

Sorensen

Asterion DC 5kW Series

High Performance Programmable DC Power Supply

1.7 / 3.4 / 5.0 kW

40 V and 60 V

28 – 125 A

Advanced Features

- High power density in a 1U chassis up to 5kW
- Fixed or autoranging output models
- Intuitive touch panel control
- Multi-language display for global operation
- Auto paralleling for higher power
- Active power factor correction (PFC)
- Standard LXI LAN, USB, and RS232 interfaces
- Full remote control via Virtual Panels™



Performance. Reliance. Brilliance.

The Sorensen™ Asterion® DC Series is the newest addition to the Asterion platform of power testing solutions. The new DC series features two types of product lines: fixed range and autoranging. The fixed range supplies are economical, traditional rectangular wave output power supplies with all the enhanced operation advantages standard with the Asterion platform. The autoranging supplies feature expanded current and voltage range at the full output power level, enabling the ability to satisfy a wider testing need without requiring the purchase of additional models. Initial voltages offered are 40 V and 60 V, with current up to 125 A.

Maximize rack space utilization with leading DC power density in a 1U chassis.

Autoranging models satisfy a wider testing need in a single power supply.

Quickly and expertly control the DC supply with intuitive touchscreen.

Control via Front Panel Touchscreen & Encoder Knob or available digital control interfaces

The Asterion AC Series is Digital Signal Processor (DSP) controlled and can be operated from the intuitive, easy-to-use front panel touchscreen or the Ethernet LXI, USB and RS232 standard control interfaces, as well as through the optional GPIB control interface.

The touchscreen function group icons include a Dashboard, Output Programming Parameters, Measurements, Sequencing, Configuration, Control Interfaces, Applications, and System Settings. Function selection and parameter entry can be achieved either by direct selection from the touchscreen or by using the encoder selector button. The control resolution is adjusted by a dynamic rate change algorithm that combines the benefits of precise control over small parameter changes with quick sweeps through the entire range.

Applications

The Asterion DC Series is designed for testing today’s complex electronics, including telecommunications and commercial electronics requiring low profile, light weight power supplies with high power density. Other applications include:

- Military and aerospace electronics test
- DC power simulation
- Commercial manufacturing and process control
- Research and development
- Automotive component and battery testing
- ATE applications

Autoranging Model Output Characteristic

The Asterion DC autoranging models have an output characteristic where the full rated output power is available at voltage and current ranges greater than the conventional rectangular output characteristic of fixed range power supplies. The output current versus output voltage follows a constant-power curve to provide users a wider current and voltage operating range in a single power supply.

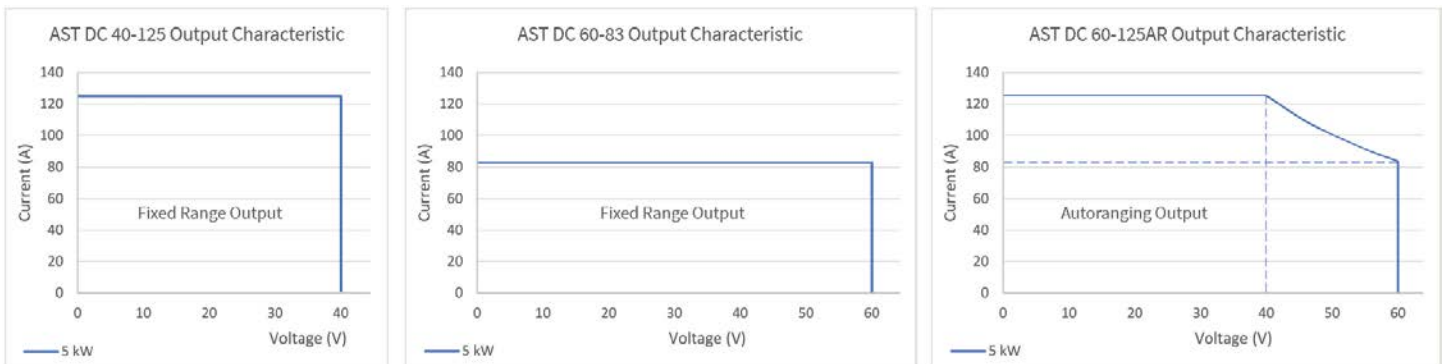
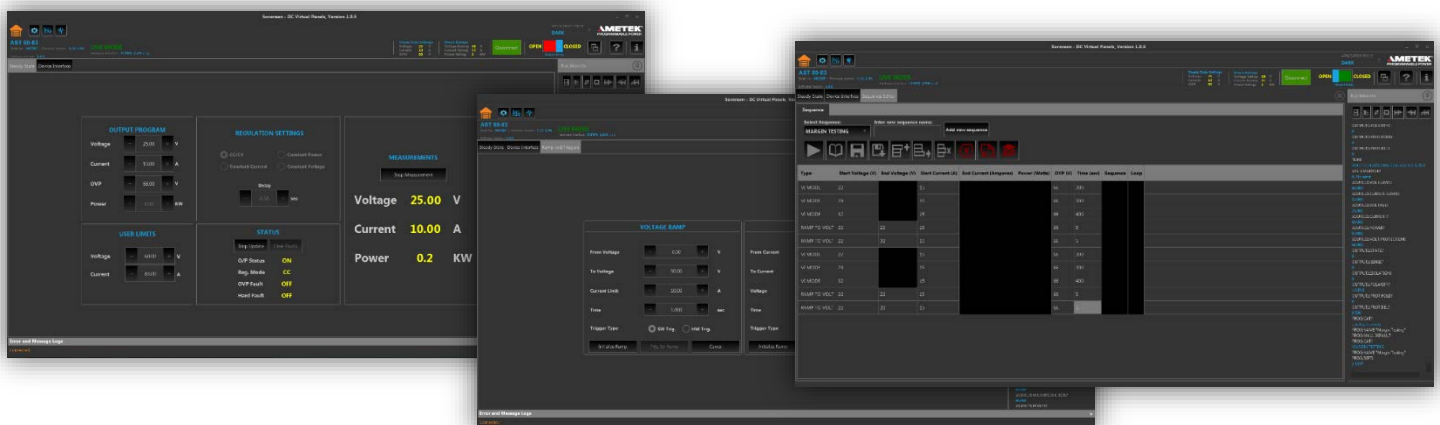


Figure 1 - Fixed Range vs Autoranging Output

Asterion DC Virtual Panels (Graphical User Interface)

Virtual Panels allow remote control of the Asterion DC power supply as well as programming communication and monitoring of the instrument without the front panel display. You are able to perform all operations via the remote Virtual Panels control as you could working directly with the unit’s front panel.



Virtual Panels “main status,” “sequencing” and “output ramp” screens are shown.

Specifications

DC Output Specifications		Fixed Range Models						Autoranging Models					
MODEL		AST 40-42	AST 60-28	AST 40-85	AST 60-56	AST 40-125	AST 60-83	AST 60-42AR	AST 40-85AR	AST 60-56AR	AST 40-125AR	AST 60-85AR	AST 60-125AR
Rated Output Voltage	V	40	60	40	60	40	60	60	40	60	40	60	60
Rated Output Current	A	42	28	85	56	125	83	42	85	56	125	85	125
Rated Output Power	W	1700	1700	3400	3400	5000	5000	1700	1700	1700	3400	3400	5000
Line Regulation	Voltage	+/- 0.01% of rated voltage											
	Current	+/- 0.05% of rated current											
Load Regulation	Voltage	+/- 0.02% of rated voltage											
	Current	+/- 0.15% of rated current											
Ripple RMS (20Hz-300kHz) c.v	mV	12											
Output noise p-p (20Hz-20MHz) c.v	mV	75											
Remote sense compensation		5% maximum of rated output voltage											
Temperature drift	PPM/C	100											
Stability		0.05% of output rating											

Programming & Readback (Front Panel or Remote Digital Interface)	
Voltage Output programming accuracy	+/- 0.1% of rated output voltage
Current Output programming accuracy	+/- 0.2% of rated output current
Power Output programming accuracy	+/- 0.3% of rated output power
Overvoltage programming accuracy	±1%, maximum, of rated output voltage
Voltage Output programming resolution	0.012% of full scale
Current Output programming resolution	0.012% of full scale
Power Output t programming resolution	0.012% of full scale
Overvoltage programming resolution	0.1% of full scale
Voltage Output readback accuracy	+/- 0.1% of rated output voltage
Current Output readback accuracy	+/- 0.2% of rated output current
Pout readback accuracy	+/- 0.3% of rated output power
Voltage Output readback resolution	0.012% of full scale
Current Output readback resolution	0.012% of full scale
Power Output readback resolution	0.012% of full scale
Overvoltage Response time	20 ms

Output Transient Specifications		
	Rated Voltage (V)	
	40 V	60 V
Voltage Rise Time ¹ (ms), Full load	60 ms	
Voltage Rise Time ² (ms), No load	20 ms	
Voltage Fall Time ³ (ms), Full load	50 ms	
Voltage Fall Time ⁴ (ms), No load	800 ms	900 ms
Transient response ⁵ (ms)	1 ms	

¹) Maximum time, from 0-100% of programming change from zero to rated output voltage with rated resistive load.
Current rise time is same as the voltage rise time

²) Maximum time, from 0-100% of programming change from zero to rated output voltage with No load.

³) Maximum time, from 100%-0 of programming change from rated output voltage to zero with rated resistive load.
Current fall time is same as the voltage fall time

⁴) Maximum time, from 100%-0 of programming change from rated output voltage to zero with No load

⁵) Typical time to recover within 0.75% of rated output voltage for load step change of 90% of rated output current

Remote Control Digital Interfaces	
LAN	Ethernet 10BASE-T and 100BASE-T over twisted-pair cables compliant with IEEE 802.3; Connector: 8P8C modular jack.
RS-232	Serial interface compliant to RS-232C; Protocol: data bits, 7 with parity and 8 without parity; stop bits, 2; baud rate, 9600 to 115200; handshake, CTS and RTS; Connector: Subminiature-D, 9-contact receptacle.
USB	Serial interface compliant to USB 2.0; Connector: Type-B receptacle.
IEEE-488 (Option)	Parallel interface complies with IEEE-488.1, IEEE-488.2, and the SCPI command specification; command execution response time, 10 ms, typical; connector: IEEE-488.1 compliant.

Unit Protection	
Output Overvoltage Protection (OVP)	Programmable to 110% of full-scale output voltage; exceeding OVP threshold results in shutdown of output.
Output Current Limit Protection	User-selectable fold back mode CV/CC/CP or CV or CC or CP models.
	In CV/CC/CP mode, output current or power is regulated to setpoint on reaching limit.
	In CV mode, on reaching current or power limits results in shutdown of output;
	In CC mode, on reaching voltage or power limits results in shutdown of output;
	In CP mode, on reaching voltage or current limits results in shutdown of output;
	In CV or CC or CP mode, shutdown delay on reaching the limit is programmable from 100 ms to 5 s.
AC Input Overcurrent Protection	Internal fuses in each phase for fault isolation; not user replaceable
AC Input Undervoltage Protection	Automatic shutdown for insufficient AC input voltage
AC Input Transient Protection	Protection to withstand EN61326-1, Class-A surge levels
Overtemperature Protection (OTP)	Internal temperature monitors cause shutdown of output if temperature thresholds are exceeded

AC Input Specifications	
Input Voltage, Nominal Rating	1-Phase line-neutral: 100 VAC-132 VAC low-input range, and 200 VAC-240 VAC high-input range. 3 Phase Line-Line: 200VAC-240VAC
Input Voltage, Operating Range	1-Phase line-neutral: 90-145 VAC low-input range, and 180VAC-264VAC high-input range 3-Phase line-line: 180 VAC-264 VAC
Current ¹ , maximum per phase	1-Phase line-neutral: 19 A (RMS) at 90 VAC, 18 A (RMS) at 180 VAC, 21 A (RMS) at 200 VAC 3-Phase line-line: 20 A (RMS) per phase at 180 VAC
Input Frequency, Nominal Rating	DC or AC 50 Hz, 60 Hz, 400 Hz
Input Frequency Range	DC or AC 47-63Hz, 360-440 Hz
Efficiency ¹ , typical	89% for 1.7 kW Models 91% for 3.4 kW and 5 kW 1U Models
Power Factor ² , typical	0.98 for Single Phase High Range and 0.94 for three phase input
Hold-Up Time ³ , typical	≥10 ms
Inrush Current, typical	50 A (PK) at 264 VAC
1-PH Input Connections	2 wires + ground, 264 VAC, Maximum Line-Neutral or Line-Line
3-PH Input Connections	3 wires + ground; delta configuration; 264 VAC, maximum line-to-line
Isolation Voltage	1500VAC primary to earth, 3000VAC on primary to SELV and Hazardous secondary to SELV isolation barriers
THDV	≤1%

¹) Typical Value, at full load, with 200VAC Input voltage

²) At full load and with 200VAC input voltage, 50/60 Hz input frequency

³) Typical Value, At full load and with nominal AC input voltage, 50/60 Hz input frequency

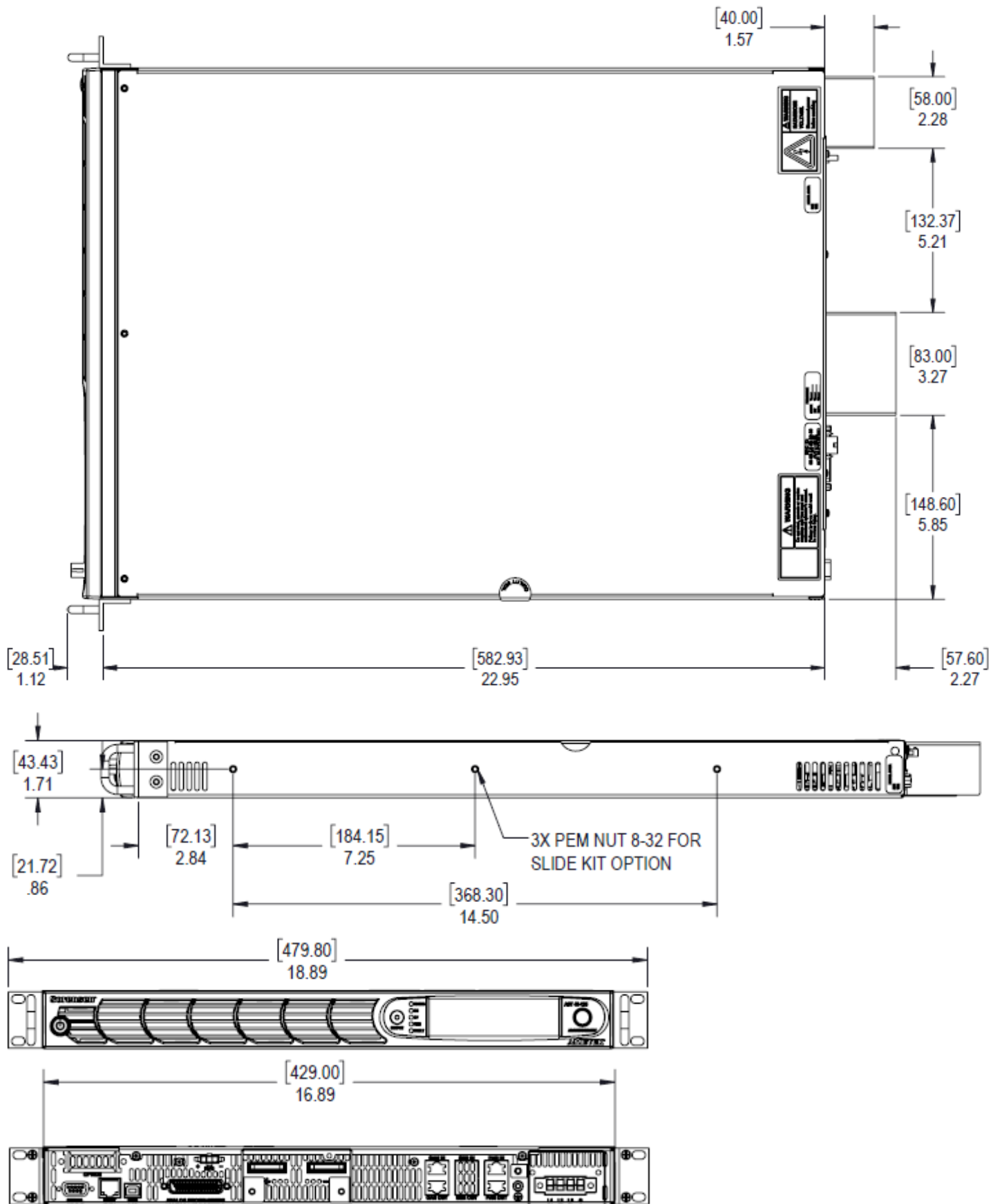
Output Power Derating Characteristics with AC Input Voltage				
Rated Output Power	1-Phase Low Input Range	1-Phase High Input Range	1-Phase High Input Range	3-Phase
	(90 -145 V AC)	(180-200VAC)	(200-264 VAC)	(180 -264 VAC)
1.7 kW	1.2 kW	1.7 kW	1.7 kW	1.7 kW
3.4 kW	1.2 kW	3.0 kW	3.4 kW	3.4 kW
5.0 kW	1.7 kW	3.4 kW	3.4 kW	5.0 kW

Mechanical Specifications	
Dimensions	H, 1.75" (44.45 mm); W (front panel), 19.0" (483mm); D, 23.0" (584mm); H, 1.75" (44.45 mm); W (chassis), 16.9" (483mm); D, 23.0" (584mm).
Unit Weight	28 lbs
Shipping Weight	34 lbs
Chassis Material	Steel with plastic front panel
Chassis Finish	Galvanized Zinc, G90

Environmental Specifications	
Operating Temp	0° to +50° C
	+32° to +122° F.
Storage Temp	-30° to +85 °C.
	-22° to +185° F.
Operating Humidity	20-90 %, non-condensing
Storage Humidity	10-95 %, non-condensing
Altitude	3000 m (10,000 ft), output current derating 2%/100m or Tambient 1°C/100m above 2000m
Cooling	Force-air cooling; linear, variable fan speed control; air intake at front/sides and exhaust at rear.
Acoustic Noise	68 dBA, maximum; measured at 1 m with A-weighting.
Vibration	MIL-PRF-28800F, Class 3; 5-500 Hz per Paragraph 4.5.5.3.1
Shock	MIL-PRF-28800F, Class 3; 30G half-sine with 11ms duration per Paragraph 4.5.5.4.1
Transportation Integrity	ISTA Test Procedure 1A

Regulatory Agency Compliance	
EMC	CE marked for EMC Directive 2014/30/EV per EN61326-1:2013, Class-A for emissions and immunity as required for the EU CE Mark.
Safety	CSA NRTL certified for US and Canada to CAN/CSA-C22.2 No. 61010-1-12, UL 61010-1 Third Edition. CE marked for LVD compliance 2014/35/EV to EN 61010-1 Third Edition as required for the EU CE mark.
CE Mark LVD Categories	Installation Overvoltage Category: II; Pollution Degree: 2; Class II equipment; indoor use only.
RoHS	CE marked for compliance with EU Directive 2011/65/EU for Restriction of Hazardous Substances in Electrical and Electronic Equipment.

Chassis Dimension Drawings (1U)

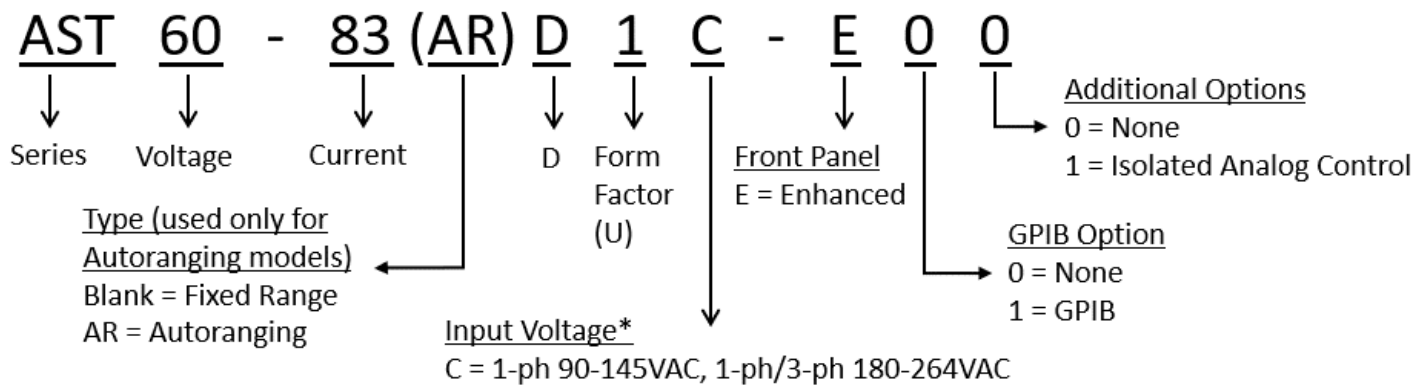


Options & Order Information

Options:

Asterion - Options	
Option	Description
GPIB	
NOTES	
0	None
1	GPIB Interface
Additional Options	
NOTES	
0	None
1	Isolated Analog Control
ACCESSORIES	
NOTES	
5330201-01R	Rack Slides (1 pair)
AST-Z540	ANSI Z540 Certified Calibration
AST-17025	ISO 17025 Certified Calibration

Model Number Description:



* Note: See manual for output power ratings vs input voltage

Warranty Statement:

AMETEK Programmable Power Inc. warrants its products to be free from defects in material and workmanship. The warranty period is from the date of original shipment of the product to the original purchaser (see website for warranty periods by product). Asterion DC 1U (up to 5 kW) comes with a **five (5)** year warranty. Extended warranties available.