



- High Efficiency
- High Power Density (7.0W/in³)
- Designed for Distributed Power
- No minimum load
- Fits 1U applications
- Medical Approval
- 3 Year Warranty

NV-350 FEP

350 Watts
Front End Power Solution

Key Market Segments & Applications

Instrumentation	Broadcast
Medical	ATE
Automation	Industrial Computing
Security	Lifesciences/Laboratory
Network Servers and Routers	

Features and Benefits

Features

- High Efficiency
- Low Profile
- High Power Density

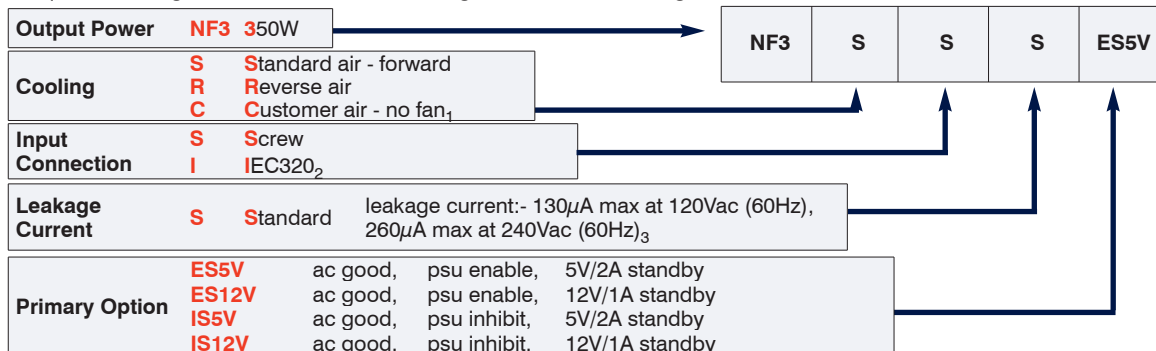
Benefits

- Minimises heat in system
- Fits 1U applications
- Less space

NV350-FEP CONFIGURING

It is possible to create your own NV350-FEP configuration online at www.nv-power.com or by using the guide below.

1. Select required Cooling, Connection and Controls/Signals from the following table:



- 1 - Thermocoupled sample recommended to ensure adequate cooling - consult sales
- 2 - Not with customer air Cooling
- 3 - Worst case leakage current is less than 300µA at 264Vac, 63Hz Normal Condition (<500µA Single fault condition)

2. Select output required from the Module Table on page 2.

Example - if you require 12V 29A :-

a) select FE module and prefix with voltage eg **12FE**

This will create a complete product description eg **NF3SSSES5V 12FE** which represents a two output NV350-FEP with Forward air, Screw i/p terminals, 300µA Leakage, ac good, PSU enable & 5V/2A aux supply

Output 1 = 12V / 29.2A with screw terminals

Output 2 = 12V / 2A with screw terminals

Max 350W continuous output power

3. Contact Lambda to issue a part number.

OUTPUT MODULE (Type FE)

Output 1			Output 2			Total
Voltage Range	Maximum Current	Maximum Power	Output Voltage	Maximum Current	Maximum Power	Max Output Power
11.5 - 13.2 V	29.2A	350W	12 V	2A	24W	350W



INPUT	
Input Voltage	90-264Vac
Input Frequency	47 - 63 Hz (up to 440Hz with reduced PFC)
Input Harmonics	EN61000-3-2 compliant
Inrush Current	<15A at 25°C and 264Vac (cold start)
Input Fuse	6.3A / 250Vac HBC Fast Acting (not user accessible)
Power Factor	0.97 (typical)
Leakage Current	130µA max at 120Vac (60Hz), 260µA max at 240Vac (60Hz) Worst case leakage current is less than 300µA at 264Vac, 63Hz Normal Condition (<500µA Single fault condition)

OUTPUT	
Voltage / Current	See module tables
Turn on Time	1.5s max at 90Vac and 100% rated output power
Rise time	<50ms to 90% of voltage, monotonic rise above 10%
Efficiency	90% Typical
Hold up	16ms min at 90Vac and 100% rated power
Ripple and Noise	<1% Pk-Pk, using EIAJ test method & 20MHz bandwidth
Voltage Accuracy	<1% of set voltage (±5% for channel 2)
Remote Sense	Yes Standard on single o/p + ch1 of dual modules, max 0.5V total line drop
Minimum Load	No on any output
Temperature Coefficient	<0.02% of rated voltage per °C
Total Regulation	1% Including:- Load Regulation for 0-100% load change and Line Regulation for 90-264Vac input change (2% for channel 2)
Transient Response	<4% of set voltage for 50% load change
Recovery	500µs for recovery to 1% of set voltage
Over Voltage Protection (ch1)	15 - 16V
Over Current Protection (ch1)	110 - 150% of rated current, hiccup mode. Module primary side protected
Short Circuit Protection	Yes
Over Temperature Protection	Yes Cycle ac off/on to reset Shutdown temperature varies according to ambient, o/p power & i/pV

ISOLATION	
Input to Output	Reinforced 4.3kV (dc) Note: Basic for IEC/EN/UL/CSA60601-1
Input to Earth	Basic 2.3kV (dc)
Output to Earth	200V (dc)

SIGNALS - Standard	
Ch1 Good	Open collector output, (emitter connected to Ch1 0V) 'On' indicates output is within 90% (±5%) of nominal
Ch1 Remote Sense - Ch1 Remote Sense +	Connections for remote sense. Up to 0.5V total line drop can be compensated. If remote sense is not required, do not connect either 'Sense -' or 'Sense +'

GLOBAL INTERFACE SIGNALS - with Primary Option	
AC good collector	Uncommitted optocoupler. Turns on typically 5ms after ac is good and off typically 5ms before any channel falls below 95% of nominal
AC good emitter	Uncommitted optocoupler. Turns on typically 5ms after ac is good and off typically 5ms before any channel falls below 95% of nominal
ES & IS Logic 0	TTL low enables (ES) or inhibits (IS) the entire psu including fan (except standby)
ES & IS Logic 1	TTL high enables (ES) or inhibits (IS) the entire psu including fan (except standby)
Standby Supply	5V / 2A (2.5A peak) or 12V / 1A (1.2A peak)

ENVIRONMENT	
Temperature	0° to 50° operational, -40° to 85°C storage (max 12 months)
Derating	50°C to 70°C derate each output and total output power by 2.5% per °C
Low Temperature Start-up	-20°C
Humidity	5-95% RH non condensing
Shock	±3 x 30g shocks in each plane, total 18 shocks 30g shock = 11ms (±0.5ms), half sine conforms to EN60068-2-27, EN60068-2-47, IEC68-2-27, IEC68-2-47, JIS C0041-1987.
Vibration	Single axis 10 - 500Hz at 2g (sweep and endurance at resonance) in all 3 planes
Altitude	3,000 metres operational (15,000 metres non operational)
Pollution	Degree 2, Material group IIIb

IMMUNITY EN61000-6-2:2005, EN60601-1-2:2001					Criteria
Electrostatic Discharge	EN61000-4-2	Level 4	Air discharge 15kV Contact discharge 8kV	A	
Electromagnetic Field	EN61000-4-3	Level 3	tested to 12V/m	A	
Fast / Burst Transient (ac Input)	EN61000-4-4	Level 4	tested to 4.4kV	A	
Fast / Burst Transient (dc Output)	EN61000-4-4	Level 4	tested to 2.2kV	A	
Surge Immunity	EN61000-4-5	Level 3	Common mode to 2.2kV Differential mode to 1.1kV	A	
Conducted RF Immunity	EN61000-4-6	Level 3	tested to 12V	A	
Power Frequency Magnetic Field	EN61000-4-8	Level 4	Tested to 30A/m, 50/60Hz	A	
Voltage Dips, Variation, Interruptions	EN61000-4-11	Class 3	Criteria B for 5 sec interruption	A	
Voltage Fluctuations	EN61000-4-14	Class 3	For 100 - 240V Nominal	A	



SAFETY APPROVALS

	Date	Amendments		Date	Amendments
EN 60950-1	2006		EN 61010-1	2001	
UL 60950-1	2003		IEC 61010-1*	2001	
CSA22.2 No 60950-1	2003		IEC 60601-1*	1988	A1, A2
IEC60950-1*	2001		EN 60601-1	1990	A1, A2, A13
CE Mark	LV Directive 2006/95/EC (EN60950-1)		UL 60601-1	2003	with revisions 2006

* CB Certificate and report available on request

EMISSIONS EN61000-6-3:2001, EN60601-1-2:2001

Radiated Electric Field	EN55011, EN55022	(as per CISPR.11/22) Class B, FCC47 part 15 subpart B see application note for details
Conducted Emissions	EN55011, EN55022	(as per CISPR.11/22) Class B, FCC47 part 15 subpart B
Conducted Harmonics	EN61000-3-2	Class A
Flicker	EN61000-3-3	Compliant - d _{max} only.

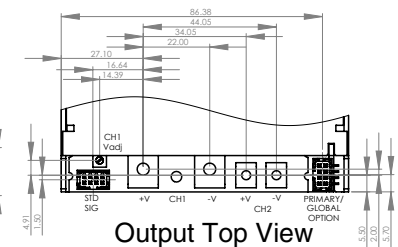
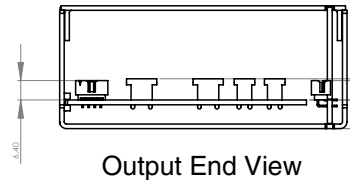
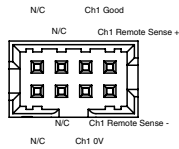
Connection Guidelines

Ring Tags: Up to 50A. AMP PIDG terminals
 Red: M3 36151, M4 320551, M5 130660
 Blue: M3 320561, M4 320560, M5 130663
 Yellow: M4 320568, M5 130167
 Crimp tool: 16900 Die set 169404

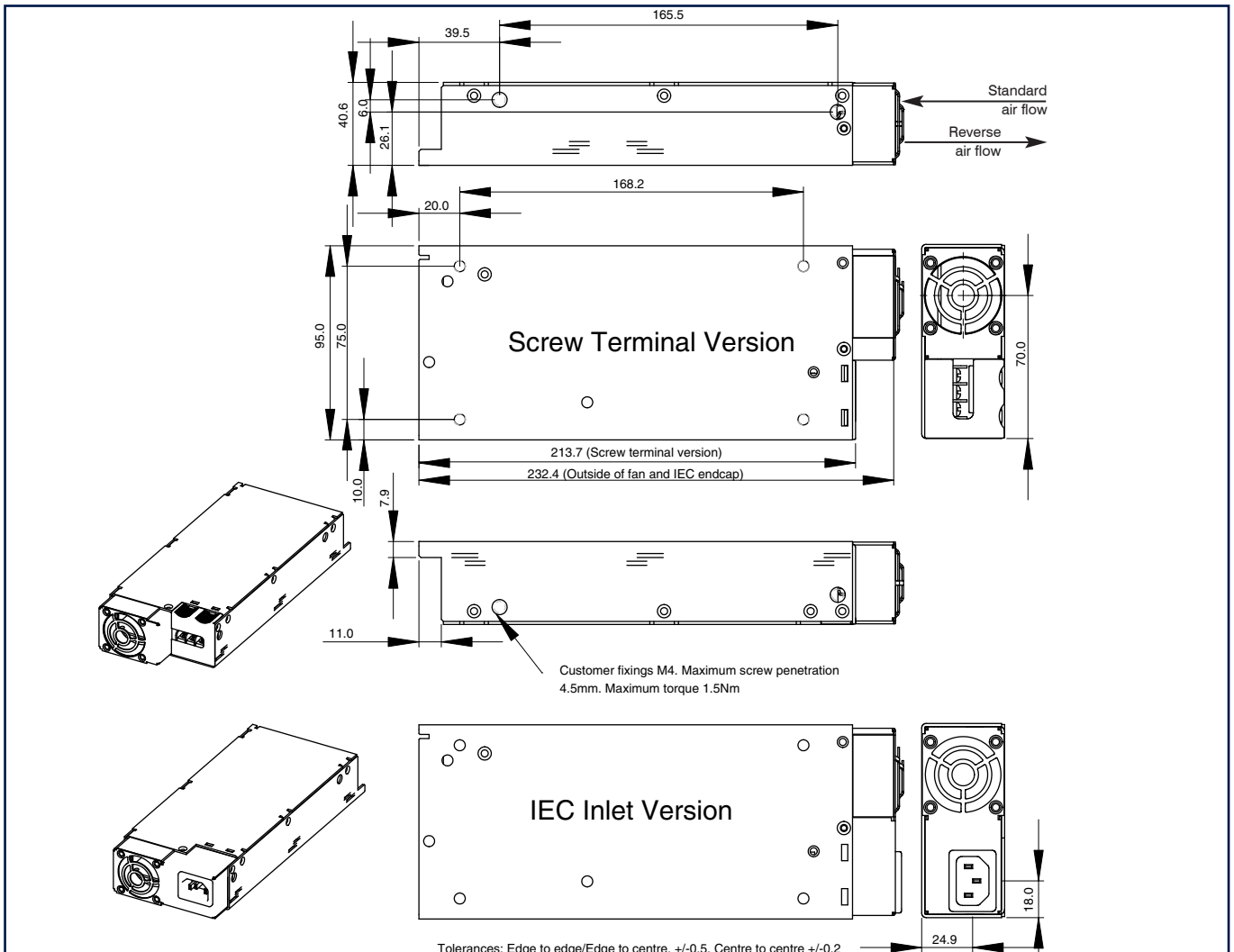
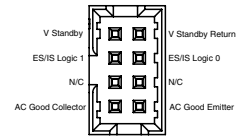
OUTPUT CONNECTIONS

Housing: Molex 51110-0860
 Crimp pin: 50394
 Hand crimp tool: 69008-0959

Standard Signals



Primary/Global Option





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