

Integritas IR020ACR125ATEZ Rectifier



Advanced Technology to Simplify Your Network

The ABB IR020ACR125 rectifier module is designed to efficiently transform energy from several types of AC sources into the 125 volt DC power needed for industrial control and battery systems. This means that one single module can be used globally to meet all your 125V powering needs.

IR020ACR125 efficiency is market leading for diode protected, true hot pluggable, 125 volt power.

A True System Solution

Integritas power rectifiers are part of the proven Integritas DC power systems, particularly designed to meet the unique needs of industrial power applications.

Advantages

- Compact - 1RU form factor provides high power density 21 Watts / in³
- Operates over a broad temperature range (Starts at -40°C, runs from -5 to 55°C).
- Fail safe performance – hot insertion capabilities allow for module replacement without system shutdown; soft start and inrush current protection prevent nuisance tripping of upstream breakers.
- Extended service life – parallel operation with automatic load sharing ensures that modules are not unduly stressed.
- Flexibly provides 20 Amps of current from 90 Vdc to 125Vdc constant power at 2500W from 125V to 160V.
- Efficient - Peak efficiency of 94%, with 90% efficiency at 25% load
- Starts and runs on any AC line from 100 Vac to 277Vac

Features

- Monitoring / control – the built in microprocessor controls and monitors all critical charger functions and communicates with the system controller using the built in Galaxy Protocol serial interface.
- Parallel Load Share – Rectifiers work together to share the load, while providing redundancy in case of an outage.
- Dual voltage compatible unique connector pin designation allows the 125 volt rectifier to be used in a “Universal” power shelf, alongside DC-DC converters supporting loads at 24 volts DC.
- Meets most 3 phase needs. Works with 208V 3-phase in a phase to phase configuration. Works from 480V 3-phase in a line to neutral configuration.
- Plug and Play – installation of the charger in a shelf connected to a compatible system controller initializes all set up parameters automatically. No adjustments are needed.
- As part of the Integritas family of power system solutions, the IR020ACR125 has a complimentary shelf, battery charging controller and cabinet solutions for most applications.

Technical Specifications

Electrical Specifications

INPUT VOLTAGE & OUTPUT POWER

Response to AC Input Voltage Operates according to figure, turning on at all V_{in} above $90V_{ac}$. Output power $1200W < 140V_{ac}$
 $2500W > 175V_{ac}$

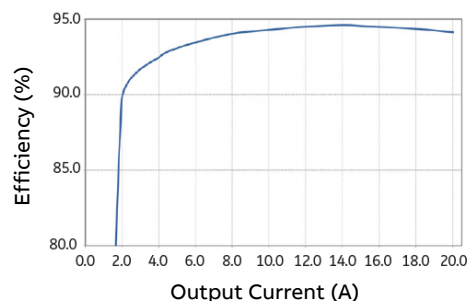
Output power follows linear path between defined points.

AC Input Current	15A max @ $120V_{ac}$ 12A @ $200-277V_{ac}$
Inrush Current	<18A after narrow EMI capacitor peak
Power Factor	0.98 @ loads over 50%
THD	< 5% @ loads over 50%
Harmonics	EN61000-3-2
Holdover	15 milliseconds, with $V_{out\ final} > 100V$
Frequency	45-66Hz or Dc

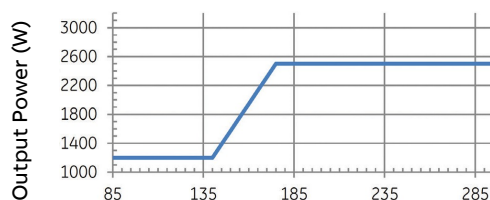
OUTPUT

V_{out}	90–160V _{dc} range Default = 125 V _{dc}
I_{out}	10A @ low input line 20A @ high input line
Regulation	± 0.05% w/controller, 2% over life load and temperature
Dynamic Response	20 to 80% load step settles to less than 1% in 5 ms
Ripple	150 mV _{rms} , 600 mV _{p-p}
Voice Noise	<55 dB rnc
Efficiency	94% at full load
Start Up	Start up is monotonic
Soft Start	Starts up into fully discharged batteries.
Walk In	Current walk in over 8 to 10 seconds, can be disabled
Overload Shutdown	Shuts down with no damage when presented with a 15 milliohm short
Thermal Protection	Derates at 55°C and self protects with recoverable shutdown above 75°C

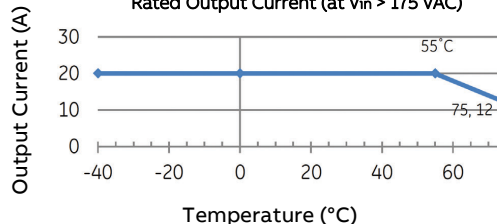
Efficiency vs Output Current
(Temp: 25C, Vin: 240 VAC, Freq: 60Hz, Vout: 125 VDC)



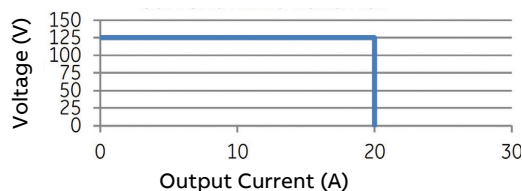
Output Power vs Input Voltage



Rated Output Current (at $V_{in} > 175 VAC$)



Current Limit Behavior



Environmental Specifications

OUTPUT

Operating Ambient Temperature Range	-5°C to +75°C (Output derates at 2%/°C beginning at 55°C)
Cooling Method	Front to back airflow with onboard temperature controlled fans
Operating Relative Humidity	0 - 95% (non-condensing) for use in a controlled environment
Electromagnetic Compatibility	FCC Part 15, EN 55032 (CISPR32), EN 55035, Level A, GR-1089
Lightning Surge	EN/IEC 61000-4-5 Level 4 (Error free), ANSI C62.41 Category B 100 kHz ring and 1.2/50µs combination
Agency Certifications* Planned	ANSI/UL60950-1-2014, EN60950-1 2nd ed+Am1+Am2, CAN/CSA C22.2 No. 60950-1-07 +Am2: 2014, NEBS
Heat Release	160 Watts, or 546 BTU/hr at full load of 2500 Watts, Noise<60 dBA @25°C
Mean Time Between Failure (MTBF)	300k Hours @ 25°C per Telcordia SR-332, Method 1, Case 3
Height x Width x Depth, Weight, Packaged	1.63x5.23x13.85in (42x133x352mm), 5.05 lbs (2.2 kg), 5.95 lbs (2.7 kg)



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