

International + Linears

Summary:

- World-wide ac input ranges and safety standards
- Industry standard packages
- Commercial UL/CSA TUV/IEC approved—models to UL/CSA 60950; EN/IEC60950-1
- Burn-in with cycling; 3-year warranty
- Capacitors have highest CV & ripple current ratings
- Medical Approved to UL2601-1/60601-1, IEC60601-1 and CSA601.1
- Medical leakage 10 μ A
- MTBF 200,000+ hours per MIL-HDBK-217D (most units)
- All electrolytic caps rated at 105°C
- Transformer insulation meets Class F (155°C)
- Exceed FCC and CISPR22, Class B conducted emissions
- RoHS Compliant models available (G suffix)
- $\text{C}\epsilon$ marked to LVD



SPECIFICATIONS

| |
|---|
| Ac Input 100, 120 and 240 Vac: +10%, -13%; 215 Vac: +12%, -11%; 47 to 63Hz. Tolerance for 230 Vac operation is +15%, -10%. Derate output current 10% for 50 Hz operation. |
| Dc Output See voltage rating chart. Adjustment range \pm 5% minimum except HA series. |
| Line Regulation \pm 0.05% for a 10% change. |
| Load Regulation \pm 0.05% for a 50% load change. |
| Output Ripple 3 mV +0.05% of output voltage, peak to peak maximum. All "3-terminal regulator" outputs: 3 mV +0.2% peak to peak maximum. |
| Transient Response <50 microseconds for 50% load change. |
| Short Circuit Protection Automatic current limit/foldback. |
| Overvoltage Protection Built-in on all 5 V models, set at 6.2 V \pm 0.4 V. Other models use optional over-voltage protection. |

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| Remote Sensing Provided on all models; open sense lead protection built-in (except HA & HTAA series). |
| Stability \pm 0.05% for 24 hours after warmup. |
| Temperature Rating 0 to 50°C full rated, derated linearly to 40% at 70°C. |
| Temperature Coefficient \pm 0.01%/°C maximum. |
| Efficiency 5 V units: 45%; 12 and 15 V units: 55%; 20 and 24 V units: 60%. |
| Logic Inhibit and Current-Share F & G models. |
| Medical Stock and Vibration Per Mil-Std-810D, Method 514.3, Category 1, Procedure 1. Per Mil-Std-810D, Method 516.3, Procedure III. |
| Storage -40 to +85 °C. |

All specifications are typical at nominal input, full load at 25°C unless otherwise stated

| Commercial Model (Single) | Medical Model | Voltage | Current | Case |
|---------------------------|---------------|---------|---------|------|
| HB2-3-A+G | | 2 V | 3 A | B |
| HC2-6-A+G | | 2 V | 6 A | C |
| HE2-18-A+G | | 2 V | 18 A | E |
| | ML5-1-OV-A | 5 V | 1.0 A | L |
| HA5-1.5-OV-A+G | | 5 V | 1.5 A | B |
| HB5-3-OV-A+G | | 5 V | 3 A | B |
| HC5-6-OV-A+G | | 5 V | 6 A | C |
| HN5-9-OV-A+G | | 5 V | 9 A | N |
| HD5-12-OV-A+G | | 5 V | 12 A | D |
| HE5-18-OV-A+G | | 5 V | 18 A | E |
| F5-25-OV-A+*G | | 5 V | 25 A | F |
| G5-35-OV-A+ *(1) | | 5 V | 35 A | G |
| CP197-A+G | | 5 V | 50 A | G |
| | ML12-0.5-A | 12 V | 0.5 A | L |
| HA15-0.9-A+ (12 V)G | | 12 V | 0.9 A | B |
| HB12-1-7-A+G | MB12-1-7-A | 12 V | 1.7 A | B |
| HC12-3.4-A+G | MC12-3.4-A | 12 V | 3.4 A | C |
| HN12-5.1-A+G | | 12 V | 5.1 A | N |
| HD12-6.8-A+G | MD12-6.8-A | 12 V | 6.8 A | D |
| HE12-10-2-A+G | | 12 V | 10.2 A | E |
| | | | | |
| | ML15-0.4-A | 15 V | .4 A | L |
| HA15-0.9-A+G | | 15 V | 0.9 A | B |
| HB15-1.5-A+G | MB15-1.5-A | 15 V | 1.5 A | B |
| HC15-3-A+G | MC15-3-A | 15 V | 3 A | C |
| HN15-4.5-A+G | | 15 V | 4.5 A | N |
| HD15-6-A+G | MD15-6-A | 15 V | 6 A | D |
| HE15-9-A+G * | | 15 V | 9 A | E |
| F15-15-A+G * | | 15 V | 15 A | F |
| | | | | |
| HA24-0.5-A+G | | 24 V | 0.5 A | B |
| HB24-1.2-A+G | MB24-1.2-A | 24 V | 1.2 A | B |
| HC24-2.4-A+G | MC24-2.4-A | 24 V | 2.4 A | C |
| HN24-3.6-A+G | | 24 V | 3.6 A | N |
| HD24-4.8-A+G | MD24-4.8-A | 24 V | 4.8 A | D |
| HE24-7.2-A+G * | | 24 V | 7.2 A | E |
| F24-12-A+G * | | 24 V | 12 A | F |
| HA24-0.5-A+ (28 V)G | | 28 V | 0.5 A | B |
| HB28-1-A+G | MB28-1-A | 28 V | 1 A | B |
| HC28-2-A+G | MC28-2-A | 28 V | 2 A | C |
| HN28-3-A+G | | 28 V | 3 A | N |
| HD28-4-A+G | MD28-4-A | 28 V | 4 A | D |
| HE28-6-A+G * | | 28 V | 6 A | E |
| F24-12-A+(28 V)G * | | 28 V | 10 A | F |
| HB48-0.5-A+G | | 48 V | 0.5 A | B |
| HC48-1-A+G | | 48 V | 1 A | C |
| HD48-3-A+G ** | | 48 V | 3 A | D |
| HE48-4-A+G | | 48 V | 4 A | E |
| F48-6-A+G * | | 48 V | 6 A | F |

Notes:

1. All single output models have isolated outputs.
2. Model G5-50-OV-A+ not RoHS compliant

| Commercial Model (Dual) | Medical Model | Output 1 | Output 2 | Case |
|-------------------------|---------------|-------------------------|--------------------------|------|
| HAA5-1.5-OV-A+G | | 5 V @ 1.5 A | 5 V @ 1.5 A | AA |
| HBB5-3-OV-A+G | | 5 V @ 3 A | 5 V @ 3 A | BB |
| HCC5-6-OV-A+G | | 5 V @ 6 A | 5 V @ 6 A | CC |
| HAA512-A+G | MAA512-A | 5 V @ 2 A | 9 to 15 V (adj) @ 0.5 A | AA |
| HBB512-A+G | MBB512-A | 5 V @ 3 A | 9 to 15 V (adj) @ 1.2 A | BB |
| HCC512-A+G ** | MCC512-A | 5 V @ 6 A | 9 to 15 V (adj) @ 2.5 A | CC |
| HAA524-A+G ** | MAA524-A | 5 V @ 2 A | 18 to 24 V (adj) @ 0.3 A | AA |
| HBB524-A+G | MBB524-A | 5 V @ 3 A | 18 to 24 V (adj) @ 0.8 A | BB |
| HCC524-A+G | MCC524-A | 5 V @ 6 A | 18 to 24 V (adj) @ 2 A | CC |
| HAD12-0.4-A+G | | +12 V @ 0.4 A | -12 V @ 0.4 A | B |
| | MLL12-0.25-A | +12 V @ 0.25 A | -12 V @ 0.25 A | L |
| | MLL15-0.2-A | +15 V @ 0.2 A | -15 V @ 0.2 A | L |
| HAD15-0.4-A+G | | +15 V @ 0.4 A | -15 V @ 0.4 A | B |
| HAA15-0.8-A+G | MAA15-0.8-A | +15 V @ 0.8 A | -15 V @ 0.8 A *** | AA |
| HBB15-1.5-A+G | MBB15-1.5-A | +15 V @ 1.5 A | -15 V @ 1.5 A *** | BB |
| HCC15-3-A+G | MCC15-3-A | +15 V @ 3 A | -15 V @ 3 A *** | CC |
| HDD15-5-A+G | | +15 V @ 5 A | -15 V @ 5 A *** | E |
| HAA24-0.6-A+G | | +18 to 24 V @ 0.4/0.6 A | -18 to 24 V @ 0.4/0.6 A | AA |
| CP323-A+G | | +5 V @ 2 A | +12 V @ 4 A | BB |

** May require fan cooling

*** No. 2 output usable at -5 V, rate at 1/2 of 15 V current rating.

| Commercial Model (Triple) | Medical Model | Output 1 | Output 2 | Output 3 | Case |
|---------------------------|---------------|-------------|-------------------------|----------------------------|------|
| | MTLL-5W-A | 5 V @ 0.5 A | +12 to 15 V @ 0.1 A | -12 to 15 V @ 0.1 A*** | L |
| HTAA-16W-A+G | MTAA-16W-A | 5 V @ 2 A | +12 to 15 V @ 0.4/0.4 A | -12 to 15 V @ 0.4/0.4 A*** | AA |
| HBAA40W-A+G | MBAA40W-A | 5 V @ 3 A | +12 to 15 V @ 1/0.8 A | -12 to 15 V @ 1/0.8 A*** | BAA |
| HCB105W-A+G ** | | 5 V @ 3 A | +12 to 15 V @ 3.4/3.0 A | -12 to 15 V @ 3.4/3.0 A*** | CBB |
| HCAA60W-A+G | MCAA60W-A | 5 V @ 6 A | +12 to 15 V @ 1/0.8 A | -12 to 15 V @ 1/0.8 A*** | D |
| HCB75W-A+G | MCB75W-A | 5 V @ 6 A | +12 to 15 V @ 1.7/1.5 A | -12 to 15 V @ 1.7/1.5 A*** | CBB |
| CP131-A+G | | 5 V @ 8 A | +12 to 15 V @ 1.7/1.5 A | -12 to 15 V @ 1.7/1.5 A*** | NBB |
| HDBB105W-A+G * | | 5 V @ 12 A | +12 to 15 V @ 1.7/1.5 A | -12 to 15 V @ 1.7/1.5 A*** | DBB |
| HDCC150W-A+G * | | 5 V @ 12 A | +12 to 15 V @ 3.4/3 A | -12 to 15 V @ 3.4/3 A*** | DCC |

*Requires fan cooling

** May require fan cooling

***No. 3 output usable at -5 V, rate at 1/2 of 15 V current rating.

Outputs rated at 9 to 15V, 12 to 15V, or 18 to 24V are user adjustable outputs.

All outputs without + or - sign are isolated outputs and may be referenced as either a positive or negative output.

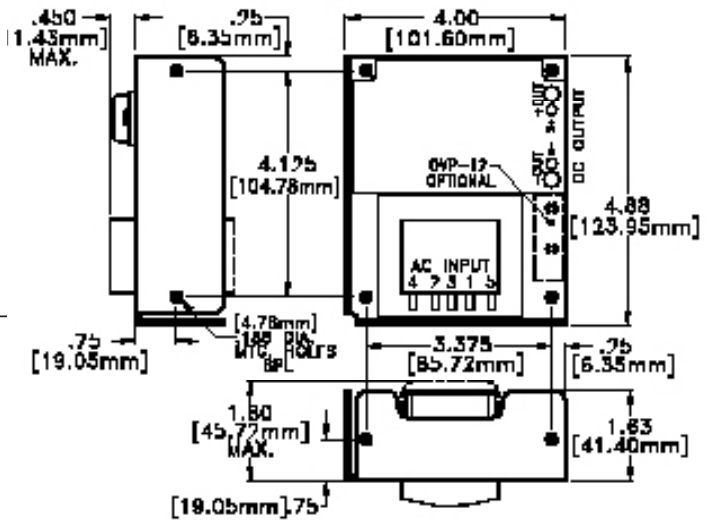
FIXED DISK SERIES

Both models without UL, CSA or TUV

| Commercial Model (Dual) | Output 1 | Output 2 | Output 3 | Case |
|-------------------------|------------|---------------------|-------------------|------|
| CP379-A+G | +5 V @ 6 A | + 24 V @ 3.5/6 A PK | -5 or -12 @ 1.2 A | NBB |
| CP498-A+G | +5 V @ 6 A | + 12 V @ 5/10 A PK | -12 V @ 0.5 A | NBB |



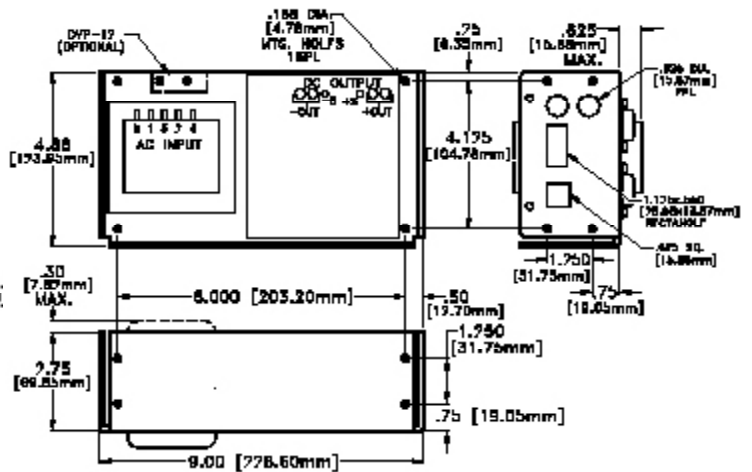
A CASE (WT. 1 LB.)



B CASE (WT. 2 LB.)



C CASE (WT. 4 LB.)



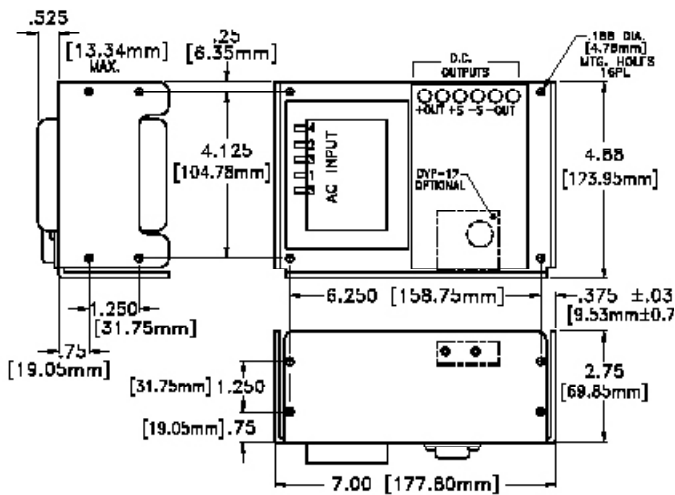
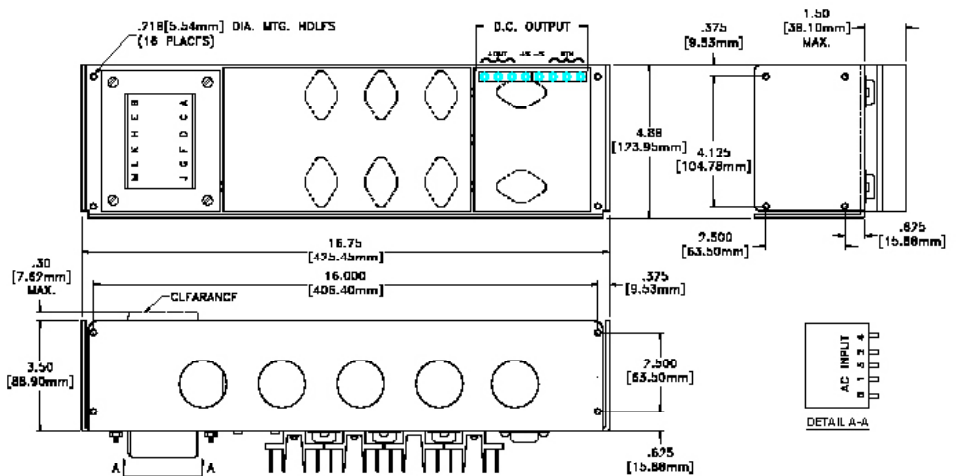
D CASE (WT. 7.5 LB.)



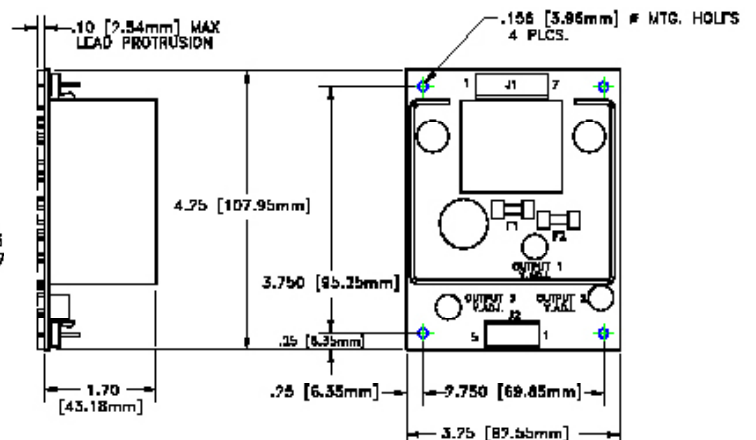
E CASE (WT. 10 LB.)

F CASE
(WT. F5: 14 LB.; F15, 24: 18 LB.)

G CASE (WT. G5: 19 LB.)



N CASE (WT. 7 LB.)



L CASE (WT. 1 LB.)



AA CASE (WT. 2 LB.)

BB CASE (WT. 4 LB.)

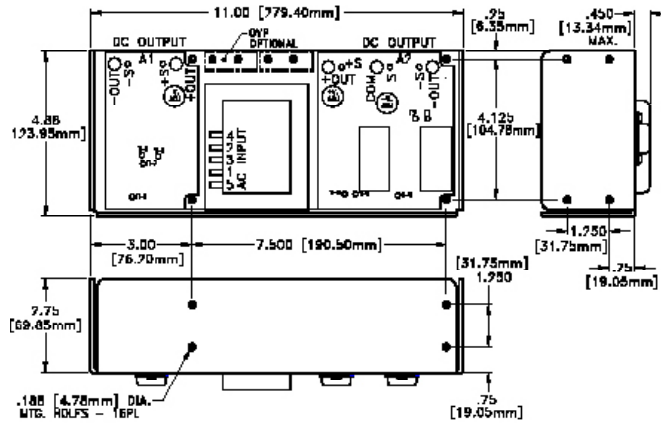
CC CASE (WT. 7 LB.)



BAA CASE (WT. 5 LB.)



CBB CASE (WT. 8 LB.)



DBB CASE (WT. 11 LB.)



DCC CASE (WT. 12 LB.)



NBB CASE (WT. 12 LB.)



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