

DIN Rail Power Supply

0165N-24V75W1AC / 24V 75W 1 Phase (NEC Class 2)



Highlights & Features

- Universal AC input voltage range
- Built-in constant current circuit for reactive loads
- Up to 88% efficiency @240Vac
- Full power from -20°C to +50°C with -30°C Cold Start
- Compliance to SEMI F47 @ 200Vac
- NEC Class 2 / Limited Power Source (LPS) certificate

Safety Standards



CB Certified for worldwide use

Model Number : 0165N-24V75W1AC
Unit Weight : 0.22 kg
Dimensions(L x W x H) : 126.6 x 27 x 102 mm

General Description

This Dinkle DIN rail power supply is designed for cost sensitive users who need to fulfill essential features needed for many general industrial applications, without compromising on quality and reliability. The convection-cooled series will operate between -20°C to 70°C, with full rated power available from -20°C to +50°C at 230Vac. The overcurrent protection is designed to operate in constant current mode, which makes the series suitable for inductive and capacitive load applications. The series are certified according to safety standards IEC 60950-1 & IEC/EN-UL 62638-1. Electromagnetic radiated and conducted emissions are compliant to EN 55032, Class B; the product is fully compliant for environmental protection requirement per RoHS Directive 2011/65/EU.

Model Information

0165N DIN Rail Power Supply

Model Number	Input Voltage Range	Rated Output Voltage	Rated Output Current
0165N-24V75W1AC	85-264Vac	24Vdc	3.125A

Model Numbering

0165N	-	24V	75W	1	AC
Power supply		Output Voltage	Output Power	Single Phase	Input Current

Specifications

Input Ratings / Characteristics

Nominal Input Voltage	100-240Vac
Input Voltage Range	85-264Vac
Nominal Input Frequency	50-60Hz
Input Frequency range	47-63Hz
Input Current	1.4A typ. @ 115Vac, 0.90A typ. @ 230Vac
Efficiency at 100% Load	89.0% typ. @ 230Vac< 2.5W @ 115Vac & 230Vac
Max Inrush Current (Cold Start)	80A typ. @ 230Vac
Leakage Current	< 1mA @ 240Vac

All parameters are specified at 25°C ambient and AC input unless otherwise indicated.

Output Ratings / Characteristics*

Nominal Output Voltage	24Vdc
Factory Set Point Tolerance	24Vdc $\pm$ 2%
Output Voltage Adjustment Range	21.6-26Vdc
Output Current	3.125A
Output Power	75W
Line Regulation	< 0.5% (@85-264Vac, 100% Load)
Load Regulation	< 1% (0-100% Load)
PARD** (20MHz)	< 120mVpp @ > -10°C to +70°C < 360mVpp @ $\leq$ -10°C to -30°C
Rise Time	30ms typ. @ nominal input (100% Load)
Start-up Time	1200ms typ. @ 115Vac & 1200ms typ. @ 230Vac (100% Load)
Hold-up Time	12ms typ. @ 115Vac & 60ms typ. @ 230Vac (100% Load)
Dynamic Response (Overshoot & Undershoot O/P Voltage)	$\pm$ 10% @ 115&230Vac input, 0-50%, 5-100%, 50-100% load (Slew Rate: 2.5A/ μ S, 50% duty cycle @ 5Hz & 10KHz)
Start-up with Capacitive Loads	8,000 μ F Max / Test Report: 5,000 μ F

*2 For power de-rating from -10°C to -20°C, and 40°C to 70°C @ 115Vac & 50°C to 70°C @ 230Vac, and Vin < 100Vac, see power de-rating on following "Environment" section.

*3 PARD is measured with an AC coupling mode, 5cm wires, and in parallel to end terminal with 0.1 μ F ceramic capacitor & 47 μ F electrolytic capacitor. PSU need to bum in around 5 minutes when AMB $\leq$ 0°C.

Mechanical

Case Cover		Plastic
Dimensions (L x W x H)		126.6 x 27 x 102 mm
Unit Weight		0.22 kg
Indicator		Green LED (DC OK)
Cooling System		Convection
Terminal	Input / Output	3 Pins (Rated 300V / 16A) / 4 Pins (Rated 300V / 16A)
Wire	Input / Output	AWG 18-12 / AWG 22-12
Mounting Rail		Standard TS35 DIN Rail in accordance with EN60715
Noise (1 Meter from Power Supply)		Sound Pressure Level (SPL) < 25dBA

Environment

Surrounding Air Temperature	Operating	-20°C to +70°C (-30°C Cold Start)
	Storage	-40°C to +85°C
Power De-rating		-10°C to -20°C de-rate power by 1% / °C > 40°C de-rate power by 1.67% / °C @115Vac > 50°C de-rate power by 2.5% / °C @230Vac < 100Vac de-rate power by 1.33% / Vac
Operating Humidity		5 to 95 % RH (Non-Condensing)
Operating Altitude		0 to 5,000 Meters (16,400 ft.)
Shock Test	Non-Operating	IEC60068-2-27, 27, Half Sine Wave: 50G for a duration of 11ms; 3 times per direction, 9 times in total
	Operation	IEC60068-2-27, 27, Half Sine Wave: 10G for a duration of 11ms; 1 time in X axis
Vibration	Non-Operating	IEC 60068-2-6, Random: 5-500Hz; 2.09Grms, 20min per axis for all X, Y, Z directions
	Operation	IEC 60068-2-6, Sine Wave: 10Hz to 500Hz; 19.6m/S2 (2G peak); displacement of 0.35mm; 10min per cycle, 60 min for X direction
Over Voltage Category		II
Pollution Degree		2

Protections

Overvoltage	28.5V-35.2V, SELV Output, Latch Mode
Overload / Overcurrent	105-133% of rated load current, constant current limit, Auto -Recovery
Over Temperature	Latch Mode
Short Circuit	Hiccup Mode, Non-Latching (Auto-recovery when the fault is removed)
Internal Fuse at L Pin	TBD
Degree of Protection	IP20
Protection Against Shock	Class I with PE*4 connection

*4 PE: Primary Earth

Reliability Data

MTBF	Telcordia SR-332	> 700,000 hrs. I/P: 100Vac, O/P: 100% load, Ta: 25°C
Expected Cap Life Time		10 years (115Vac & 230Vac, 50% load @ 40°C)

Safety Standards / Directives

Safety Entry Low Voltage		SELV (EN 60950)
Electrical Safety		UL62368-1 IEC60950-1
Class 2 Power Supply*5		UL62368-1
Industrial Control Equipment	UL/cUL Listed	UL508 and CSA C22.2 No. 107.1-01 (File No. E...)
CE		In Conformance with EMC Directive 2014/30/EU and Low Voltage Directive 2014/35/EU
Material and Parts		RoHS Directive 2011/65/EU Compliant
Galvanic Isolation	Input to Output	3.0KVac
	Input to Ground	1.5KVac
	Output to Ground	0.5KVac

EMC

Emissions (CE & RE)	Generic Standards: EN 61000-6-3, EN 61000-6-4 CISPR 32, EN 55032, EN55011, FCC Title 47: Class B GB9254.1
Component Power Supply for General Use	EN61204-3

EMC

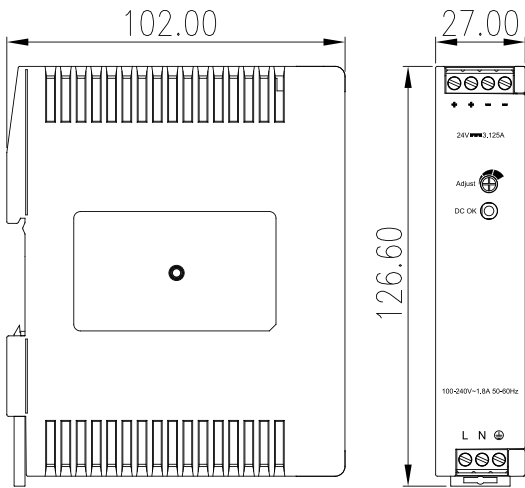
Immunity		Generic Standards: EN61000-6-1, EN61000-6-2, EN55024		
Electrostatic Discharge	IEC 61000-4-2	Level 4 Criteria A ¹⁾ Air Discharge: 15KV Contact Discharge: 8KV		
Radiated Field	IEC 61000-4-3	Level 3 Criteria A ¹⁾ 80MHz-1GHz, 10V/M with 1kHz tone / 80% modulation 1.4GHz-2GHz, 3V/M with 1kHz tone / 80% modulation 2GHz-2.7GHz, 1V/M with 1kHz tone / 80% modulation		
Electrical Fast Transient / Burst	IEC 61000-4-4	Level 3 Criteria A ¹⁾ 2kV		
Surge	IEC 61000-4-5	Level 4 Criteria A ¹⁾ Common Mode ³⁾ : 4kV Differential Mode ⁴⁾ : 2kV		
Conducted	IEC 61000-4-6	Level 3 Criteria A ¹⁾ 150kHz-80MHz, 10Vrms		
Power Frequency Magnetic Fields	IEC 61000-4-8	Level 4 Criteria A ¹⁾ 30A/m		
Voltage Dips and Interruptions	IEC 61000-4-11	0% of 115Vac, 12ms Criteria A ¹⁾ 40% of 115Vac, 200ms Criteria B ²⁾ 70% of 115Vac, 500ms Criteria A ¹⁾ 0% of 115Vac, 5000ms Criteria B ²⁾ 0% of 240Vac, 12ms Criteria A ¹⁾ 40% of 240Vac, 200ms Criteria A ¹⁾ 70% of 240Vac, 500ms Criteria A ¹⁾ 0% of 240Vac, 5000ms Criteria B ²⁾		
Harmonic Current Emission		IEC/EN 61000-3-2, Class A; GB17625.1		
Voltage Fluctuation and Flicker		IEC/EN 61000-3-3		
Voltage Sag Immunity SEMI F47-0706		80% of 200Vac 70% of 200Vac 50% of 200Vac	160Vac, 1000ms 140Vac, 500ms 100Vac, 200ms	Criteria A ¹⁾ Criteria A ¹⁾ Criteria A ¹⁾

1) Criteria A: Normal Performance within the specification limits
2) Criteria B: Temporary degradation or loss of function which is self-recoverable
3) Asymmetrical: Common mode (Line to earth)
4) Symmetrical: Differential mode (Line to line)

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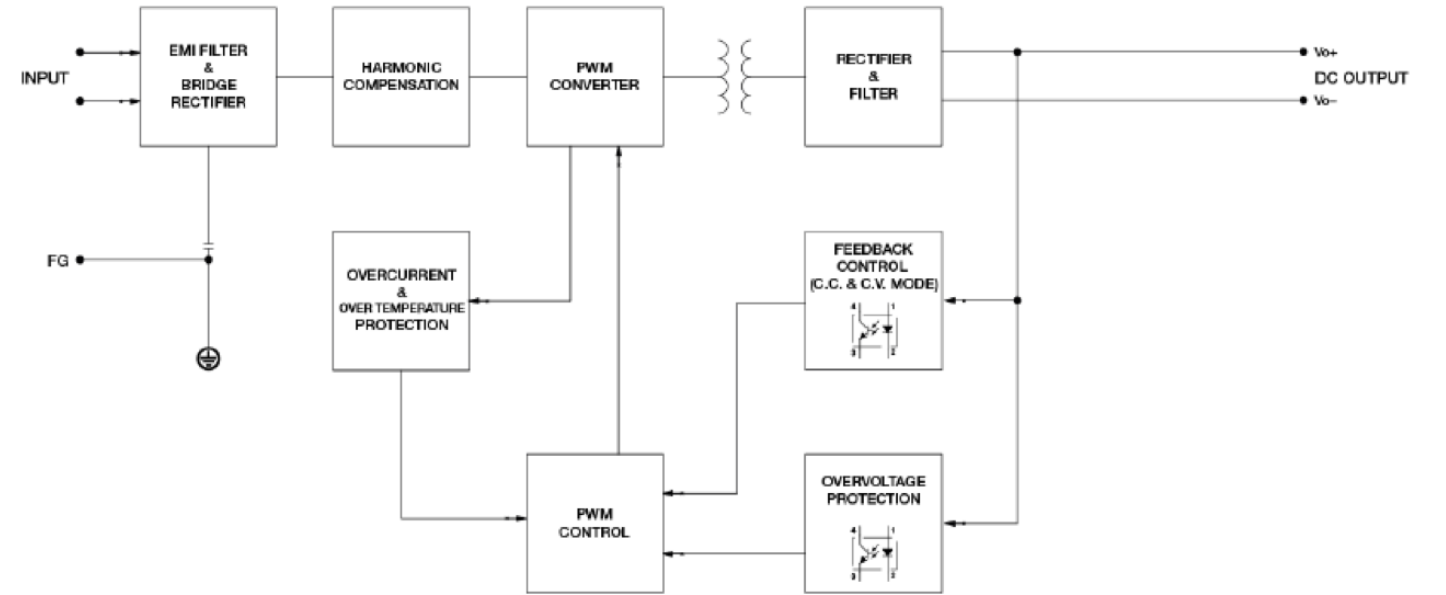
Dimensions

L X W X H : 126.6 X 27 X 102mm

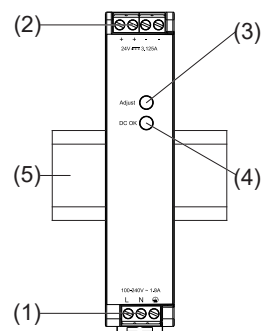
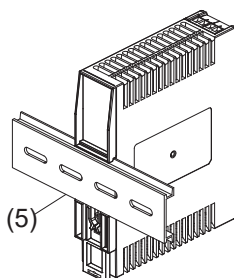
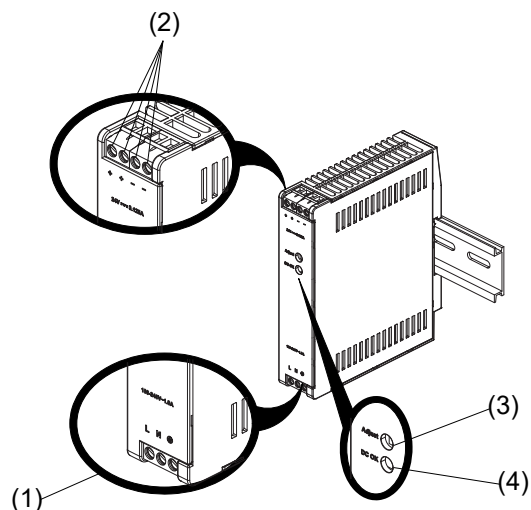


Block Diagram

DRL-24V120W1AA



Device Description



- 1) Input terminal block connector
- 2) Output terminal block connector
- 3) DC OK relay contact (for DRL-24V-120W1AS only)
- 4) DC voltage adjustment potentiometer
- 5) DC OK LED (Green)
- 6) Universal mounting rail system