

# ARP-2000

## 2000W SINGLE OUTPUT AC/DC CONVERTER WITH PFC

### GENERAL FEATURES:

Universal AC input (110-240VAC)  
Built-in active PFC function  
Protections: short-circuit / overload /  
over-voltage / over-temperature / fan  
failure  
PS-ON remote output voltage switch  
control  
Forced-air cooling by built-in DC fans  
C.C. and C.V. operation (output voltage  
and current adjustable)  
3-year warranty



| MODEL             | ARP-2000-35833 | ARP-2000-35555 | ARP-2000-35476 | ARP-2000-35416 | ARP-2000-35333 | ARP-2000-35278 | ARP-2000-35182 | ARP-2000-35133 |
|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| DC VOLTAGE        | 24V            | 36V            | 42V            | 48V            | 60V            | 72V            | 110V           | 150V           |
| RATED CURRENT     | 83.3A          | 55.5A          | 47.6A          | 41.6A          | 33.3A          | 27.8A          | 18.2A          | 13.3A          |
| RATED POWER       | 2000W          | 2000W          | 2000W          | 2000W          | 2000W          | 2000W          | 2000W          | 2000W          |
| EFFICIENCY (Typ.) | 88%            | 89%            | 90%            | 90%            | 90.5%          | 91%            | 91%            | 91%            |

**INPUT**

|                                   |                                 |
|-----------------------------------|---------------------------------|
| Voltage range                     | 110-240Vac                      |
| Frequency range                   | 47-63Hz                         |
| AC current (Typ.)                 | 10A / 115Vac 5A / 230Vac        |
| Inrush current (Typ., cold start) | 40A / 115Vac 22A / 230Vac       |
| Leakage current                   | < 3.5mA / 220Vac                |
| Power factor (Typ., 100% load)    | >= 0.98 @220Vac >= 0.99 @110Vac |
| Input under-voltage               | Unit disabled below 96Vac       |

**OUTPUT**

|                                   |                                                                   |
|-----------------------------------|-------------------------------------------------------------------|
| Output voltage                    | 24 / 36 / 42 / 48 / 60 / 72 / 110 / 150 Vdc (see Selection Guide) |
| Rated power                       | 2000W (all models)                                                |
| Output voltage tolerance          | +/-3.0 %                                                          |
| Line regulation                   | +/-1.0 %                                                          |
| Load regulation                   | +/-1.5 %                                                          |
| Ripple and noise (max., BW 20MHz) | 150 to 250 mVpp depending on model (see Selection Guide)          |
| Setup, rise time                  | 3s, 60ms / 230Vac (full load) 8s, 60ms / 110Vac (full load)       |
| Hold-up time (Typ.)               | 8ms / 230Vac                                                      |
| Output voltage adjustment         | Manual, ADJV potentiometer (range per model)                      |
| Output current adjustment         | Manual, ADJV potentiometer (C.C. operation)                       |

**ENVIRONMENTAL**

|                                |                                                                               |
|--------------------------------|-------------------------------------------------------------------------------|
| Operating temperature          | -25 ... +50C (derating above 50C, see Derating Curve)                         |
| Operating humidity             | 20 ... 90% RH, non-condensing                                                 |
| Storage temperature / humidity | -40 ... +85C, 10 ... 95% RH, non-condensing                                   |
| Temperature coefficient        | +/-0.03%/C (0...50C)                                                          |
| Vibration                      | 10-500Hz, 5G, 10min/period, X/Y/Z 60min each axis                             |
| Cooling                        | 2x built-in temperature-controlled speed-regulating DC fans, internal blowing |
| Fan noise                      | ~40dB @100cm (full fan speed)                                                 |
| MTBF                           | >=720.6k h, MIL-HDBK-217F (25C)                                               |
| Altitude derating              | Ambient temperature decreases 5C per 1000m above 2000m                        |

**EMC**

|                     |                                   |
|---------------------|-----------------------------------|
| Emission            | EN55032 (CISPR32) Class A         |
| Harmonics / Flicker | EN61000-3-2 Class A ; EN61000-3-3 |
| Immunity            | EN61000-4-2, -3, -4, -5, -6, -11  |

**SAFETY**

|                                                |                                                 |
|------------------------------------------------|-------------------------------------------------|
| Dielectric strength Input-Output               | 2.5kVac                                         |
| Dielectric strength Input-Earth                | 1.5kVac                                         |
| Dielectric strength Output-Earth               | 0.5kVac                                         |
| Isolation resistance (I/P-O/P, I/P-FG, O/P-FG) | >=100M Ohm / 500Vdc / 25C / 70%RH               |
| Isolation type / safety standard               | Not specified in source documentation (pending) |

**PROTECTIONS**

|                            |                                                                                           |
|----------------------------|-------------------------------------------------------------------------------------------|
| Over-voltage               | Cut-off at 130% of max. output voltage; recovers only after power cycle                   |
| Short-circuit (momentary)  | Automatic recovery after 3s                                                               |
| Short-circuit (continuous) | Hiccup mode, retries every 3s                                                             |
| Overload                   | Constant-current limiting; above ~2.5x rated power behaves as short-circuit (hiccup mode) |
| Fan failure                | Output disabled if either fan fails or is not detected                                    |
| Over-temperature           | Shutdown at heatsink 85C +/-5%; auto-recovery at 75C +/-5%                                |

**CONTROL**

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Switching frequency   | 68 kHz (typ., per block diagram)                                  |
| PS-ON (remote on/off) | Terminal short = output OFF (standby); open (default) = output ON |



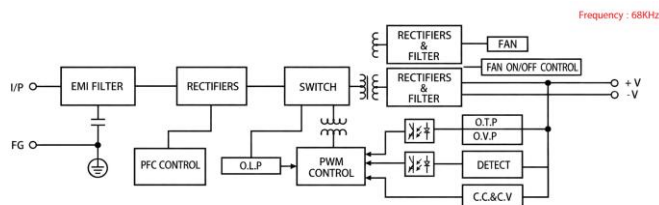
|                                     |                                                                                  |
|-------------------------------------|----------------------------------------------------------------------------------|
| External voltage control            | 4-12Vdc (default, customizable) across PS-ON 2nd terminal and V- disables output |
| Output voltage / current adjustment | Manual, ADJV potentiometer (C.C./C.V.)                                           |
| <b>MECHANICAL</b>                   |                                                                                  |
| Dimensions (L x W x H)              | 280 x 140 x 65 mm                                                                |
| Weight                              | 2.3 kg (as stated in source; net vs. packing weight not distinguished)           |
| Cooling                             | Forced air, 2x built-in DC fans                                                  |

## ORDERING CODES

| Part Number    | Input voltage range | Output voltage [V] | Output current [A] | Output power [W] | Efficiency (Typ.) [%] |
|----------------|---------------------|--------------------|--------------------|------------------|-----------------------|
| ARP-2000-35833 | 110-240Vac          | 24V                | 83.3A              | 2000W            | 88%                   |
| ARP-2000-35555 | 110-240Vac          | 36V                | 55.5A              | 2000W            | 89%                   |
| ARP-2000-35476 | 110-240Vac          | 42V                | 47.6A              | 2000W            | 90%                   |
| ARP-2000-35416 | 110-240Vac          | 48V                | 41.6A              | 2000W            | 90%                   |
| ARP-2000-35333 | 110-240Vac          | 60V                | 33.3A              | 2000W            | 90.5%                 |
| ARP-2000-35278 | 110-240Vac          | 72V                | 27.8A              | 2000W            | 91%                   |
| ARP-2000-35182 | 110-240Vac          | 110V               | 18.2A              | 2000W            | 91%                   |
| ARP-2000-35133 | 110-240Vac          | 150V               | 13.3A              | 2000W            | 91%                   |



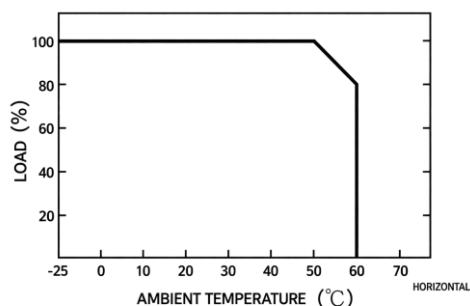
## BLOCKS DIAGRAM



## CONNECTIONS

| Power connections (terminal block) |                                                                                                                                        |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>L, N</b>                        | AC mains input (line, neutral)                                                                                                         |
| <b>FG</b>                          | Protective earth                                                                                                                       |
| <b>V-, V-</b>                      | DC output, negative (2 terminals)                                                                                                      |
| <b>V+, V+</b>                      | DC output, positive (2 terminals)                                                                                                      |
| Control connector (PS-ON)          |                                                                                                                                        |
| <b>PS-ON (2 pins)</b>              | Remote ON/OFF: open circuit = output ON (default) / short circuit = output OFF. External 4-12Vdc control also supported (see CONTROL). |

## POWER DERATING vs AMBIENT TEMP.



## DESCRIPTION

The ARP-2000 is a single-output AC/DC switching power supply with built-in active Power Factor Correction (PFC), designed for universal AC mains input (110-240VAC, 47-63Hz). The converter delivers up to 2000W of regulated DC output power, available in multiple fixed output voltages from 24V to 150V (see Selection Guide / Ordering Codes), with constant-current / constant-voltage (C.C./C.V.) operation and output voltage and current manually adjustable through the ADJV potentiometer.

## COOLING

Cooling is provided by two built-in, temperature-controlled, speed-regulating DC fans operating in internal blowing mode. If either fan fails to rotate or is not detected, the unit will not output power.

## REMOTE ON/OFF CONTROL (PS-ON)

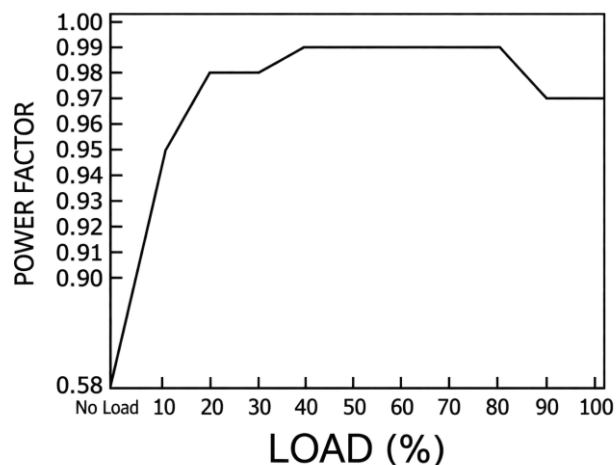
The PS-ON terminal allows remote control of the output: an open circuit (default state) enables the output, while a short circuit across the terminal disables it (standby mode). Alternatively, an external 4-12Vdc control signal (default range, customizable) can be applied between the second PS-ON terminal and V- to disable the output.

## PROTECTIONS

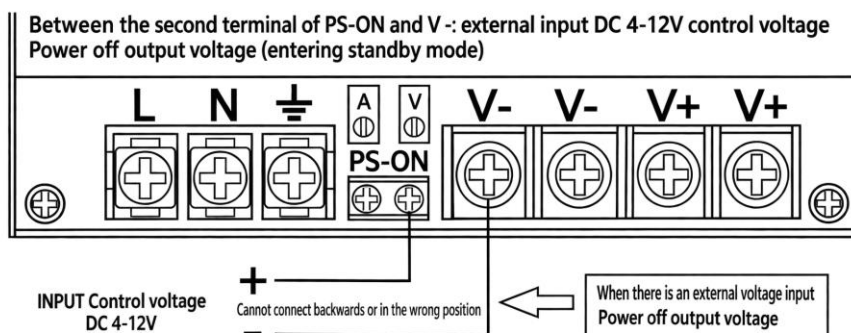
The unit includes protection against output over-voltage (cut-off at 130% of nominal, requires a power cycle to recover), short-circuit (automatic recovery for momentary faults, hiccup mode for continuous faults), overload (constant-current limiting; above approximately 2.5 times rated power the unit behaves as if short-circuited, hiccup mode), fan failure and over-temperature (shutdown at a heatsink temperature of 85C + -5%, with automatic recovery once it drops to 75C + -5%).

Note: the source documentation available for this conversion does not specify installation clearances, mounting torque values, or connector part numbers; consult the manufacturer's installation manual before mounting or wiring the unit.

## POWER FACTOR vs LOAD

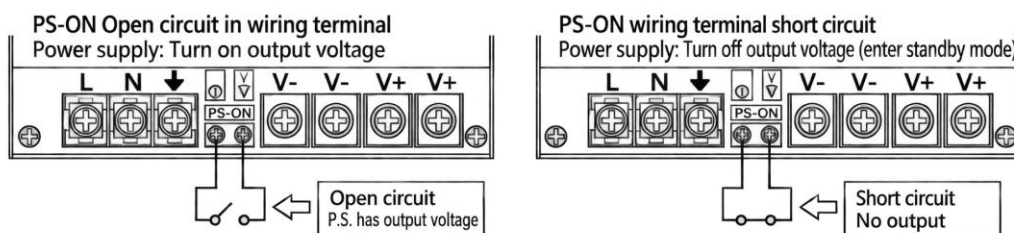


## PS-ON WIRING DIAGRAM



Note: The default control voltage for external input is 4-12V, which can be customized and modified as needed

## PS-ON CONTROL STATES (OPEN / SHORT CIRCUIT)





## DIMENSIONS

