

**Molex has developed the first single-port PoE Plus PSE Integrated Connector Module in accordance with IEEE802.3at — a complete, plug-and-play solution to provide customers with a simplified design process and easy migration path from non-PoE to fully integrated PoE Plus capability**

## HyperJack™ PoE Plus PSE Single-Port Integrated Connector Module

**85759 1x1 PoE Plus PSE Modular Jack with LEDs**

Based on the RJ45 jack, the new HyperJack™ Integrated Connector Module (ICM) from Molex is first on the market to integrate full PoE and PoE Plus Power Sourcing Equipment (PSE) capability in a single-port. The 1x1 PSE module integrates the capability to power PoE-enabled devices with an output of up to 30Watts. IEEE802.3at PoE Plus compliant, the single-port Integrated Connector Module also supports the previous IEEE802.af standard.

Previously, implementing PoE or PoE Plus for a single-port application required developing a discrete solution on the customer's board using expensive controller silicon and reference designs. Power must be isolated from signal and significant design effort is required to protect the PCB from transients and emissions while achieving all IEEE802.3at requirements. By integrating the PoE circuitry inside the connector, Molex now provides the first drop-in, single-port, complete PSE ICM solution.

The footprint of the Molex single-port ICM is designed to optimize the separation distance of the signal and LED pins from the PoE circuitry, significantly reducing the complexity of PCB routing. The module has an external reset feature and capability to set maximum PoE class requirements (maximum power delivery allowed). Multiple LED configurations and colours are available, including bi-colour and the integration of 250 Ohm resistors in-series.

The Molex ICM is designed with through-hole pins for wave soldering but is also capable of withstanding lead-free solder reflow up to 260°C. The broad operating- temperature range and low heat dissipation makes this single-port ICM solution ideally suited for small applications without cooling fans. PoE Plus according to the IEEE standard requires Cat5 cable or higher.



HyperJack™ PoE Plus PSE 1x1 ICM

### FEATURES AND BENEFITS

- Fully integrated PoE and PoE Plus PSE capability in accordance with IEEE802.3at
- No External PoE or PoE Plus circuitry required
- 10/100 and Gigabit magnetic capability
- Single-port (1x1) configuration suitable for a wide-range of consumer applications
- Multiple LED status indicators
- EMI and HiPot tested and pre-qualified by Molex to guarantee no hidden design issues within a customer's system
- Thermally optimised for a wide range of industrial and commercial applications, including small applications without cooling fans
- Protection circuitry ensures module is robust against external disturbances: ESD, EFT and EMI
- Complete, plug-and-play solution for integrating PoE and PoE Plus capability in a single-port application

### MARKETS AND APPLICATIONS

- Telecommunications, Datacomms, Industrial and small office/ home office
  - PoE power injectors
  - Low PoE port-count switches
  - IP enabled devices (security devices)
  - Office or home broadband routers
  - Building automation
  - Wireless access points
  - Desktop computers / server peripheral communication and power
  - Set-top boxes



Microwave & 3G Indoor Antenna



Set-Top Box



Security Systems



PoE Injector/Midspan



PoE PCI Desktop / Server Card



Low PoE Port-Count Switch for Office / Home Applications

## SPECIFICATIONS

### Reference Information

Packaging: Tray  
UL File No.: Pending  
Mates With: Plugs according to IEC  
60603-7  
(series 95043, 44915, 85568)

Designed In: Millimeters  
RoHS: Yes

### Electrical

HiPot isolation: 2250V DC  
OCL: 350µH at 24mA min.  
Insertion loss: -0.80 at 100 MHz (typical)  
Return loss: -13.5 at 100 MHz (typical)  
NEXT: -33 at 100 MHz (typical)  
CMR: -40 at 100 MHz (typical)  
Input voltage: 51-56V for PoE Plus  
46-52V for PoE

### LEDs

Connection: Single or Bi-polar  
Colours: Multiple options available  
Forward voltage: 2.4V max. at 20mA

### Mechanical

Connector insertion and removal force:  
20N (4.5 lbf)  
Locking force: 50N (11 lbf) min.  
Durability: 750 cycles

### Physical

Housing: Nagase-D-Valox 420 SED Black  
UL94-0\5V  
Shield: Stainless Steel  
Contact: Phosphor Bronze (CuSn8)  
Plating:  
Contact Area — 1.27µm Gold (Au) over  
1.9µm Nickel (Ni)  
Solder Tail Area — 3µm Tin (Sn)  
PCB Thickness: 3.56mm (.140")  
Operating Temperature: -40 to +80°C

## HyperJack™ PoE Plus PSE Single-Port Integrated Connector Module

85759 1x1 PoE Plus PSE Modular  
Jack with LEDs

## ORDERING INFORMATION

Order No.	LED Colour* Right	LED Colour* Left	Protocol	Ports	Product Attribute	Plant No. for Samples
85759-1001	Green	Green	PoE+	1	Gigabit PSE ICM	5102
85759-1003	Green	Green/Orange	PoE+	1	Gigabit PSE ICM	5102
85759-1006	Yellow	Green	PoE+	1	Gigabit PSE ICM	5102

\*Additional LED configurations available, including colour options and integrated 2500hm resistors. Please contact the Global Product Manager