# RJ45M R1V 1.9N4YG/YG RL

**Weidmüller Interface GmbH & Co. KG**
Klingenbergstraße 26
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Germany

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 ≥1500 V AC RMS (2250 V AC peak value) according to IEEE 802.3
• Dielectric strength ≥1500 V AC (peak value) or ≥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 (30µ") 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...80 µ" Ni / ≥ 30 µ" Au , LED: Yes, Green/yellow, Green/yellow, Number of poles: 8, Tape |
| Order No. | 2562150000 |
| Type | RJ45M R1V 1.9N4YG/YG RL |
| GTIN (EAN) | 4050118570380 |
| Qty. | 200 pc(s). |
| Packaging | Tape |

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## Technical data

### Dimensions and weights

| | | | |
|---|---|---|---|
| Depth | 16.8 mm | Depth (inches) | 0.661 inch |
| Height | 18.9 mm | Height (inches) | 0.744 inch |
| Height of lowest version | 17 mm | Width | 16 mm |
| Width (inches) | 0.63 inch | Net weight | 4.75 g |

### System specifications

| | | | |
|---|---|---|---|
| Colour of left LED | Green/yellow | Colour of right LED | Green/yellow |
| Forward current | 20 mA | Forward voltage, max. | 2.5 V |
| Forward voltage, min. | 1.8 V | 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 " |
| Pitch in mm (P) | 1.27 mm | Plugging cycles | 750 |
| Product family | OMNIMATE Data - RJ45 transformer jack | Protection degree | IP20 |
| Shield surface | nickel-plated | Shield tabs | none |
| Shielding | Yes | Shielding material | Brass |
| Solder pin dimensions | Octagonal | Solder pin length (l) | 1.9 mm |
| Soldering process | Reflow soldering, Manual soldering, Wave soldering | Tolerance of solder pin position | ± 0.1 mm |
| Transmission rate | 10/100 MBit/s | Type of connection | Solder connection |

### 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 |

### 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 material | Cu-alloy | 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 | Tape | VPE length | 331 mm |
| VPE width | 331 mm | VPE height | 50 mm |
| Tape reel diameter ∅ (A) | 330 mm | Surface resistance | Rs = $10^{9}$ - $10^{12}$ Ω |

### Classifications

| | | | |
|---|---|---|---|
| ETIM 6.0 | EC002637 | ETIM 7.0 | EC002637 |
| ETIM 8.0 | EC002637 | ETIM 9.0 | 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 |
| ECLASS 12.0 | 27-46-02-01 | ECLASS 13.0 | 27-46-02-01 |

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## Technical data

### Approvals

| | |
|---|---|
| Approvals |  |
| ROHS | Conform |
| UL File Number Search | UL Website |
| Certificate No. (cURus) | E471884 |

### Downloads

| | |
|---|---|
| Approval/Certificate/Document of Conformity | Certificate of Compliance |
| Catalogues | Catalogues in PDF-format |

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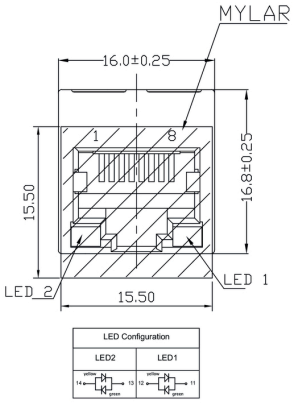
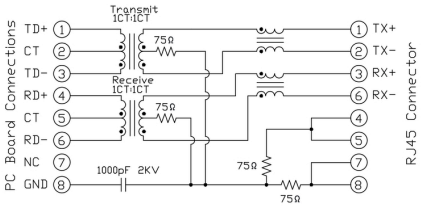
## Drawings




## Wiring diagram




**Characteristics**

| | |
|---|---|
| Inductance | 350 µH min. @ 100 kHz, 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 |
| | 16 dB min. @ (30 - 60) MHz |
| | 12 dB min. @ (60 - 80) MHz |
| Cross Talk | 30 dB min. @ (1 - 100) MHz |
| Common Mode Rejection | 30 dB min. @ (1 - 100) MHz |

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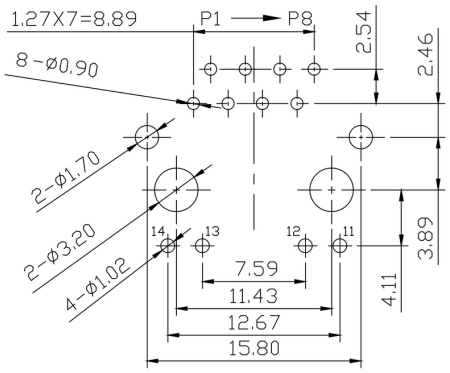
## Drawings

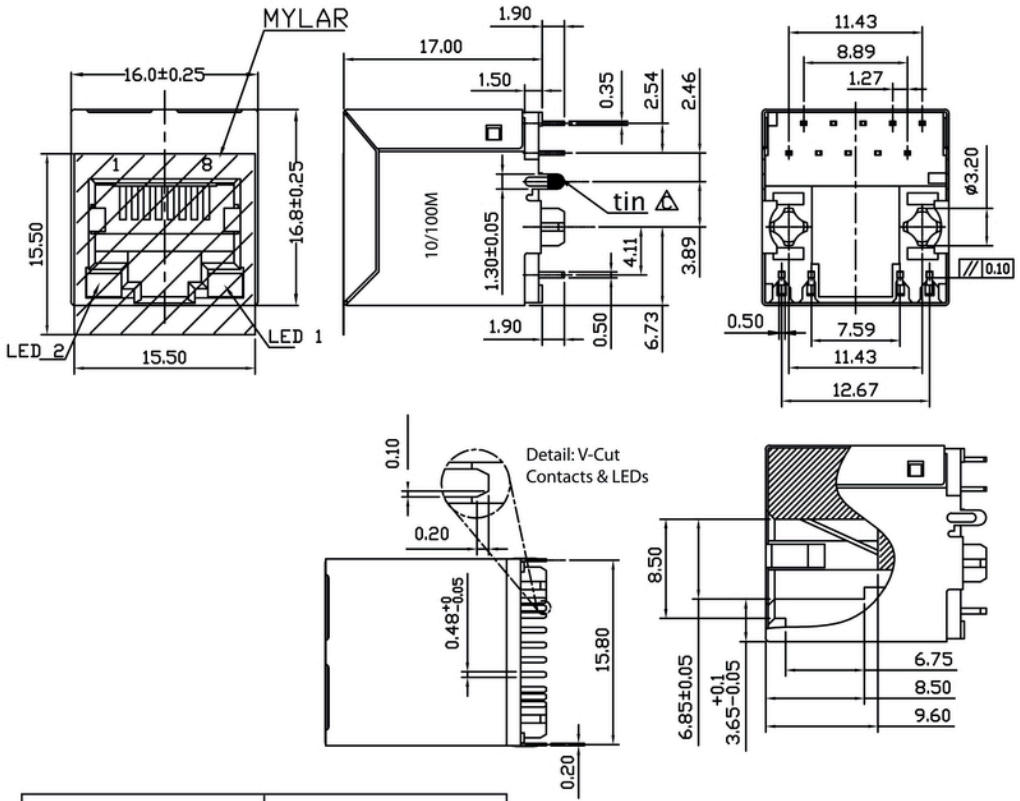
### PCB design

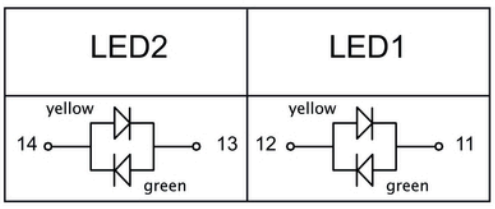



PCB LAYOUT 1

### PCB design

### Drawing



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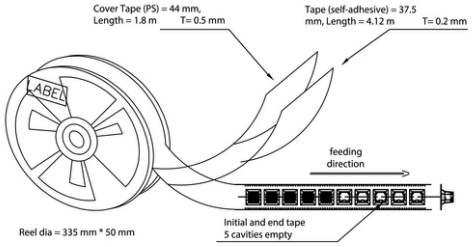


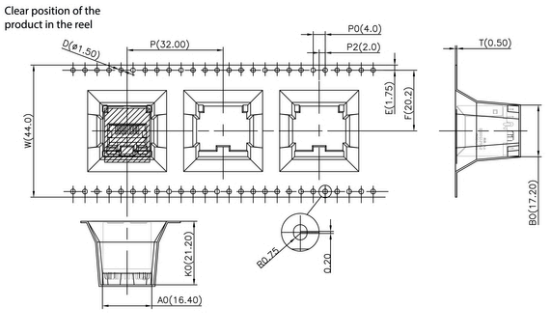


RJ45 G1 R 1 U 3.2 E 4 GY/GY TY RJ45G1 R1U 3.2E4GY/GY TY

| | | |
|---|---|---|
| **Packaging** | **TY** | **T**ray in box (manual assembly) |
| | **RL** | Tape on **R**eel (automated assembly) |
| **LED** | **Y/G** | **Y**ellow/**G**reen |
| | **G/Y** | **G**reen/**Y**ellow (standard) |
| | **GY/GY** | **G**reen-**Y**ellow/**G**reen-**Y**ellow |
| | **O/G** | **O**range/**G**reen |
| | **R/O** | **R**ed/**O**range |
| | **...** | ... (further combinations possible) |
| | **N** | without LED |
| **Contact surface thickness** | **4** | 1 = 3µ", 2 = 6µ", 3 = 15µ", **4 = 30µ"**, 5 = 50µ" |
| **EMI tabs (ground fingers)** | **E** | **E** = with EMI tabs |
| | **N** | **N** = without EMI tabs |
| **Solder Pin length** | **3.2** | 3.2 mm |
| | **1.6** | 1.6 mm |
| | **D** | SM**D** |
| **Direction, latch style** | **U** | Horizontal (90°, side entry), latch **u**p |
| | **D** | Horizontal (90°, side entry), latch **d**own |
| | **V** | **V**ertical (180°, top entry) |
| | **Y** | Diagonal (45°), latch up |
| **Number of Ports** | **1** | 1 Port |
| | **12; 14; ...** | multi ports side by side, Multiport |
| | **21; 41; ...** | multi ports about each other, Multilevel |
| **Assembly on PCB** | **R** | Through Hole **R**eflow - TH**R** Soldering process: Wave or Reflow soldering |
| | **S** | **S**urface Mount Technology - **SMT** Soldering process: Reflow soldering |
| | **T** | Through Hole Technology - TH**T** Soldering process: Wave |
| **Performance Category** | **C5** | **C**ategory **5** |
| | **C6** | **C**ategory **6** |
| | **C6A** | **C**ategory **6A** |
| | **C5e** | **C**ategory **5e** |
| | **M** | 10/100 Mbit |
| | **G1** | 10/100/1000 Mbit |
| | **G10** | 10 Gbit |
| | **U** | **U**nshielded |
| | **MP** | 10/100 Mbit with **P**OE |
| | **MP+** | 10/100 Mbit with **P**OE+ |

Type codes

# Wave Solder Profile

## Recommended wave solderding profiles

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Fax: +49 5231 14-292083
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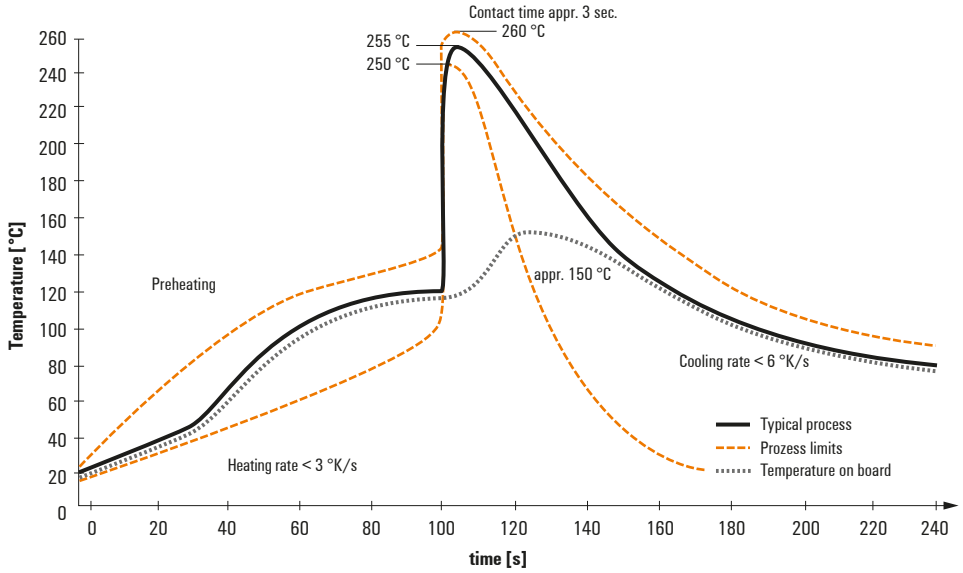
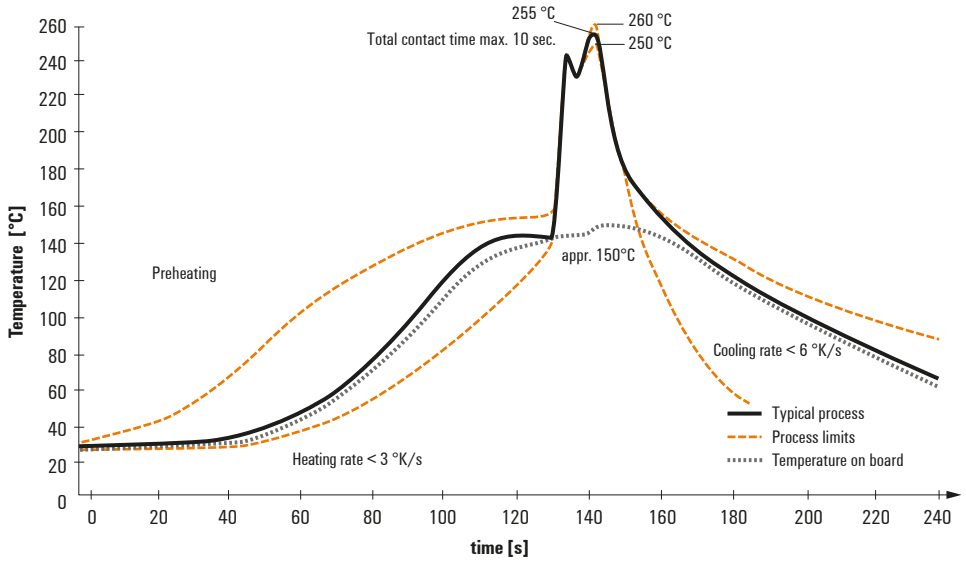
**Single Wave:**




**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.

# Reflow Solder Profile

## Recommended reflow soldering profile

**Weidmüller Interface GmbH & Co. KG**
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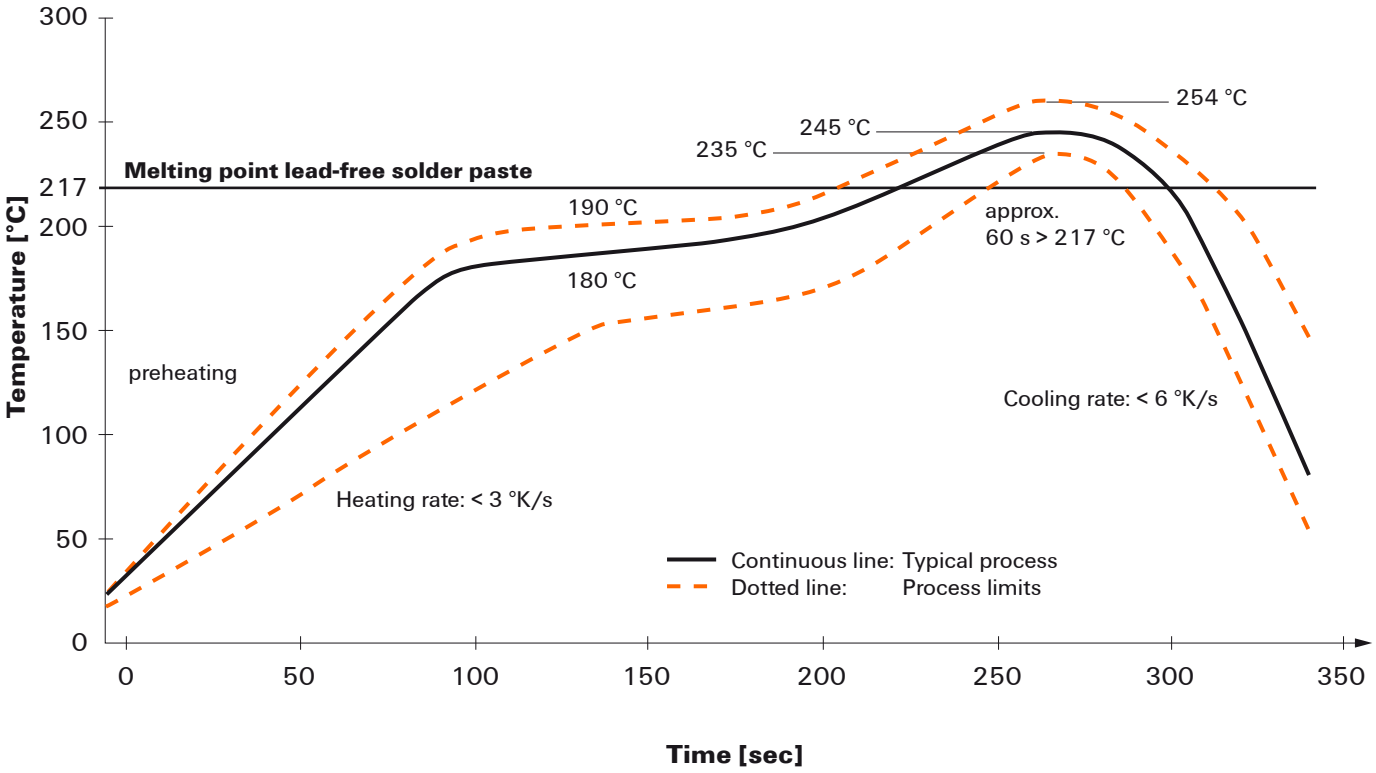


**Reflow soldering profile**

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 ≤ +3K/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 ≥ -6K/s solder is cured. Board and components cool down while avoiding cold cracks.