

OMNIMATE Data - RJ45 jacks transformer RJ45M R1V 3.3N4YG/YG TY

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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.

- THT or THR soldering processes
- Wide range of different design types, also with integrated LEDs and shield contact tabs
- Packed either in a tray (TY) or on a roll (tape-on-reel, RL)
- Extended temperature range of -40 °C to +85 °C
- Reinforced gold layer for improved corrosion protection
- Transmission rates of up to 1 Gbit/s

General ordering data

Type	RJ45M R1V 3.3N4YG/YG TY
Order No.	1534750000
Version	PCB plug-in connector, RJ45 jacks transformer, THT/THR solder connection, 1.27 mm, No. of poles: 8, 180°, Solder pin length (l): 3.2 mm, Gold over nickel, Black, Tray (manual assembly)
GTIN (EAN)	4050118338416
Qty.	120 pc(s).
Packaging	Tray (manual assembly)

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Technical data**Dimensions and weights**

Net weight	4.208 g
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Temperatures

Operating temperature, max.	85 °C	Operating temperature, min.	-40 °C
Storage temperature, max.	85 °C	Storage temperature, min.	-40 °C

System specifications

Colour of left LED	green / yellow	Colour of right LED	green / yellow
LED	Yes	Mounting onto the PCB	THT/THR solder connection
No. of poles	8	Number of solder pins per pole	1
Outgoing elbow	180°	Packaging	Tray (manual assembly)
Pitch in inches (P)	0.05 inch	Pitch in mm (P)	1.27 mm
Plugging cycles	750	Product family	OMNIMATE Data - RJ45 jacks transformer
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	Transmission rate	10/100 Mbit/s
Type of connection	Socket	Wiring	8-core

Electrical properties

Dielectric strength, contact / contact	≥ 1000 V DC	Insulation resistance	> 500 MΩ
Rated current	1.5 A	Rated voltage	125 V AC

Material data

Insulating material	PA 9T	Colour	Black
Colour chart (similar)	RAL 9011	Insulating material group	II
CTI	≥ 500	Insulation resistance	> 500 MΩ
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		

Classifications

ETIM 6.0	EC002637	eClass 6.2	27-25-05-04
eClass 7.1	27-25-05-04	eClass 8.1	19-17-01-25
eClass 9.0	19-17-01-25		

Approvals

Approvals



ROHS

Conform

Creation date July 2, 2018 10:07:42 AM CEST

Catalogue status 29.06.2018 / We reserve the right to make technical changes.

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Data sheet**OMNIMATE Data - RJ45 jacks transformer
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Technical data**Downloads**

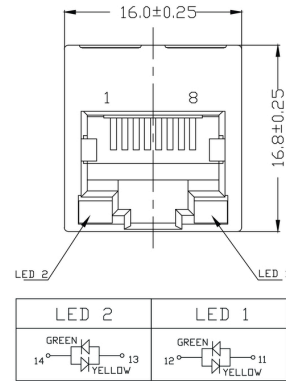
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User Documentation	MAN IE GUIDE DE MAN IE GUIDE EN

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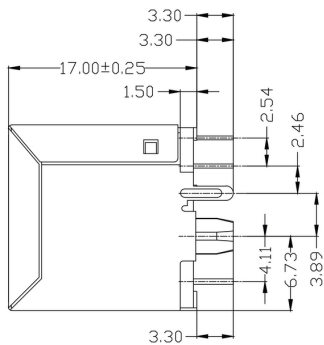
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Drawings

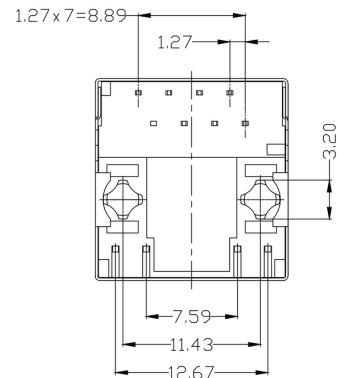
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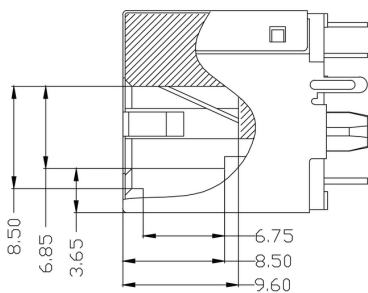
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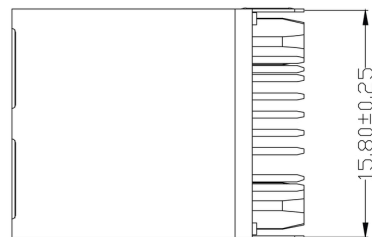
Dimensioned drawing



Dimensioned drawing



Dimensioned drawing

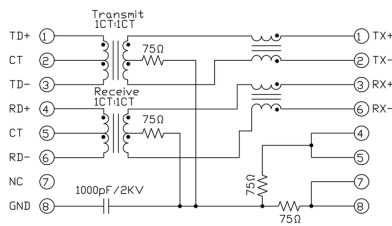


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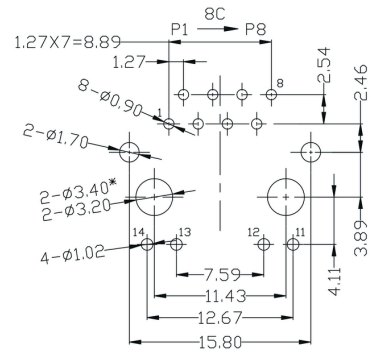
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Drawings

Wiring diagram



PCB design



PCB LAYOUT

Miscellaneous

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

Legend

Code	Description	Options
RJ45	Product family	
G1	Performance Category	C5, C6, C6A, C5e, M, G1, G10, U, MP, MP+
R1	Assembly on PCB	R, S, T
U	Direction, latch style	U, D, V, Y
3.2	Solder Pin length	3.2, 1.6, D
E4	EMI tabs (ground fingers)	E, N
4	Contact surface thickness	4
GY/GY	LED	Y/G, G/Y, GY/GY, O/G, R/O, N
TY	Packaging	TY, RL

Code	Description	Options
TY	Packaging	TY: Tray in box (manual assembly) RL: Tape on Reel (automated assembly)
Y/G	LED	Yellow/Green
G/Y	LED	Green/Yellow (standard)
GY/GY	LED	Green-Yellow/Green-Yellow
O/G	LED	Orange/Green
R/O	LED	Red/Orange
N	LED	without LED
4	Contact surface thickness	1 = 3µ", 2 = 6µ", 3 = 15µ", 4 = 30µ", 5 = 50µ"
E	EMI tabs (ground fingers)	E = with EMI tabs N = without EMI tabs
3.2	Solder Pin length	3.2 mm 1.6 mm SMD
U	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
1	Number of Ports	1 Port 12; 14; ... multi ports side by side, Multiport 21; 41; ... multi ports about each other, Multilevel
R	Assembly on PCB	Through Hole Reflow - THR Soldering process: Wave or Reflow soldering
S	Assembly on PCB	Surface Mount Technology - SMT Soldering process: Reflow soldering
T	Assembly on PCB	Through Hole Technology - THT Soldering process: Wave
C5	Performance Category	Category 5
C6	Performance Category	Category 6
C6A	Performance Category	Category 6A
C5e	Performance Category	Category 5e
M	Performance Category	10/100 Mbit
G1	Performance Category	10/100/1000 Mbit
G10	Performance Category	10 Gbit
U	Performance Category	Unshielded
MP	Performance Category	10/100 Mbit with POE
MP+	Performance Category	10/100 Mbit with POE+

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.

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.