

Connectivity: Power over Ethernet

Save on costs with the new 4 and 8 channel PoE solutions

30W PoE+ power and 1,000 Mbit/s on every channel



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PULS, the power supply manufacturer, now offers new 4 and 8 channel PoE+ injectors in accordance with IEEE 802.3at – with or without an integrated power supply. Full power of 30W is available at all times on all channels. This means that up to eight network devices can be powered reliably using only one injector.



Figure 1: 8 channel PoE injectors as a stand-alone module or with an integrated 240W high-end power supply.

If you have previously tried supplying more than four loads with power using a PoE+ injector, you know how quickly it reaches its limits. Standard PoE injectors on the market have one to a maximum of four injectors. Power is always supplied via an external power supply unit.

For the few devices with more than 4 channels, the onus was previously on users to carry out complex configuration work to set how much power was to be output on each channel. The configuration here was always linked to a limited power budget that the manufacturer had previously

defined for the PoE injector. This requires distributing power among the channels. In practice, this means: Just because an injector has eight outputs, does not mean that it can actually supply eight loads with 30W each.

The use of conventional PoE solutions outside of the regulated IT environment is also not always readily possible. An industrial warehouse or an infotainment panel on a train platform, for which a majority of the PoE injectors available on the market have been optimised, do not have much in common with the „IT world“. In the IT

environment – such as in server rooms and offices – stable environmental conditions and consistent network quality prevail. When in use in industry or outdoor applications, the devices must be able to cope with the changeable quality of the power supply, severe fluctuations in temperature and vibrations or shocks.

This means that many PoE injectors also do not meet the actual requirements of the user in terms of reliability, durability and efficiency.

Industrial PoE+ injectors as a solution

PULS has analysed customer requirements and developed a new range of products with innovative Power-over-Ethernet solutions. The goal was to combine PoE technology with the usual efficiency, reliability and durability of PULS DIN rail power supply. The result is user-orientated PoE injectors with or without an integrated industrial power supply. The 4 or 8 channel devices offer a guaranteed 30W per channel (IEEE Standard 802.3at) and a fast data transfer of 1,000 Mbit/s. This means that up to eight PoE/PoE+ loads can be powered reliably using only one injector.

The injectors are just as suitable for industrial Ethernet solutions as they are for typical PoE applications in facility control (wireless access points/access systems), security technology (video cameras), display boards, touchscreens, point of sale systems, healthcare devices and much more.

PoE injector with integrated high-end power supply

One innovation is the all-in-one device – with an integrated 240W power supply. It can be connected directly to the AC mains, permitting a simplified system structure where previously at least two devices needed to be combined to achieve the same thing (see figure 2). This saves costs and space on the DIN rails, particularly as the PoE injector with an integrated power supply is only 77 mm wide. Costs are reduced even more on account of the short installation times. There are also advantages to be found in purchasing and storage. Only one device type needs to be stored and one part number managed.

The underlying power supply CP10.481 provides an efficiency of 95.5% and a minimum service life of 109,000 hours, at (AC 230V, full load and +40°C ambient temperature). The high efficiency means low losses of power in the form of heat. This has a positive influence on the durability and reliability of the PoE injector as well as the system components located in its immediate vicinity. The temperature range of -25°C to +70°C of the PoE device is optimised for industrial applications.

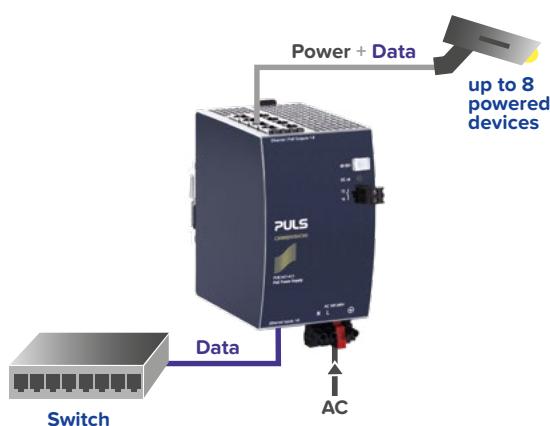


Figure 2: The PoE all-in-one solution supplies up to 8 loads and features an integrated power supply.

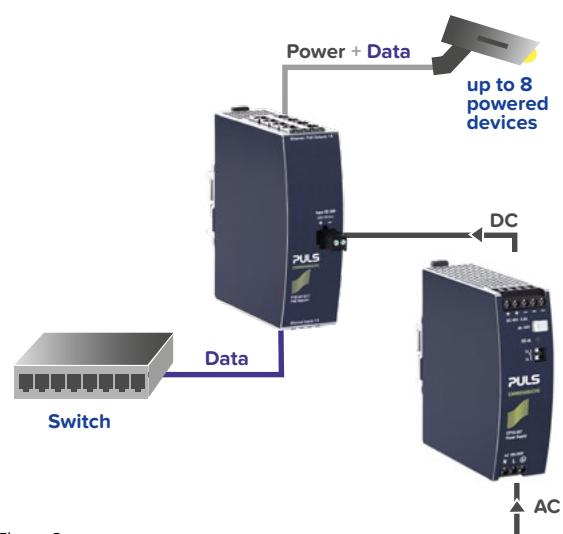


Figure 3: The combination of a PoE injector and an external 240W power supply (CP10.481) is the alternative to the all-in-one solution.

Full power on up to eight channels

The PoE injectors provide a maximum of 30W on the output on all channels continuously and without restrictions, complying with the output of 25.5W defined by the IEEE standard on load. The outstanding data rate of 1,000 Mbit/s per channel makes the device unique on the marketplace. The efficient, integrated PULS power supply also succeeds in making a further step forwards in terms of increased efficiency in PoE systems. As most PoE loads are switched on continuously, the energy-saving PULS solution helps reduce ongoing operating costs.

Plug-and-play instead of complex configuration

The injectors have been optimised for user-friendly plug-and-play uses right from start. The devices automatically detect the performance class of the connected components (IEEE 802.3at or IEEE 802.3af). This function also helps to protect the device in the event of a fault. If there is a short-circuit in one of the connected Ethernet cables, for example, the injector responds immediately with automatic current limitation and shut-down for that channel.

The injector tests for short-circuits at regular intervals, and the channel is only re-enabled and supplied with power once the fault has been rectified. The remaining 7 channels remain unaffected by this safety measure and stay fully functional. Moreover, the devices are protected against digital attempts at manipulation. The integration of an ASIC component in the switch design renders external attacks impossible.

Future-proof and cost-optimised PoE solutions

With the PoE injectors, users save in every respect. One injector supplies up to 8 devices with up to 30W simultaneously, where previously at least 4-channel injectors were required. The injector with integrated power supply also replaces two components in the system at the same time. This saves on upfront purchase and installation costs. Valuable space on the system is also saved and the administrative workload falls.

Thanks to its high performance (PoE+ and Gigabit Ethernet), durability and efficiency as well as the robust device design, the injectors from PULS are ideal for use in industrial infrastructures as well as in all common PoE applications.



Figure 4: Power-over-Ethernet (PoE) injector - inner view

