Applications of Programmable Power Supplies

By Mel Berman, Product Manager, TDK-Lambda

The ZUP Series are wide range programmable switching power supplies with precise laboratory performance. They provide the flexibility and control required of today's Test & Measurement, ATE and Laboratory applications. The digitally controlled front panel is easy to use and provides precise manual settings of the power supply's output.

Plus, an embedded RS232/485 digital serial interface is contained in the standard package, saving space and allowing for versatile remote settings and communications with each power supply. In addition, GPIB remote programming is available as an option.

The output voltage and current are continuously displayed on the front panel display and LED indicators show the complete operating status of the power supply. The front panel controls allow the user to set the output parameters such as the output voltage and current as well as the protection levels (over-voltage, over-current, etc.).

The ZUP Series is comprised of models rated at 200W, 400W and 800W with adjustable and programmable output voltage ranges from 0-6V up to 0-120V DC. They have active power factor correction and operate continuously from worldwide AC voltage inputs of 85 to 265VAC. Up to five ZUP units of the same output voltage and current rating can be paralleled with automatic current sharing for expanded power applications.

A rack-mount kit enables up to six 200W or 400W rated units to be mounted in the 19" rack. Or, up to three 800W units can fit in this rack. If the optional GPIB remote programming unit is used, it takes up one of the rack slots. Blanking panels are available to cover any unused slots.
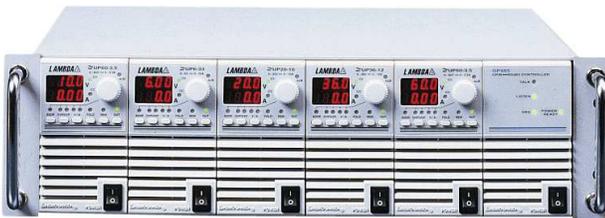
The ZUP can be configured into a digital programmable power system consisting of from 1 to 31 individual supplies by using the built-in RS232 or RS485 ports, or via the optional GPIB Controller.

Photo of 5 ZUP Programmable Supplies in a rack with a GPIB Controller (far right)

By using the remote programming feature, many parameters including the output voltage and current can be controlled from zero to their maximum ratings. In addition, alarm signals from the power supplies can be sent back to the remote computer or controller via the same digital link.

Linking ZUP units with RS485 control.
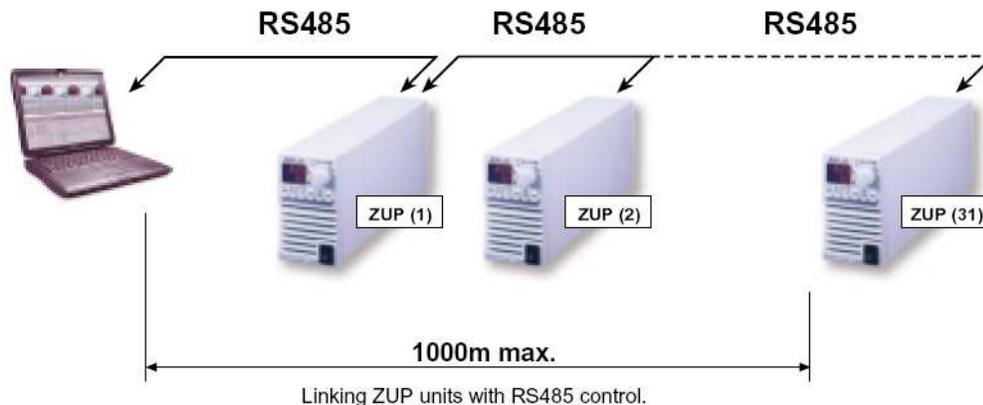
The ZUP programmable power supplies can also be remotely controlled via a computer with "HyperTerminal" software that comes with most Microsoft® Windows® operating systems including XP.

The following parameters can be remotely controlled via the ZUP's serial communication ports:

1. Output voltage setting
2. Output current setting
3. Output On/Off
4. Arming or release of the foldback protection
5. Over-voltage protection setting
6. 'Soft' under-voltage limit
7. Output voltage measurement
8. Output current measurement
9. Power supply start-up mode (last setting or safe mode)
10. Over-voltage protection setting read
11. Under-voltage limit read
12. Remote/Local Control

In addition to the many digital control and programming options, the ZUP has analog inputs at its rear panel (marked "Ext. Control") for external analog voltage or resistive programming of the output voltage and current, plus remote on/off control.

The ZUP datasheet is available at:
http://www.us.tdk-lambda.com/lp/products/zup.htm

More detailed technical information about the ZUP programmable power supplies, including the User's Manual and information on how to use HyperTerminal and the optional GPIB controller can be found at this website:
http://www.us.tdk-lambda.com/lp/technical/zup-series.htm

About TDK-Lambda:
TDK-Lambda has been a major provider of power solutions for over 60 years. The company designs and manufactures a wide range of AC-DC and DC-DC power products and EMI filters for Industrial, Medical, Telecom, Datacom and Test & Measurement applications. TDK-Lambda is a subsidiary of the TDK Corporation (TSE, LSE: TDK), a leading global electronics company (www.tdk.com). For more information, please call TDK-Lambda at 619-575-4400 or 1-800-LAMBDA-4 (toll free), or visit our website at: www.us.tdk-lambda.com/lp