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Find the *Thurlby Thandar PL330QMD* at our website: *Click HERE*

THURLBY THANDAR INSTRUMENTS

PL series Precision Laboratory DC Power Supplies



- Simultaneous digital metering of voltage and current.
- True constant voltage or constant current operation.
- Twin 3.75 digit meters with large LED displays.
- 0.1% accuracy; 0.01 Volts and 0.001 Amps resolution.
- Excellent stability, resolution and setting accuracy.
- DC output switches, automatic mode indication.
- Precise control and monitoring of current limit settings.
- Remote sense facility for high-current precision.
- Current meter damping switch for fluctuating currents.
- Parallel, series & tracking modes on QMD & QMT models.
- High current “logic supply” output on QMT models.

Model Range:
PL154 - Single output, 0 to 15.5V at 0 to 4A.
PL320 - Single output, 0 to 32V at 0 to 2.1A.
PL330 - Single output, 0 to 32V at 0 to 3.1A.
PL320QMD - Dual output, 2 x 0 to 32V at 0 to 2.1A.
PL330QMD - Dual output, 2 x 0 to 32V at 0 to 3.1A.
PL320QMT - Triple output, 2 x 0 to 32V at 0 to 2.1A plus 4 to 6V at 0.1 to 4A.
PL330QMT - Triple output, 2 x 0 to 32V at 0 to 3.1A plus 4 to 6V at 0.1 to 7A (Metered).

The Thurlby Thandar PL series of laboratory bench power supplies has established itself in many countries as an “industry standard” range.

High resolution controls are combined with precision metering and remote sense terminals. Dual and triple output models incorporate quad-mode switching which provides push-button selection of isolated, true parallel, series or series-tracking modes.

MAIN OUTPUT(S)

Output Range:	0 - 32 Volts nominal; 0 - 15.5V (PL154). 0 - 2.1A (PL320); 0 - 3.1A (PL330); 0 - 4A (PL154).
Voltage Setting:	By coarse and fine controls; resolution <5mV.
Current Setting:	By single logarithmic control.
Output Mode:	Constant voltage or constant current modes with automatic cross-over.
Configuration Selection:	Isolated, True parallel, Series or Series Tracking via front panel switches. (QMD and QMT only)
Output Switch:	Isolates the output. Permits voltage and current limits to be set up before connecting the load.
Output Terminals:	4mm terminals on 19mm (0.75") spacing.
Output Impedance:	Constant Voltage: Typically <5mΩ at 1kHz. Constant Current: Typically 50kΩ.
Output Protection:	Max. output voltage +20 volts forward; diode clamped for reverse, up to 3A reverse current.
Load Regulation:	<0.01% of max. output for 90% load change
Line Regulation:	<0.01% of max. output for 10% line change
Remote Sense:	Eliminates up to 0.5V drop per lead.
Ripple and Noise:	Typically <1mV rms
Transient Response:	<20usec to <50mV for 90% load change
Temp. Coefficient:	Typically <100ppm/ºC
Meter Type:	Dual 4 digit with 12.5mm LEDS, Reading rate 4 per second.
Meter Resolution:	Voltage: 10mV over the entire range Current: 1mA over the entire range
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 & PL330QMT

Output Range:	4 to 6 Volts at 0.1 - 4 Amps (7A on PL330QMT).
Output Switch:	Isolates the output and permits output voltage to be set before connecting the load.
Output Protection:	Over-voltage protection operates above 7V. Diode clamped for reverse currents up to 3A.
Load Regulation:	<0.01% of max. output for 90% load change
Line Regulation:	<0.01% of max. output for 10% line change
Remote Sense:	Eliminates up to 0.5V drop per lead.
Ripple and Noise:	Typically <1mV rms
Transient Response:	<20µsec to <50mV for 90% load change
Temp. Coefficient:	Typically <100ppm/ºC

LOGIC OUTPUT METER - (PL330QMT only)

Meter Type:	3 digit with 12.5mm LEDs. Reading rate 4/s. Shows volts with ouput off, amps with output on.
Meter Resolution:	Voltage: 10mV, Current: 10mA
Meter Accuracy:	Voltage: ±(0.2% of reading + 1 digit) Current: ±(0.5% of reading + 1 digit)

GENERAL

Power Requirements:	110, 120, 220 or 240VAC 50/60Hz ±10%
Operating Range:	5ºC to 40ºC, 20% to 80% RH Storage Range: -20ºC to +60ºC
Size:	Single - 170(H) x 155(W) x 265mm(D), (PL330 - 300D) Dual - 170(H) x 350(W) x 265mm(D), (PL330QMD - 300D) Triple - 170(H) x 425(W) x 265mm(D), (PL310QMD - 350W, PL330QMD - 300D)
Weight:	PL310 - 4.0kg, PL320 & PL154 - 5.0kg, PL330 - 6.0kg, PL310QMD - 8.0kg, PL320QMD - 9.5kg, PL330QMD - 12.0kg, PL310QMT - 11.5kg, PL320QMT - 13.5kg, PL330QMT - 15.5kg.
Electrical Safety:	Designed and manufactured to comply with IEC 348 and IEC1010-1. Full safety sockets available to special order.
EMC:	Designed and manufactured to comply with EN50081–1 and EN50082–1.

Note: *This is a simple data sheet, a colour brochure is also available.*

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

Designed and built in the EEC by:

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THURLBY THANDAR INSTRUMENTS

PL & PL-P series Bench & Programmable PSUs - Supplemental

The PL series of laboratory bench power supplies

The Thurlby Thandar PL series of laboratory bench power supplies has established itself in many countries as an "industry standard" range.

Digital accuracy and convenience

PL series units incorporate digital meters with a 3.75 digit scale length (4095 counts) to provide greater accuracy and resolution than other PSUs.

Large and bright LEDs give a clear and unambiguous reading. An update rate of 4 per second provides near instantaneous response.

Separate meters are used for voltage and current, eliminating the need for meter function switches with their attendant problems of misinterpretation.

A damping switch for the current meter simplifies measurements on rapidly varying loads.

Remote sense for precision at high currents

Remote sense terminals enable the precision to be maintained at high currents by eliminating the effects of connection lead resistance.

Without remote sense lead resistance of just a few tens of milliohms can seriously degrade regulation and produce misleading results. (Two cables of 0.05Ω each will drop a total of 0.3V at 3 Amps.)

Greater resolution and control

The PL series sets the standard for simple and comprehensive control. Voltages are set with coarse and fine controls for speed with precision. Currents are set with a semi-logarithmic control for increased resolution at low current levels.

The DC output switch enables voltage and current levels to be set before the load is connected. With the output switch "off" the the current limit set point is displayed. With the output switch "on" the actual output current flowing is displayed.

This invaluable feature allows delicate circuits to be protected by accurately setting the current limit level (down to a few milliamps if necessary) before connecting the circuit under test.

Safety and protection

PL series PSUs are designed and built to meet the stringent requirements of IEC348 and IEC1010.

All outputs are fully protected against short circuit, reverse voltage and reverse currents.

A wide range of models

The PL series includes single, dual and triple output models from 66 Watts up to 240 Watts.

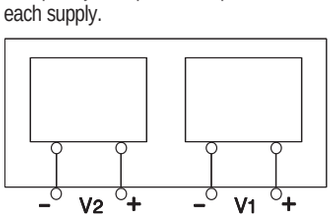
The PL series is part of a wider range of bench PSUs from Thurlby Thandar which includes models with current capabilities up to 20 Amps.

Quad-mode duals and triples

The 32V-2A and 32V-3A supplies are each available as a dual unit incorporating push button selection of four modes of operation.

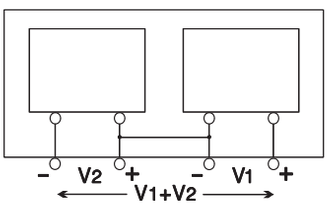
Isolated

Completely independent operation of each supply.



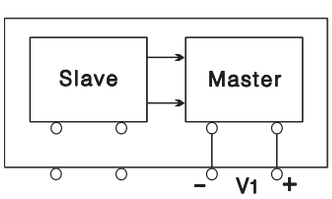
Series

Internal linking of the two supplies providing up to 64 Volts.



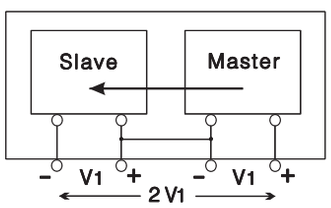
True Parallel

Converts the Master unit into a 2 Amp, 4 Amp or 6 Amp supply respectively.



Series Tracking

The Master unit voltage control sets up equal voltages on both supplies.



Each of the quad-mode dual models is alternatively available as a triple supply incorporating one further independent output. This is a higher current 5 Volt output intended for powering logic circuits. The current rating and sophistication of the logic output varies according to the model as follows:

PL320QMT

Variable output voltage (4V to 6V) and variable current limit (0.1A to 4A). Calibrated voltage control. Remote sense terminals, DC output switch, over-voltage trip.

PL330QMT

Variable output voltage (4V to 6V) and variable current limit (0.1A to 7A). Digital meter for current measurement and voltage setting. Remote sense terminals, DC output switch, over-voltage trip.

The PL-P series of programmable power supplies

The Thurlby Thandar PL-P series offers a high performance fully programmable power supply system at low cost.

Based around the 32V-3A versions of the standard PL series, the PL-P models include single, dual and triple output units suitable for bench or rack mounting.

When not connected to the bus, these PSUs can be operated exactly as a standard PL series PSU.

GPIB and RS-232 (ARC) interfaces

Each PL-P series supply is fitted with both a GPIB (IEEE-488) interface and an ARC (addressable RS232) interface as standard.

Both interfaces provide full bus control of voltage and current settings along with full readback of actual current and voltage levels.

The GPIB interface conforms fully with IEEE-488.2 as well as IEEE-488.1. The ARC interface can be used as a conventional RS-232 interface or as part of a multi-instrument ARC system.

On dual and triple output models a single bus address controls all outputs.

Fully isolated outputs for maximum flexibility

Each output is fully floating and is opto-isolated from the bus interfaces.

Outputs can be linked in series or parallel to produce higher voltages or higher currents as required.

High resolution control and readback

Voltage and current levels can be set via the bus to a resolution of 10mV and 1mA for each main output.

The 7 Amp logic output of the PL330TP can also be set to a resolution of 10mV but the current control resolution is limited to 1 Amp steps.

Each main output can be read back via the bus to a resolution of 10mV and 1mA.

Simple and consistent control

PL-P series supplies use simple and consistent command structures which make programming particularly easy regardless of which interface is used.

A National Instruments LabWindows* device driver is available as an option. LabWindows is a trademark of National Instruments Corporation.

ARC, an exclusive Thurlby Thandar innovation

ARC stands for "Addressable RS-232 Chain" and is a low-cost system for linking instruments together so that they can be controlled and monitored by a personal computer.

The ARC interface is an extension of the industry standard RS-232 interface and is exclusive to Thurlby-Thandar instruments. It differs from conventional RS-232 in that it allows multiple instruments (up to 32) to be controlled using the normal RS-232 or RS-422/423 port of a PC.

ARC provides a low-cost alternative to GPIB which utilises lower cost instruments, inexpensive cables, and can be controlled by any personal computer without the need for a special interface card or special software.

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