

## ***Programmable DC Supplies Boast Small Footprint And High Accuracy***

[Advanced Energy](#)'s Intelligent Laboratory series (iLS) of programmable dc power supplies is said to offer industry-leading small footprint and high-power density. The iLS600, iLS600-R and iLS1500 models feature programmable capability with best-in-class measurement accuracy, according to the vendor, and a patented wireless remote sense feature that significantly reduces noise in a wide range of test and measurement applications (see the figure). These power supplies target automated test equipment (ATE) as well as R&D, laboratory and university applications.

The iLS600 and iLS600-R power supplies feature a single output that delivers power up to 600 W. The iLS1500 power supply offers a single output delivering up to 1500 W of power. Five single-output models ranging from 30 V to 400 V are available for both the iLS600 and iLS1500 (see the table). The dc power supplies allow both series and parallel operation. Output current ranges from 2.5 A to 33 A for the iLS600 and iLS600-R, and from 5 A to 70 A for the iLS1500.

Designed for both benchtop and rackmount applications, the compact, lightweight, programmable units incorporate embedded 12-bit D-A and A-D converters for highly accurate voltage and current measurement. According to Joe Voyles, vice president marketing, industrial power conversion products at Advanced Energy, this level of resolution sets the iLS series power supplies apart from most of the competing products. While some newer programmable power supplies feature 12-bit resolution, it's more common that these power supplies have 8-bit resolution. So members of the iLS series are on par with the most accurate programmable power supplies currently available, says Voyles.

Voyles adds that the use of full digital control accounts for the higher power density of the iLS series power supplies. He notes that MCUs are used on both the primary and secondary sides of these supplies, which eliminates many of the analog components which would otherwise be required, while also making it easier to change settings. "For example, if a customer wants a different setting for UVLO, we just change the code" says Voyles.

All of the iLS models feature 1 U (1.73-in.) heights. The iLS600 has an 8.82-in. (W) x 10.3-in. (D) footprint and weighs 6 lbs so that a 1 U rack mount kit will accommodate either one or two units providing up to 1200 W of total power from two outputs, all in a 1U space. Meanwhile, the iLS1500 has a 19-in (W) x 15.5-in. (D) footprint and weighs 12.8 lbs providing up to 1500 W in a 1U space, but with only one output. The 1U height is particularly well suited to ATE applications, according to Voyles.

The units feature 12-bit set point and measurement in both voltage-source and current-source mode, and the supplies are fully adjustable from 0 to max voltage and 0 to max current. Outputs are also power limited. Digital rotary controls enable rapid adjustment and fine-tuning of the output voltage and current while front (iLS600) and rear (iLS600-R and iLS1500) ports offer convenient control remotely via USB, Ethernet and analog control inputs.

The wireless remote sense feature regulates the dc voltage at the load without added sense wires to greatly reduce noise. This feature also eliminates the possibility of sense wires being connected in reverse polarity or a disconnected sense wire, both of which can damage the power supply.

Remote voltage sensing in the iLS series is accomplished by having the power supply calculate the expected voltage drop across the power supply leads and then adjust the power supply output to deliver the desired voltage at the load. Output voltage is adjusted in real time at the switching frequency of the power supply. This simulated form of voltage sensing depends on a user-performed calibration step in which the power supply measures the resistance of the leads.

Discussing the significance of this product introduction, Voyles said, "This is an important step in broadening our solutions for the test and measurement market. Offering programmable capability across a wide range of voltages, the iLS Series allows users to simulate a broad range of applications while delivering accurate measurement and reporting to meet customer requirements."

With full OCP and OVP protection, the power supplies conform to UL 60950-1, UL 62368-1 and CAN/CSA C22.2 No. 62368-1 product safety standards. They are LXI-certified for easy interoperability with other devices and available LabView Drivers.

The iLS600, iLS600-R and iLS1500 are available now. For detailed product information and technical specifications, visit the Test & Measurement Power Supplies [page](#).



**iLS600 Series**  
(Front DC Output)



**iLS600-R Series**  
(Rear DC Output)



**iLS1500 Series**

*Figure. With industry-leading small footprint and high-power density, according to the vendor, the iLS600, iLS600-R and iLS1500 feature programmable capability with best-in-class measurement accuracy, and a patented wireless remote sense feature that significantly reduces noise in a wide range of test and measurement applications.*

Table. Voltage and current ranges available for different models in the iLS600 series.

iLS600 Models	iLS600-3	iLS600-5	iLS600-10	iLS600-20	iLS600-40
iLS600-R Models	iLS600-3-R	iLS600-5-R	iLS600-10-R	iLS600-20-R	iLS600-40-R
Output Voltage	30V	50V	100V	200V	400V
Output Current	33A	20A	10A	5A	2.5A

iLS600 Models	iLS600-3	iLS600-5	iLS600-10	iLS600-20	iLS600-40
iLS600-R Models	iLS600-3-R	iLS600-5-R	iLS600-10-R	iLS600-20-R	iLS600-40-R
Output Voltage	30V	50V	100V	200V	400V
Output Current	33A	20A	10A	5A	2.5A