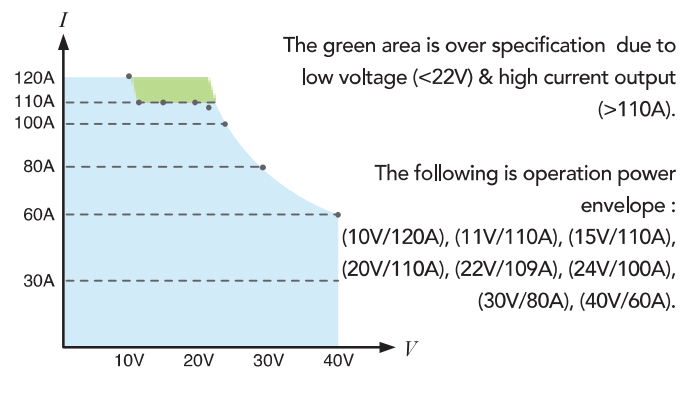
All specifications are subject to change without notice. Please visit our website for the most up to date specifications.

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

## ORDERING INFORMATION

62006P-30-80: Programmable DC Power Supply, 30V/80A/600W  
 62006P-100-25: Programmable DC Power Supply, 100V/25A/600W  
 62006P-300-8: Programmable DC Power Supply, 300V/8A/600W  
 62012P-40-120: Programmable DC Power Supply, 40V/120A/1200W  
 62012P-80-60: Programmable DC Power Supply, 80V/60A/1200W  
 62012P-100-50: Programmable DC Power Supply, 100V/50A/1200W  
 62012P-600-8: Programmable DC Power Supply, 600V/8A/1200W  
 62024P-40-120: Programmable DC Power Supply, 40V/120A/2400W  
 62024P-80-60: Programmable DC Power Supply, 80V/60A/2400W  
 62024P-100-50: Programmable DC Power Supply, 100V/50A/2400W  
 62024P-600-8: Programmable DC Power Supply, 600V/8A/2400W  
 62050P-100-100: Programmable DC Power Supply, 100V/100A/5000W  
 A620004: GPIB Interface for Model 62000P Series  
 A620006: Rack mounting kit for Model 62000P Series (2U model)  
 A620009: Softpanel for 62000P Series  
 A620015: Rack mounting kit for Model 62050P-100-100  
 A620023: Ethernet/LXI Interface for Model 62000P Series

Model 62024P-40-120



## GENERAL SPECIFICATIONS

<b>Programming &amp; Measurement Resolution</b>	
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
<b>Programming Accuracy</b>	
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
<b>Programming Response Time</b>	
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
<b>Analog Programming Interface</b>	
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
<b>Auxiliary Power Supply</b>	
Output Voltage	12Vdc
Maximum current source capability	10mA
<b>Remote Inhibit Function (I/O)</b>	
Use to disable the output of DC Power Supply; Active Low	TTL
<b>DC-ON Output Signal</b>	
Indicate the output status, Active High	TTL
<b>Fault Output Signal</b>	
Indicate if there is a fault/protection occurred, Active Low	TTL
<b>Series &amp; Parallel operation function with Master / Slave control</b>	
Voltage limit @ Series Mode	See Electrical Specification
Number of DC Power Supplies allowed @ master / slave control mode	5
<b>Auto Sequencing Programmable Function</b>	
Number of program	10
Number of sequence	100
Time Range	5ms ~ 15000S
TTL signal out	8 bits
TTL source capability	7 mA
<b>Auto Sequencing Programmable Function (Step Mode)</b>	
Start Voltage Range	0 ~ full scale
End Voltage Range	0 ~ full scale
Total Run Time Range (hhh:mm:ss.sss)	10ms ~ 99 hours
<b>Slew Rate Control Function</b>	
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
<b>Remote Sense</b>	
Line loss compensation	5V

All specifications are subject to change without notice. Please visit our website for the most up to date specifications.

HEADQUARTERS  
CHROMA ATE INC.  
66 Huaya 1st Road,  
Guishan, Taoyuan  
33383, Taiwan  
T +886-3-327-9999  
F +886-3-327-8898  
www.chromaate.com  
info@chromaate.com

U.S.A.  
CHROMA SYSTEMS  
SOLUTIONS, INC.  
19772 Pauling,  
Foothill Ranch,  
CA 92610  
T +1-949-600-6400  
F +1-949-600-6401  
www.chromausa.com  
sales@chromausa.com

EUROPE  
CHROMA ATE  
EUROPE B.V.  
Morsestraat 32,  
6716 AH Ede,  
The Netherlands  
T +31-318-648282  
F +31-318-648288  
www.chromaeu.com  
sales@chromaeu.com

JAPAN  
CHROMA JAPAN CORP.  
888 Nippa-cho, Kouhoku-ku,  
Yokohama-shi, Kanagawa,  
223-0057 Japan  
T +81-45-542-1118  
F +81-45-542-1080  
www.chroma.co.jp  
info@chroma.co.jp

CHINA  
CHROMA ELECTRONICS  
(SHENZHEN) CO., LTD.  
8F, No.4, Nanyou Tian An  
Industrial Estate, Shenzhen,  
China PC: 518052  
T +86-755-2664-4598  
F +86-755-2641-9620  
www.chroma.com.cn  
info@chromaate.com

SOUTHEAST ASIA  
QUANTEL PTE LTD.  
(A company of Chroma Group)  
46 Lorong 17 Geylang # 05-02  
Enterprise Industrial Building,  
Singapore 388568  
T +65-6745-3200  
F +65-6745-9764  
www.quantel-global.com  
sales@sg.quantel-global.com

CHROMA ATE GERMANY  
Südtiroler Str. 9, 86165, Augsburg, Germany  
T +49-821-790967-0  
F +49-821-790967-600  
support-germany@chromaeu.com