PULS
DIMENSION

POE.8AT-DC1

53V, 8x 30W

PoE INJECTOR

- DC 48-56V Input
- Width only 39mm
- 8x 30W ports (acc. to IEEE 802.3at)
- Data transfer rate 1000Mbps
- Temperature range -25°C to +70°C
- Plug & Play installation and DIN rail mounting
- 3 Year warranty

PRODUCT DESCRIPTION

The POE.8AT-DC1 is a DIN rail mountable Power over Ethernet (PoE) injector providing power for PoE applications. It can inject full 30W to each of 8 individual PoE channels (according to IEEE 802.3at) via RJ45 Ethernet ports, so no power sharing is limiting the use of single channels. The device can supply powered devices PD of type 1 and type 2 (PoE+).

This PoE injector is connected to an external Power Supply. For highly reliable operation we recommend our model CP10.481.

SHORT-FORM DATA

DC input voltage	53V	Nominal
DC input voltage range	48 – 56Vdc	For PoE+ the input voltage shall be above 52Vdc
Output power	8x 30W (PoE+)	-25°C to +60°C ambient
	8x 15.4W (PoE)	-25°C to +70°C ambient
Output current limitation per channel	0.63A (PoE+)	-25°C to +60°C ambient
	0.33A (PoE)	-25°C to +70°C ambient
Temperature range	-25°C to +70°C	
Size (wxhxd)	39x128x117mm	Without DIN rail
Weight	380g / 0.84lb	

ORDER NUMBERS

PoE Injector	**POE.8AT-DC1**
Mechanical Accessory	ZM10.WALL Wall/panel mount bracket

MAIN APPROVALS

For details and the complete approval list, see chapter 13.

c UL us LISTED

UL 61010-2-201
(planned)

Jan. 2022 / Rev. 0.2 DS-POE.8AT-DC1-EN
All values are typical figures specified at 53Vdc supply voltage, 8x 30W output load, 25°C ambient temperature and after 5 minutes run-in time unless otherwise noted.

INDEX

TERMINOLOGY AND ABREVIATIONS

PE and ⏚ symbol	PE is the abbreviation for **P**rotective **E**arth and has the same meaning as the symbol ⏚.
Earth, Ground	This document uses the term "earth" which is the same as the U.S. term "ground".
t.b.d.	To be defined, value or description will follow later.
AC 230V	A figure displayed with the AC or DC before the value represents a nominal voltage with standard tolerances (usually ±15%) included. E.g.: DC 12V describes a 12V battery disregarding whether it is full (13.7V) or flat (10V)
230Vac	A figure with the unit (Vac) at the end is a momentary figure without any additional tolerances included.
50Hz vs. 60Hz	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.
may	A key word indicate flexibility of choice with no implied preference.
shall	A key word indicate a mandatory requirement.
should	A key word indicate 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.

The device is suitable for indoor applications. Outdoor applications are also allowed as long as all requirements specified in this manual (enclosure, controlled environment, condensation, ...) are met.

Do not use this device in equipment, where malfunctioning may cause severe personal injury or threaten human life without additional appropriate safety devices, that are suited for the end-application. If this device is used in a manner outside of its specification, the protection provided by the device may be impaired.

2. Installation Instructions

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

- Turn power off before working on the device and protect against inadvertent re-powering.
- Do not open, modify or repair the device.
- Use caution to prevent any foreign objects from entering into 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 surface may cause burns.

Obey the following installation instructions:

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

This device does not contain serviceable parts. The tripping of an internal fuse is caused by an internal defect.

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

Install device in an enclosure providing protection against electrical, mechanical and fire hazards.

Install the device onto a DIN rail according to EN 60715 with the RJ45 input connectors on the bottom of the device.

Make sure that the wiring is correct by following all local and national codes. Use appropriate copper cables that are suitable for the operating temperature of the device. Ensure that all strands of a stranded wire enter the terminal connection. Unused screw terminals should be securely tightened. Use shielded twisted pair Ethernet cables specified for usage in IEEE 802.3at.

The device is designed for pollution degree 2 areas in controlled environments. No condensation or frost is allowed.

The enclosure of the device provides a degree of protection of IP20. The enclosure does not provide protection against spilled liquids.

The device is designed as “Class of Protection III” equipment according to IEC 61140.

The device can be supplied from batteries or similar DC sources. The voltage between the supply terminals and ground must not exceed 60Vdc continuously. In order to fulfill the IEEE 802.3at requirements, the external power source and wiring connected to the supply voltage terminals need to have a minimum isolation strength of 1500Vac to ground. Check for correct input polarity. The device will not operate when the voltage is reversed. The device must be supplied from a PELV or SELV source or an "Isolated Secondary Circuit" in order to maintain a SELV or PELV output. A minimum input voltage of 52Vdc is required to fulfill the IEEE 802.3at requirements with 30W (PD type 2) per channel. If the voltage is lower than 52V, only devices with a power requirement of 15W (PD type 1) can be supplied.

A disconnecting means shall be provided for the input of the device.

There is no input inrush current limitation included. The internal input capacitor of typically 100µF will be charged without any specific limitation means when connected to the supplying system.

Use an external circuit breaker with 6A B- or 4A C-Characteristic for the supply voltage input if the current of the supplying source is higher than 7A.

The device is designed for convection cooling and does not require an external fan. Do not obstruct airflow and do not cover ventilation grid!

The device is designed for altitudes up to 2000m (6560ft).

Keep the following minimum installation clearances: 40mm on top, 20mm on the bottom, 5mm left and right side. Increase the 5mm to 15mm in case the adjacent device is a heat source. When the device is permanently loaded with less than 50%, the 5mm can be reduced to zero.

The maximum surrounding air temperature is +70°C (+158°F). The operational temperature is the same as the ambient or surrounding air temperature and is defined 2cm below the device.

The device is designed to operate in areas between 5% and 95% relative humidity.

Do not plug or unplug the device as long as input voltage is present.

Do not unplug the supply voltage connectors more often than 20 times in total.

3. DC-INPUT

Supply voltage	DC 53V	Nominal
Supply voltage range	48 – 56Vdc	For PoE+ (30W per channel), the input voltage must be above 52Vdc

4. OUTPUT

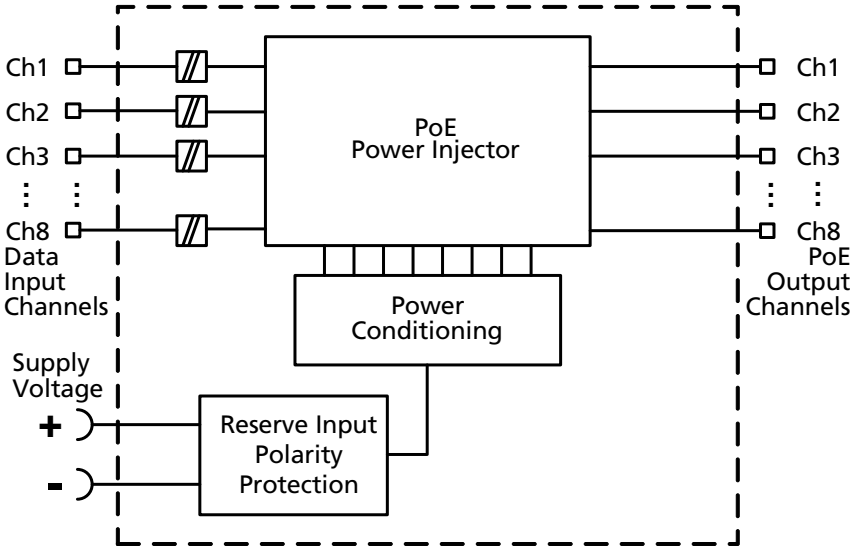
RJ45 Output channels	8x 30W (PoE+)	-25°C to +60°C ambient
	8x 15.4W (PoE)	-25°C to +70°C ambient
Output current limitation	0.63A (PoE+)	-25°C to +60°C ambient
	0.33A (PoE)	-25°C to +70°C ambient

5. EFFICIENCY AND POWER LOSSES

		DC 53V	
Efficiency	typ.	97.3%	At 8x30W output
Power losses	typ.	6.4W	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.

	Input
Type	Hot swap connector
Max. wire size (litz wire)	1.5mm²
Max. wire size with ferrules	1.5mm²
Wire size AWG	AWG 26-14
Maximum wire diameter	max. 1.8mm
Wire stripping length	6mm / 0.25inch
Screwdriver	3.5mm slotted or crosshead No 2
Recommended tightening torque	0.8Nm, 7lb.in

Do not unplug the connectors more often than 20 times in total.

⚠ WARNING

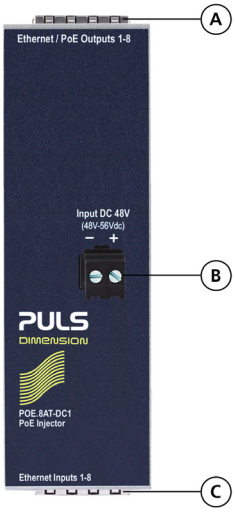
In order to fulfil the IEEE 802.3at requirements, the external power source and wiring connected to the supply voltage terminals shall have a minimum isolation strength of 1500Vac to ground.

Instructions:

a) 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
b) Follow national installation codes and installation regulations!
c) Ensure that all strands of a stranded wire enter the terminal connection!
d) Unused terminal compartments should be securely tightened.
e) Ferrules are allowed.

8. Front Side and User Elements

Fig. 10-1
Front side



A	**Ethernet / PoE outputs**	8x RJ45 jacks
B	**DC power input terminal**	Hot swap connector
C	**Ethernet inputs**	8x RJ45 jacks

9. EMC

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

EMC Immunity	According to generic standards: EN 61000-6-2 and EN 61000-6-4 and product standard EN 55024			
Electrostatic discharge	EN 61000-4-2	Contact discharge Air discharge	±4kV ±8kV	Criterion B Criterion B
Electromagnetic RF field	EN 61000-4-3	80MHz-1GHz 1.4GHz-2GHz 2GHz-2.7GHz	10V/m 3V/m 1V/m	Criterion A Criterion A Criterion A
Fast transients (Burst)	EN 61000-4-4	Input and Output lines	2kV	Criterion B
Surge voltage on input	EN 61000-4-5	+ → - + → PE; - → PE	±1kV ±1kV	Criterion B Criterion B
Surge voltage on output	EN 61000-4-5	+ → - PE	±1kV	Criterion B
Conducted disturbance	EN 61000-4-6	0.15-80MHz	3V	Criterion A

Criterions:

A: Before, during and after the test the equipment shall operate as intended, no loss of function and the output voltage must be within +/-5% range and the data rate within 95% and 100%.

B: Before, during and after the test the equipment shall operate as intended, no loss of function or loss of data links shall occur. After the test there shall be no degradation of performance.

EMC Emission	According to generic standards: EN 61000-6-3 and EN 61000-6-4 and product standard EN 55032	
Conducted emission DC input lines	IEC/CISPR 16-1-2, IEC/CISPR 16-2-1, EN 61000-6-3	Class B
Conducted emission network input and output lines	EN 61000-6-3, EN 55032	Class B
Radiated emission	EN 55011, EN 55032, IEC/CISPR 16-2-3	Class B

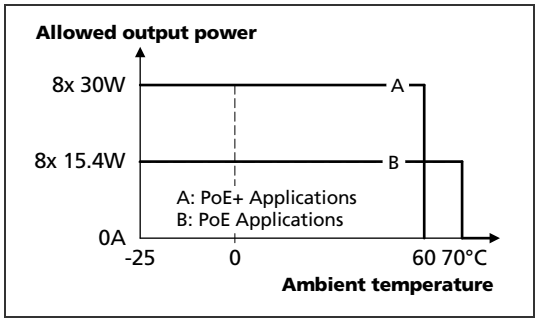
This device complies with FCC Part 15 rules.
Operation is subjected to following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

10. ENVIRONMENT

Operational temperature [1]	-25°C to +60°C (-13°F to 140°F) -25°C to +70°C (-13°F to 158°F)	PoE+ application (30W per channel) PoE application (15.4W per channel)
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 **Temperature range**



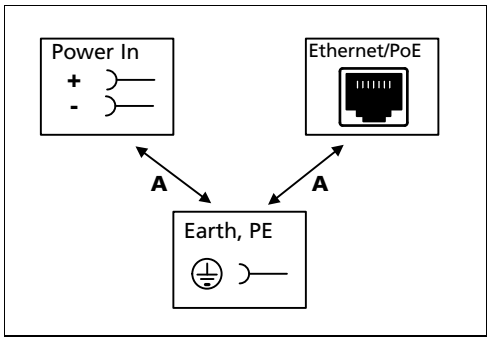
11. PROTECTION FEATURES

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
Input polarity protection	Diode	

12. 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. 12-1 **Dielectric strength**



		A
Type test	60s	1500Vac
Factory test	5s	1350Vac
Field test	5s	1000Vac
Cut-off current setting		> 30mA

⚠ WARNING

In order to fulfil the IEEE 802.3at requirements, the external power source and wiring connected to the supply voltage terminals shall have a minimum isolation strength of 1500Vac to ground.

13. Approved, Fulfilled or Tested Standards

UL 61010 (planned)	c UL us LISTED	UL Certificate UL 61010-2-201 Equipment for Measurement, Control and Laboratory Use - Particular requirements for control equipment Applicable for US and Canada E-File: E198865
IEC 62368 (planned)	CB Report	CB Scheme Certificate IEC 62368-1 Audio/video, information and communication technology equipment - Safety requirements Output safety level: ES1
IEC 61010 (planned)	CB Report	CB Scheme Certificate IEC 61010-2-201 Electrical Equipment for Measurement, Control and Laboratory Use - Particular requirements for control equipment

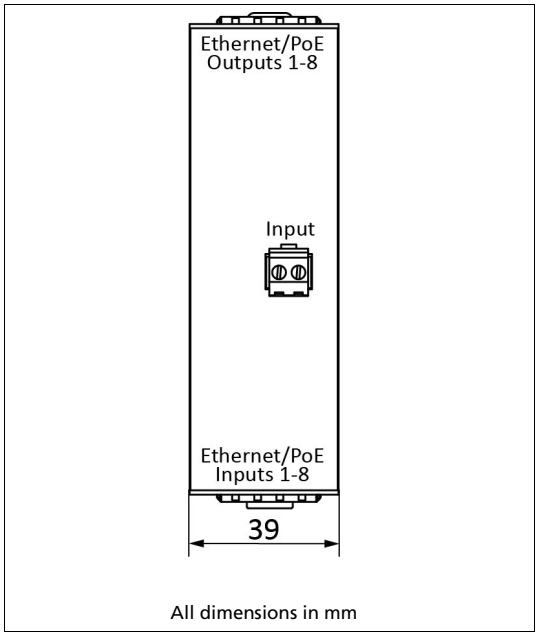
14. Regulatory Product Compliance

EU Declaration of Conformity	CE	The CE mark indicates conformance with the - EMC directive, - RoHS directive
WEEE Regulation		Manufacturer's Declaration EU Regulation on Waste Electrical and Electronic Equipment Registered as business to business (B2B) products.
REACH Directive	REACH ✓	Manufacturer's Statement EU-Directive regarding the Registration, Evaluation, Authorization and Restriction of Chemicals
EAC TR Registration	EAC	EAC Certificate EAC EurAsian Conformity - Registration Russia, Kazakhstan and Belarus 8504408200, 8504409000

15. Physical Dimensions and Weight

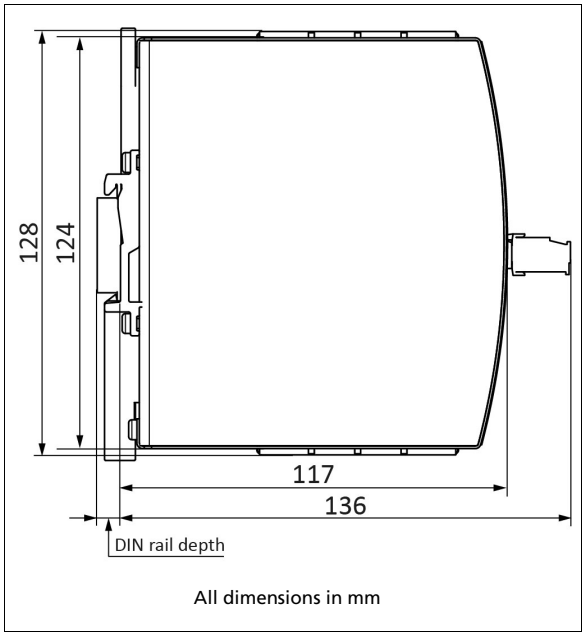
Width	39mm 1.54''
Height	128mm 5.06"
Depth	117mm 4.61'' The DIN rail depth must be added to the unit depth to calculate the total required installation depth.
Weight	380g / 0.84lb
DIN rail	Use 35mm DIN rails according to EN 60715 or EN 50022 with a height of 7.5 or 15mm.
Housing material	Body: Aluminium alloy Cover: Zinc-plated steel
Installation clearances	See chapter 2

Fig. 15-1
Front view



All dimensions in mm

Fig. 15-2
Side view



All dimensions in mm

16. ACCESSORIES

16.1. 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. 16-1 **Isometric view**

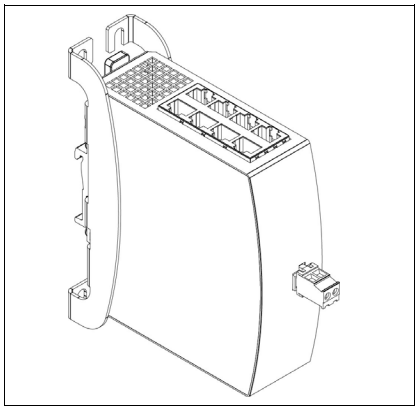


Fig. 16-2 **Isometric view**

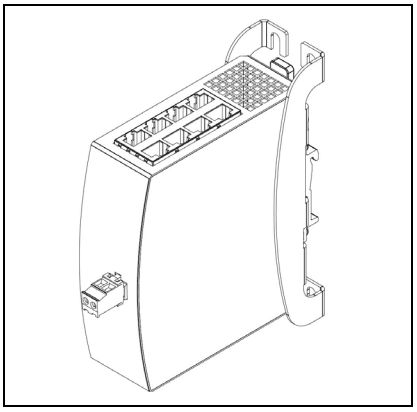


Fig. 16-3 **Isometric view**

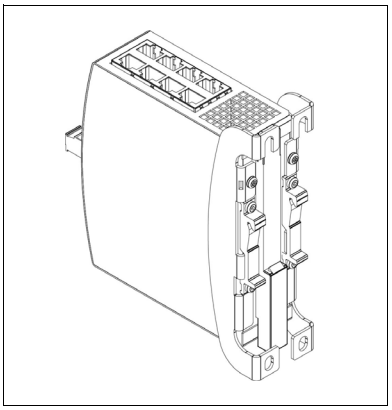


Fig. 16-4 **Wall/panel mounting, front view**

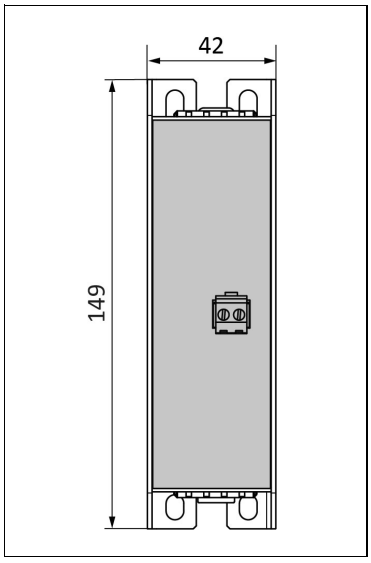


Fig. 16-5 **Hole pattern for wall mounting**

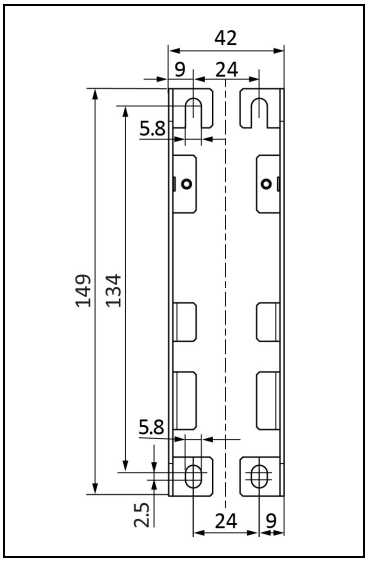


Fig. 16-6 **Wall/panel mounting, side view**