Technical Specifications

MAIN OUTPUT(S)

Output Range:	0 - 3 2 Volts nominal; 0 - 15.5V (PL154). 0 - 2.1A nominal (PL320); 0 - 3.1A nominal (PL330); 0 - 4A nominal (PL154).
Voltage Setting:	By coarse and fine controls; resolution better than 5mV.
Current Setting:	By single logarithmic control.
Output Mode:	The power supply operates in constant current or constant voltage modes with automatic cross-over and indication.
Configuration Selection:	Isolated, True parallel, Series or Series Tracking via front panel switches. (QMD and QMT only)
Output Switch:	Isolates the output and permits voltage and current limits to be set up before connecting the load.
Output Impedance:	Constant Voltage: Typically <5m Ω at 1kHz. Constant Current: Typically 50k Ω with voltage limit at maximum
Output Protection:	Up to m aximum output voltage +20 Volts forward; diode clamped for reverse voltages and up to 3A reverse current.
Load Regulation:	<0.01% of maximum output for 90% load change
Line Regulation:	<0.01% of maximum output for 10% line voltage change
Remote Sense:	Eliminates up to 0.5V drop per lead.
Ripple and Noise:	Typically <1mV rms
Transient Response:	<20usec to within 50mV of setting for 90% load change
Temp. Coefficient:	Typically <100ppm/oC
Meter Type:	Dual 3.75 digit (4095 count) with 12.5mm (0.5") LEDS, (scale length increased to 8190 on PL330QMD/QMT).
Meter Resolution:	Voltage: 10mV. Current: 1mA.
Meter Accuracy:	Voltage: ±(0.1% of reading + 1 digit) Current: ±(0.3% of reading + 1 digit)
Current Meter Damping:	Nominally 20ms switchable to 2 sec for averaging of rapidly varying loads

LOGIC OUTPUT - PL320QMT

Voltage Range:	4 to 6 Volts fully variable.
Setting Accuracy:	Calibrated knob gives typical accuracy of ± 0.1V
Output Current:	0.1 to 4 Amps variable limit.
Output Switch:	Isolates the output.
OVP:	Over-voltage Protection operates above 7 Volts.
Output Protection:	Clamped by the OVP circuit for forward voltages over 7 Volts and up to 1 Amp forward current. Diode clamped for reverse voltages and up to 3 Amps reverse current.
Load Regulation:	<0.01% of maximum output for 90% load change
Line Regulation:	<0.01% of maximum output for 10% line voltage change
Remote Sense:	Eliminates up to 0.5V drop per lead.
Ripple and Noise:	Typically <1mV rms
Transient Response:	<20usec to within 50mV of setting for 90% load change
Temp. Coefficient:	Typically <100ppm/oC

LOGIC OUTPUT - PL330QMT & PL330TP

Voltage Range:	4 to 6 Volts fully variable.
Output Current:	0.1 to 7 Amps variable limit.
Output Switch:	Isolates the output.
OVP:	Over-voltage Protection operates above 7 Volts.
Output Protection:	Clamped by the OVP circuit for forward voltages over 7 Volts and up to 1 Amp forward current. Diode clamped for reverse voltages and up to 3 Amps reverse current.
Load Regulation:	<0.01% of maximum output for 90% load change
Line Regulation:	<0.01% of maximum output for 10% line voltage change
Remote Sense:	Eliminates up to 0.5V drop per lead.
Ripple and Noise:	Typically <1mV rms
Transient Response:	<20usec to within 50mV of setting for 90% load change
Temp. Coefficient:	Typically <100ppm/ ºC
Meter Type:	3.75 digit (4095 count) with 12.5mm (0.5") LEDs.
Meter Resolution:	Voltage: 10mA. Current: 10mA
Meter Accuracy:	Voltage: ±(0.2% of reading + 1 digit) Current: ±(0.5% of reading + 1 digit)

LOWER POWER MODELS (1A output current)

32V/1A versions of the PL series - PL310, PL310QMD and PL310QMT are also manufactured but will be discontinued during 2003.
Specifications for these models are similar to those for the 2A or 3A models but with a maximum current of 1.1A.
The logic output of the PL310QMT is fixed 5V and 1.5A max. current. It has no output switch, remote sense or metering.

PL-P MODELS - ADDITIONAL SPECIFICATIONS

Remote programmable versions in the range feature full control, read back and status reporting via the GPIB and RS232 interfaces. The GPIB interface conforms to the IEEE 488.1 and 488.2 standards and the RS232 interface is fully compatible with the TTi Addressable RS232 Chain (ARC) standard.
Rear panel DIP switches are used to specify baud rate, bus address and active interface (GPIB or RS232). Remote/Local operation is by a front panel switch.
LOCAL OPERATION
For a programmable instrument operated in local state, all capabilities and specifications remain unchanged from those of a standard instrument .
REMOTE OPERATION
With the instrument switched to the remote state, all voltage and current adjustment controls become inoperative and commands received over the active bus interface will be parsed and executed.

MAIN OUTPUT(S) - REMOTE OPERATION

Voltage Setting:	12 bit resolution (10mV steps)
Current Setting:	12 bit resolution (1mA steps)
Setting Accuracy:	Voltage: ±(0.1% + 10mV). Current: ±(0.2% + 2mA)
Output Switching:	Electronic by interface command
Readback Resolution:	Voltage: 10mV. Current: 1mA.
Readback Accuracy:	Voltage: ±(0.1% of reading + 1 digit) Current: ±(0.3% of reading + 1 digit)
Meter Damping:	Nominally 20ms switchable to 2 sec by remote commands

LOGIC OUTPUT (PL330TP) - REMOTE OPERATION

Voltage Range:	4 to 6 Volts in 10mV steps
Output Current:	1 to 7 Amps i n approximate 1A steps
Setting Accuracy:	Voltage: ±(0.2% + 10mV)
Output Switch:	Electronic by interface command
Readback Resolution:	Current: 10mA
Readback Accuracy:	Current: ±(0.5% of reading + 1 digit)

REMOTE CONTROL INTERFACES - PL-P MODELS

Both interfaces feature full control, readback and status reporting.

RS232:	Variable Baud rate (9600 maximum), 9 pin D-connector (female). Fully compatible with ARC (Addressable RS232 Chain) system.
GPIB:	Conforming with IEEE-488.1 and IEEE-488.2
Address Selection:	By rear panel DIP switch.
Remote/Local:	Remote or Local operation selected by front panel switch.
Remote Command Response Time:	
Interface:	<15 ms (single command, input buffer empty).
Output Voltage - Up:	Time constant typically 2ms, e.g. 10ms to settle within 1% of a step change, 15ms to settle within 0.1%.
Output Voltage - Down:	Time constant determined by the discharge of the power supply output capacitor (47uF). Typically <10ms to settle within 1% for a 10V step change at 50mA load current; typically <200ms to settle within 1% at zero load.
Output Current:	Typically 50ms to settle within 10mA for a 1A change.

GENERAL

Ouput Terminals:	4mm "binding post" terminals suitable for plugs or wires; optionally 4mm safety sockets, suitable for shrouded plugs.
AC Input:	230V or 115V ±10%, 50/60Hz. Installation Category II.
Environmental:	I ndoor use at altitudes to 2000m, Pollution Degree 2.
Operating Range:	5 ºC to 40 ºC, 20% to 80% RH.
Storage Range:	-20 ºC to 60 ºC.
Cooling:	Silent fan-less convection cooling.
Safety:	Complies with EN61010-1.
EMC:	Complies with EN61326.
Weights (kg):	5.0-PL320/PL154; 6.0-PL330; 6.5-PL330P; 9.5-PL320QMD; 12.0-PL330QMD; 12.5-PL330DP; 13.5-PL320QMT; 15.5-PL330QMT; 16.0-PL330TP.
Height	170mm (All Models)
Width	155mm (PL154, PL320, PL330); 207mm (PL330P); 350mm (PL320QMD, PL330QMD, PL330DP); 425mm (PL320QMT, PL330QMT, PL330TP.
Depth	265mm (PL154, PL320, PL320QMD, PL320QMT); 300mm (PL330, PL330QMD, PL330QMT, PL330P, PL330DP, PL330TP).

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

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THURLBY THANDAR INSTRUMENTS

PL & PL-P Series

Laboratory Power Supplies

Standard and Bus Programmable versions

Single, dual and triple output models

Power from 66 watts to 240 watts