# AUM™ FAMILY Programmable DC Power Supplies


- 500W O/P Power
- 1U Half-Rack
- Front Panel Encoder & Tactile Switch Inputs
- 4-Digit Displays for V & I
- RS-485 & CAN Interface – Standard Models
- IEEE488.2 or LAN, USB – Optional Interfaces
- Rear Panel Analog Programmability
- Fan Speed Control for Reduced Acoustic Noise

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## 1.0 AUM Product Family

Each model of the AUM product-family delivers stable 500W of DC output power with automatic crossover feature and is a high-performance, feature-rich programmable DC power supply housed in an industry-standard 1U, Half-rack enclosure. Output DC Voltage and DC Current can be programmed using (1) front panel encoders, (2) rear panel analog programming interface or (3) RS-485 / CAN Host communication control. Factory installed IEEE 488.2 or LAN, USB interface options are also available. CAN message IDs can be factory customized per user format and requirements.

Acoustic noise is minimized through implementation of speed controlled DC fans.

## 2.0 Applications

- Automated Test Equipment (ATE)
- Electroplating
- Factory Automation & Process Control
- Telecom & IT Industry
- Semiconductor Manufacturing
- Fuel-Cell Test Stands
- Renewable & alternate Energy R&D
- Battery Charging & Testing
- Aerospace & Defense
- Component Testing & Quality Control
- Research Labs & Educational Labs

## 3.0 Model Highlights

| MODEL | DC OUTPUT | | RIPPLE [5Hz ~ 1MHz] | | RIPPLE + NOISE [20MHz] | SOURCE EFFECT | | LOAD EFFECT | |
|---|---|---|---|---|---|---|---|---|---|
| | VOLTS[1] (V) | AMPS[2] (A) | CV | CC | CV | CV[4] | CC[4] | CV[5] | CC[6] |
| | | | r.m.s (mV) | r.m.s (mA)[3] | mV (p-p) | mV | mA | mV | mA |
| AUM 12.5-40 | 0-12.5 | 0-40 | 8 | 100 | 60 | 3.3 | 7.5 | 3.3 | 15.5 |
| AUM 20-25 | 0-20 | 0-25 | 8 | 75 | 60 | 4 | 5 | 4 | 10.5 |
| AUM 30-16.67 | 0-30 | 0-16.67 | 8 | 40 | 60 | 5 | 4.2 | 5 | 8.5 |
| AUM 40-12.5 | 0-40 | 0-12.5 | 8 | 35 | 60 | 7 | 3.8 | 7 | 7.5 |
| AUM 50-10 | 0-50 | 0-10 | 8 | 30 | 60 | 9 | 3.5 | 9 | 7 |
| AUM 60-8.34 | 0-60 | 0-8.34 | 8 | 25 | 60 | 10 | 3.4 | 10 | 6.7 |
| AUM 80-6.25 | 0-80 | 0-6.25 | 8 | 19 | 80 | 11 | 3.2 | 11 | 6.2 |
| AUM 100-5 | 0-100 | 0-5 | 8 | 17 | 80 | 13 | 3 | 13 | 6 |
| AUM 150-3.33 | 0-150 | 0-3.34 | 10 | 16 | 100 | 110 | 2.8 | 110 | 5.67 |
| AUM 300-1.67 | 0-300 | 0-1.67 | 20 | 9 | 120 | 125 | 2.7 | 125 | 5.34 |
| AUM 400-1.25 | 0-400 | 0-1.25 | 40 | 8 | 200 | 200 | 2.6 | 200 | 5.25 |
| AUM 600-0.84 | 0-600 | 0-0.84 | 60 | 6 | 300 | 300 | 2.6 | 300 | 5.17 |

*Notes:*

1. *Minimum voltage is guaranteed to be within 0.2% of the rated output voltage*
2. *Minimum current is guaranteed to be within 0.4% of rated output current*
3. *Measured at 10% - 100% of O/P voltage and @ full O/P current*
4. *Measured @ constant load at 85~132VAC or 170~280VAC*
5. *Measured at constant I/P voltage from no-load to full-load*
6. *Measured at constant I/P voltage for a 10% to 100% of rated output voltage change*

## 4.0 Remote Sensing, Response Time, Efficiency & Drift

| MODEL | Remote Sense drop/line | Response Time | | | | Efficiency % (@ Max O/P Power) | | Temp. Coeff. |
|---|---|---|---|---|---|---|---|---|
| | | 0 to $V_0$ | $V_0$ to 0 Full Load | $V_0$ to 0 No Load | Transient[7] | | | |
| | V | mS | mS | S | mS | 100 VAC | 200 VAC | PPM/ °C |
| AUM 12.5-40 | 1 | 80 | 50 | 0.6 | 1 | 81 | 83 | 100 PPM/ °C (of rated $V_o$ after 30 minutes warmup) |
| AUM 20-25 | 1 | 80 | 50 | 0.8 | 1 | 83 | 86 | |
| AUM 30-16.67 | 1.5 | 80 | 80 | 0.9 | 1 | 83 | 86 | |
| AUM 40-12.5 | 2 | 80 | 80 | 1 | 1 | 84 | 88 | |
| AUM 50-10 | 2 | 80 | 80 | 1.1 | 1 | 84 | 88 | |
| AUM 60-8.34 | 3 | 80 | 80 | 1.1 | 1 | 84 | 88 | |
| AUM 80-6.25 | 4 | 150 | 150 | 1.2 | 1 | 84 | 88 | |
| AUM 100-5 | 5 | 150 | 150 | 1.5 | 1 | 84 | 87 | |
| AUM 150-3.33 | 5 | 150 | 150 | 2 | 2 | 83 | 87 | |
| AUM 300-1.67 | 5 | 150 | 150 | 2.5 | 2 | 83 | 87 | |
| AUM 400-1.25 | 5 | 150 | 150 | 3 | 2 | 83 | 87 | |
| AUM 600-0.84 | 5 | 250 | 300 | 4 | 2 | 83 | 87 | |

*Notes:*

*7) Conditions: Time for Output to recover within 1% of its rated voltage for a 10-90% load change*

## 5.0 Analog Programming (Rear Panel)

| | | |
|---|---|---|
| 5.1 | Voltage Programming[8] | User Selectable 0 - 5V / 0 - 10V for 0 –100 % of Vout |
| | | User Selectable 0 - 5kΩ / 10kΩ for 0 –100 % of Vout |
| 5.2 | Current Programming[9] | User Selectable 0 - 5V / 0 - 10V for 0 –100 % of Iout |
| | | User Selectable 0 - 5kΩ / 10kΩ for 0 –100 % of Iout |
| 5.3 | Output ON/OFF Control | User Selectable logic: 0 V / 5 V , or by Dry Contact |
| 5.4 | Enable/Disable | Dry Contact: Open = O/P OFF, Short = O/P ON. Max allowed voltage on Enable Pin = 7V |

*Notes:*

*8) Accuracy and Linearity +/-0.5% in voltage programming mode and +/-1% in resistance programming mode of Rated Output Voltage*

*9) Accuracy and Linearity +/-1% in voltage programming mode and +/-1.5% in resistance programming mode of Rated Output Current*

## 6.0 Analog Monitoring (Rear Panel)

| | | |
|---|---|---|
| 6.1 | Voltage Monitoring | User Selectable 0 - 5V / 0 - 10V (*Accuracy +/-1%)* |
| 6.2 | Current Monitoring | User Selectable 0 - 5V / 0 - 10V (*Accuracy +/-1%)* |
| 6.3 | Power Supply GOOD signal | TTL: High=GOOD, Low=Output OFF/FAIL |
| 6.4 | CV/CC indicator | Open Collector. High = CV, Low = CC. Max. pull-up voltage = 15V |

## 7.0 Interface RS-485 & CAN

| | | |
|---|---|---|
| 7.1 | RS-485 | Default Baud Rate: 9600 bps (Adjustable:1200,2400,4800,9600,19200) |
| 7.2 | CAN | Baud Rate: 500kbps (Message IDs factory configured per user requirement) |
| 7.3 | Voltage Prog. Resolution & accuracy | 0.012% of rated output voltage |
| 7.4 | Current Prog. Resolution & accuracy | 0.012% of rated output current |
| 7.5 | Voltage Read Back Resolution & accuracy | 0.012% of rated output voltage |
| 7.6 | Current Read Back Resolution & accuracy | 0.012% of rated output current |
| 7.7 | OVP/UVL Prog. Resolution & accuracy | 0.1% of rated output voltage |

## 8.0 Front Panel Controls & Indications

| | | |
|---|---|---|
| 8.1 | Voltage & Current Adjust | Separate Encoders for Volt & Current. Fine control is selectable. |
| 8.2 | OVP & UVL Adjust | Using Voltage Encoder subsequent to pressing “OVP/UVL” Key |
| 8.3 | Output ON/OFF | Enable / Disable Output using “OUT” Key |
| 8.4 | Address Setting | Using Voltage Encoder and “REM” Key (31 Addresses) |
| 8.5 | Baud Rate Setting(RS-485) | Using Current Encoder and “REM” key (Selectable:1200, 2400, 4800, 9600 & 19200 bps) |
| 8.6 | AC Disconnect | Using Rocker Switch |
| 8.7 | Set Point adjust & View | Using “PREV” Key and respective encoders |
| 8.8 | Front Panel Lock | Depressing “PREV” key toggles between Lock & Unlock options |
| 8.9 | Power Restart Modes | Depressing “OUT” Key toggles between Auto & Safe mode options |
| 8.10 | Foldback Trip (CV to CC) | Foldback trip can be armed & disarmed using “FOLD” Key |
| 8.11 | LED Indications | CV, CC, ON, Fine, Preview, Fold, Remote & Fault |
| 8.12 | Display | 4-Digits each for Voltage & Current (accuracy 0.5% +/- 1 Count) |

## 9.0 Protective Functions

| | | | | |
|---|---|---|---|---|
| 9.1 | Max. OVP Trip Point setting | 110% of Rated Output Voltage. | | |
| 9.2 | Minimum OVP Trip point setting | $V_o$ < 20V Models | 20V ≤$V_o$ ≤40V Models | 60V ≤$V_o$ ≤600V Models |
| | | 1V | 2V | 5V |
| 9.3 | Over Current Protection | 0 – 105 % Constant O/P Current with “FOLD” disarmed. Output shutdown with “FOLD” armed | | |
| 9.4 | Over Temp. Protection | Latched / Unlatched, user selectable | | |

## 10.0 Input AC Specifications

| | | |
|---|---|---|
| 10.1 | Input Voltage | 85 - 280 VAC; 50/60 Hz; Single Phase |
| 10.2 | Input Current | 7.7 A @ 85 VAC, 2.5 A @ 240 VAC |
| 10.3 | Power Factor | 0.98 @ 100/200 VAC and @ Rated Output Power |
| 10.4 | Inrush Current | < 25 A, 100/200 VAC |
| 10.5 | Hold Up Time | > 20 mS, 100 VAC and @ Full Load |

## 11.0 Series/Parallel Operation

| | | |
|---|---|---|
| 11.1 | Parallel Operation | Paralleling up to 4 identical units in Master/Slave mode |
| 11.2 | Series Operation | Up to 2 identical units in Series with external anti-parallel diodes. Voltage not to exceed 600V to Chassis ground. |

## 12.0 Environmental Conditions

| | | |
|---|---|---|
| 12.1 | Operating Temperature | 0 - 50 °C, at full load, |
| 12.2 | Storage Temperature | -20 to 70 °C |
| 12.3 | Operating Humidity | 30 - 90% RH (non-condensing) |
| 12.4 | Storage Humidity | 10-95% RH (non-condensing) |
| 12.5 | Altitude | Operating: 3000m (10000ft) |

## 13.0 Mechanical

| | | |
|---|---|---|
| 13.1 | Cooling | Forced air cooling from Front to Rear. Speed controlled Fans |
| 13.2 | Dimensions (WxHxD) | W: 214.3mm, H: 43.6mm, D: 417.8mm (excluding mating connectors, encoder knobs, handles etc.) |
| 13.3 | Weight | 4.0 Kg (8.81 Lbs) |
| 13.4 | AC input connector | IEC/EN 60320-1 AC inlet |
| 13.5 | Output connector | 10V – 600V models - PC terminal Block, Phoenix P/N: SPT 16/2-H-10,0-ZB |
| 13.6 | Audible Noise | < 65 dB(A) at full load and measured 1m from the front panel |

## 14.0 SAFETY[10]

| | | |
|---|---|---|
| 14.1 | Compliant Standards | C E Mark, UL60950, EN60950 listed.<br>(1) RS-485, CAN, GPIB, USB, LAN = SELV level for all models up to<br>(2) 400V. They are not SELV for model voltages > 400V<br>(3) O/P is SELV for model voltages < 60V<br>(4) O/P is hazardous for models > 60V |
| 14.2 | Dielectric Withstand Voltage | (1) I/P to O/P: 4242 VDC for 1 min for Models with Vout < 60V<br>(2) I/P to HZ-O/P: 3535 VDC for 1 min for models with Vout > 60V<br>(3 ) I/P to GND: 2828 VDC for 1 min for all models<br>(4) I/P to SELV: 4242 VDC for 1 min for models with Vout <= 400V<br>(5) O/P to GND: 2687 VDC for 1min for Models<br>(6) HZ-O/P to SELV : 2686 VDC for 1min |
| 14.3 | Insulation Resistance | > 100 MΩ @ 25 C , 70 % RH , 500 VDC |

## 15.0 Compliance Standards[11]

| | | |
|---|---|---|
| 15.1 | Radiated emission | EN55022A, FCC part 15-A, VCCI-1 |
| 15.2 | Voltage dips | EN61000-4-11 |
| 15.3 | Conducted emission | EN55022A, FCC part 15-A, VCCI-2 |
| 15.4 | Surge Immunity | EN61000-4-5, 1KV line – line, 2KV line - ground |
| 15.5 | Radiated Immunity | EN61000-4-3, 3V/m |
| 15.6 | Conducted Immunity | EN61000-4-6, 3V |
| 15.7 | ESD | EN61000-4-2, Air-disch: 8KV , Contact disch: 4KV |
| 15.8 | Fast transients | EN61000-4-4, 2KV |
| 15.9 | Current Harmonics & Flicker | EN61000-3-2 Class-A & EN61000-3-3 for 20 to 100% O/P power |

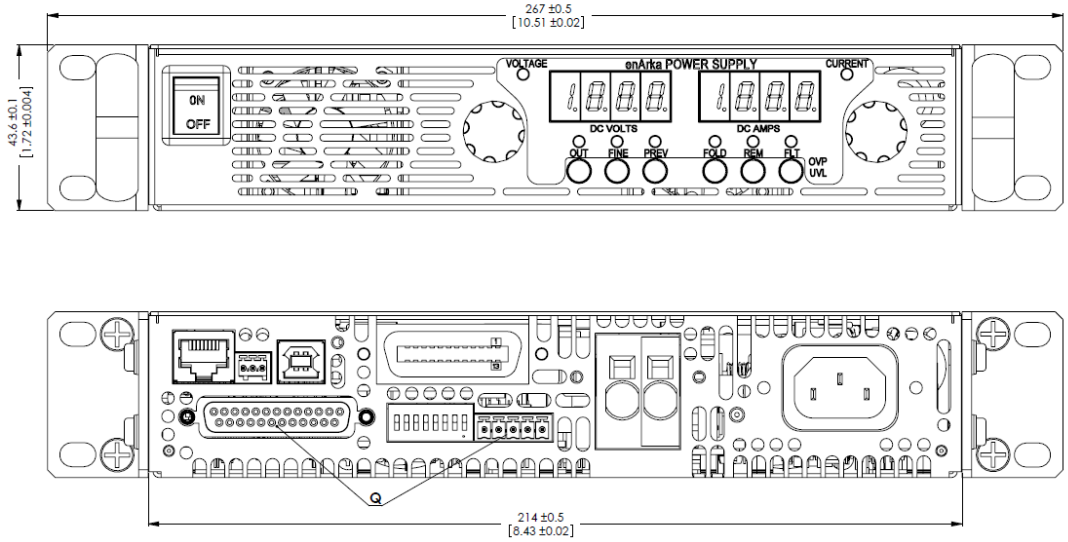
*Notes:*

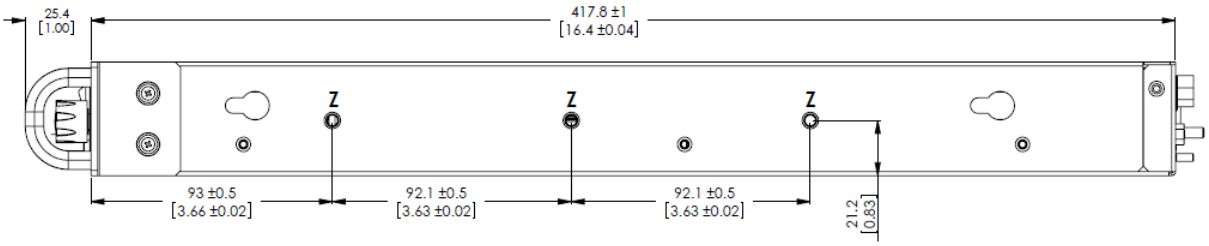
*10) Yet to obtain safety certifications; 11) Yet to obtain certifications*

## 16.0 Reliability


With 2 years extended warranty

## 17.0 Outline Drawing




NOTES:

1. MATING CONNECTORS SUPPLIED WITH THE POWER SUPPLY MARKED "Q".
2. CHASSIS SLIDES MOUNTING HOLES ISO METRIC M5 X 0.8 MARKED "Z"
   **GENERAL DEVICES P/N:** C300-S-118 OR EQUIVALENT.

## 18. Rear Panel Detailed View

**THIS IS A PRELIMINARY DATA SHEET**

All Specifications are subject to change without notice