



# EDAC

# edacJAX



## Magnetic and Modular RJ45 Jacks



Connect with Us . . . Experience Makes the Difference

## Our Capabilities

We have been designing and manufacturing interconnect products for over 53 years. Today we supply a wide variety of products to customers across the globe. We understand our markets and customers and provide off-the-shelf and customized products manufactured to the highest quality standards. Our Experience Makes the Difference.



## edacJAX Connectors

Over the years our product offering has evolved and grown and we now have one of the largest ranges of interconnect products on the market. Our edacJAX range of Magnetic and Modular Jacks is no exception and offer many features and benefits.

These connectors are used in Data, Telecom, Networking and Home Entertainment markets for applications such as Servers, Hubs, Routers, Computers, Set Top Boxes and Digital TVs.

## Why use a Magnetic Jack Connector?

A Magnetic Jack connector is a combination of up to 10 discrete components:- RJ45 Connector, impedance matching transformers, 2 LEDs, 4 termination resistors, high voltage capacitor and often common mode chokes. Typical use is in Ethernet applications that employ 10BASE-T, 10/100BASE-T, 1000BASE-T / Gigabit and come with or without PoE and VoIP capability.

Today's LAN and Ethernet hardware design engineers have 2 solutions to lay out these components onto the PCB:

1. Lay out the individual components discretely onto the PCB or
2. Use a Magnetic Jack Connector - the integrated approach

There are many advantages of using the integrated approach, so here are the top 5:

**Reduction of PCB Real Estate Space** – By combining the individual components into the RJ housing the PCB real estate will be cut by more than 50%.

**Capitalize on Improving Efficiency** – In engineering, purchasing, inventory management and manufacturing. Using only 1 component instead of the potential 10, will enable faster designs, simplify the purchasing process, streamline inventory management and reduce manufacturing time.

**Improved Reliability** – Magnetics are often the least reliable PCB components, due to the fragile fine copper wire used. In keeping the magnetics and other components inside the RJ45 housing they are protected from heat and other environmental exposures, which can accelerate unexpected and untimely field failures.

**Decrease System Noise** – As communication speeds increase so do the problems brought on by noise which will be in a number of forms such as EMI, RFI, crosstalk and jitter. As the individual components are contained inside the RJ housing there is a reduction in the number of exposed components, number of traces, the overall signal path and therefore system noise. Putting it simply, using a Shielded Magnetic Jack Connector will reduce system noise.

**Connector Availability**– Please contact EDAC for stock listing.

### What will be the most popular Magnetic Jack Connector?

10/100BASE-T (with or without POE)

1000BASE-T (with or without POE)



## Magnetic Jack Connectors

EDAC Magnetic Jack Connectors are designed and manufactured to comply with IEEE 802.3, EIA 364 standard and are fully compliant with RoHS requirements. Available as single or stacked multiport options and with USB and HDMI connectors incorporated into a combined package.

### General Characteristics

#### Mechanical

- Insertion Force: 5lbs (2.27Kg)max
- Extraction Force: 5lbs (2.27Kg)max
- Durability: 750 cycles
- Dimensions comply with FCC requirement.
- Suitable for CAT 5 & 6 Fast Ethernet Cable or better UTP
- Mate with Modular Plug conforming to FCC part 68, subpart F

#### Electrical

- Meets IEEE 802.3 specification
- 350 $\mu$ H minimum OCL with 8mA DC base current
- Voltage rating: 150VAC
- Current rating: 100mA for magnetic, 350mA for POE, 1.5A for USB
- Dielectric strength: 1500VRMS for 1 Minute
- Insulation Resistance: 1000M $\Omega$  Minimum
- Contact Resistance: 30M $\Omega$  Maximum
- Speed: 10M/100M, 1000M

#### Physical

- Contact: Copper Alloy
- Housing: Thermoplastic UL94 V0
- Colour: Black
- Shield: Metal Alloy
- Contact: Gold plating on contact area with 50u, 30u, gold flash options
- Shield: Nickel Plating



### Environment

- Operating Temperature: 0°C to +70°C
- Storage Temperature: -40°C to +85°C
- RoHS Compliant
- Wave soldering: 260°C/10s

### Features & Benefits

- 10/100 and 1000BASE-T options - Full IEEE 802.3 compliance
- Integrated Magnetics – Provides signal integrity, DC isolation and protection for PHY chip
- Integrated Design – Reduces component inventory and process costs
- Spring fingers on shells - Guaranteed EMI/RFI suppression
- LED options – Visual indication of port status and activity usage
- Tab up or tab down options – Complete design for board and unit compatibility



## Magnetic Jack

### Example Part Number:

**A63-112-313P190**

#### Series

A60 – 10/100/1000BASE-T, 8 Core  
 A62 – 10/100BASE-T, 2 Core  
 A63 – 10/100BASE-T, 4 Core  
 A64 – 10/100BASE-T, 5 Core  
 A65 – 10BASE-T, 3 Core  
 A66 – 10BASE-T, 4 Core  
 A67 – 10/100BASE-T, POE  
 A68 – 10/100BASE-T with USB Type A  
 A69 – 100/1000BASE-T with USB Type A  
 A70 – 100/1000BASE-T, POE

#### No. of Ports

Stack Size      Port per Stack  
 11 – 1x1: 1 Port, 21 – 2x1: 2 Ports  
 12 – 1x2: 2 Ports, 22 – 2x2: 4 Ports  
 14 – 1x4: 4 Ports, 24 – 2x4: 8 Ports  
 18 – 1x8: 8 Ports, 28 – 2x8: 16 Ports  
 1A – 1+2USB: 1 Port + 2 USB Ports  
 1B – 1+2 USB3.0: 1 Port + 2 USB3.0 Ports

#### Contact Plating

2 – Gold Flash  
 3 – 15 Microinches of Gold  
 4 – 30 Microinches of Gold  
 5 – 50 Microinches of Gold

#### Connector Type

2 – Right Angle with Tab-Up  
 3 – Right Angle with Tab-Down  
 4 – Vertical with Tab-Up  
 5 – Vertical with Tab-Down  
 6 – SMT with Tab-Up  
 7 – SMT with Tab-Down  
 8 – Right Angle with Tab-Up and Panel Stop  
 9 – Right Angle with Tab-Down and Panel Stop  
 A – Vertical with Tab-Up and Panel Stop

#### Electrical Circuit Type:

(See examples for details)

#### Shield Type

0 – No Shield  
 1 – Shielded, no EMI Finger on top  
 2 – Shielded, with EMI Finger on top  
 3 – Shielded, with EMI Finger both sides  
 4 – Shielded, with EMI Finger on three sides  
 5 – Shielded, with EMI Finger on four sides  
 6 – Shielded, with EMI Finger on three sides, LED Tail staggered  
 7 – Shielded, with EMI Finger on three sides, 3 Leg Tail LED

#### Housing Material

P – PBT Polyester  
 N – Nylon Polyester  
 L – LCP

#### Right LED Colour

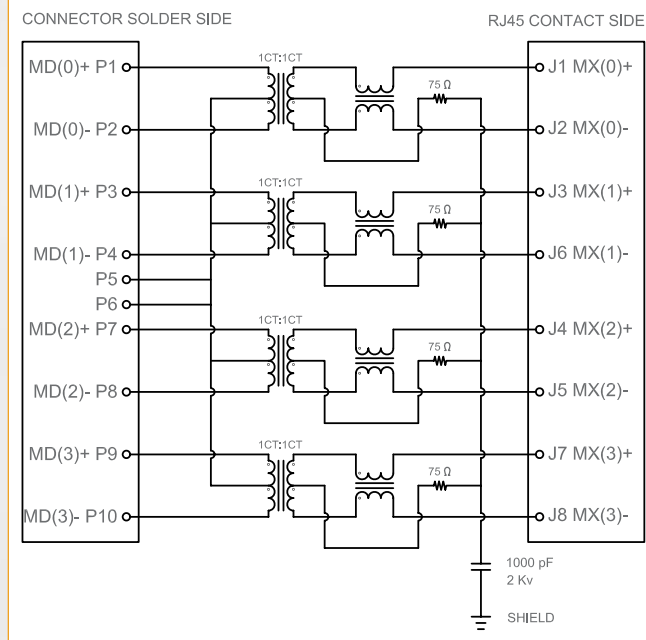
0 – No LED  
 1 – Yellow  
 2 – Red  
 3 – Green  
 4 – Orange  
 5 – Green/Yellow Bi-colour  
 6 – Red/Green Bi-colour  
 7 – Green/Orange Bi-colour  
 8 – Red/Yellow Bi-colour  
 9 – Orange/Yellow Bi-colour

#### Left LED Colour

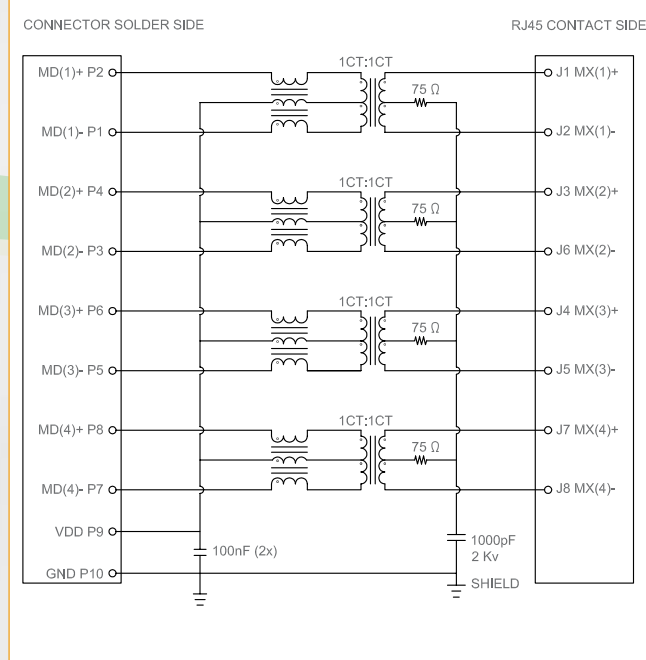
0 – No LED  
 1 – Yellow  
 2 – Red  
 3 – Green  
 4 – Orange  
 5 – Green/Yellow Bi-colour  
 6 – Red/Green Bi-colour  
 7 – Green/Orange Bi-colour  
 8 – Red/Yellow Bi-colour  
 9 – Orange/Yellow Bi-colour

## Electrical Circuit Examples

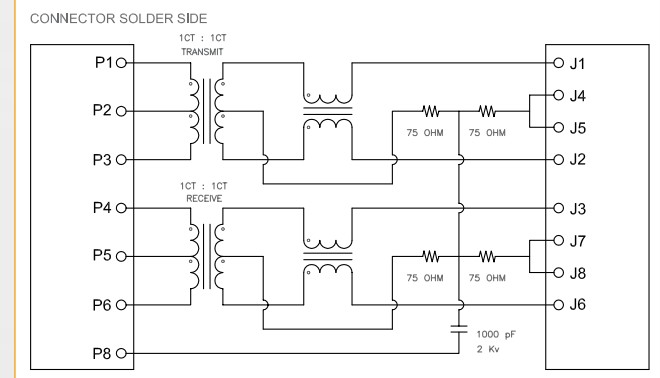
### Type II Gigabit Ethernet (1000BASE-T)



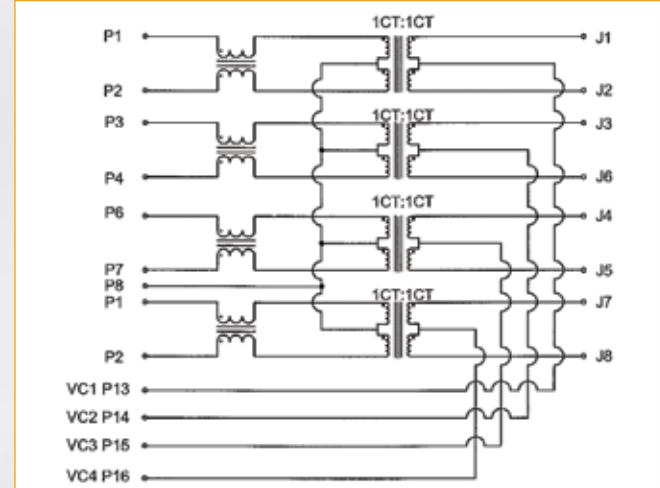
### Type 62 Gigabit Ethernet (1000BASE-T)



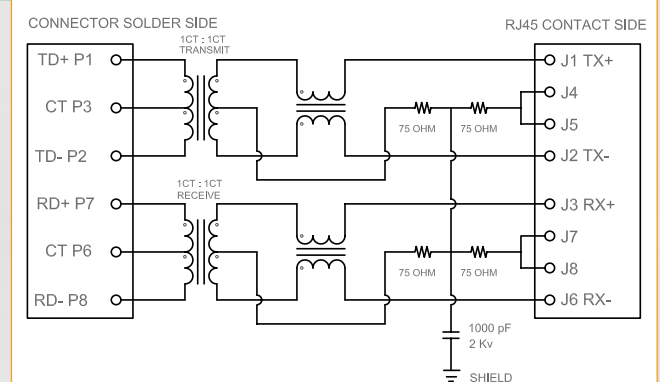
### Type 90



### Type 49 Power over Ethernet



### Type 31



As there are many IC Manufacturers to accommodate for Electrical Circuit type please contact EDAC for your specific requirements. We can then design and produce a connector to suit.

All further relevant parameters including Insertion Loss, Return Loss, Cross Talk, CMRR, Hi Pot, Common Mode Attenuation, DC Resistance, TR and RX are stated on the EDAC drawing for each particular Connector.

## Modular Jack without LED



The Series A00 has many features including top performance for high speed networking, voice and data applications. It has an industry standard footprint and height. Options available include low profile, with or without shielding, ganged and/or stacked for multiple port requirements. This Series has advanced EMI/RFI protection and both plugs and jacks can be fully or partially loaded.

### Specifications:

|                                  |                                                                 |
|----------------------------------|-----------------------------------------------------------------|
| FCC Compliance                   | Part 68 Sub Part F                                              |
| Modular Jack Housing:            | PBT Polyester, UL 94V-0                                         |
| Contact:                         | Phosphor Bronze, gold on contact area, tin over nickel on tails |
| Contact Resistance:              | 30mΩ max.                                                       |
| Insulation Resistance:           | 500MΩ min.                                                      |
| Dielectric Withstanding Voltage: | 1000VAC                                                         |

### Example Part Number:

#### Series

RJ45 Modular Jack

#### No. of Ports

1 - 1 Port  
2 - 2 Ports  
-  
-  
8 - 8 Ports

#### No. of Contacts

8 - 8 Contacts on 1 Port  
16 - 16 Contacts on 2 Ports  
-  
-  
64 - 64 Contacts on 8 Ports  
AA - 128 Contacts on dual row 8 Ports

#### Contact Plating

2 - Gold Flash  
3 - 15 Microinches of gold  
6 - 30 Microinches of gold  
9 - 50 Microinches of gold

#### Connector Type

1 - Adapter  
2 - Vertical  
5 - R/Angle Single Row with Stop  
6 - R/Angle Single Row  
7 - R/Angle Two Rows  
8 - R/Angle Single Row High Profile  
9 - Surface Mount  
0 - Low Profile R/Angle (0.460")  
A - R/Angle Single Row with optional Panel Stop

**A00-108-260-450**

### Contact Arrangement

| Key     | High/Low Profile | Panel Stop |
|---------|------------------|------------|
| 0 - No  | Low **           | No         |
| 1 - Yes | Low **           | No         |
| 2 - No  | High             | No         |
| 3 - Yes | High             | No         |
| 4 - No  | High             | Yes        |
| 5 - Yes | High             | Yes        |
| 6 - No  | Low              | Yes        |
| 7 - Yes | Low              | Yes        |

\*\* Vertical available in high profile only

### 1U Type

45 - CAT 5 (with latch for adapters only)  
11 - RJ11 (with latch for adapters only)

### Shielding:

0 - No Shield  
1 - Metal Shield (Grnd Back)  
2 - Metal Shield (Grnd Front)  
3 - Half Metal Shield  
4 - Metal Shield Adapter  
5 - Metal Shield (Grnd Back) with Top Panel Grnd  
6 - Metal Shield (Grnd Front) with Top Panel Grnd  
7 - Metal Shield (Grnd Back) with Top and Side Panel Grnd  
8 - Metal Shield (Grnd Front) with Top Panel and Side Grnd  
9 - Metal Shield (Grnd Back) with Bottom Panel Grnd

## Modular Jack with LED



Series A20 has the combined functionality of Series A00 RJ45 Cat. 5 Jacks, with the signal capabilities of independent LEDs mounted within the jack housing. Each jack can have one or two LEDs, which are available as either a single colour with matching coloured lens, or a bi-colour variant that utilizes a clear lens. Colour can be changed in Bi-colour LEDs simply by reversing the voltage polarity.

### Specifications:

|                              |                                                                     |
|------------------------------|---------------------------------------------------------------------|
| FCC Compliance               | Part 68 Sub Part F                                                  |
| Insulator Housing            | Black Thermoplastic PBT, UL94-V0                                    |
| Contact                      | Phosphor Bronze, Gold on contact area, tin on tails all over nickel |
| Contact Resistance           | 20MΩ Max.                                                           |
| Insulation Resistance        | 500MΩ Min.                                                          |
| Dielectric Withstand Voltage | 1000VAC                                                             |

### Example Part Number:

#### Series

RJ45 Modular Jack W/LED

#### No. of Ports

1 – 1 Port

2 – 2 Ports

-

-

8 – 8 Ports

#### No. of Contacts

8 -8 Contacts on 1 Port

16-16 Contacts on 2 Ports

-

-

64 – 64 Contacts on 8 Ports

AA – 128 Contacts on dual row 8 Ports

#### Contact Plating

2 – Gold Flash

3 – 15 Microinches of gold

6 – 30 Microinches of gold

9 – 50 Microinches of gold

#### Connector Tail Type

2 – Vertical

6 – Right Angle

7 – Vertical Surface Mount

8 – Right Angle Surface Mount

9 – Surface Mount only in Single Port

**A20-108-261-310**

#### Port Type

0 – Single Row of Port

1 – Two Row of Ports

#### Shielding

0 – No Shield

1 – Metal Shield

#### Right LED Colour

0 – Blank

1 – Yellow

2 – Red

3 – Green

4 – Green/Yellow Bi-colour

5 – Red/Green Bi-colour

6 – Green/Orange Bi-colour

7 – Red/Yellow Bi-colour

8 – Orange

#### Left LED Colour

0 – Blank

1 – Yellow

2 – Red

3 – Green

4 – Green/Yellow Bi-colour

5 – Red/Green Bi-colour

6 – Green/Orange Bi-colour

7 – Red/Yellow Bi-colour

8 – Orange



# EDAC

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## Our Capabilities

EDAC has been designing and manufacturing inter connect products for over 53 years. Today, EDAC supplies a wide variety of products to customers globally. We understand our markets and provide off-the-shelf and customized products manufactured to the highest quality standards.

Whether your requirements are fully custom, semi-custom, enhanced, or you need to replace an end of life part, we are dedicated to solving problems and supplying solutions to ensure you get the right product for your application. Our Experience Makes the Difference.



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