FEATURES

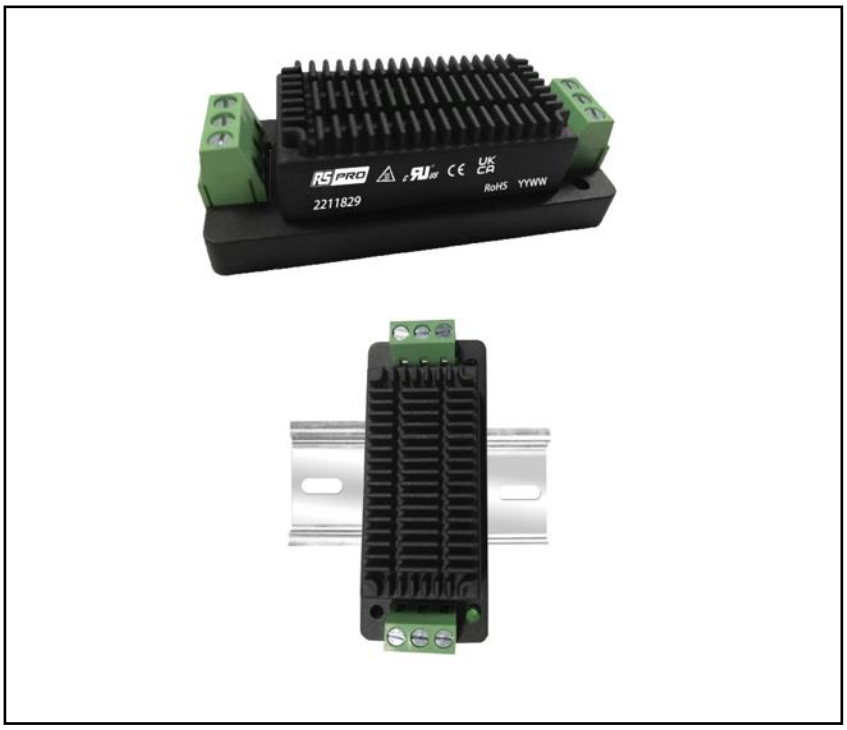
- Ultra-wide DIN rail mount DC-DC
  - 10….36Vdc
  - 19…75Vdc
- Input reverse polarity protection
- Compact size: 31.5mm wide
- Efficiency up to 90%
- I/O isolation test voltage 1.5k VDC
- Operating temperature range
  - 40℃ to +80℃
- Input under-voltage protection, output short circuit, over-current, over–voltage protection.
- EMI performance meets. CISPR32 / EN55032
- IEC62368, UL60950, EN62368 Approved

RS PRO DIN Rail mount wide Input DC-DC

RS Stock No:

2211823,2211825,2211827,2211829,2211831,2211833

,2211835,2211838



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

Product Description

DIN rail mount DC-DC converters feature an ultra-wide 4:1 input voltage with efficiencies of up to 90%, 1500VDC input to output isolation, an operating ambient temperature range of -40℃ to +80℃, input undervoltage protection, output overvoltage, overcurrent, short circuit protection, CISPR32/EN55032 CLASS A EMI compliant without external components, which makes them suitable for a wide range of industrial, instrumentation and communications applications

General Specifications

Model	DC-DC 30W Industrial DIN rail mount power supply
Mounting Type	DIN rail mount
MTBF	MIL-HDBK-217F@25°C > 1,000,000 hrs
Applications	Industrial control systems, instrumentation and communications equipment

RS Stock#	Input Voltage	Output Voltage	Output Current	Wattage	Max. Capacitive Load(µF)	Efficiency (Typ)
2211823	10 to 36Vdc	5V	6A	30W	10000	86%
2211825	10 to 36Vdc	12V	2.5A	30W	2700	90%
2211827	10 to 36Vdc	15V	2A	30W	1680	90%
2211829	10 to 36Vdc	24V	1.25A	30W	680	90%
2211831	19 to 75Vdc	5V	6A	30W	10000	87%
2211833	19 to 75Vdc	12V	2.5A	30W	2700	88%
2211835	19 to 75Vdc	15V	2A	30W	1680	89%
2211838	19 to 75Vdc	24V	1.25A	30W	680	87%

Input Specifications

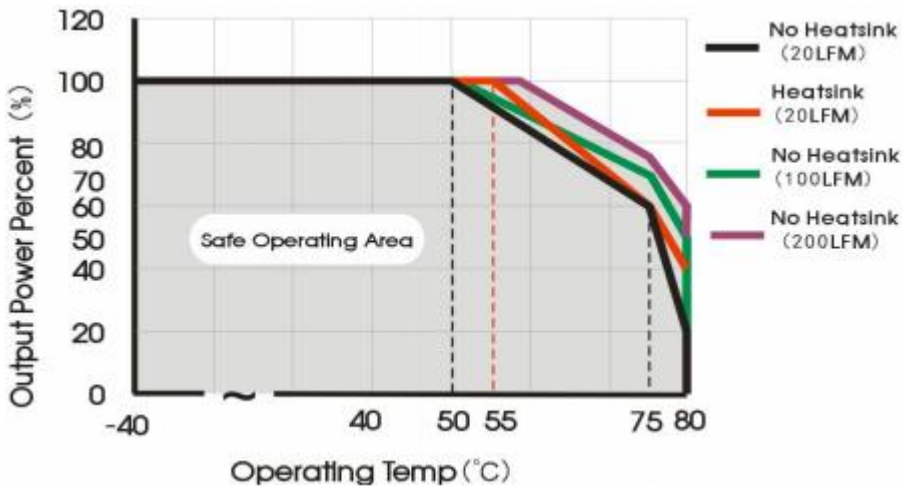
Input Specification						
Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	24VDC nominal input series, nominal input voltage	5V output	-	1454/60	1488/100	mA
		Others	-	1388/6	1488/16	
	48VDC nominal input series, nominal input	5V output	-	710/20	726/35	
		Others	-	702/5	744/10	
Reflected Ripple Current	Nominal input voltage		-	40	-	
Surge Voltage (1sec. max.)	24VDC nominal input series		-0.7	-	50	VDC
	48VDC nominal input series		-0.7	-	100	
Start-up Voltage	24VDC nominal input series		-	-	10	
	48VDC nominal input series		-	-	19	
Input under-voltage protection	24VDC nominal input series		5.5	6.5	-	
	48VDC nominal input series		12	15.5	-	
Start-up Time	Nominal input voltage & constant resistance load		-	10	-	ms
Input Filter			Pi filter			
Hot Plug			Unavailable			
Ctrl*	Module on		Ctrl pin open or pulled high (TTL 3.5-12VDC)			
	Module off		Ctrl pin pulled low to GND (0-1.2VDC)			
	Input current when off		-	5	8	mA
Note: *The Ctrl pin voltage is referenced to input GND						

Output Specifications

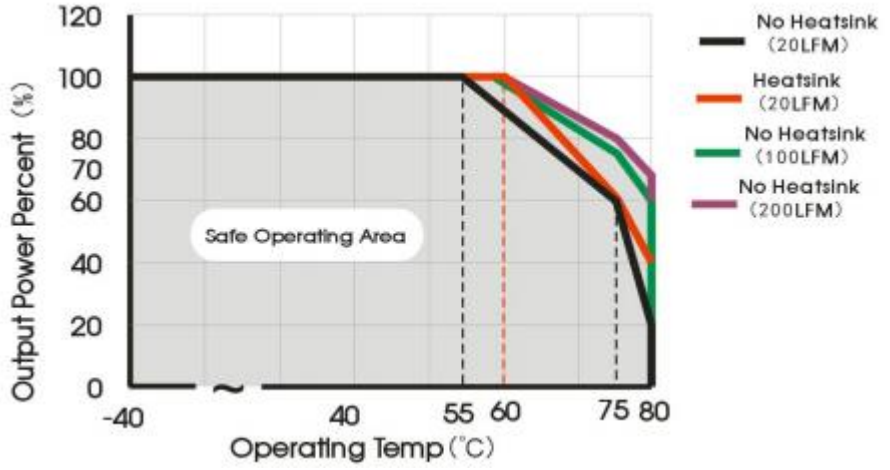
Output Specification						
Item	Operating Conditions		Min	Typ.	Max	Unit
Voltage Accuracy	5%-100% load		-	±1	±3	%
	0%-5% load		-	±1	±5	
Linear Regulation	Input voltage variation from low to high at full load		-	±0.2	±0.5	
Load Regulation	5%-100% load		-	±0.5	±1	
Transient Recovery Time	25% load step change, nominal input voltage		-	300	500	μs
Transient Response Deviation		5V output	-	±5	±8	%
Transient Response Deviation		Others	-	±3	±5	
Temperature Coefficient	Full load		-	-	±0.03	%/℃
Ripple & Noise *	20MHz bandwidth, 100% load		-	50	100	mV p-p
Trim	Input voltage range		-	±10	-	%Vo
Over-voltage Protection			110	-	160	
Over-current Protection			110	-	190	%Io
Short circuit Protection			Hiccup, continuous, self-recovery			
Note: The ”parallel cable” method is used for Ripple and Noise test, please refer to DC-DC Converter Application Notes for specific information.						

Derating

Derating curve 5V

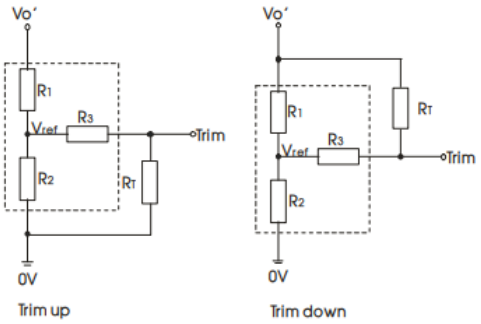


Derating curve 12V, 15V 24V



Trim Function

Trim Function for Output Voltage Adjustment (open if unused)



Calculating Trim resistor values:

$$\text{up: } R_T = \frac{aR_2}{R_2 - a} - R_3 \qquad a = \frac{Vref}{Vo' - Vref} \cdot R_1$$

$$\text{down: } R_T = \frac{aR_1}{R_1 - a} - R_3 \qquad a = \frac{Vo' - Vref}{Vref} \cdot R_2$$

R_T= Trim Resistor value
a= self-defined parameter
Vo'=desired output voltage

TRIM resistor connection (dashed line shows internal resistor network)

Vout(VDC)	R1(KΩ)	R2(KΩ)	R3(KΩ)	Vref(V)
3.3	4.801	2.87	12.4	1.24
5	2.883	2.87	10	2.5
9	7.500	2.87	15	2.5
12	11.000	2.87	15	2.5
15	14.494	2.87	15	2.5
24	24.872	2.87	17.8	2.5

General Specifications

Item	Operating Conditions	Min	Typ	Max.	Unit
Isolation	Input-output Electric Strength test for 1 minute with a leakage current of 1mA max	1500	-	-	VDC
Insulation Resistance	Input-output resistance at 500VDC/60sec	1000	-	-	MΩ
Isolation Capacitance	Input-output capacitance at 100KHz/0.1V		2000		pF
Operating Temperature	See derating curves	-40	-	+80	℃
Storage Temperature		-55	-	+125	
Storage Humidity	Non-condensing	5	-	95	%RH
MTBF	MIL-HDBK-217F@25℃	1000			K hours

EMC Specifications

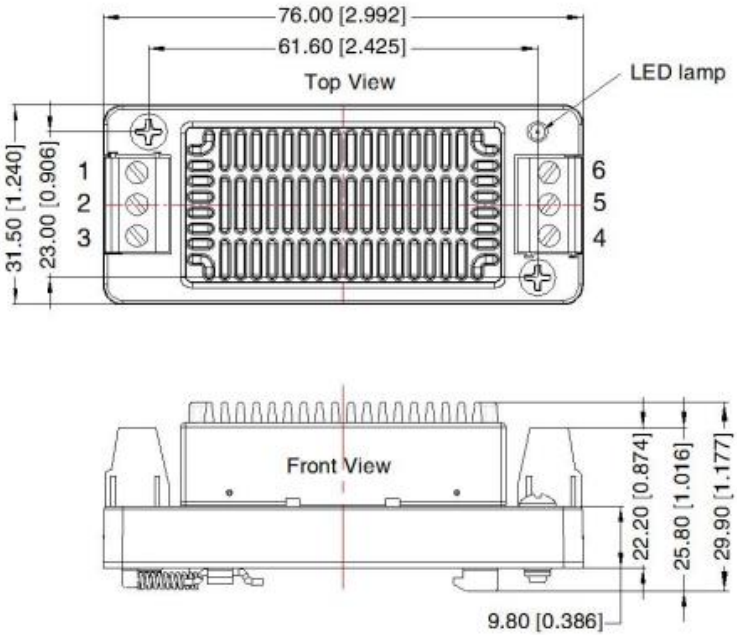
Emissions	CE	CISPR32/EN55032 CLASS A	
	RE	CISPR32/EN55032 CLASS A	
Immunity	ESD	IEC/EN61000-4-2 Contact ±4KV	Perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	Perf. Criteria A
	CS	IEC/EN61000-4-6 3 Vr.m.s	Perf. Criteria A

Mechanical Specifications

Case material	DC-DC converter Aluminium alloy
Dimensions	76.00 × 31.50 × 29.90 mm
Weight	80g (Typ.)
Cooling Method	Free air convection

Dimensions and recommended layout

Embedded Switch Mode Power Supplies (SMPS)



Pin-Out						
Pin	1	2	3	4	5	6
Single	Ctrl	GND	Vin	+Vo	0V	Trim
Dual	Ctrl	GND	Vin	+Vo	0V	-Vo

Note:
Unit: mm[inch]
Mounting rail: TS35
Wire range: 24–12 AWG
Tightening torque: Max 0.4 N·m
General tolerances: ±1.00[±0.039]

Approvals

Safety Certification	IEC62368, UL60950, EN62368

1. The maximum capacitive load offered were tested at input voltage range and full load
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity <75%RH with nominal input voltage and rated output load
3. All index testing methods in this datasheet are based on company corporate standards
4. Products are related to laws and regulations: see "Features" and "EMC"