



### POE INJECTOR

- DC 48-56V Input
- Efficiency 96.1%
- Width only 39mm
- 8x 30W ports (acc.to IEEE 802.3 at)
- Data transfer rate 1000Mbps
- Temperature range -45°C and +85°C
- Plug & Play installation and DIN rail mounting
- 3 Year Warranty

### GENERAL DESCRIPTION

The POE.8AT-DC1 is a DIN-rail mountable Power over Ethernet (PoE) injector, which provides power for PoE applications. It injects power to 8 individual PoE channels (IEEE 802.3AT) via RJ45 Ethernet ports. The device can supply powered devices PD of type 1 and type 2.

### SHORT-FORM DATA

DC input voltage	DC 48V	Nominal
DC input voltage range	48 – 56Vdc	For PD type 2 (30W / channel) , the input voltage must be above 51Vdc
Output power channels	8x 30W 8x 22.5W	Below +60°C ambient At +85°C ambient Derate linearly between +60°C and +85°C
Output current limitation	0.63A 0.47A	Below +60°C ambient At +85°C ambient
Efficiency	96.1%	
Losses	4.2W	
Temperature range	-45°C to +85°C	
Size (w x h x d)	39x128x117mm	Without DIN-Rail
Weight	360g / 0.79lb	

### ORDER NUMBERS

PoE Injector	<b>POE.8AT-DC1</b>
Power Supply	CP10.481
Mechanical Accessory	ZM10.WALL Wall/panel mount bracket

### MARKINGS



May 2019 / Rev. 0.1 DS-POE.8AT-DC1-EN  
All values are typical figures specified at 56Vdc supply voltage, 8x 30W output load, 25°C ambient temperature and after a 5 minutes run-in time unless otherwise noted.

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The information given in this document is correct to the best of our knowledge and experience at the time of publication. If not expressly agreed otherwise, this information does not represent a warranty in the legal sense of the word. As the state of our knowledge and experience is constantly changing, the information in this data sheet is subject to revision. We therefore kindly ask you to always use the latest issue of this document (available under [www.pulspower.com](http://www.pulspower.com)).

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## TERMINOLOGY AND ABBREVIATIONS

<b>PE and <math>\oplus</math> symbol</b>	PE is the abbreviation for <b>Protective Earth</b> and has the same meaning as the symbol $\oplus$ .
<b>Earth, Ground</b>	This document uses the term "earth" which is the same as the U.S. term "ground".
<b>T.b.d.</b>	To be defined, value or description will follow later.
<b>AC 230V</b>	A figure displayed with the AC or DC before the value represents a nominal voltage with standard tolerances (usually $\pm 15\%$ ) included. E.g.: DC 12V describes a 12V battery disregarding whether it is full (13.7V) or flat (10V)
<b>230Vac</b>	A figure with the unit (Vac) at the end is a momentary figure without any additional tolerances included.
<b>50Hz vs. 60Hz</b>	As long as not otherwise stated, AC 100V and AC 230V parameters are valid at 50Hz mains frequency. AC 120V parameters are valid for 60Hz mains frequency.
<b>may</b>	A key word indicating flexibility of choice with no implied preference.
<b>shall</b>	A key word indicating a mandatory requirement.
<b>should</b>	A key word indicating flexibility of choice with a strongly preferred implementation.

## 1. INTENDED USE

This device is designed for installation in an enclosure and is intended for commercial use, such as in industrial control, process control, monitoring and measurement equipment or the like.

Do not use this device in equipment where malfunction may cause severe personal injury or threaten human life.

## 2. INSTALLATION REQUIREMENTS

This device may only be installed and put into operation by qualified personnel.

This device does not contain serviceable parts.

If damage or malfunction should occur during installation or operation, immediately turn power off and send unit to the factory for inspection.

This device is designed for convection cooling and does not require an external fan. Do not obstruct airflow and do not cover ventilation grid (e.g. cable conduits) by more than 15%!

Keep the following installation clearances: 40mm on top, 20mm on the bottom, 5mm on the left and right sides are recommended when the device is loaded permanently with more than 50% of the rated power. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power supply).

A disconnecting means shall be provided for the output of the power supplies when used in applications according to CSA C22.2 No 107.1-01.

**WARNING**

Risk of electrical shock, fire, personal injury or death.

- Do not use the injector without a proper grounded power supply (Protective Earth). It is recommended to ground power supply –pole with PE.
- Turn power off before working on the device. Protect against inadvertent re-powering.
- Make sure that the wiring is correct by following all local and national codes.
- Do not modify or repair the unit.
- Do not open the unit.
- Use caution to prevent any foreign objects from entering the housing.
- Do not use in wet locations or in areas where moisture or condensation can be expected.
- Do not touch during power-on, and immediately after power-off. Hot surfaces may cause burns.

### 3. DC-INPUT

Supply voltage	DC 48V	Nominal
Supply voltage range	48 – 56Vdc	For PD type 2 (30W / channel) , the input voltage must be above 51Vdc

### 4. OUTPUT

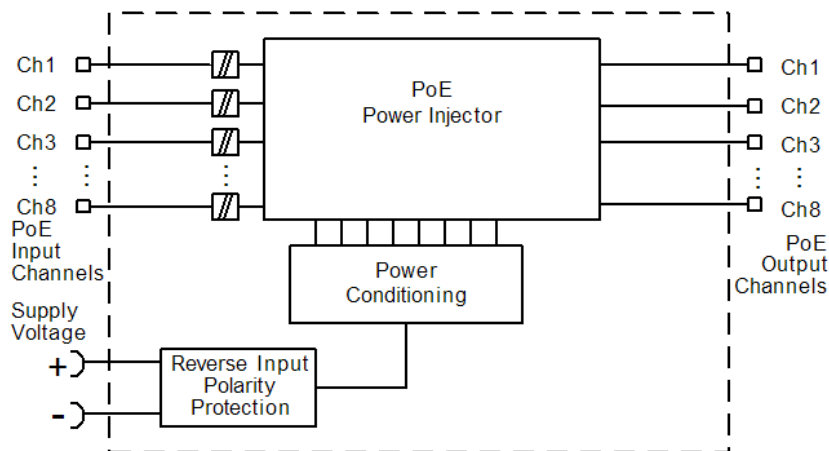
RJ45 Output channels	8x 30W	Below +60°C ambient
	8x 22.5W	At +85°C ambient
	Derate linearly between +60°C and +85°C	
Output current limitation	0.63A	Below +60°C ambient
	0.47A	At +85°C ambient

### 5. EFFICIENCY AND POWER LOSSES

		DC48V	DC56V	
Efficiency	Typ.	96.1%	95.6%	At 8x30W output
Power losses	Typ.	4.12W	4.21	At 8x30W output

### 6. FUNCTIONAL DIAGRAM

Fig. 6-1 Functional diagram



## 7. TERMINALS AND WIRING

The terminals are IP20 finger safe constructed and suitable for field- and factory wiring.

Type	Input
Max. wire size (litz wire)	Hot swap connector
Max. wire size with ferrules	1.5mm <sup>2</sup>
Wire size AWG	1.5mm <sup>2</sup>
Maximum wire diameter	AWG 26-14
Wire stripping length	Max. 1.8mm
Screwdriver	6mm / 0.25inch
Recommended tightening torque	3.5mm slotted or cross-head No 2
	0.8Nm, 7lb.in

### Instructions:

- Use appropriate copper cables that are designed for minimum operating temperatures of:  
60°C for ambient up to 45°C and  
75°C for ambient up to 60°C minimum  
90°C for ambient up to 70°C minimum.
- Follow national installation codes and installation regulations!
- Ensure that all strands of a stranded wire enter the terminal connection!
- Unused terminal compartments should be securely tightened.
- Ferrules are allowed.

## 8. FRONT SIDE AND USER ELEMENTS



- |          |                                 |                     |
|----------|---------------------------------|---------------------|
| <b>A</b> | <b>Network output and power</b> | Ethernet PoE output |
| <b>B</b> | <b>DC power input</b>           | Hot swap connector  |
| <b>C</b> | <b>Network input</b>            | Ethernet input      |

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## 9. EMC

The power supply is suitable for applications in industrial environment as well as in residential, commercial and light industry environments.

<b>EMC Immunity</b>		According to generic standards: EN 61000-6-2 and EN 61000-6-4		
Electrostatic discharge	EN 61000-4-2	Contact discharge	±4kV	Criterion B
		Air discharge	±8kV	Criterion B
Electromagnetic RF field	EN 61000-4-3	80MHz-1GHz	3V/m	Criterion A
Fast transients (Burst)	EN 61000-4-4	Input and Output lines	2kV	Criterion B
Surge voltage on input	EN 61000-4-5	L → PE	±0,5kV	Criterion B
Surge voltage on output	EN 61000-4-5	+ → -	±1kV	Criterion C
		+ / - → PE	±4kV	Criterion C
Conducted disturbance	EN 61000-4-6	0.15-80MHz	3V	Criterion A

<b>EMC Emission</b>		According to generic standards: EN 61000-6-3 and EN 61000-6-4		
Conducted emission input lines	EN 55011, EN 55015, EN 55022, EN 55032, FCC Part 15, CISPR 11, CISPR 22	Class B		
Conducted emission output lines <sup>1)</sup>	IEC/CISPR 16-1-2, IEC/CISPR 16-2-1 IEC/CISPR 22, EN 55032 (B)	Limits for DC power port according EN 61000-6-3 fulfilled		
Radiated emission	EN 55011, EN 55022, EN 55032, IEC/CISPR 16-2-3	Class B		

This device complies with FCC Part 15 rules.

Operation is subjected to following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

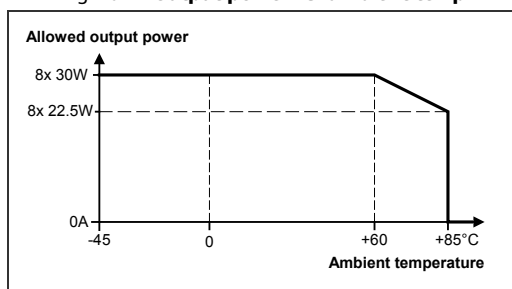
1) For information only, not mandatory for EN 61000-6-3

## 10. ENVIRONMENT

Operational temperature <sup>1)</sup>	-45°C to +85°C (-31°F to 185°F)	Reduce output power according to Fig. 10-1
Storage temperature	-45°C to +85°C (-31°F to 185°F)	For storage and transportation
Humidity	5 to 95% r.h.	According to IEC 60068-2-30 Do not energize while condensation is present
Altitude	0 to 2000m (0 to 6 560ft)	Without any restrictions
Over-voltage category	III	According to IEC 62477-1 for altitudes up to 2000m

1) Operational temperature is the same as the ambient or surrounding temperature and is defined as the air temperature 2cm below the unit.

Fig. 10-1 **Output power vs. ambient temp.**



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## 11. PROTECTION FEATURES

Output protection	Electronically protected against overload, no-load and short-circuits.	
Degree of protection	IP 20	EN/IEC 60529
Penetration protection	> 4mm	E.g. screws, small parts
Over-temperature protection	Yes	Output shut-down with automatic restart. There is no correlation between the operating temperature and turn-off temperature since this is dependent on input voltage, load and installation methods.
Input polarity protection	Diode	

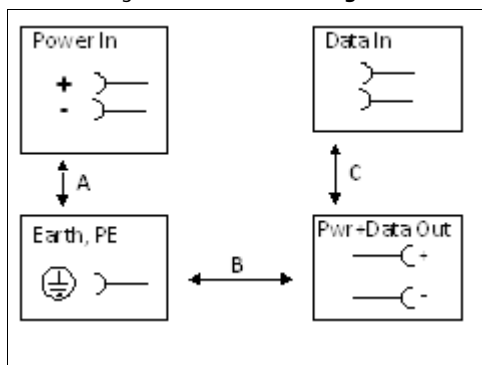
## 12. SAFETY FEATURES

Input / output separation      Data channels galvanically isolated

## 13. DIELECTRIC STRENGTH

The output voltage is floating and has no ohmic connection to the ground. Type and factory tests are conducted by the manufacturer. Field tests may be conducted in the field using the appropriate test equipment which applies the voltage with a slow ramp (2s up and 2s down). Connect all input-terminals together as well as all output poles before conducting the test. When testing, set the cut-off current settings to the value in the table below.

Fig. 13-1 Dielectric strength



		A	B	C
Type test	60s	500Vac	500Vac	1500Vac
Factory test	5s	500Vac	500Vac	1500Vac
Field test	5s	500Vac	500Vac	1500Vac
Cut-off current setting		> 10mA	> 20mA	> 1mA

To fulfil the PELV requirements according to EN60204-1 § 6.4.1, we recommend that either the + pole, the - pole or any other part of the output circuit shall be connected to the protective earth system. This helps to avoid situations in which a load starts unexpectedly or cannot be switched off when unnoticed earth faults occur.

**14. APPROVALS**

EC Declaration of Conformity



The CE mark indicates conformance with the  
- EMC directive,  
- Low-voltage directive (LVD)

UL 61010  
(planned)



EAC TR Registration  
(planned)



Registration for the Eurasian Customs Union market  
(Russia, Kazakhstan, Belarus)

**15. OTHER FULFILLED STANDARDS**

RoHS Directive



Directive 2011/65/EU of the European Parliament and the Council of June 8<sup>th</sup>, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

REACH Directive



Directive 1907/2006/EU of the European Parliament and the Council of June 1<sup>st</sup>, 2007 regarding the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)



## 16. PHYSICAL DIMENSIONS AND WEIGHT

Width	39mm	1.54"
Height	128mm	5.06"
Depth	117mm	4.61"
	The DIN-rail height must be added to the unit depth to calculate the total required installation depth.	

Weight	360g / 0.79lb
DIN-Rail	Use 35mm DIN-rails according to EN 60715 or EN 50022 with a height of 7.5 or 15mm.
Housing material	Body: Aluminium alloy Cover: zinc-plated steel
Installation clearances	See chapter 2

Fig. 16-1  
Front view

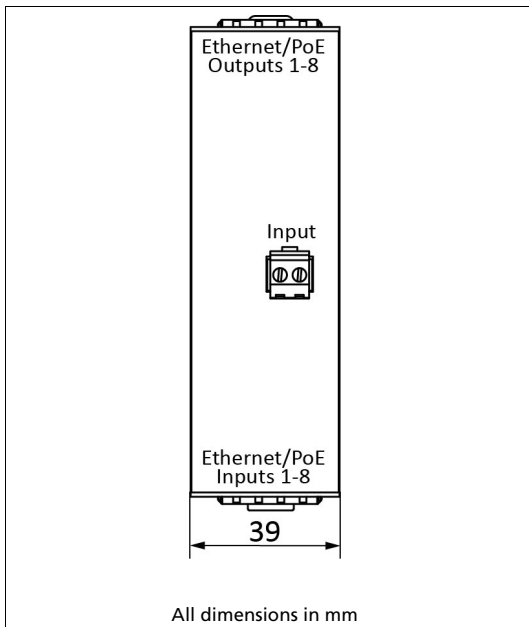
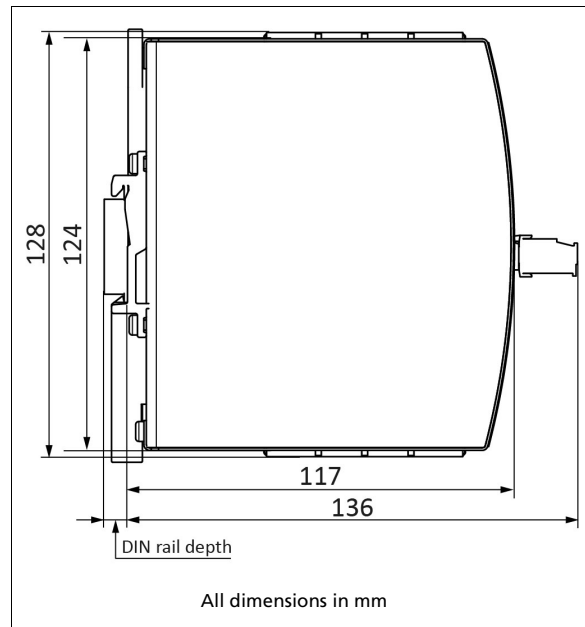


Fig. 16-2  
Side view



## 17. ACCESSORIES

### 17.1. CP10.481



The CP10.481 is a DIN-rail mountable single-phase-input power supply, which provides a floating, stabilized and galvanically separated SELV/PELV output voltage.

### 17.2. ZM10.WALL – WALL/PANEL MOUNT BRACKET

This bracket is used to mount the devices on a wall/panel without utilizing a DIN-Rail. The bracket can be mounted without detaching the DIN-rail brackets.

Fig. 17-1 Isometric view

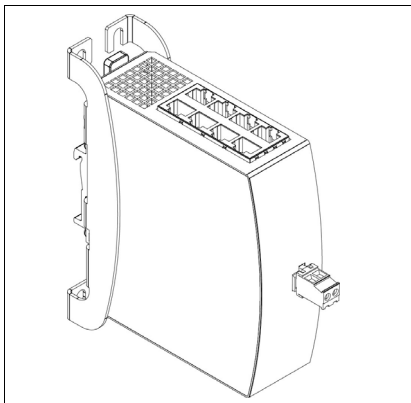


Fig. 17-2 Isometric view

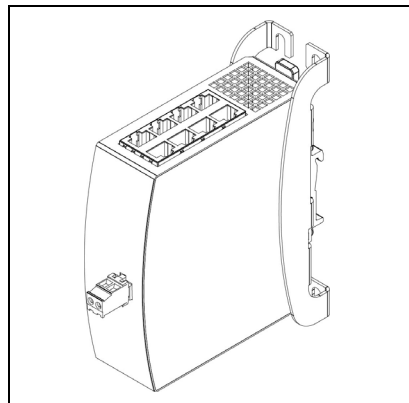


Fig. 17-3 Isometric view

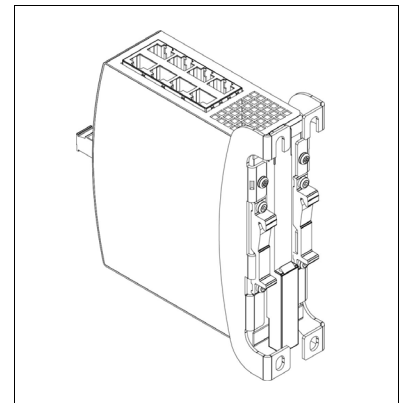


Fig. 17-4 Wall/panel mounting, front view

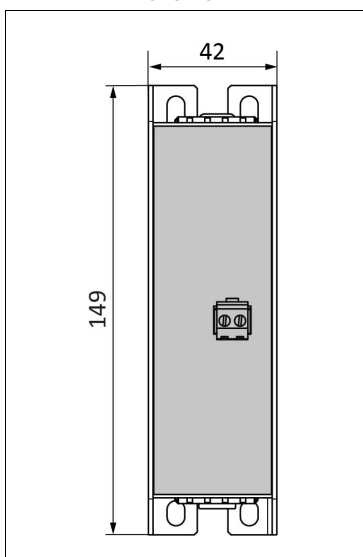


Fig. 17-5 Hole pattern for wall mounting

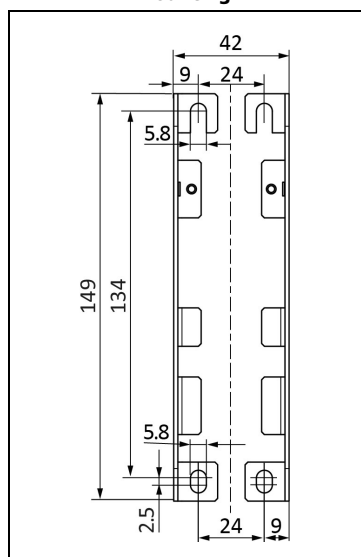


Fig. 17-6 Wall/panel mounting, side view

