

# RJ45M R1V 3.3N4YG/YG TY

**Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

[www.weidmueller.com](http://www.weidmueller.com)



RJ45 transmitter sockets (magnetics) for gigabit applications (1000 base-T) with integrated compensation actively counteracts inductive and capacitive couplings and saves space on the PCB.

The product range encompasses the following designs:

- 90°, lying (horizontal) and 180°, standing (vertical)
- latch up / latch down
- THT, THR or SMD soldering processes
- Wide range of different design types, also with integrated LEDs and shield contact tabs
- Transmission rates of up to 1 Gbps
- Packed either in a tray (TY) or on a roll (tape-on-reel, RL)
- Compatible with modular RJ45 connector according to ANSI / TIA-1096-A and IEC 60603
- Dielectric strength  $\geq 1500$  V AC RMS (2250 V AC peak value) according to IEEE 802.3
- Dielectric strength  $\geq 1500$  V AC (peak value) or  $\geq 1500$  V DC according to IEC 60603
- Compliance with IEEE 802.3 requirements (1000Base-T, 1 Gbps, IEEE 802.3ab or 100Base-Tx, 100 Mbps, IEEE 802.3u)

Properties and advantages:

- Extended temperature range of  $-40$  °C to  $+85$  °C for maximum performance
- Reinforced gold layer ( $30\mu$ ) for improved corrosion protection

- At least 0.3mm stand-off ensures a perfect soldering result

## General ordering data

|            |                                                                                                                                                                                                                                           |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Version    | PCB plug-in connector, RJ45 jacks transformer, 10/100 MBit/s, THT/THR solder connection, 180°, Shield tabs: none, $30\ldots 80\mu$ Ni / $\geq 30\mu$ Au, LED: Yes, Green/yellow, Green/yellow, Number of poles: 8, Tray (manual assembly) |
| Order No.  | <a href="#">1534750000</a>                                                                                                                                                                                                                |
| Type       | RJ45M R1V 3.3N4YG/YG TY                                                                                                                                                                                                                   |
| GTIN (EAN) | 4050118338416                                                                                                                                                                                                                             |
| Qty.       | 120 pc(s).                                                                                                                                                                                                                                |
| Packaging  | Tray (manual assembly)                                                                                                                                                                                                                    |

Creation date March 24, 2021 5:10:34 AM CET

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## Technical data

## Dimensions and weights

|                          |         |                 |            |
|--------------------------|---------|-----------------|------------|
| Depth                    | 16.8 mm | Depth (inches)  | 0.661 inch |
| Height                   | 20.3 mm | Height (inches) | 0.799 inch |
| Height of lowest version | 17 mm   | Net weight      | 4.208 g    |
| Width                    | 16 mm   | Width (inches)  | 0.63 inch  |

## System specifications

|                                 |                                                    |                                                    |                           |
|---------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------|
| Colour of left LED              | Green/yellow                                       | Colour of right LED                                | Green/yellow              |
| LED                             | Yes                                                | Mounting onto the PCB                              | THT/THR solder connection |
| Number of poles                 | 8                                                  | Number of solder pins per pole                     | 1                         |
| Outgoing elbow                  | 180°                                               | Performance-Category                               | 10/100 MBit/s             |
| Pitch in inches (P)             | 0.05 inch                                          | Pitch in mm (P)                                    | 1.27 mm                   |
| Product family                  | OMNIMATE Data - RJ45 transformer jack              | Protection degree                                  | IP20                      |
| Shield surface                  | nickel-plated                                      | Shield tabs                                        | none                      |
| Shielding                       | Yes                                                | Shielding material                                 | Brass                     |
| Solder eyelet hole diameter (D) | 0.9 mm                                             | Solder eyelet hole diameter tolerance (D) ± 0.1 mm |                           |
| Solder pin dimensions           | 0.40 x 0.30 mm, LED pins = 0.50 x 0.50 mm          | Solder pin length (l)                              | 3.2 mm                    |
| Soldering process               | Reflow soldering, Manual soldering, Wave soldering | Transmission rate                                  | 10/100 MBit/s             |
| Type of connection              | Socket connector                                   | Wiring                                             | 8-core                    |

## Electrical properties

|                                        |           |                                       |           |
|----------------------------------------|-----------|---------------------------------------|-----------|
| Dielectric strength, contact / contact | 1000 V DC | Dielectric strength, contact / shield | 1500 V DC |
| Rated current                          | 1.5 A     | Rated voltage                         | 125 V     |

## Standards

|                    |                |
|--------------------|----------------|
| Connector standard | IEC 60603-7-51 |
|--------------------|----------------|

## Material data

|                                  |                  |                                 |                            |
|----------------------------------|------------------|---------------------------------|----------------------------|
| Insulating material              | PA 9T            | Colour                          | black                      |
| Colour chart (similar)           | RAL 9011         | Insulating material group       | II                         |
| Comparative Tracking Index (CTI) | ≥ 500            | Moisture Level (MSL)            | 1                          |
| UL 94 flammability rating        | V-0              | Contact base material           | Phosphorus bronze          |
| Contact surface                  | Gold over nickel | Layer structure of plug contact | 30...80 µ" Ni / ≥ 30 µ" Au |
| Storage temperature, min.        | -40 °C           | Storage temperature, max.       | 85 °C                      |
| Operating temperature, min.      | -40 °C           | Operating temperature, max.     | 85 °C                      |

## Packing

|           |                        |            |        |
|-----------|------------------------|------------|--------|
| Packaging | Tray (manual assembly) | VPE length | 25 mm  |
| VPE width | 175 mm                 | VPE height | 305 mm |

## Classifications

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC002637    | ETIM 7.0    | EC002637    |
| ECLASS 9.0  | 27-44-04-02 | ECLASS 9.1  | 27-44-04-02 |
| ECLASS 10.0 | 27-44-04-02 | ECLASS 11.0 | 27-46-02-01 |

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## Technical data

### Approvals

Approvals



|                       |         |
|-----------------------|---------|
| ROHS                  | Conform |
| UL File Number Search | E471884 |

### Downloads

|                             |                                                                    |
|-----------------------------|--------------------------------------------------------------------|
| Engineering Data            | <a href="#">STEP</a>                                               |
| Product Change Notification | <a href="#">PCN</a><br><a href="#">PCN</a>                         |
| User Documentation          | <a href="#">MAN IE GUIDE DE</a><br><a href="#">MAN IE GUIDE EN</a> |

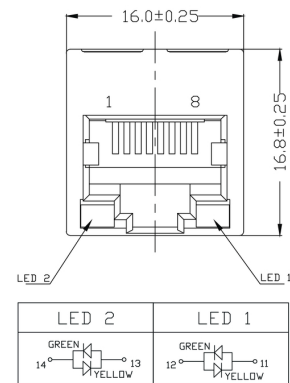
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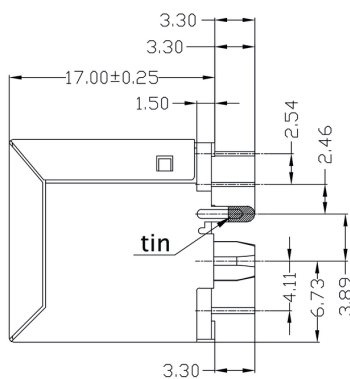
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## Drawings

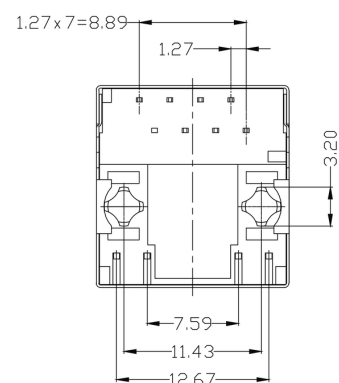
## Dimensioned drawing



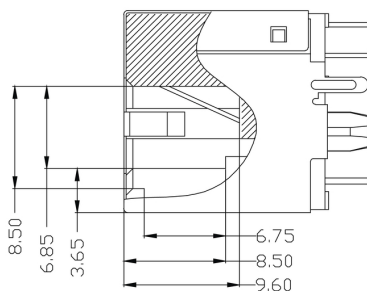
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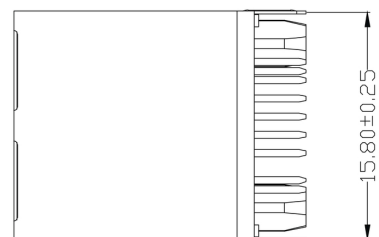
## Dimensioned drawing



## Dimensioned drawing



## Dimensioned drawing



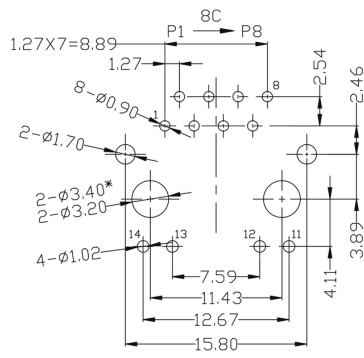
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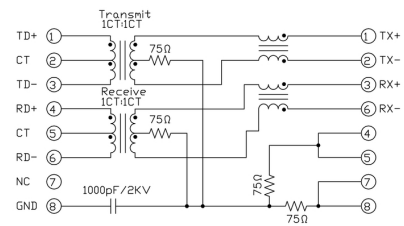
# Drawings

## PCB design



PCB LAYOUT

## Wiring diagram



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## Drawings

## Characteristics

|                       |                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------|
| Inductance            | 350 µH min. @ 100 kHz,<br>100 mV, 8 mA DC Bias                                        |
| Leakage Inductance    | 0.3 µH max. @ 100 kHz, 100 mV                                                         |
| Insertion Loss        | 1.1 dB max. @ (1 - 100) MHz                                                           |
| Return Loss           | 18 dB min. @ (1 - 30) MHz<br>16 dB min. @ (30 - 60) MHz<br>12 dB min. @ (60 - 80) MHz |
| Cross Talk            | 30 dB min. @ (1 - 100) MHz                                                            |
| Common Mode Rejection | 30 dB min. @ (1 - 100) MHz                                                            |

| RJ45 | G1 | R | 1 | U | 3.2 | E | 4 | GY/GY | TY | RJ45G1 R1U 3.2E4GY/GY TY |
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## Recommended wave soldering profiles

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 16  
D-32758 Detmold  
Germany  
Fon: +49 5231 14-0  
Fax: +49 5231 14-292083  
[www.weidmueller.com](http://www.weidmueller.com)

### Single Wave:



### Double Wave:



### Wave soldering profiles

Wired connection elements should be processed in accordance with the DIN EN 61760-1 standard. We have included two recommendations for practical wave soldering profiles, with which Weidmüller PCB terminals and connectors are qualified.

When choosing a suitable profile for your application, the following factors also need to be considered:

- PCB thickness
- Proportion of Cu in the layers
- Single/double-sided assembly
- Product range
- Heating and cooling rates

The single and double wave profiles each indicate the recommended operating range, including the maximum soldering temperature of 260°C. In practice, the maximum soldering temperature is quite often well below the above maximum profile.

We reserve the right to make technical changes.

## Recommended reflow soldering profile

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 16  
D-32758 Detmold  
Germany  
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Fax: +49 5231 14-292083  
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### Reflow soldering profile

The perfect soldering profile for SMT Surface Mount Technology is one the most exiting question in SMT production. But there are more than one correct answer: The diagram of temperature-on-time is related to processing features of solder paste and to maximum load of components.

We have to consider the following parameters:

- Time for pre heating
- Maximum temperature
- Time above melting point
- Time for cooling
- Maximum heating rate
- Maximum cooling rate

We recommend a typical solder profile with associated process limits. With preheating components and board are prepared smoothly for the solder phase. Heating rate is typically  $\leq +3\text{K/s}$ . In parallel the solder paste is 'activated'. The time above melting point of 217°C the paste gets liquid and components and boards begin to connect. The maximum temperature of 245°C to 254°C should stay between 10 and 40 seconds. In the cooling phase at  $\geq -6\text{K/s}$  solder is cured. Board and components cool down while avoiding cold cracks.