

RJ45M R1D 3.3E4G/Y RL

Weidmüller Interface GmbH & Co. KG

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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, 90°, Latch option: bottom, Shield tabs: 6 tabs, 30...80 μ m Ni / ≥ 30 μ m Au, LED: Yes, green, yellow, Number of poles: 8, Tape
Order No.	2564410000
Type	RJ45M R1D 3.3E4G/Y RL
GTIN (EAN)	4050118572902
Qty.	200 pc(s).
Packaging	Tape

Creation date April 16, 2021 2:23:40 AM CEST

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Technical data

Dimensions and weights

Depth	21.35 mm	Depth (inches)	0.841 inch
Height	16.8 mm	Height (inches)	0.661 inch
Height of lowest version	13.5 mm	Net weight	0.001 g
Width	15.9 mm	Width (inches)	0.626 inch

System specifications

Colour of left LED	green	Colour of right LED	yellow
LED	Yes	Latch option	bottom
Mounting onto the PCB	THT/THR solder connection	Number of poles	8
Number of solder pins per pole	1	Outgoing elbow	90°
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	6 tabs	Shielding	Yes
Shielding material	Brass	Soldering process	Reflow soldering, Manual soldering, Wave soldering
Transmission rate	10/100 MBit/s	Type of connection	Socket connector

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 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	345 mm
VPE width	345 mm	VPE height	125 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
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

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UL File Number Search

E471884

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Brochure/Catalogue

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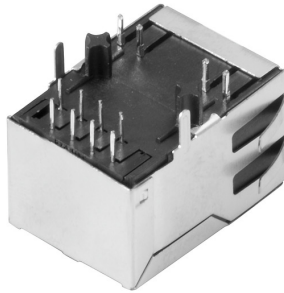
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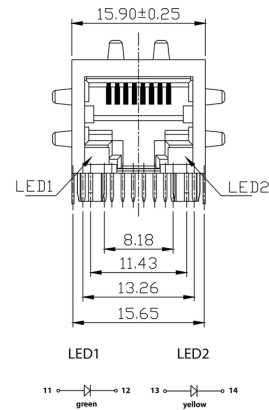
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Drawings

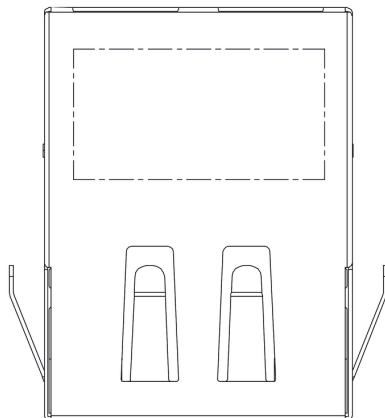
Dimensioned drawing



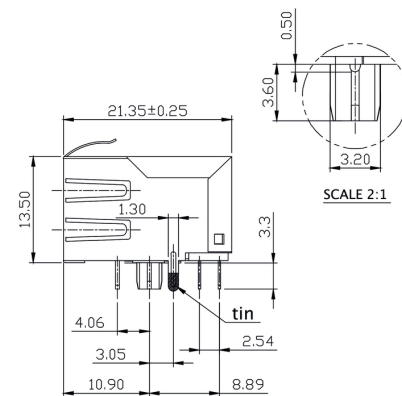
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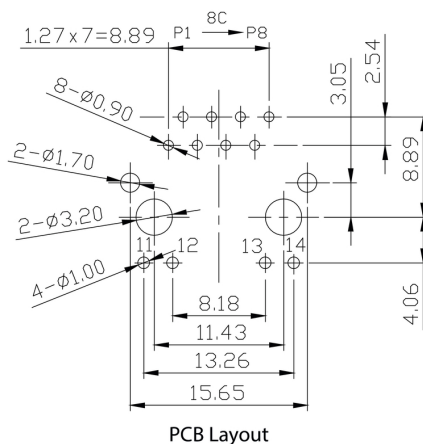
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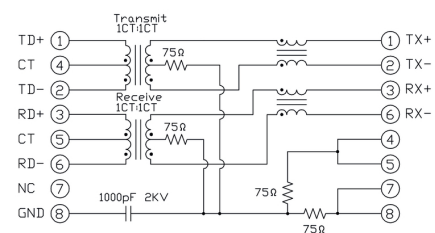
Dimensioned drawing



PCB design



Wiring diagram



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Drawings

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

RJ45	G1	R	1	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
										... (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
										21; 41; ... multi ports about each other, Multilevel
										Assembly on PCB
										R Through Hole Reflow - THR
										S Soldering process: Wave or Reflow soldering
										S Surface Mount Technology - SMT
										T Soldering process: Reflow soldering
										Through Hole Technology - THT
										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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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.

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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.