UNIPOWER
Powering Technology

HARC SERIES

33kV, 15mA, 495W
High-Arc Power Supply

DESCRIPTION

UNIPOWER's HARC series of power supplies is based on the popular BRC series of high voltage power supplies, but has been customized for heavy arcing applications. The core inverter was designed for high reliability, high fault tolerance, and continuous high repetition rate arcing.

The product's "resonating pulse-width modulated topology" is such that current, voltage and power limits are inherent to the design, regardless of fault conditions or servo-loop performance. The high voltage output section is encapsulated to provide reliable operation under harsh environmental conditions. A choice of encapsulating material provides options for optimizing size or weight.

Arc energy is limited to fractions of a Joule due to the microsecond response and very low stored energy. Arc response attributes, such as arc sensitivity, quench and recovery time, can be customized for a wide range of applications. Auto-adaptive technology maximizes "on time" by minimizing quench time, based upon the operating conditions. Adaptively-integrating arc counter technology allows fast, short term burst operation, but protects against long term continuous arcing.

The power supply can safely operate under continuous arcing, at a rate as high as 50 arcs per second, but can be internally limited to rates as low as one arc every few seconds by adjusting the quenching period. After the quenching period, the output rise time can be as fast as a one millisecond, or can be programmed to be as slow as one second.

The current regulator can be operated in three different modes: "Constant Current", "Current Foldback" or "Current Trip". Undervoltage interlock protection prevents continuous operation at voltages below the trip setting, interrupting abnormal operation such as a permanent short circuit.

ONE-YEAR WARRANTY

SAFETY COMPLIANCE

UL 601010/ EN601010

CE 2006/95/EC RoHS

STANDARD MODELS

MODEL	OUTPUT VOLTAGE	OUTPUT CURRENT	OUTPUT POWER	POLARITY
HARC-33-15P-STD-W1	0-33kV	0-15mA	495W	Positive
HARC-33-15N-STD-W1				Negative

Protection Features

- Fuse in Live AC line
- Output protected against continuous short circuit.
- Over temperature shutdown on front end section.
- Interlock to shut down HV section
- Output overvoltage shutdown

Contact UNIPOWER to discuss your application and define the right part number for your specific need.

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NORTH AMERICA CALL: +1-954-346-2442 • EUROPE CALL: +44 (0)1903 768200

SPECIFICATIONS

Typical at Nominal Line, Full Load and 25ºC Unless Otherwise Noted.

INPUT

Voltage Range 85-264VAC
Frequency 45-66Hz
Inrush Current Limiting, max. ..... 20A Peak
Undervoltage Protection
  Turn ON 80-85VAC
  Turn OFF 75-80VAC
EMI Filter, Conducted ..... EN55022 Curve A
Harmonic Distortion ..... EN61000-3-2, Class A
Fast Transients ..... EN61000-4-4, +/-4kV L-L, 4kV L-E; Criteria B
Surges ..... EN61000-4-5, +/-2kV L-L, 4kV L-E; Criteria B
Flicker EN61000-3-3
Line Variation / Interruptions ..... EN61000-4-11, <=1 Cycle Criteria B
  >1 cycle Criteria C
Input Protection ..... Internal Fuse

OUTPUT

Voltage 0-33kV
Voltage Polarity (reference chassis ground) ..... See Model Table
Current 0-15mA
Output Power, max. 495W
Stored Energy, max. 1J
Voltage Regulation, max 0.2%
Rise Time 1ms-1s
Ripple, max. ..... 0.5% rms
Current Regulation, max. 0.2%
Limiting Resistor ..... 1k Ohm to 30k Ohm
Continuous Arc Rate, max. 10Hz
Burst Arc Rate, max. 1kHz
Stability ..... 0.01%/hour after ½ hour warm-up
  . 0.05%/8 hours
Temperature Coefficient, max. (voltage & current) ..... 0.01%/°C
Dynamic Voltage Regulation (10-99%, 99-10%) ..... 2% Rated Output
Overvoltage Protection, latch off ..... 36.4kV ±5%
Undervoltage Fault Detect ..... Programmable, default 0V

24V BIAS SUPPLY

Voltage Setpoint 23.5-24.5VDC
Voltage Regulation, max. ..... ±1%
Ripple & Noise, max. (20MHz bandwidth) ..... 240mV pk/pk
Current 0-20mA

FRONT PANEL INDICATORS

PWR ..... Green LED
ILIM (Indicates unit in current limit) ..... Red LED
FAULT ..... Red LED
R COM (unit control via USB) ..... Yellow LED

FRONT PANEL CONTROLS

Push Buttons ..... Programmable for Voltage or Current Setting

ALARM/CONTROL SIGNALS

Voltage [1]
  Control ..... 0-10V or 4-20mA = 0-33kV
  Monitor ..... 0-10V or 4-20mA = 0-15mA
  Tolerance ..... ±0.5% rate voltage, ±30V
Current [1]
  Control ..... 0-10V or 4-20mA = 0-33kV
  Monitor ..... 0-10V or 4-20mA = 0-15mA
  Tolerance ..... ±0.5% rate current, ±10µA
Monitor Output Impedance, 0-10V only 1kOhm
HV ON/OFF, Enable, Inhibit 24V
Interlock ..... Dry Contact

REMOTE COMMUNICATIONS

Serial (using windows GUI) ..... USB & RS232

ENVIRONMENTAL

Operating Temp. Range ..... -20°C to +50°C
Storage Temp. Range ..... -40°C to + 85°C
Environment ..... Pollution Degree 2
Humidity ..... 0% to 80%, Non-Condensing
ESD ..... EN61000-4-2, +/-8kV Contact; +/-15kV Air; Criteria B
Radiated EMI
  Emissions ..... EN55022 Curve A
  Immunity ..... EN55022 Curve A
Cooling ..... Integral Fans

SAFETY COMPLIANCE UL/CSA601010, EN601010

PHYSICAL SPECIFICATIONS

Connections
  AC Mains IEC60320-C14
  DC Output ..... RG-8U Cablewell
  Control Interface ..... DB25 Receptacle
  Remote Communications ..... USB Type B Socket & DB9 Receptacle
Case Material ..... Steel
Case Dimensions, Inches (mm) ..... 4.8 H x 7.3 W x 15.1 L
  (121 x 184 x 384)
Weight ..... 25 lbs. (11 kg.)

Notes:
1. Specify 0-10V or 4-20mA at time of order.

CONTROL INTERFACE PIN-OUT (DB25)

PIN	FUNCTION	PIN	FUNCTION
1	kV Adj. (0-10V or 4-20mA)	14	24V output, 20mA max.
2	GND / kV Ref. Return	15	HV On (+) (24V = ON)
3	mA Adj. (0-10V or 4-20mA)	16	HV On (-) (24V Return)
4	GND / mA Ref. Return	17	Interlock OUT
5	kV Mon. (0-10V or 4-20mA)	18	Interlock Return
6	GND / kV Mon. Return	19	Push Button kV adj. Select
7	mA Mon. (0-10V or 4-20mA)	20	Push Button mA adj. Select
8	GND / mA Mon. Return	21	Push Button Enable Return
9	n/c	22	10V Reference
10	Fast Inhibit (+) (24V = OFF)	23	n/c
11	Fast Inhibit (-) (24V Return)	24	n/c
12	Fault (15V = OK, 0V = Fault)	25	n/c
13	GND		

To enable kV push button adjust connect pins 19-21.
To enable mA push button adjust connect pins 20-21.

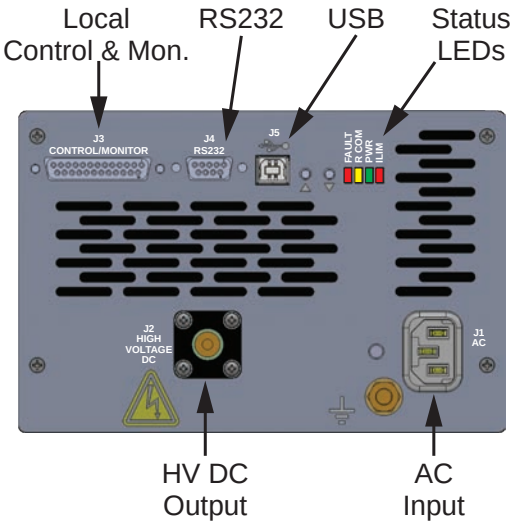
REMOTE COMMUNICATIONS PIN-OUT

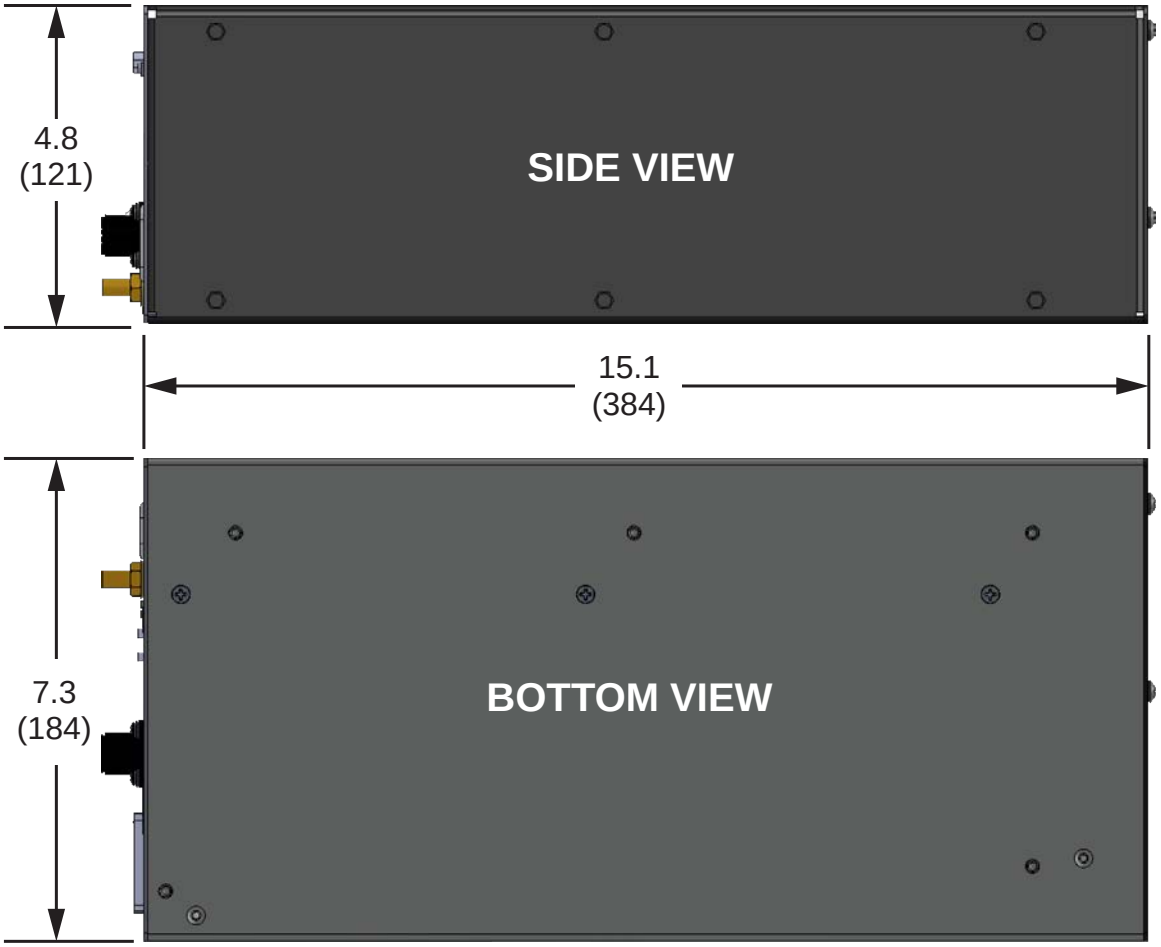
USB (TYPE B)	
PIN	FUNCTION
1	Vcc (+5V)
2	Data -
3	Data +
4	Ground

RS232 (DB9)	
PIN	FUNCTION
1	n/c
2	Rx
3	Tx
4	n/c
5	Ground
6	n/c
7	n/c
8	n/c
9	n/c

USB and RS232 may not be used at the same time.

OUTLINE DIMENSIONS & CONNECTION DETAILS





All dimension in Inches (mm)

UNIPOWER NORTH AMERICA • 3900 Coral Ridge Drive, Coral Springs, Florida 33065, USA • Tel: +1-954-346-2442 • Fax: +1-954-340-7901 • Sales-NorthAmerica@unipowerco.com
UNIPOWER EUROPE • Parkland Business Centre, Chartwell Road, Lancing, BN15 8UE, ENGLAND • Tel: +44(0)1903 768200 • Sales-Europe@unipowerco.com