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QPX SERIES

Single and dual output PowerFlex DC power supplies, 750 to 1200 watts



- Up to 80V or 50A per output limited by power curve
- Low ripple and noise of <3mV rms at full power
- High setting resolution and metering down to 1mV
- Analog control interface, LAN/LXI, USB, RS232† & GPIB* on P versions
- Bench or System use with rear and front terminals**

aimtti.com

*Optional **QPX600D Excluded

† Not available on QPX750SP

QPX SERIES Bench/system DC power supplies | PowerFlex/ PowerFlex +

CAPABILITIES

THE QPX SERIES

QPX series laboratory power supplies are designed to provide flexibility in the choice of voltage and current so as to meet multiple diverse applications. Voltages up to 80V and currents up to 50A are available within a defined power envelope.

Unlike most power supplies of this power level, the QPX series is well suited to bench top applications in addition to system use.

MODEL	OUTPUTS	TOTAL POWER	MAX VOLTS	MAX AMPS	INTERFACES	POWER-FLEX	POWER-FLEX+
QPX750SP	1	750 Watts	80V	50A	Analog, GPIB*,USB, LAN (LXI)		•
QPX600D	2	1200 Watts	80V	50A	Analog		•
QPX600DP	2	1200 Watts	80V	50A	Analog, GPIB*, RS-232, USB, LAN (LXI)		•
QPX1200S	1	1200 Watts	60V	50A	Analog	•	
QPX1200SP	1	1200 Watts	60V	50A	Analog, GPIB*, RS-232, USB, LAN (LXI)	•	

*Optional

POWERFLEX & POWERFLEX+

A conventional PSU has a fixed current limit giving a power capability that reduces directly with the output voltage.

The Aim-TTi PowerFlex and PowerFlex+ regulation systems enable higher currents to be generated at lower voltages within an overall power limit envelope.

For PowerFlex+ models the output can provide more than six times the current of a conventional PSU of the same maximum voltage and power. For PowerFlex models the increase is three times.

LOW RIPPLE AND NOISE

PowerFlex and PowerFlex+ use either a balanced multi-phase converter system or linear final regulation to minimise ripple and improve dynamic performance. This provides unusually low noise for the power level coupled with good transient response.

POWER CALCULATION

The meter for each output can be set to show the total power currently being provided to the load (V x A) to a resolution of 0.1 watts. The power is shown in addition to the voltage and current values.

CURRENT METER AVERAGING

When measuring rapidly varying loads it can become difficult to get accurate readings from the current meter. By selecting meter averaging, the reading is stabilised by averaging the last four readings to reduce the speed and extent of the variation.

OVP AND OCP TRIPS

Variable trips for over-voltage and over-current are provided on each output. Unlike a limit setting, the trip setting turns the output off and provides a different level of protection.

For example, when repetitively testing a unit which normally takes a peak current of 10A, the current limit could be set to 11A and the OCP to 10.1A to ensure that a faulty unit will trip the supply off and not be damaged by over dissipation.

The output trip can also be activated by other fault conditions including over temperature and remote sense mis-wiring. The cause of the trip is shown on the display.

LOW RESISTANCE CALCULATION

The meter for each output can be set to show the equivalent resistance of the load by displaying voltage divided by current. This function enables low resistance measurements to be made at high currents by using the remote sense terminals to create a four terminal connection. This gives more reliable results for certain component types, such as magnetics, which operate at ampere levels.

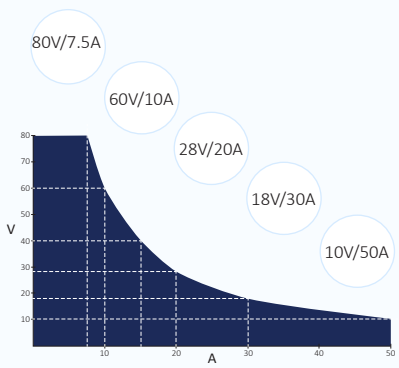
QUASI ANALOG CONTROL

All models incorporate analog interfaces for voltage control of both output voltage and output current (non-isolated). An isolated logic control signal is provided for control of output on/off. An isolated open-collector logic output signal is also available. This can be menu selected as true or false for output enabled or disabled, current limit, power limit, or any fault trip.

SELV MODE

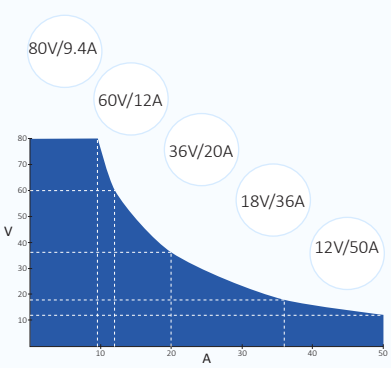
QPX750SP provides an added safety feature where voltages above 50V require authorisation from the user.

POWER ENVELOPES AND EXAMPLE RANGES

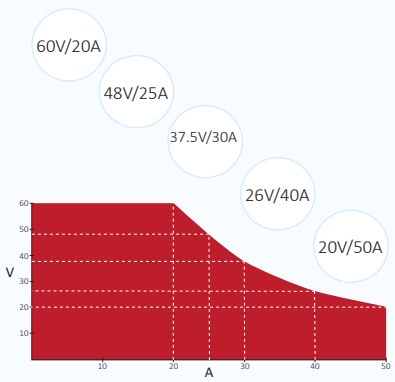


QPX600D/DP PowerFlex+

(per output)



QPX750SP PowerFlex+

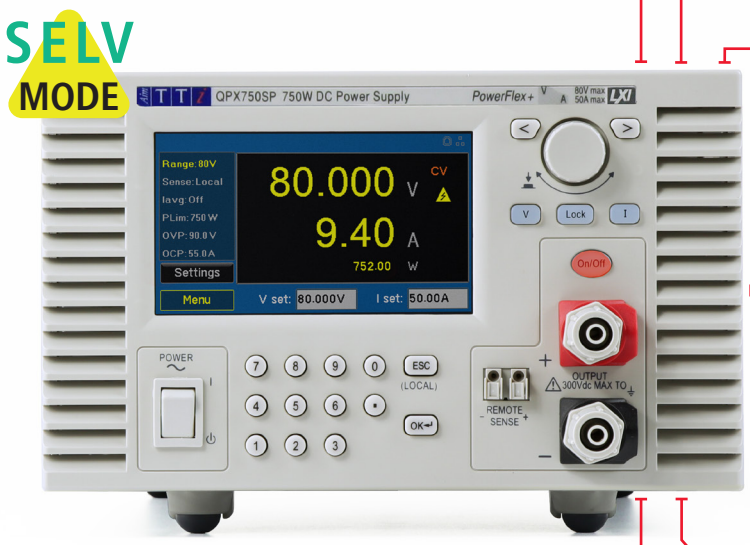


QPX1200S/SP PowerFlex

QPX SINGLE OUTPUT QPX750SP & QPX1200S/ SP

QPX750SP

The QPX750SP is a single output DC power supply with a maximum output power of 750 watts. It is suited to both bench-top and system applications.



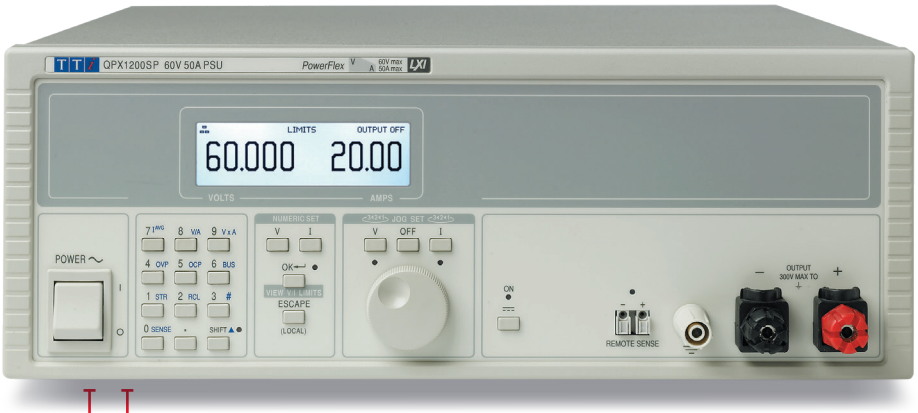
- PowerFlex+ design with up to 750 Watts
- Ultra-wide range of voltage/ current combinations (see graph)
- Up to 80V and up to 50A within the power envelope
- Low output noise and ripple of <3mV rms at full power
- High setting resolution of 1mV
- Variable OVP and OCP trips
- Three automatic modes: CV, CC & CP
- Analog control interfaces for voltage and current
- Half-rack size, front and rear terminals for bench or system
- USB , LAN (LXI) and GPIB* interfaces.

*Optional

QPX1200S/SP

The QPX1200S/SP is a single output laboratory DC power supply with a maximum output power of 1200 watts. It is suited to both bench-top and system applications.

- PowerFlex design with up to 1200 watts
- Wide range of voltage/current combinations
- Up to 60V and up to 50A within a power envelope
- Linear final regulation provides very low output noise and fast transient response
- Variable OVP and OCP trips
- Bench or rack mounting with front and rear terminals
- High setting resolution of 1mV in up to 60 volts
- GPIB*, RS-232, USB & LAN (LXI) interfaces (QPX1200SP)
- Multiple non-volatile setting memories
- Low resistance and power calculation
- Analog control interfaces for voltage and current



*Optional

QPX DUAL OUTPUT QPX600D/DP

QPX600D/DP

The QPX600D/DP is a dual output DC power supply with a maximum total output power of 1200 watts. It is suited to both bench-top and system applications.



- Isolated tracking of voltage only, or voltage and current
- Dual independent or tracking 600 watt outputs
- Ultra-wide range of voltage/ current combinations
- Up to 80V and up to 50A within the power envelope
- Low output noise and ripple
- GPIB*, RS-232, USB and LAN (LXI) interfaces (QPX600DP)
- Analog control interfaces for voltage and current
- High setting resolution of 1mV
- Smart metering and tracking functions facilitate series or parallel wiring for up to 160V or 100A
- Variable OVP and OCP trips

*Optional

DUAL INDEPENDENT OR TRACKING OUTPUTS

The QPX600D/DP can be operated as two entirely independent power supplies, each with its own LCD display.

Alternatively multiple isolated tracking modes are available, including ones intended for series and parallel operation which provide metering of total voltage or total current respectively.

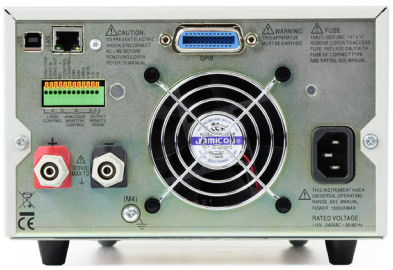
UP TO 160V OR 100A

The combination of PowerFlex+ regulation with series or parallel wiring of the outputs and the use of smart tracking and metering, enables a higher voltage or higher current single output power supply to be simulated.

INDEPENDENT OR SIMULTANEOUS OUTPUT CONTROL

The 'Both On' and 'Both Off' buttons are in addition to the individual switches for each output, they allow both outputs to be turned on or off synchronously by a single button press. Synchronous switching of the outputs is of increasing importance for circuitry which can lock-up or even be damaged if one voltage rail is present without the other.

QPX750SP

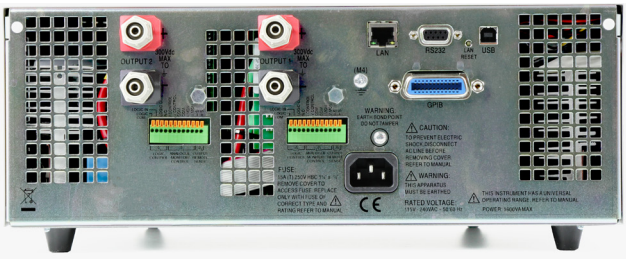


REAR PANEL VIEW

QPX1200SP



QPX600DP



Technical Specifications

MODEL	QPX600D/QPX600DP	QPX750SP	QPX1200/QPX1200P
OUTPUT SPECIFICATIONS			
VOLTAGE/CURRENT LEVELS			
Voltage Range:	Range 1- 0V to 60V Range 2- 0V to 80V	Range 1- 0V to 50V Range 2- 0V to 80V	0V to 60V
Current Range:	10mA to 50A	10mA to 50A	10mA to 50A
Power Range:	Up to 600W	Up to 750W	Up to 1200W
OUTPUT SETTING			
Operating Mode:	Constant voltage or constant current with automatic cross-over and mode indication.	Constant voltage, constant current or constant power with automatic cross-over dependent on output setting parameters CV, CC or CP mode indication in display.	Constant voltage or constant current with automatic cross-over and mode indication.
Voltage Setting:	By floating point numeric entry or rotary jog wheel.		
	Resolution- 1mV for 60V range, (2mV for 80V range).	Resolution- 1mV for 50V range, (2mV for 80V range).	Resolution- 1mV.
Current Setting:	By floating point numeric entry or rotary jog wheel; Resolution 10mA.		
Setting Accuracy:	Voltage- 0.1% ± 2mV on 60V range, (0.1% ± 4mV on 80V range) Current- 0.3% ± 20mA.	Voltage- 0.1% ± 2mV on 50V range, (0.1% ± 4mV on 80V range) Current- 0.3% ± 20mA.	Voltage- 0.1% ± 2mV Current- 0.3% ± 20mA.
OUTPUT PERFORMANCE			
Load regulation	<0.01% +5mV (CV mode) for any load change within the PowerFlex envelope,using remote sense.		
Line regulation:	<0.01% +5mV for a 10% line voltage change.		
Ripple & Noise: (20MHz bandwidth).	Typically <3mV rms, <20mV pk-pk.		Typically <3mV rms, <20mV pk-pk. Rear terminals: Typically <3mV rms, <30mV pk-pk
Transient Response:	<2ms to within 100mV of set level for 5% to 95% load change.	To within 100mV of set level for a 5% to 95% load change. Rear Terminals: <2ms Front Terminals: <2.5ms	<250µs to within 100mV of set level for 5% to 95% load change.
Sensing:	Selectable local or remote sensing.		
Output Protection:	Output will withstand forward voltages of up to 90V. Reverse protection by diode clamp.		Output will withstand forward voltages of up to 70V. Reverse protection by diode clamp.
Over Voltage protection (OVP):	Settable 2V to 90V in 0.1V steps.		Settable 2V to 65V in 0.1V steps.
Over Current protection (OCP):	Settable 2A to 55A in 0.1A steps.		
Over Temperature protection:	Monitors internal temperature rise to protect against excess ambient temperature or blocked ventilation slots.		
Temp. Coefficient:	Typically <100ppm/°C.		
Sense Error:	Monitors the voltage between the remote sense terminals and output terminals to protect against mis-wiring.		
METER SPECIFICATIONS			
Display Type:	Large dot-matrix black-on-white backlit LCD.	4.3 inch (10.9 cm) backlit TFT LCD, 480 x 272 pixels total, 16 colours, resistive touch screen.	Large dot-matrix black-on-white backlit LCD.
Meter Function:	5 digit voltage meter and 4 digit current meter. Display of limits values,memory contents etc. Wide range of alpha-numeric messages/menus.		
Limits Display:	Limits settings can be displayed simultaneously with measurements.		
Meter Resolution:	Voltage- 1mV (2mV on 80V range). Current- 10mA.		Voltage- 1mV. Current- 10mA.
Meter Accuracy:	Voltage: 0.1% of reading ± 2 digits (CI mode and Unreg). Current: 0.3% of reading ± 2 digits (CV mode and Unreg).	Voltage: 0.1% of reading ± 2 digits. Current: 0.3% of reading ± 2 digits.	Voltage: 0.1% of reading ± 2 digits (CI mode and Unreg). Current: 0.3% of reading ± 2 digits (CV mode and Unreg).
V x A:	Display shows calculated power in watts. Resolution- 0.1W. Accuracy- 0·5% ± 0·1W.		
V/A:	Display shows calculated resistance. Resolution up to 5 digits. Measurement uncertainty is shown on display*.		

*Excludes QPX750SP

Technical Specifications

MODEL	QPX600D/QPX600DP	QPX750SP	QPX1200/QPX1200P
FRONT PANEL CONTROLS			
Output Switching:	Push switch operating electronic power control. LED indication of On state.		
Output Terminals:	Front and Rear mounted safety terminals accepting 6mm wire diameter, 6mm plugs or 8mm spades at 50 Amps max, or 4mm plugs at 30 Amps max.		
Sensing Terminals:	Screw-less terminals on front and rear panel.		
Setting Stores:	Up to 50 set-ups (or 10 with QPX1200S & 600D) can be saved and recalled via the keyboard, and the digital interfaces with P-versions.		
Keyboard Control:	All functions, including the selection and set-up of the remote control interfaces, can be set from the keyboard.		
Rotary control:	The rotary Jog control can be used to adjust output voltage and current settings in a quasi-analogue mode. The output to be controlled is first selected with the appropriate control key.		
ANALOG & LOGIC INTERFACES			
ANALOG REMOTE CONTROL AND MONITORING			
Non-isolated inputs and outputs to set voltage and current limit and to monitor actual output voltage and current. Note that the analog control voltage is digitised within the power supply.			
	These signals are referenced to the negative output. and have a range of 0 to 10V or 0 to 5V		These signals are referenced to the positive output and have a range of 0 to 10V or 0 to 5V.
Control Accuracy:	Voltage: 0.3% ± 4mV; Current: 0.5% ± 40mA.		
Monitor Accuracy:	Voltage: 0.3% ± 4mV; Current: 0.5% ± 40mA.		
LOGIC CONTROL INPUT AND OUTPUT			
LOGIC IN:	A rear-panel opto-isolated input that is activated at an input current greater than approximately 1mA. User can set LOGIC IN (via the keyboard) to enable the output, disable the output, or be ignored when it is activated.		
LOGIC OUT:	An isolated rear-panel open-collector output that will sink up to 2mA when activated ('switch closure'); the maximum voltage that can be applied to LOGIC OUT is 30VDC. User can set LOGIC OUT to be 'closed' or 'open' for output enabled or disabled, current limit (CI mode),power limit (UNREG mode), or for any fault trip.		
DIGITAL BUS INTERFACES (P VERSIONS ONLY)			
The QPX-P offers full remote control and read-back using RS-232, USB, GPIB or LAN (compliant with LXI class C). All interfaces are at ground potential and opto-isolated from the output terminals.			
RS-232:	Standard 9-pin D connector. Baud rate 9,600. (not available on QPX750SP).		
USB:	USB 2.0 connection (backwards compatible with USB 1.x). Operates as a virtual COM port.		
GPIB: (optional)	(IEEE-488) The interface conforms with IEEE-488.1 and IEEE-488.2.		
Ethernet (LAN):	Standard 10/100 base-T hardware connection. ICMP and TCP/IP Protocol for connection to Local Area Network or direct connection to a single PC.		
LXI Compliance:	LAN interface is compliant with LXI class C. For more information visit: www.aimtti.com/go/lxi		
Remote command processing time:	Typically <100ms between receiving the command terminator for a step voltage change at the instrument and the output voltage beginning to change. See individual instruction manuals for voltage programming speeds.		
DRIVER SOFTWARE SUPPLIED			
IVI Driver:	An IVI driver for Windows is supplied. This provides support for common applications such as LabView*, LabWindows*, KeysightVEE* etc.		
USB Driver:	An installation file is supplied which calls a standard Windows* USB driver.		
GENERAL SPECIFICATIONS			
AC Input:	110V to 240V AC ±10%, 50/60Hz. Installation Category II.		
Input Power:	1600VA Max.	1000VA Max.	1600VA Max.
Temperature:	Operating: +5ºC to +40ºC, 20% to 80% RH, Storage: -40ºC to + 70ºC.		
Environmental:	Indoor use at altitudes up to 2000m, pollution Degree 2.		
Cooling:	Intelligent variable-speed fans.		
Safety:	Complies with EN61010-1.		
EMC:	Complies with EN61326.		
Size:	350 x 130 x 413mm (WxHxD) (3U high).	215 x 130 x 460mm (WxHxD) (3U High) Including terminals	350 x 130 x 413mm (WxHxD) (3U height).
Weight:	9.2kg (20lb).	<6.4kg (14lb)	9.2kg (20lb).
Benchtop Operation:	Folding legs are incorporated that can be used to angle the front panel upwards.		
Rack mount options:	19 inch rack mount - RM460 (Provides ventilation space above and below PSU).		

Aim & Thurlby Thandar Instruments Ltd. operates a policy of continuous development and reserves the right to alter specifications without prior notice.
Accuracy specifications apply for the temperature range 18°C to 28°C after 1 hour warm-up.

EXCELLENCE THROUGH EXPERIENCE

Aim-TTi is the trading name of Thurlby Thandar Instruments Ltd. (TTi), one of Europe's leading manufacturers of test and measurement instruments.

The company has wide experience in the design and manufacture of advanced test instruments and power supplies built up over more than thirty years.

The company is based in the United Kingdom, and all products are built at the main facility in Huntingdon, close to the famous university city of Cambridge.

TRACEABLE QUALITY SYSTEMS

TTi is an ISO9001 registered company operating fully traceable quality systems for all processes from design through to final calibration.

bsi. ISO 9001 Quality Management

ISO9001:2015

Certificate number FM 20695

WHERE TO BUY AIM-TTI PRODUCTS

Aim-TTi products are widely available from a network of distributors and agents in more than sixty countries across the world.

To find your local distributor, please visit our website which provides full contact details.

www.aimtti.com

Designed and built in Europe by:

TTi ltd

Thurlby Thandar Instruments Ltd.
Glebe Road, Huntingdon, Cambridgeshire.
PE29 7DR United Kingdom
Tel: +44 (0)1480 412451 Fax: +44 (0)1480 450409
Email: sales@aimtti.com Web: www.aimtti.com

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