

RJ45M R1V 1.9N4YG/YG RL**Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

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 Ø (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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www.weidmueller.com**Technical data****Approvals**

Approvals



ROHS Conform

UL File Number Search UL Website

Certificate No. (cURus) E471884

DownloadsApproval/Certificate/Document of Con-
formity[Certificate of Compliance](#)

Catalogues

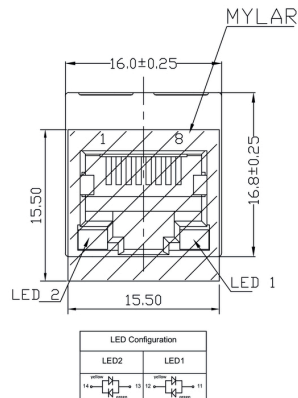
[Catalogues in PDF-format](#)

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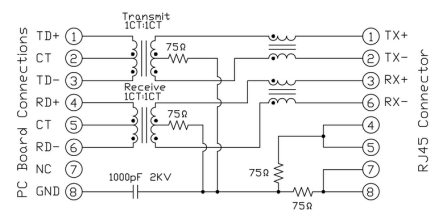
Drawings



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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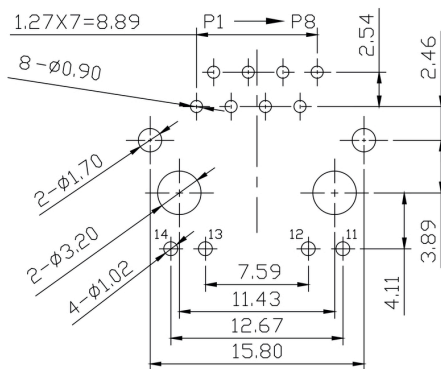
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Drawings

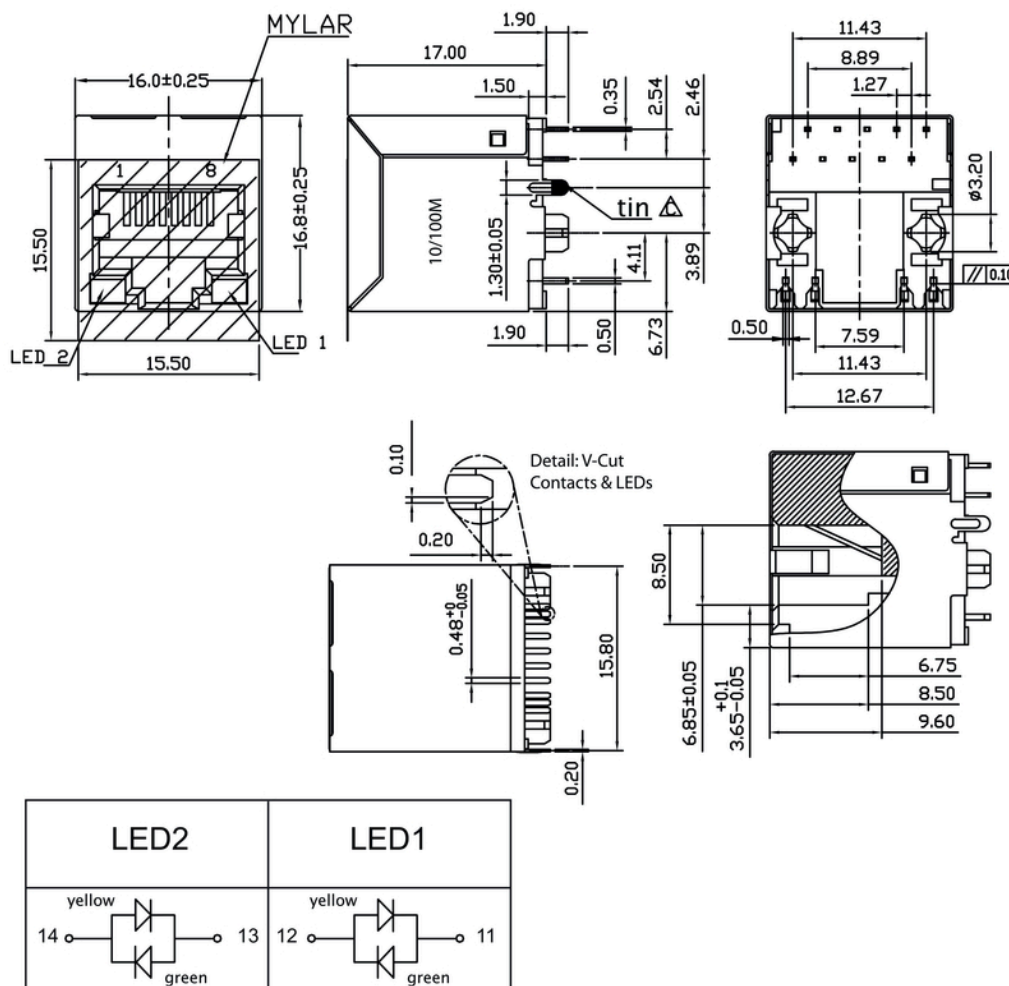
PCB design



PCB LAYOUT 1

PCB design

Drawing

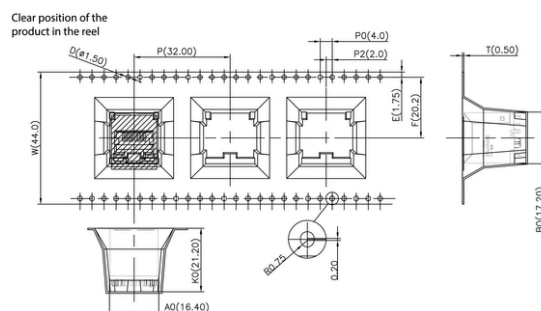
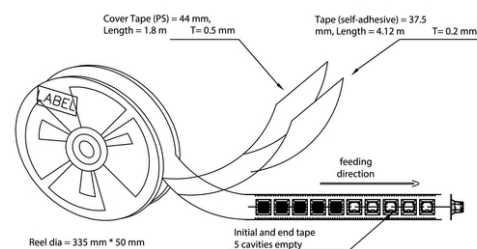


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Drawings



RJ45 G1 R1 U 3.2 E 4 GY/GY TY RJ45G1 R1U 3.2E4GY/GY TY									
Packaging	TY	Tray in box (manual assembly)							
	RL	Tape on Reel (automated assembly)							
LED	Y/G	Yellow/Green							
	G/Y	Green/Yellow (standard)							
	GY/GY	Green-Yellow/Green-Yellow							
	O/G	Orange/Green							
	R/O	Red/Orange							
	N	... (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	SMD							
Direction, latch style	U	Horizontal (90°, side entry), latch up							
	D	Horizontal (90°, side entry), latch down							
	V	Vertical (180°, top entry)							
	Y	Diagonal (45°), latch up							
Number of Ports	1	1 Port							
	12; 14; ...	multi ports side by side, Multiport							
Assembly on PCB	2; 4; ...	multi ports about each other, Multilevel							
	R	Through Hole Reflow - TH-R							
Performance Category	S	Soldering process: Wave or Reflow soldering							
	S	Surface Mount Technology - SMT							
	T	Soldering process: Reflow soldering							
	T	Through Hole Technology - TH-T							
	T	Soldering process: Wave							
Performance Category	C5	Category 5							
	C6	Category 6							
	C6A	Category 6A							
	C5e	Category 5e							
	M	10/100 Mbit							
	G1	10/100/1000 Mbit							
	G10	10 Gbit							
	U	Unshielded							
	MP	10/100 Mbit with POE							
	MP+	10/100 Mbit with POE+							

Type codes

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Catalogue status 20.04.2024 / We reserve the right to make technical changes.

Recommended wave soldering profiles

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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.

We reserve the right to make technical changes.

Recommended reflow soldering profile

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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.