



THURLBY THANDAR INSTRUMENTS

CPX Series

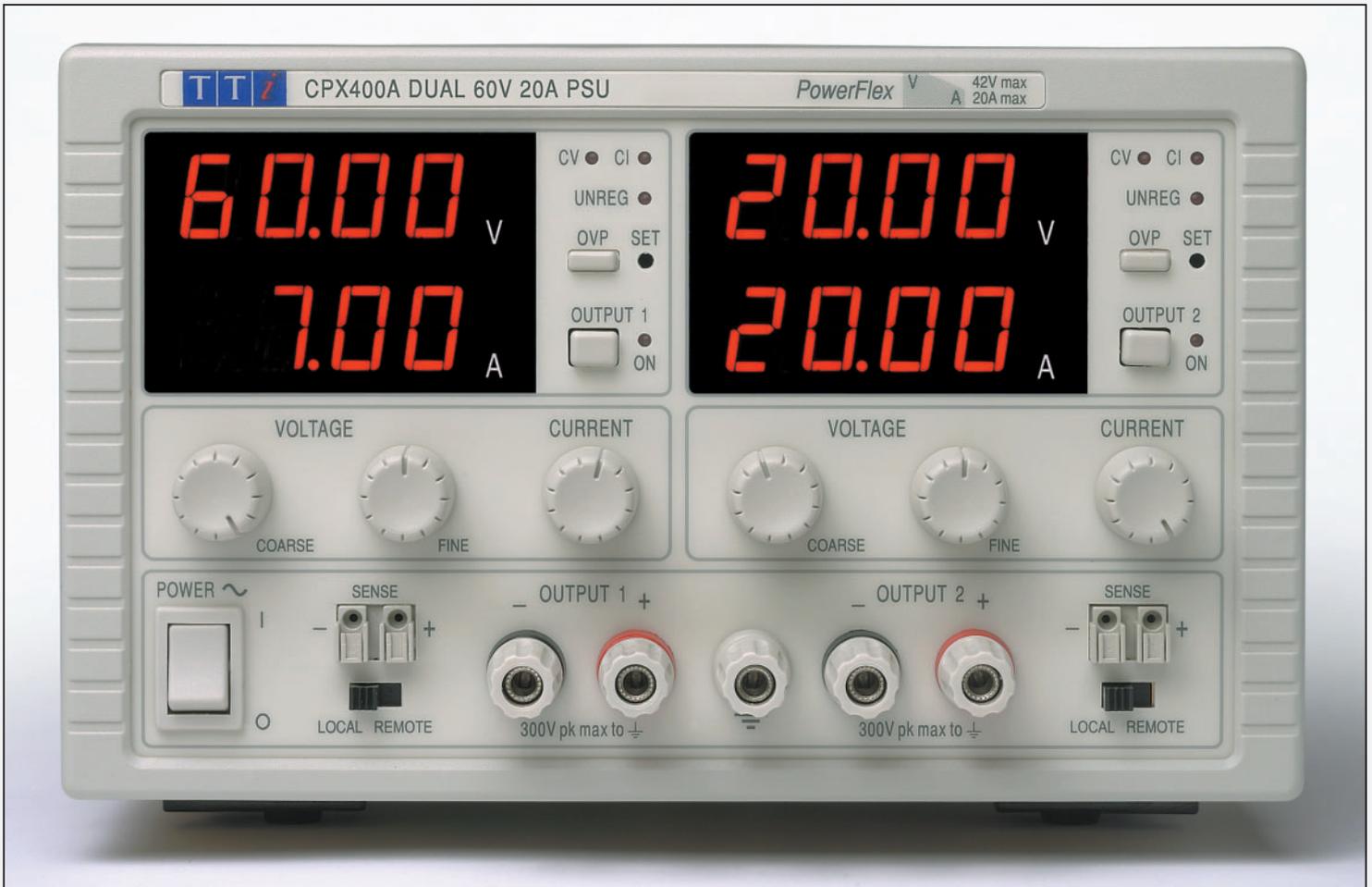


PowerFlex twin dc power supplies

*high performance autoranging outputs*

*twin 175W or twin 420W (350W or 840W total)*

*compact half-rack case size*



### *A different type of bench PSU*

The CPX series is a new type of bench power supply designed to meet the need for flexibility in the choice of voltage and current.

Today's engineers often need a wide voltage range capability and a high current capability. Normally, however, the maximum voltage and maximum current are not required simultaneously.

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

### *PowerFlex design*

The TTI PowerFlex design of the CPX series enables higher currents to be generated at lower voltages within an overall power limit envelope.

Each output can provide twice as much current as a conventional PSU of the same maximum voltage and power (see the power curve for each model).

This is achieved by using the latest switch-mode technology. Advanced techniques are used to achieve noise and RFI figures comparable with linear PSUs. As a result the CPX series can be used with confidence in sensitive environments.

### *Twin independent outputs*

The CPX series are dual output power supplies with two completely independent and isolated outputs.

The outputs operate in constant voltage or constant current mode with automatic crossover and mode indication. Each output has its own on-off switch.

If required, the outputs can be wired in series or parallel to achieve up to double the maximum voltage or double the maximum current.

### *Precision adjustment and metering*

The CPX series incorporates separate high resolution voltage and current meters for each output using large bright LED displays.

Coarse and fine controls permit the output voltage to be set within 10mV. The current limit control is logarithmic to give good resolution at low current settings.

When each output switch is set to 'OFF', the meters display the set levels. This enables voltage and current levels to be set accurately *before* connection to the load.

Switchable remote sense terminals are provided to allow the effects of connection lead resistance to be eliminated.

## compact high power units

### offering flexibility of voltage-current combination

#### Compact, lightweight and fan-free\*

CPX series power supplies are housed in a compact and robust steel case which is half-rack width and takes up very little space on the bench or in a rack.

They are lightweight to transport and generate little heat relative to their power capability.

\* The CPX200 is a convection cooled design and is completely free of fan noise.

Because of its very high power density, the CPX400A uses a high efficiency low noise cooling fan with rear discharge.

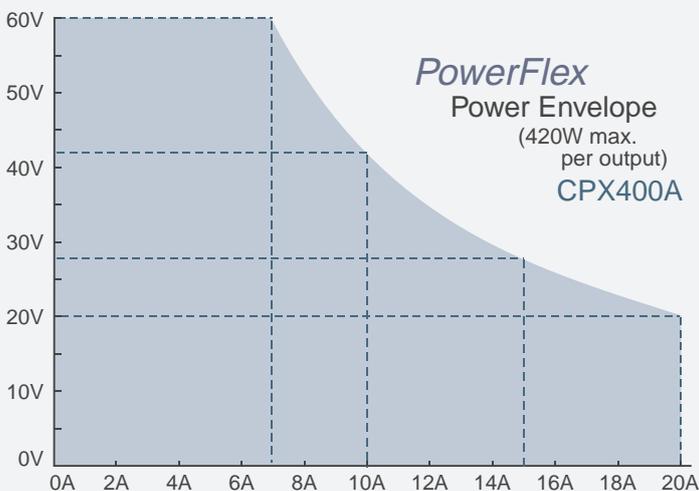
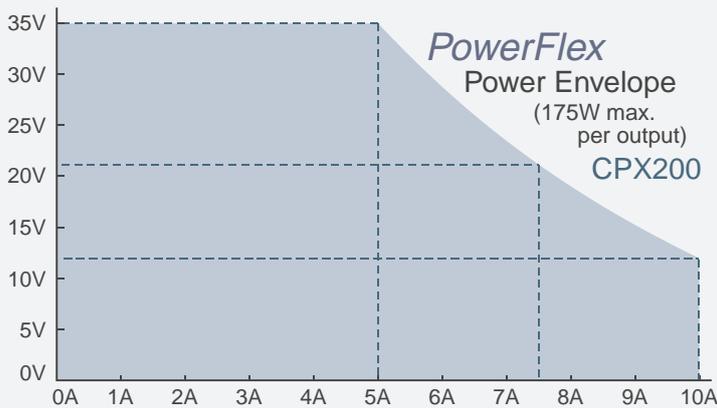
#### Safety and protection

The CPX series is designed and manufactured to meet the latest safety and EMC standards.

They incorporate full active power factor correction (PFC) which substantially reduces the levels of harmonic current taken from the ac line supply.

Comprehensive protection includes an adjustable overvoltage trip for each output.

compact high power PSUs offering flexibility of voltage-current combination



#### Part of a large power supply family

TTi is one of the world's foremost producers of laboratory power supplies. If the CPX series does not meet your needs, then one of our other series probably will.

#### EL series

The EL series is a compact linear-regulated bench power supply range offering single, dual and triple output models with power between 30 watts and 125 watts. An RS-232 controlled version is also available.

#### EX series

The EX series is similar in style, size and model range to the EL series but uses mixed mode regulation with power from 175 watts to 420 watts. An RS-232 controlled version is also available.

#### QL series

The QL series is a high precision digitally controlled PSU range using all-linear regulation and offering single and triple outputs. Standard and bus-programmable versions are available, the latter having RS-232, GPIB and USB interfaces.

#### TSX series

The TSX series is a half-rack sized high power single output PSU range offering very high performance. Standard and digitally controlled versions are available, the latter having RS-232 and GPIB interfaces.

#### PL and TS series

The PL and TS series are long established power supplies which have become the standard for many companies across the world. Both use linear regulation and offer a wide choice of models. The PL series is also available with RS-232 and GPIB interfaces.

#### Further models

TTi also produce some specialised PSUs not mentioned above and new models are added each year.

Please visit our web site for up to date information.



# Technical Specifications

## CPX200

### OUTPUT SPECIFICATIONS (each output)

Voltage Range:	0V to 35V.
Current Range:	0A to 10A.
Power Range:	Up to 175W - see PowerFlex power envelope graph.
Operating Mode:	Constant voltage or constant current with automatic cross-over and mode indication.
OVP Setting:	Via screwdriver adjustable preset on front panel.
OVP range:	10% to 110% of maximum output voltage.
Voltage Setting:	By coarse and fine controls.
Current Setting:	By single logarithmic control.
Load regulation:	<0.05% for a 90% load change.
Line regulation:	<0.01% for a 10% line voltage change.
Output impedance:	Typically <5mΩ in constant voltage mode. Typically >5kΩ in constant current mode, (voltage limit at max.).
Ripple & Noise:	Typically <2mV rms, <20mV pk-pk, (20MHz bandwidth) both outputs fully loaded (5A @ 35V) in CV mode.
Transient Response:	<2ms to within 100mV of set level for 90% load change.
Temp. Coefficient:	Typically <100ppm/°C.
Output Protection:	Forward protection by OVP trip; maximum voltage that should be applied to the terminals is 50V. Reverse protection by diode clamp for reverse currents up to 3A.
Protection Functions:	Overvoltage trip.
Status Indication:	LED indication of Output On, CV, CI and Power Limit. Message on display for over-voltage trip.
Output Switch:	Push-push switch operating electronic power control. Preset voltage and current are displayed when the output is off.
Output Terminals:	4mm terminals on 19mm (0.75") pitch. 20A max. rating
Sensing:	Remote sensing via a front panel terminal block or local sensing (at output terminals). Selection by slide switch.

### METER SPECIFICATIONS (each output)

Meter Types:	Separate 4 digit meters for voltage and current with 14mm (0.56") LED displays. Reading rate 4/second.
Meter Resolutions:	10mV, 10mA.
Meter Accuracies:	Voltage 0.2% ±1 digit. Current 0.5% ±1 digit.

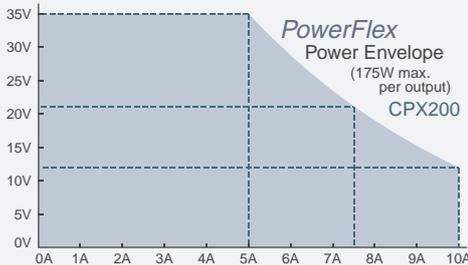
### GENERAL

AC Input:	220 to 240 volts ±10% or 110 to 120 volts ±10% 50/60Hz, Installation Category II.
Power Consumption:	600VA max.
Cooling:	Fan-free convection cooling.
Operating Range:	+5°C to +40°C, 20% to 80% RH.
Storage Range:	-40°C to +70°C.
Environmental:	Indoor use at altitudes to 2000m, Pollution Degree 2.
Safety:	Complies with EN61010-1.
EMC:	Complies with EN61326.
Size:	210 x 130 x 350mm (WxHxD) half rack width x 3U height .
Weight:	5kg (11lb).
Options:	Rack mounting kit.

### POWER ENVELOPE (each output)

The maximum current at any voltage settings is limited by the power envelope which is set to give 5A at 35V rising to 10A at 12V under all ac supply conditions (both outputs loaded).

At lower output voltages the power is restricted by the 10 amps current



## CPX400A

### OUTPUT SPECIFICATIONS (each output)

Voltage Range:	0V to 60V.
Current Range:	0A to 20A.
Power Range:	Up to 420W - see PowerFlex power envelope graph.
Operating Mode:	Constant voltage or constant current with automatic cross-over and mode indication.
OVP Setting:	Via screwdriver adjustable preset on front panel.
OVP range:	10% to 110% of maximum output voltage.
Voltage Setting:	By coarse and fine controls.
Current Setting:	By single logarithmic control.
Load regulation:	<0.01% for a 90% load change.
Line regulation:	<0.01% for a 10% line voltage change.
Output impedance:	Typically <5mΩ in constant voltage mode. Typically >5kΩ in constant current mode, (voltage limit at max.).
Ripple & Noise:	Typically <1mV rms, <10mV pk-pk, (20MHz bandwidth) both outputs loaded (10A @ 42V) in CV mode.
Transient Response:	<250µs to within 50mV of set level for 90% load change.
Temp. Coefficient:	Typically <100ppm/°C.
Output Protection:	Forward protection by OVP trip; maximum voltage that should be applied to the terminals is 50V. Reverse protection by diode clamp for reverse currents up to 3A.
Protection Functions:	Overvoltage trip, over-temperature trip.
Status Indication:	LED indication of Output On, CV, CI and Power Limit. Message on display for over-voltage trip.
Output Switch:	Push-push switch operating electronic power control. Preset voltage and current are displayed when the output is off.
Output Terminals:	4mm terminals on 19mm (0.75") pitch. 30A max. rating
Sensing:	Remote sensing via a front panel terminal block or local sensing (at output terminals). Selection by slide switch.

### METER SPECIFICATIONS (each output)

Meter Types:	Separate 4 digit meters for voltage and current with 14mm (0.56") LED displays. Reading rate 4/second.
Meter Resolutions:	10mV, 10mA.
Meter Accuracies:	Voltage 0.1% ±2 digits. Current 0.3% ±2 digits.

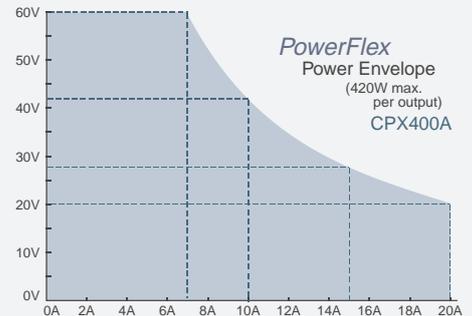
### GENERAL

AC Input:	110 to 240 volts ±10% 50/60Hz by factory option. Installation Category II.
Power Consumption:	1200VA max.
Cooling:	Rear discharge 'smart' fan.
Operating Range:	+5°C to +40°C, 20% to 80% RH.
Storage Range:	-40°C to +70°C.
Environmental:	Indoor use at altitudes to 2000m, Pollution Degree 2.
Safety:	Complies with EN61010-1.
EMC:	Complies with EN61326.
Size:	210 x 130 x 350mm (WxHxD) half rack width x 3U height .
Weight:	7kg (15lb).
Options:	Rack mounting kit.

### POWER ENVELOPE (each output)

The maximum current at any voltage settings is limited by the power envelope which is set to give 7A at 60V rising to 20A at 20V under all ac supply conditions (both outputs loaded).

At lower output voltages the power is restricted by the 20 amps current maximum.



Thurlby Thandar Instruments Ltd. operates a policy of continuous development and reserves the right to alter specifications without prior notice.

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