MODULAR PLUG-JACK CONNECTORS

■ GENERAL

Developed by Western Electric Inc. in the U.S., the TM Series are telephone connectors manufactured by us under a patent license from the company.
Complying with the Federal Communications Commission (FCC) Title 47, Part 68, Subpart F Standard, the TM Series are easy to operate and resistant to harsh environmental conditions. They are available in a variety of models for prevention of EMI on plugs and jacks and for modem conversion, so they can be used for telephones, radio equipment, and computer-related applications.

■ FEATURES:

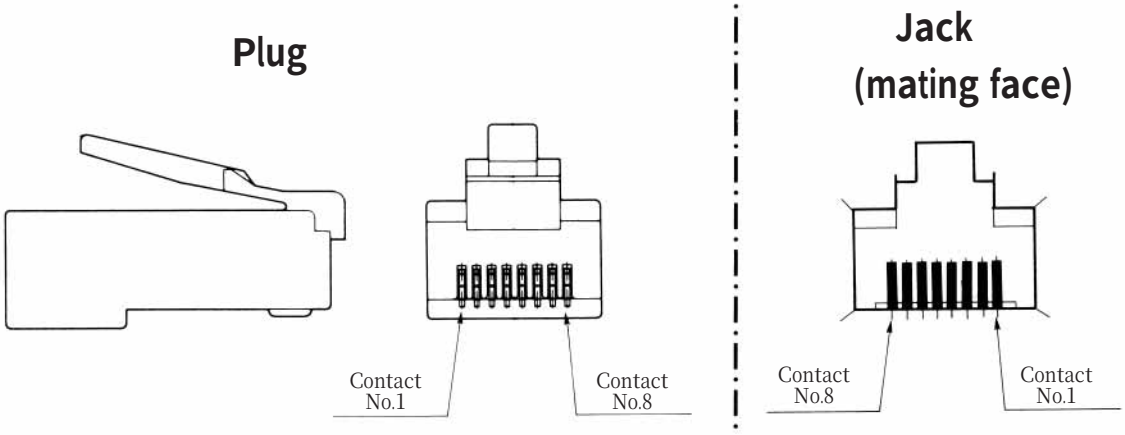
(1) Easy to operate. Can be locked by a single operation.
(2) The gold-plated contacts are highly resistant to adverse environmental conditions.
(3) Require minimal space for installation, being designed for light weight and compact size.
(4) A variety of jacks are available such as wire lead type, DIP, and EMI-protected to match the requirements of your equipment.
(5) Plugs are available for round cables and shielded cables in addition to copper-foil flat multi-conductor telephone cables.
(6) Special hand wiring tools for plug harnesses available.
(7) Modular connectors are available for RS-232C modem conversion for communications between computers.
(8) Eight-core plugs and jacks comply with ISO 8877 Standard (ISDN interface connector)

■ MAIN APPLICATIONS

Single-line telephones, electronic key telephone systems, mobile telephones, radio equipment, intercoms, portable terminals, fax machines, computer terminals, and measuring instruments.

MODULAR CONNECTOR TERMINAL NUMBERS

Unless otherwise specified, see the figures below for the terminal numbers of the product.



OPENING SIZE AND NUMBER OF CONDUCTORS (6-CONDUCTOR)

See the figures below for the relationship between the opening size and the number of conductors of the jack connectors.

Model 66 Model 64 Model 62

Models 64 and 62 are obtained by removing 1 pin and 2 pins, respectively, from both sides of model 66. For details, please contact us for drawings because only standard models are shown in the catalogs.

RECOMMENDED SOLDERING FOR MODULAR DIP CONNECTORS

- Flow solder (automatic soldering machine)
  - Pre-heat: 90 - 130 °C
  - Pre-heat time: 60 seconds maximum
  - Solder temperature: 240 - 260 °C
  - Soldering time: 10 seconds maximum
- Hand soldering
  - Soldering iron tip temperature: 350 °C
  - Soldering temperature: 5 seconds maximum
  - Soldering iron output: 30 - 40W

Note: When soldering, use care not to apply excessive force to the connector terminals.

- Recommended Solder composition: Paste, 96.5%Sn/3.0%Ag/0.5%Cu

UL STANDARDS FOR MODULAR CONNECTORS

These connectors meet the UL1863 Standard (for communications circuit accessories) for modular connectors to prevent injuries, and achieve better electrical, mechanical, and flame-resistant properties. UL 1863 provides, for example, the following:

(1) A rubber probe (φ6.9 ± 0.5 mm) inserted into the connector mating face shall be able to be pulled out with a force of 4.45 N or less.

(2) Insulating materials shall be flame-resistant (UL94V-0).

Our modular connectors have recently obtained approval from UL as meeting the requirements of the UL1863.

UL File No. 134282

● IDENTIFICATION OF CONNECTORS MEETING UL STANDARDS

To discriminate these modular connectors from non-compliant connectors, we add "X" to their part numbers.

TMIR－623K64－※※－※ → **TMIRX－623K64－※※－※**

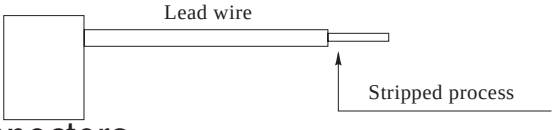
Authorized UL connector

TM5RE3－64 → **TM5RE3X－64**

Authorized UL connector

● UL COVERAGE (JACK WITH LEAD WIRES)

Only jack connectors with stripped terminal lead wires have been approved by UL. Other connectors and terminals have not been approved.



● Authorized UL connectors

Jack		Modular plug
Jack with lead wires	Dip type jack	
TM1RX－616B－＊＊	TM2REX	TM3PX
TM1RX－616M－＊＊	TM2REAX	TM4PX
TM1RX－616P－＊＊	TM3RX	TM8PX
TM1RX－616W－＊＊	TM3RAX	TM10PX
TM1RX－623K－＊＊	TM3RA1X	TM11APX－88P
TM1RX－623P－＊＊	TM3RA1X－10＊＊	TM11APAX－88P
TM1RX－647A－＊＊	TM5RCX	
TM2RCX－＊＊	TM5RE3X	
TM2RGX－＊＊	TM5RFX	
TM2RDX－＊＊	TM5RF1X	
TM2RDAX－＊＊	TM5RJ2X	
TM7RX－＊＊	TM5RJ3X	
TMRAX－＊＊	TM5RQX－14＊＊	
TM11RX－＊88－＊＊	TM5RQX－20＊＊	
	TM5RSAX－24＊＊	
	TM5RSBX－24＊＊	
	TM13RX	
	TM13RAX－10＊＊	
	TM11RX－5C－88	

• For details, contact our sales representative

MODULAR CONNECTOR TERMINAL NUMBERS

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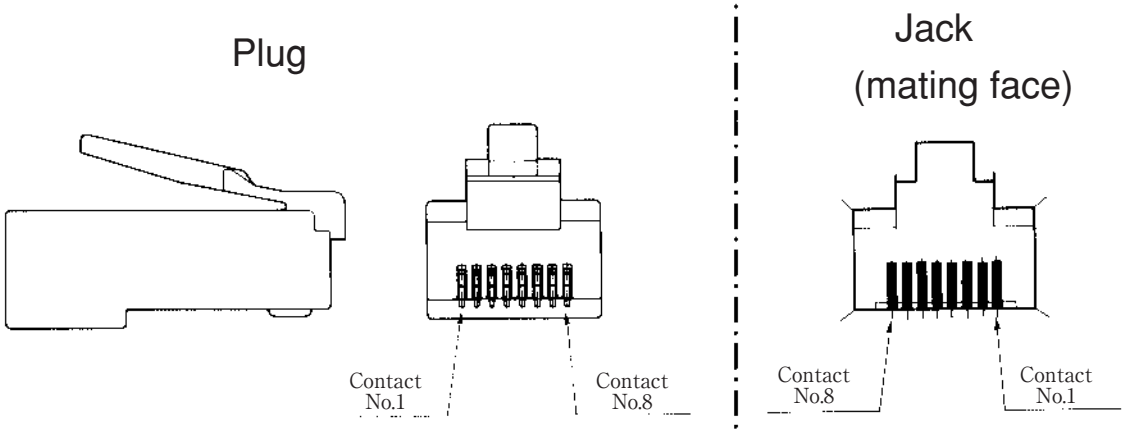

OPENING SIZE AND NUMBER OF CONDUCTORS (6-CONDUCTOR)

See the figures below for the relationship between the opening size and the number of conductors of the jack connectors.

Models 64 and 62 are obtained by removing 1 pin and 2 pins, respectively, from both sides of model 66. For details, please contact us for drawings because only standard models are shown in the catalogs.

RECOMMENDED SOLDERING FOR MODULAR DIP CONNECTORS

- Flow solder (automatic soldering machine)
  - Pre-heat: 90 - 130 ℃
  - Pre-heat time: 60 seconds maximum
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  - Soldering time: 10 seconds maximum
- Hand soldering
  - Soldering iron tip temperature: 350 ℃
  - Soldering time: 5 seconds maximum
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Note: When soldering, use care not to apply excessive force to the connector terminals.

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MODULAR PLUGS

■ Ordering information

TM	4P	—	6	4P
(1)	(2)		(3)	(4)

(1) Indication for the Series
(2) Jack type identification
- 3, 8p ------ Plug for flat cables
- 4, 10P ---- Plug for round cables
- 11AP ------- EMI-protected plug
- 11AP1 ----- EMI-protected slender plug
- 11APA ----- EMI-protected L-shaped plug
- 11APA1 --- EMI-protected T-shaped plug
- 20P ------- Single-conductor cable plug (φ0.4, φ0.5, φ0.65 mm)
- 30P ------- Small-diameter cable plug (for AWG28)

(3) Size of opening
- 4 ---- For up to 4 single conductors
- 6 ---- For up to 6 single conductors
- 8 ---- For up to 8 single conductors

(4) Number of conductors
- 2P --- 2 conductors
- 4P --- 4 conductors
- 6P --- 6 conductors
- 8P --- 8 conductors

■ Product Specifications

Ratings	Current rating : 0.5A	Operating temperature range	Plug	-25°C to + 60°C (Note)
	Voltage rating : 125V AC		Jack	-25°C to + 80°C (Note)

Item		Specification		Conditions
		2, 4, 6 pos.	8 pos.	
1. Insulation resistance		100 M ohms min.		100 V DC
2. Withstanding voltage (between adjacent contacts)		No flashover or insulation breakdown.		500 V AC / one minute
3. Withstanding voltage (between contacts to shield)		No flashover or insulation breakdown.		1500 V AC / one minute
4. Contact resistance		200m ohms max.	230m ohms max.	100mA
5. Vibration		No electrical discontinuity of 5µs min.		Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 1 octave/ min. conduct, 2 hours in each 3 directions.
	Contact resistance	220m ohms max.	250m ohms max.	
6. Shock		No electrical discontinuity of 5µs min.		Acceleration of 490 m/s^2,11 ms duration, sine half-wave waveform, 3 cycles in each of the 3 axes.
	Contact resistance	220m ohms max.	250m ohms max.	
7. Durability (mating/un-mating)	Contact resistance	220m ohms max.	250m ohms max.	200 cycles
8. Temperature cycle	Contact resistance	220m ohms max.	250m ohms max.	Temperature : -55°C→+5°C to +35°C→+85 °C→+5°C to +35°C Duration : 30→5→30→5 (Minutes) 5 cycles
	Insulation resistance	100 M ohms min.		
9. Humidity	Contact resistance	220m ohms max.	250m ohms max.	500 hours at 40°C and humidity of 90% to 95%.
	Insulation resistance (High humidity)	1 M ohms min.		
	Insulation resistance (Dry state)	10 M ohms min.		
10. Salt Spray	Contact resistance	220m ohms max.	250m ohms max.	5% salt water for 48 hours

Note 1 : Includes temperature rise caused by current flow.

Note 2 : The product information in this catalog is for reference only. Please request the Engineering Drawging for the most current and accurate design information.

■ Material

● Modular Jacks

Part	Material		Finish	Remarks
Insulator	DIP type	PBT	———	UL94V-0
	Wire lead type	ABS		
Contacts	Phosphor bronze		Contact area : 1.27 µm gold plated Termination area : gold plated	———
Metal shield	Copper alloy		Tin plated	———
Metal fitting	Copper alloy		Tin plated	———

Note : The product information in this catalog is for reference only. Please request the Engineering Drawging for the most current and accurate design information.

● Modular Plugs

Part	Material	Finish	Remarks
Insulator	Polycarbonate	———	Color : clear
Contacts	Phosphor bronze	Contact area : 1.27 µm gold plated	———
Metal shield	Copper alloy	Tin plated	———
Cover	Polycarbonate	———	———

Note : The product information in this catalog is for reference only. Please request the Engineering Drawging for the most current and accurate design information.