

MAG45 Modular Jacks with Integrated Magnetics

Product Features

- PCB space savings
- Improved reliability and EMI performance over discrete magnetics
- Micro-welding of mag wire to PCB versus soldering
- Meets or exceeds FCC Part 68, IEEE 802.3, and ANSI X3.263 requirements
- Supports all appropriate and available PHY Chips and applications
- Extended Temp -40C to +85C available

Product Qualification

- 501 and 108 Qualification Test and Product Specification Reports available
- UL/CSA Recognized component
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
- Your Tyco Electronics Sales Representative or one of the Product Information Centers listed below are also available to assist



The MAG45 product line offers a broad range of available RJ45 modular jacks with integrated magnetics for 10/100 Base-T, Gigabit and PoE Enabled applications. Multiple configurations are available to include single port, tab up or tab down; single port USB/RJ45; single port low profile; ganged multiport, 1xN; and stacked multiport,

2xN. All available with or without LEDs. There are multiple LED combinations and color options available.

Available soon RJ45 with Integrated Magnetics/PoE controller and MRJ21 product.

Available in Spring 2005 Pb Free/RoHS Compliant MAG45 product.

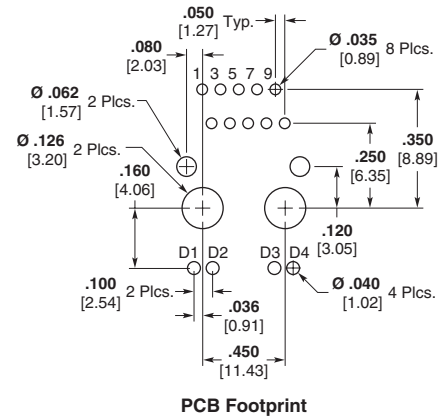
Note: All part numbers are RoHS compliant.

MAG45 Modular Jacks with Integrated Magnetics (Continued)

Single Port 10/100 Base-T, Gigabit & PoE, Tab Down

Product Facts

- Single Port
- Through Hole, Tab Down
- Available with or without LEDs
- UL Recognized
- IEEE 802.3 & ANSI X3.263 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
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Single Port Tab Down*

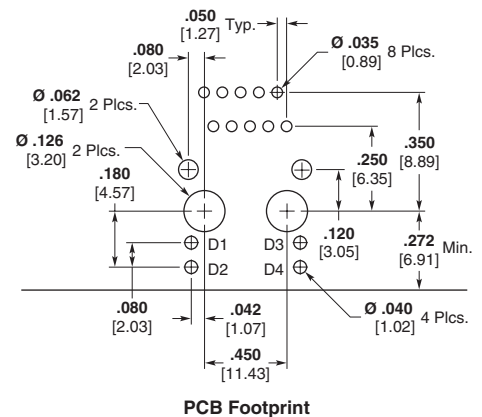
10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
✓	✓	✓	No

*multiple LED colors with and without resistors available.

10/100 Base-T	10/100 PoE	Gigabit
6605424-1	6605432-2	1-6605444-1
6-6605425-1	1-6605310-1	6605434-1
5-6605308-1	6-6605440-1	6605445-6

Single Port 10/100 Base-T, Gigabit & PoE, Tab Up

- Single Port
- Through Hole, Tab Up
- Available with or without LEDs
- UL Recognized Component
- IEEE 802.3 & ANSI X3.263 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
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Single Port Tab Up*

10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
✓	✓	✓	**

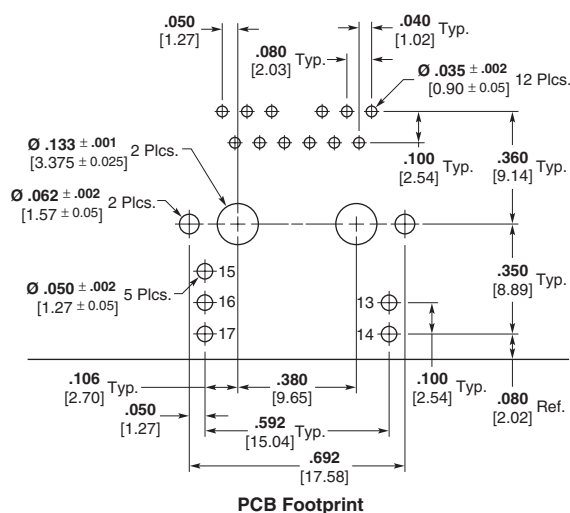
*multiple LED colors with and without resistors available.
**under development.

10/100 Base-T	10/100 PoE	Gigabit
6605759-1	1-6605832-1	5-6605809-1
5-6605763-6	6605818-1	6605814-5
5-6605758-9	1-6605834-1	6605852-2

Note: All part numbers are RoHS compliant.

**Single Port
Low Profile
10/100 Base-T & Gigabit,
Tab Up**

-



Low Profile*

10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
✓	No	✓	No

*multiple LED colors with and without resistors available.

	10/100 Base-T	Gigabit
Tab Up	1368458-1	1368398-1
Tab Down	1368590-1	1368589-1

-
- Technical drawing of a mechanical part showing dimensions and tolerances. The drawing includes various circular features and linear dimensions.
- Dimensions and Tolerances:**
- $\varnothing .062$ [1.57] 2 Plcs.
 - .110 [2.79]
 - .160 [4.06]
 - .550 [13.97]
 - .050 Typ. [1.27]
 - $\varnothing .042$ [1.07] 28 Plcs.
 - .350 [8.89]
 - .120 [3.05]
 - .272 Min. [6.91]
 - $\varnothing .126$ [3.20] 2 Plcs.
 - .081 [2.06]
 - .525 [13.34]
 - .525 [13.34]
 - 1.000 [25.40]
 - 1.220 [30.99]
 - .042 [1.07]
 - .151 [3.84]
 - .011 [0.28]
 - .221 [5.61]
 - D1A, D1B, D2A, D2B, D3A, D3B, D4A, D4B

Ganged Multi-Port Tab Up (unless noted)*

Port Configuration	10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
1x2	✓	✓	✓	**
1x4	✓	✓	✓	✓
1x5	✓	✓	✓	**
1x6	✓	✓	✓	✓
1x8	✓	✓	✓	**

*multiple LED colors with and without resistors available.

** Under development.

Port Configuration	10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
1x2	5-6610000-1	1-6610128-1	1-6610209-1	No***
1x2 Tab Down	No***	No	1840516-6	No
1x4	5-6610049-1	1840500-1	6610068-6	1840514-1
1x4 Tab Down	6610211-1	No	6610204-1	No
1x4 Tab Down Low Profile	No***	No	1840515-1	No
1x4 Tab Up Low Profile	No***	No	1761889-1	No
1x5	6610078-2	6610182-2	1-6610132-1	No
1x6	1-6610084-1	5-6610168-8	6610157-1	6610199-1
1x8	6610112-1	1-6610122-1	6610160-6	No***

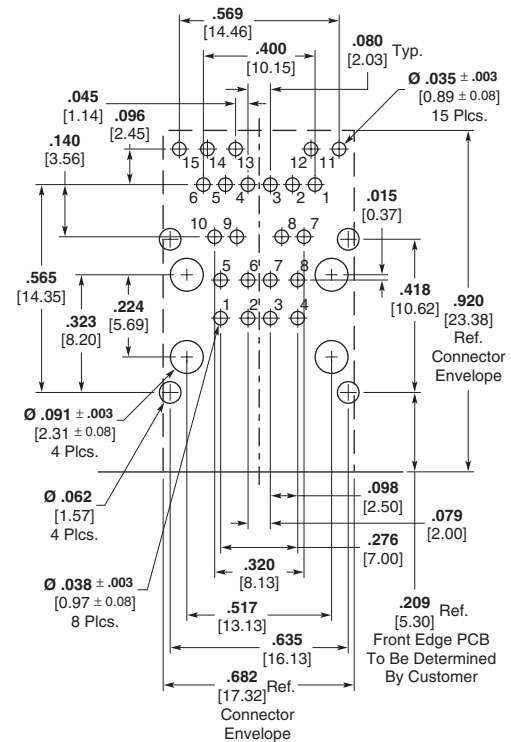
Note: All part numbers are RoHS compliant.

*** Contact product management about possibility of adding.

MAG45 Modular Jacks with Integrated Magnetics (Continued)

Stacked USB/RJ45 (10/100 Base-T or Gigabit)

- USB/RJ45 with integrated magnetics
- 10/100 or Gigabit applications
- Stacked USB type A included
- UL Recognized
- Available with LEDs
- IEEE 802.3 & ANSI X3.263 Compliant
- USB 2.0 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
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PCB Footprint

USB/RJ45*

	10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
	✓	No	✓	No

*multiple LED colors with and without resistors available.

Port Configuration	10/100 Base-T	Gigabit
	6620004-1	6368472-1
RJ45/Dual USB	6620002-1	6620005-1
	6368532-1	6620009-1
RJ45/Single USB	No**	1840012-1

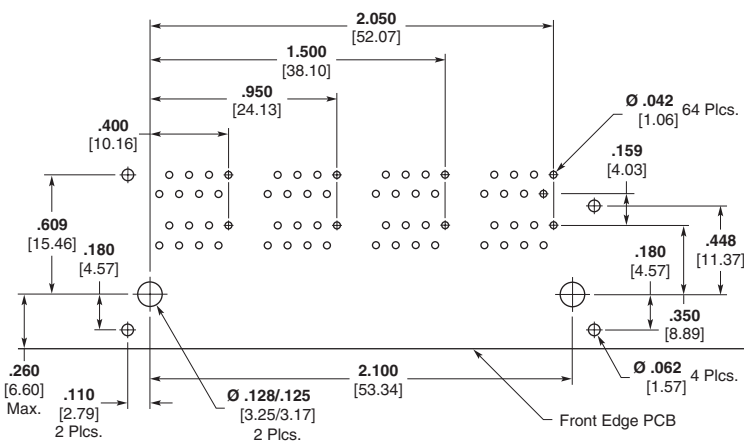
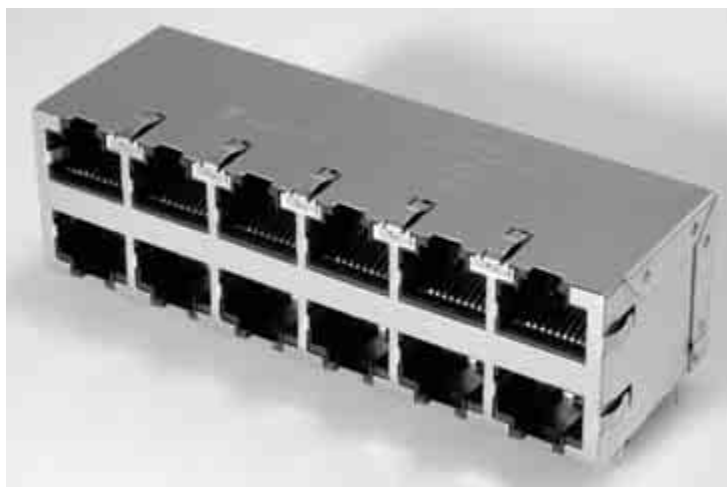
** Contact product management about possibility of adding.

Note: All part numbers are RoHS compliant.

MAG45 Modular Jacks with Integrated Magnetics (Continued)

Stacked (10/100 Base-T)

- Stacked Connector
- UL Recognized
- Without LEDs
- IEEE 802.3 & ANSI X3.263 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
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PCB Footprint

Stacked

Port Configuration	10/100 Base-T	10/100 PoE
2x1	✓	✓
2x3	✓	✓
2x4	✓	✓
2x6	✓	✓
2x8	✓	✓

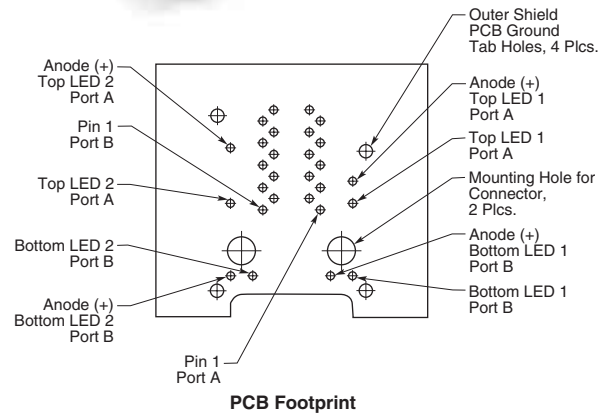
Port Configuration	10/100 Base-T
2x4	6615012-1
2x6	6368525-1
2x8	6368526-1

Note: All part numbers are RoHS compliant.

MAG45 Modular Jacks with Integrated Magnetics (Continued)

Stacked (10/100 Base-T, Gigabit & PoE)

- Stacked, Through Hole, Vertical 10-Pin Footprint
- Available with or without LEDs
- UL Recognized
- IEEE 802.3 & ANSI X3.263 Compliant
- Numerous circuit options available
- Supports all appropriate and available PHY Chips and applications
- For assistance in part selection, please refer to the Tyco Electronics E-Catalog
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Stacked*

Port Configuration	10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
2x1	✓	✓	✓	✓
2x2	✓	✓	✓	✓
2x3	✓	✓	✓	✓
2x4	✓	✓	✓	✓
2x6	✓	✓	✓	✓
2x7	—	—	✓	—
2x8	✓	✓	✓	✓

*multiple LED colors with and without resistors available.

Port Configuration	10/100 Base-T	10/100 PoE	Gigabit	Gigabit PoE
With LED's				
2x1	6368457-1	No**	6368513-1	No**
2x2	6368387-1	No**	6368511-1	No**
2x4	6368400-1	No**	6368507-1	No**
2x6	1840115-1	6615076-1	6368506-1	No**
2x8	6368536-1	No**	6368510-1	No**
Without LED's				
2x1	1840124-1	No**	1840003-1	No**
2x2	No**	No**	6368523-1	No**
2x4	No**	6615072-1	1840155-1	No**
2x6	No**	6615070-1	1840186-1	1840141-1
2x7	No**	No**	1840187-1	No**
2x8	No**	No**	1840188-1	1840142-1

Note: All part numbers are RoHS compliant.

** Contact product management about possibility of adding.

MAG45 Modular Jacks with Integrated Magnetics (Continued)

MAG45 with PoE Controller

RJ45 + PoE Magnetics + Silicon Power Controller Chip

PoE Product Features

- Integrated Silicon PoE 12-port controller
 - 802.3af compliant
 - Auto and Enhanced mode capable
- Footprint
 - Press-fit configuration
 - Ease of routing on customer PCB
- Pin Assignments
 - Signal integrity benefits vs. standard footprint
- Three options in same footprint:
 - Integrated Magnetics Only
 - Integrated Magnetics, Enabled PoE
 - Integrated Magnetics, Integrated PoE
- 2250Vdc / 1500Vac electrical isolation per 802.3 requirements

Customer Benefits:

- Simplify implementation of full PoE solution
- Board real estate savings
- Reduce board layout issues
- Integrate new and existing technologies into a single connector unit

Why Integrate the PoE Circuitry into the RJ?

- Single package (PoE, LED's, Magnetics, Heat Sink)
- Identical footprint for both Integrated PoE/Enabled and non-PoE
- Single design, single motherboard can be used for both PoE and non-PoE
- Same design can migrate between switches (including blades and fixed)
- Delivered fully tested and qualified, no need to bother with complicated PoE testing



- Reduced layer count/
Reduces cost of motherboard
- No PoE daughterboards
- Isolated PoE voltage provided directly from the power supply
- All per port components embedded in RJ
- Eliminates issues of voltage isolation on motherboard
- Reduces EMI risks
- Real time control of overload, underload, short circuits and under voltage states
- 0.5A current carrying capacity
- Full AC disconnect and classification
- 80V tolerant, surge protected system
- Registers for MIB 8 support and parameters adjustment
- Single voltage feeding (44 – 57VDC)
- Designed to support legacy capacitor detection

PoE Controller Features

- Power supplied over data contacts 1 & 2 and 3 & 6
- I2C Capability
- PoE chip provides power and command/control circuitry from motherboard power plane/bus
- Provides isolation between earth/building and signal ground

with each other to create a system of up to 48 ports

- The Host CPU controls the system via I2C
- Two main operating modes: Automatic/Enhanced Mode to match system customization requirements

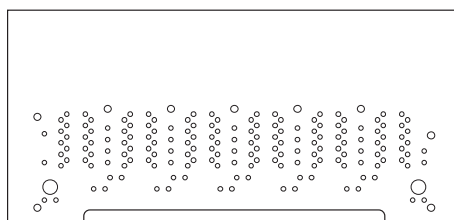
For assistance in part selection, please refer to the Tyco Electronics E-Catalog.

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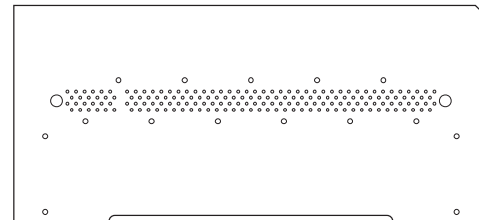
How Does PoE RJ45 Work?

- Embedded inside each RJ45 is the Silicon Power PD64012 chip
- Each RJ45 is a 12 port PoE system, communicating

Legacy vs. Press Fit PoE Footprint



Legacy Footprint
Solder Only



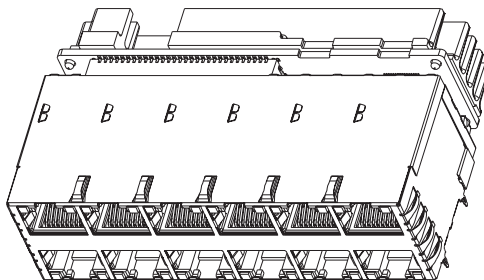
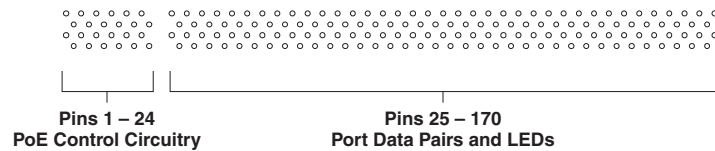
Integrated/Enabled/Non PoE Footprint
Press Fit

MAG45 Modular Jacks with Integrated Magnetics (Continued)

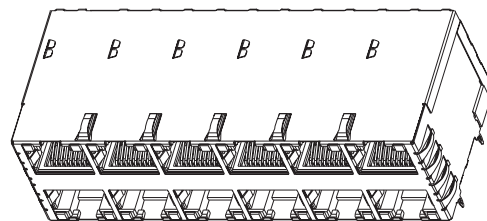
Part Number Matrix

Base Part Number	Integrated Magnetics	Power over Ethernet	PCB Attach Options	LED Options (2 per Port)	Description
1658821	10/100/1000	Integrated	Press Fit	With/Without Yellow/Green	PowerDsine Integrated Chip Set, 802.3af Compliant
1658822	10/100	Integrated	Press Fit	With/Without Yellow/Green	PowerDsine Integrated Chip Set, 802.3af Compliant
1658825	10/100/1000	Enabled	Press Fit	With/Without Yellow/Green	PoE Chip set on Motherboard, 802.3af Compliant
1658826	10/100	Enabled	Press Fit	With/Without Yellow/Green	PoE Chip set on Motherboard, 802.3af Compliant
1658827	10/100/1000	No	Press Fit	With/Without Yellow/Green	
1658828	10/100	No	Press Fit	With/Without Yellow/Green	

Same Mechanical Footprint, all versions.
Same Electrical Footprint, pins 25 – 170, all versions.



Part Number 1658821 – 1658822



Part Number 1658825 – 1658828

Note: All part numbers are RoHS compliant.