

IE048 Series

Industrial AC/DC Power Supply, 48VDC Output

The IE048 industrial power supplies are functional accessories for Allied Telesis products. They are ideal for Smart Cities, Industrial Ethernet, Transportation or any application requiring systems that function in harsh environments with extended operating temperatures.



Overview

The IE048 Series power supplies deliver reliable 48VDC output voltage. They are fully tested and validated to operate with Allied Telesis Industrial products.

Housed in a compact metal case with DIN rail clip, the IE048 features mechanical robustness, electromagnetic compatibility and enhanced thermal characteristics, making it ideal for exposed areas and harsh environments.

Highly efficient and stable output power provides the capability to support 150% of peak load. The nominal output voltage of 48VDC can be adjusted to match application requirements.

The AC/DC rectifier operates over the full range of AC input voltage to fit worldwide power grids. The included active Power Factor Correction circuit (PFC) reduces energy costs by eliminating reactive power and harmonics from power lines.

As well as providing efficiency, the PFC complies with international regulations. It establishes limits on the harmonic currents that can appear on an AC main line.

Key Features

- ▶ Electromagnetic immunity for industrial environments
- ▶ Highly efficient
- ▶ Active PFC
- ▶ Stable output power with 150% peak current capability
- ▶ Wide input voltage range
- ▶ Protections: peak-current, over-current and over-temperature
- ▶ Remote ON/OFF¹
- ▶ Output power confirmation relay (DC_OK)¹
- ▶ Extended operating temperature range
- ▶ Air convection cooling
- ▶ Metal case
- ▶ DIN rail mount
- ▶ Conformal coating²
- ▶ Warranty period: 5 years

¹ Available on IE048-240 and IE048-480

² Available on IE048-480/C

Input Specifications

	IE048-120	IE048-240	IE048-480
Voltage	AC	90 to 264VAC	
	DC	88 to 350VDC	
Current	1.3A typ. @100VAC	2.3A typ. @115VAC	4.6A typ. @115VAC
	0.6A typ. @220VAC	1.2A typ. @230VAC	2.3A typ. @230VAC
Frequency	50/60Hz (47 to 63Hz)	50/60Hz (45 to 60Hz)	
Efficiency	92 typ. @100VAC	92 typ. @115VAC	
	95 typ. @220VAC	94 typ. @230VAC	
Power factor	0.99 typ. @115VAC	0.98 typ. @115VAC	
	0.97 typ. @230VAC	0.93 typ. @230VAC	
Inrush current	27A typ. @100VAC	20A typ. @115VAC	
	72A typ. @220VAC	40A typ. @230VAC	
Leakage Current ¹	≤0.45mA @100VAC	≤0.45mA @100VAC	≤0.75mA @100VAC
	≤0.75mA @240VAC	≤0.75mA @240VAC	≤1.50mA @240VAC
Line noise tolerance	-	2kV, 50 to 1,000ms, ±0–360°	

Output Specifications

	IE048-120	IE048-240	IE048-480	
Voltage ^{nominal}	54VDC	52VDC	48VDC	
Current	2.3A	4.6A	10A	
Peak current	3A	6.9A	15A	
Line regulation ²	≤270mV	≤192mV		
Load regulation ²	≤270mV	≤300mV		
Ripple	≤100mVp-p (25° to 70°C)	≤240mVp-p (0° to 70°C)	≤120mVp-p (0° to 70°C)	
		≤500mVp-p (-25° to 0°C)	≤240mVp-p (-25° to 0°C)	
		≤750mVp-p (Io=0 – 30%)	≤750mVp-p (Io=0 – 30%)	
Ripple noise	≤200mVp-p (25° to 70°C) ≤100mVp-p (Io=0)	≤300mVp-p (0° to 70°C)	≤150mVp-p (0° to 70°C)	
		≤580mVp-p (-25° to 0°C)	≤300mVp-p (-25° to 0°C)	
		≤750mVp-p (Io=0 – 30%)	≤750mVp-p (Io=0 – 30%)	
Temperature regulation	≤540mV (25° to 70°C)	≤480mV (0° to 70°C)		
		≤600mV (-25° to 70°C)		
Voltage accuracy	-	≤486mV (0° to 70°C)		
		≤606mV (-25° to 70°C)		
Drift	-	≤192mV		
Start-up time	≤12ms ³	≤750ms ⁴		
Hold-up time	50ms typ. ³	20ms typ. ⁴		
Output voltage adjustment range	51.0 to 57.0VDC	48.0 to 55.0VDC	45.0 to 55.2VDC	
Output voltage setting	52.0VDC ±1%	52.0VDC ±1%	48.0VDC ±1%	
Protection	Over current	101% of peak current, auto recovery		
	Over voltage	125%, hiccup	58.1 to 68.0VDC	57.6 to 67.2VDC
	Over temp	-	√	

¹ According to Safety certification

² Io=30 - 100%, burst operation at ≤30% load

³ Input voltage: 100VAC, Io=100%

⁴ Input voltage: 115VAC, Io=100%

Isolation and other Specifications

	IE048-120	IE048-240	IE048-480
Input-Output	3,000 VAC for 1 minute; cut off current:10mA		
Isolation ⁵	Input-P.E.	1,500 VAC for 1 minute, cut off current: 10mA	2,000 VAC for 1 minute, cut off current: 10mA
	Output-P.E.	1,500 VAC for 1 minute, cut off current: 10mA	500 VAC for 1 minute; cut off current:100mA
	Output-RC, DC_OK	-	
Remote ON/OFF (RC)	-	√	
DC_OK contact	-	≤1A @30VDC; ≤0.5A @30VAC	
LED	Alarm	-	√ (red)
	DC_OK	Alarm: amber/blink DC_OK: green	√ (green)

Environmental Specifications

	IE048-120	IE048-240	IE048-480
Operating temperature range ^{7,8}	-25° to 70°C	-25° to 70°C ⁹	
Storage temperature range	-40° to 85°C		
Operating humidity range	10% to 90% RH, non-condensing	20% to 90% RH, non-condensing	
Storage humidity range			
Operating altitude	3,000m	5,000 m	
Cooling method	Air convection		

Compliance

	IE048-120	IE048-240	IE048-480
Compliance mark	CE, cULus, TUV	CE, cULus, RCM, DEMKO	
Environmental compliance	RoHS, WEEE		
Safety	CAN/CSA C22.2 No. 62368-1 EN/IEC/UL 62368-1	CAN/CSA C22.2 No. 62368-1 EN/IEC/UL 62368-1 UL 508	
Electromagnetic immunity	EN 55035	EN 55035	
IEC 61000-3-2 Harmonic current emission	Class A	Class A	
IEC 61000-4-2 Electrostatic discharge (ESD)	contact discharge: level 2 air discharge: level 3	Contact discharge: level 4	
IEC 61000-4-3 Radiated susceptibility (RS)	Level 3	Level 3	
IEC 61000-4-4 Electrical fast transient (EFT)	Level 2	Level 4	
IEC 61000-4-5 Lighting/surge immunity (Surge)	Line-to-line: level 2 Line-to-earth: level 3	Line-to-line: level 3 Line-to-earth: level 4	
IEC 61000-4-6 Conducted immunity (CS)	Level 2	Level 3	
IEC 61000-4-8 Magnetic field immunity	Level 4	Level 4	
IEC 61000-4-11 AC voltage dips and interrupt	30% reduction for 500ms 100% reduction for 10ms	30% reduction for 500ms 60% reduction for 200ms	
Electromagnetic emissions	CISPR 32, class A EN 55011, class A EN 55032, class A FCC 47 CFR Part 15, subpart B, class A	CISPR 32, class B EN 55011, class B EN 55032, class B FCC 47 CFR Part 15, subpart B, class B VCCI, class B	
Shock	operating: 20g, 11ms, half-sine non-operating: 65g, 11ms, half-sine	non-operating: 20g, 11ms, half-sine (packaged)	
Vibration	operating: 0.15mm @10-58Hz 2g @58-500Hz	non-operating: 2g @10~55Hz	
Hazardous location	-	ANSI/ISA12.12.01 class I, division 2, groups A, B, C and D	

⁵ At room temperature

⁶ DC_OK LED combine alarm and DC_OK status

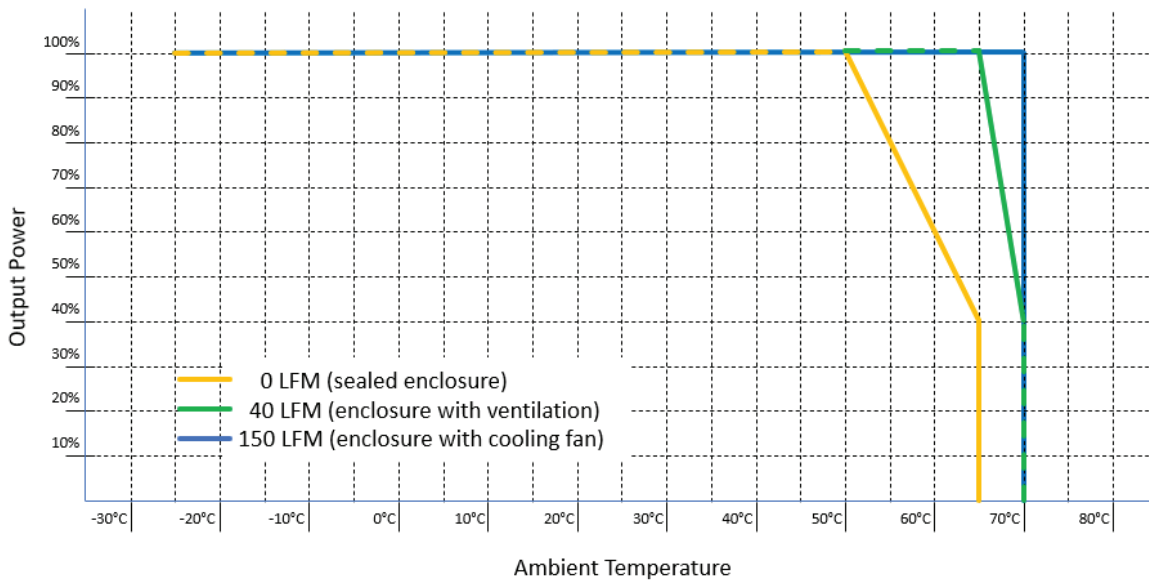
⁷ refer to the Installation Guide for more details on the safety approved power ratings and thermal conditions.

⁸ Output derating is required

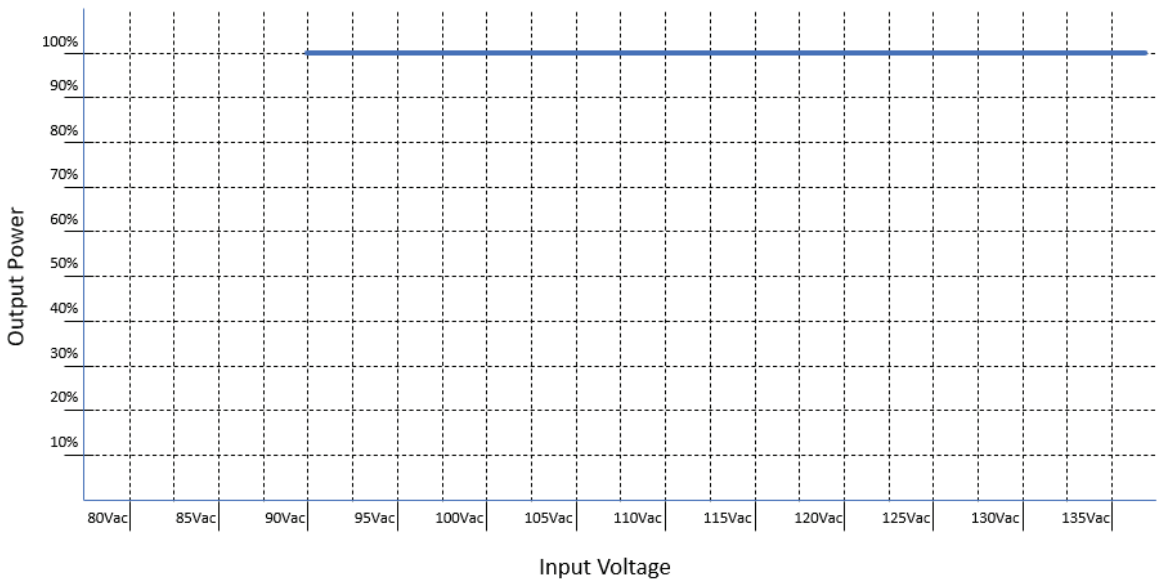
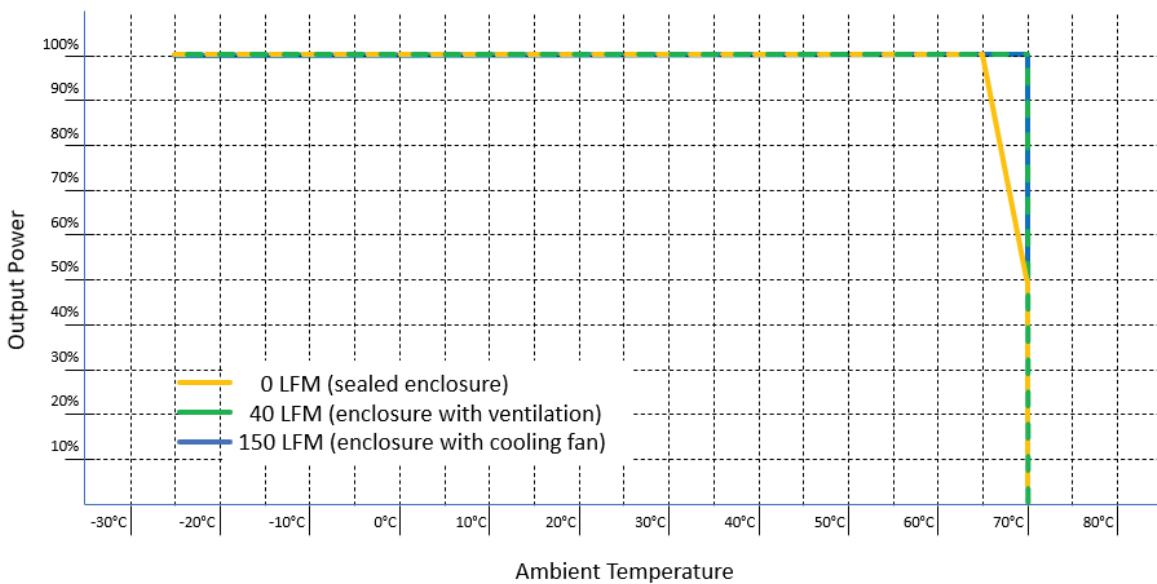
⁹ Tested for startup at -40°C

IE048-120

Derating curve @100Vac

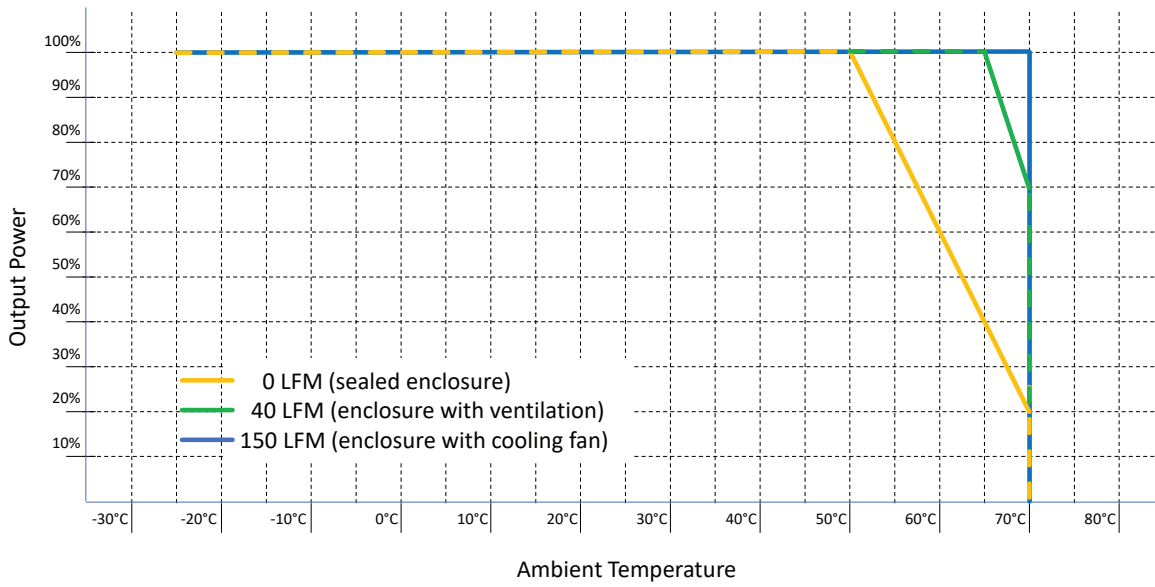


Derating curve @230Vac

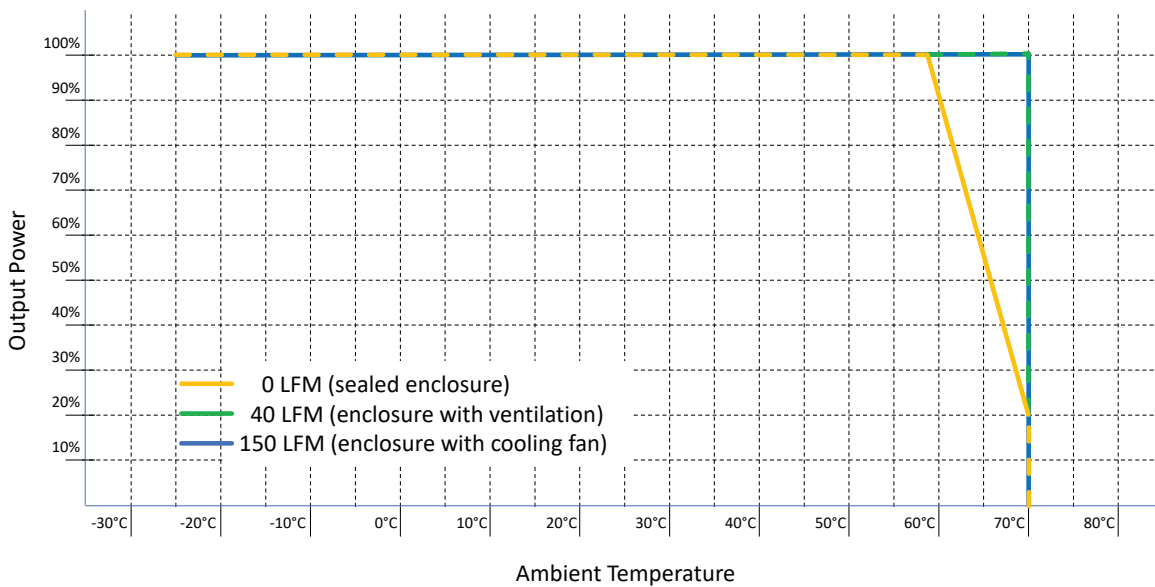


IE048-240

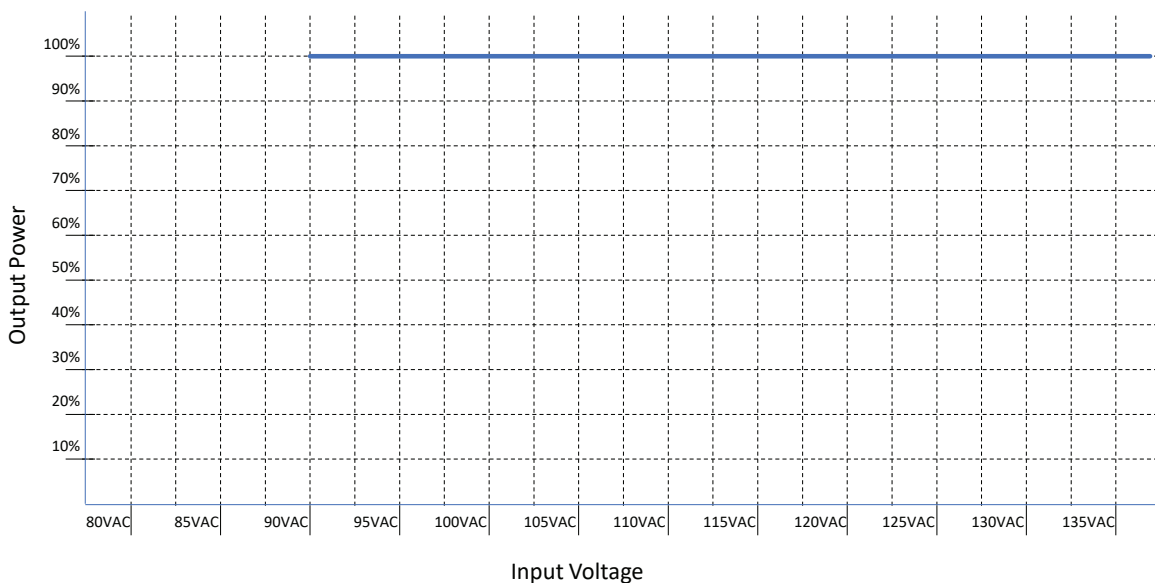
Derating curve @100Vac



Derating curve @230Vac

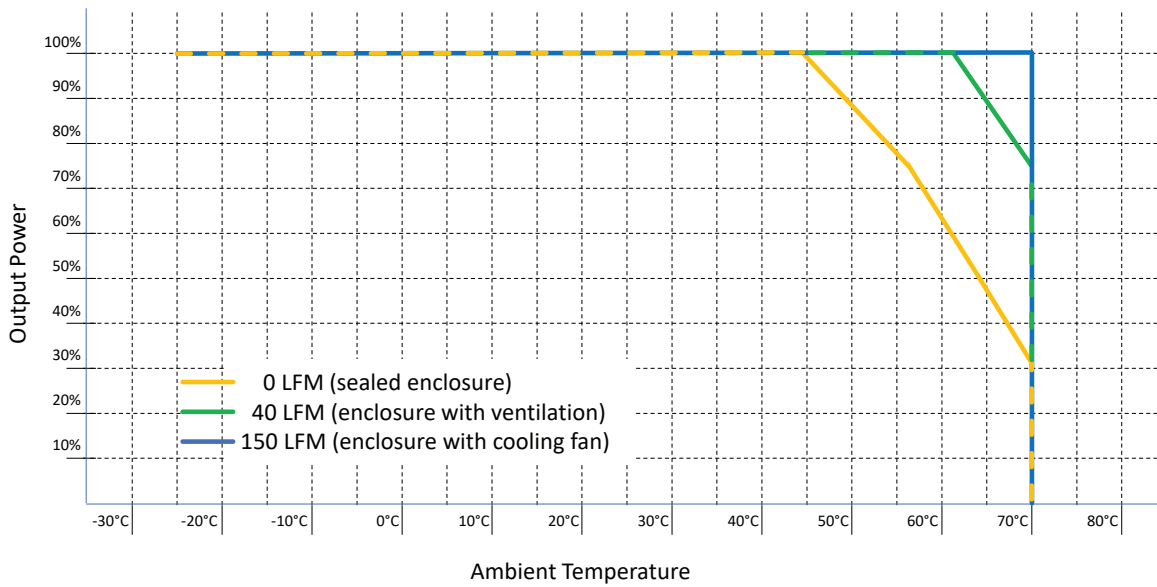


IE048-240 - derating curve on Input Voltage

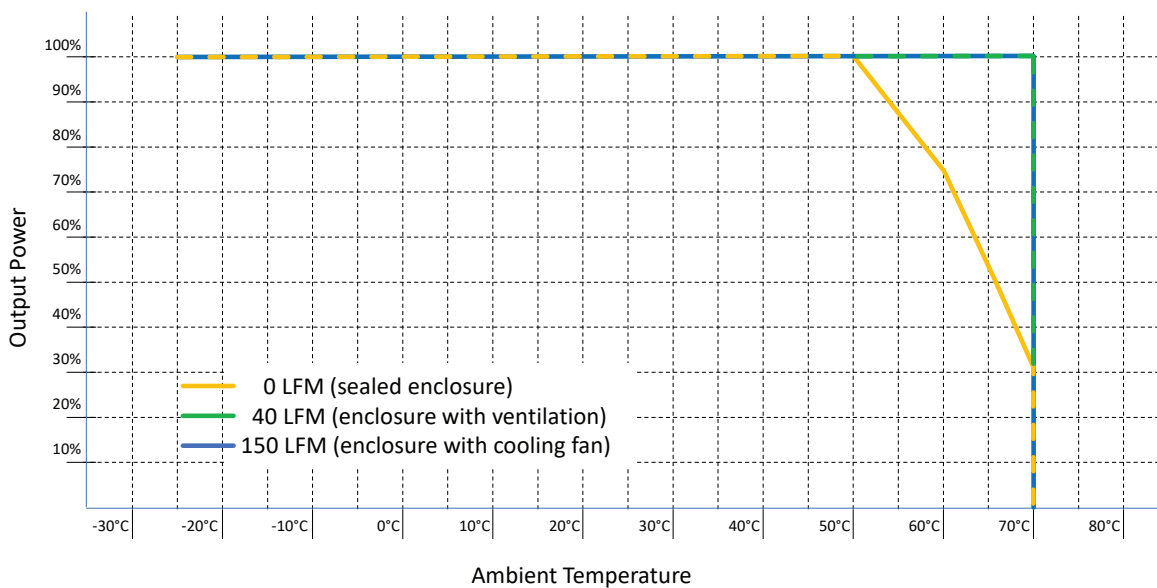


IE048-480

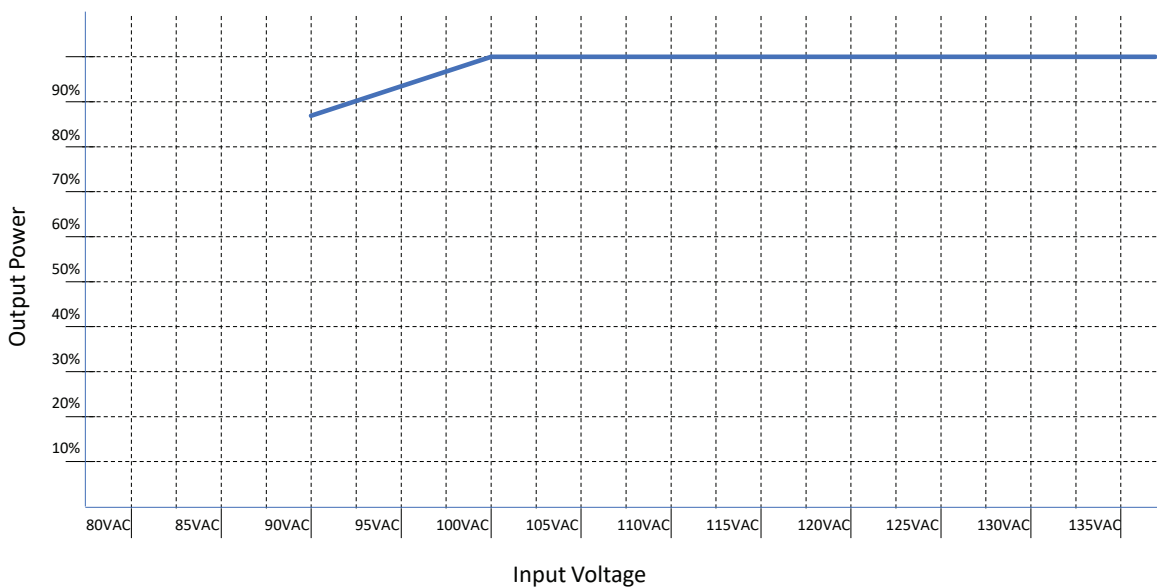
IE048-480 - derating curve @100VAC



IE048-480 - derating curve @230VAC



IE048-480 - derating curve on Input Voltage



Physical Specifications

PRODUCT	WIDTH X DEPTH X HEIGHT	WEIGHT	ENCLOSURE	MOUNTING	PROTECTION RATE
IE048-120	46 x 115 x 140 mm (1.81 x 4.53 x 5.51 in)	0.90 kg (2.0 lbs)	stainless steel	DIN rail ¹⁰	IP20
IE048-240	50 x 117 x 124 mm (1.97 x 4.61 x 4.88 in)	0.90 kg (2.0 lbs)	stainless steel	DIN rail ¹⁰	IP20
IE048-480	70 x 117 x 124 mm (2.76 x 4.61 x 4.88 in)	1.20 kg (2.6 lbs)	stainless steel	DIN rail ¹⁰	IP20

¹⁰ Standard EN 60715 TH 35 DIN rail clip

Ordering Information

AT-IE048-480-20

480W @48VDC, Industrial AC/DC power supply,
DIN rail mount. (5 years warranty)

AT-IE048-480/C-20

480W @48VDC, Industrial AC/DC power supply,
DIN rail mount., Conformal Coating
(5 years warranty)

AT-IE048-240-20

240W @48VDC, Industrial AC/DC power supply,
DIN rail mount. (5 years warranty)

AT-IE048-120-20

120W @48VDC, Industrial AC/DC power supply,
DIN rail mount. (5 years warranty)