

# 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 D) : 123.6 x 27 x 102 mm  
(4.86 x 1.06 x 4.01 inch)

## 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 ± 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 @ ≤ -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)	± 10% @ 115&230Vac input, 0-50%, 5-100%, 50-100% load (Slew Rate: 2.5A/μS, 50% duty cycle @ 5Hz & 10KHz)
Start-up with Capacitive Loads	8,000μF Max / Test Report: 5,000μF

\*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 0.1μF ceramic capacitor & 47μF electrolytic capacitor. PSU need to bum in around 5 minutes when AMB ≤ 0°C.

## Mechanical

<b>Case Cover</b>	Plastic	
<b>Dimensions (L x W x D)</b>	123.6 x 27 x 102 mm (4.86 x 1.06 x 4.01 inch)	
<b>Unit Weight</b>	0.22 kg	
<b>Indicator</b>	Green LED (DC OK)	
<b>Cooling System</b>	Convection	
<b>Terminal</b>	Input / Output	3 Pins (Rated 300V / 16A) / 4 Pins (Rated 300V / 16A)
<b>Wire</b>	Input / Output	AWG 18-12 / AWG 22-12
<b>Mounting Rail</b>	Standard TS35 DIN Rail in accordance with EN60715	
<b>Noise (1 Meter from Power Supply)</b>	Sound Pressure Level (SPL) < 25dBA	

## Environment

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

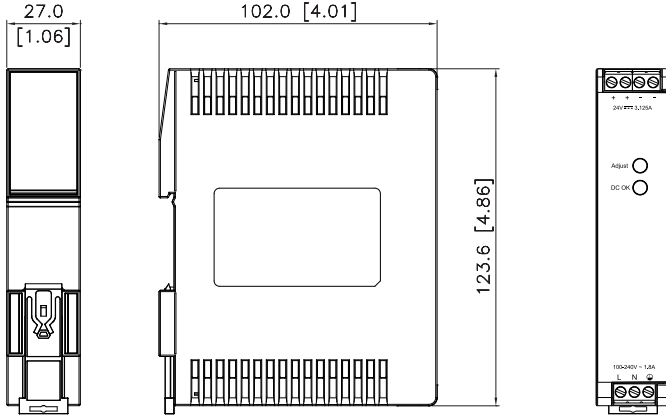
Immunity		Generic Standards: EN61000-6-1, EN61000-6-2, EN55024																		
Electrostatic Discharge	IEC 61000-4-2	Level 4 Criteria A <sup>1)</sup> Air Discharge: 15KV Contact Discharge: 8KV																		
Radiated Field	IEC 61000-4-3	Level 3 Criteria A <sup>1)</sup> 80MHz-1GHz, 10V/M with 1kHz 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 <sup>1)</sup> 2kV																		
Surge	IEC 61000-4-5	Level 4 Criteria A <sup>1)</sup> Common Mode <sup>3)</sup> : 4kV Differential Mode <sup>4)</sup> : 2kV																		
Conducted	IEC 61000-4-6	Level 3 Criteria A <sup>1)</sup> 150kHz-80MHz, 10Vrms																		
Power Frequency Magnetic Fields	IEC 61000-4-8	Level 4 Criteria A <sup>1)</sup> 30A/m																		
Voltage Dips and Interruptions	IEC 61000-4-11	<table border="0"> <tr> <td>0% of 115Vac, 12ms</td> <td>Criteria A<sup>1)</sup></td> </tr> <tr> <td>40% of 115Vac, 200ms</td> <td>Criteria B<sup>2)</sup></td> </tr> <tr> <td>70% of 115Vac, 500ms</td> <td>Criteria A<sup>1)</sup></td> </tr> <tr> <td>0% of 115Vac, 5000ms</td> <td>Criteria B<sup>2)</sup></td> </tr> <tr> <td>0% of 240Vac, 12ms</td> <td>Criteria A<sup>1)</sup></td> </tr> <tr> <td>40% of 240Vac, 200ms</td> <td>Criteria A<sup>1)</sup></td> </tr> <tr> <td>70% of 240Vac, 500ms</td> <td>Criteria A<sup>1)</sup></td> </tr> <tr> <td>0% of 240Vac, 5000ms</td> <td>Criteria B<sup>2)</sup></td> </tr> </table>			0% of 115Vac, 12ms	Criteria A <sup>1)</sup>	40% of 115Vac, 200ms	Criteria B <sup>2)</sup>	70% of 115Vac, 500ms	Criteria A <sup>1)</sup>	0% of 115Vac, 5000ms	Criteria B <sup>2)</sup>	0% of 240Vac, 12ms	Criteria A <sup>1)</sup>	40% of 240Vac, 200ms	Criteria A <sup>1)</sup>	70% of 240Vac, 500ms	Criteria A <sup>1)</sup>	0% of 240Vac, 5000ms	Criteria B <sup>2)</sup>
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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 <sup>1)</sup> Criteria A <sup>1)</sup> Criteria A <sup>1)</sup>																	

- 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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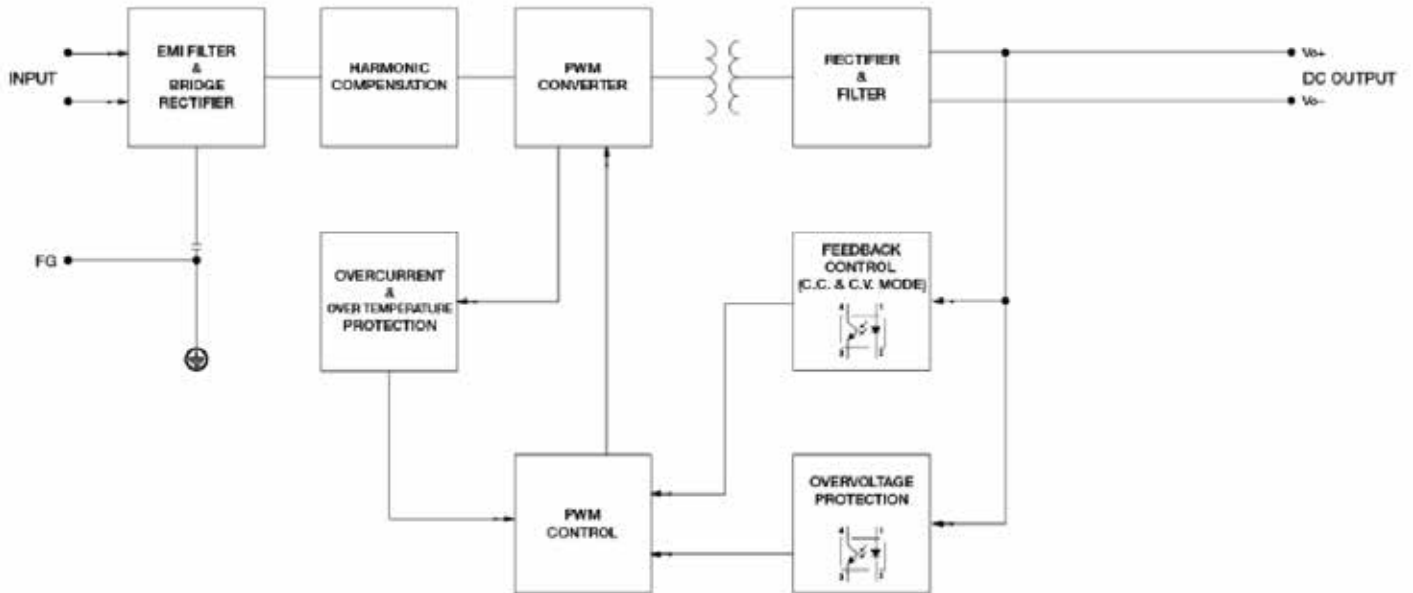
## Dimensions

L X W X D : 123.6 X 40 X 117.6mm [4.86 X 0.83 X 3.52 inch]  
DRL-24V120W1AA

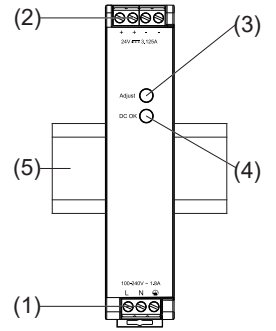
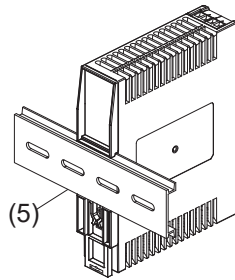
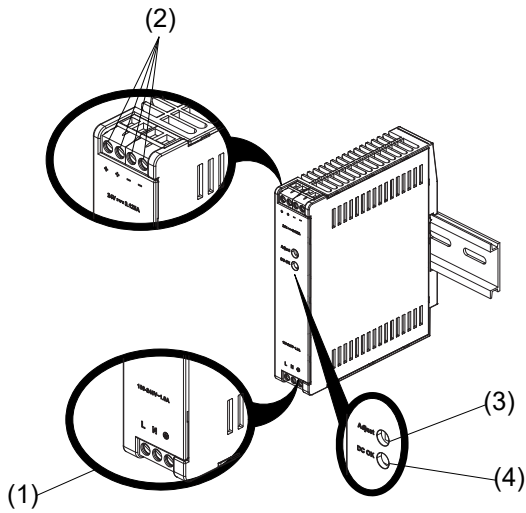


## Block Diagram

### 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