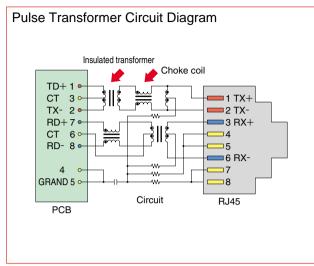
# **RJ45 Modular Jack Connectors with Pulse Transformers**

## TM11RD - 5TANA Series





### Features

### 1. Pulse Transformers Support FastEthernet

Equipped with built-in insulation transformers and common mode choke coils, withstanding voltage of 1.5 kV and supporting 100Base-Tx and 10Base-T.

# 2. Incorrect Plug Insertion Prevention Kev

A built-in key offers protection against insertion of 6conductor type modular plug.

# 3. Built-in optical indicators

Optical indicators are integral part of the connectors, saving space on the board.

There is no emission of any electrical noise.

### 4. EMI protection

Metal shield covers the outer surfaces of the connectors assuring complete protection against electromagnetic interference.

### 5. FCC standards

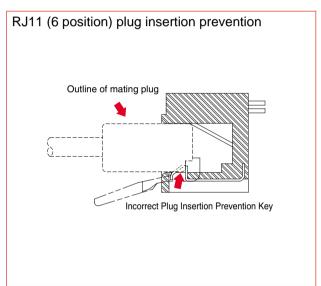
Meets requirements of FCC Title 47, Part 68, Subpart F.

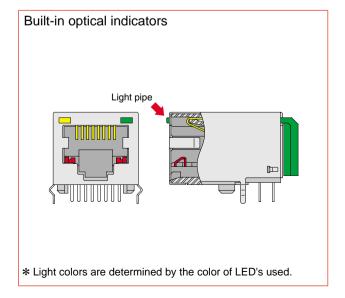
### 6. Environmental considerations

Plating compounds are lead-free.

## Applications

Notebook PC's, telecommunication hubs, routers, bridges and ATM transmission equipment, Ethernet switches and networking equipment, office equipment, test and measurement equipment.





# **■**Product Specifications

Ratings Voltage rating 125V AC	Operating temperature range: -25°C to +80°C (Note)
--------------------------------	--

	Item	Specification	Conditions
Connector	1.Insertion resistance	-2dB min.	1 to 65MHz
	2.Insulation resistance	100M ohms min.	100V DC
			Basic terminal between 123-45-768 500V AC / one minute
	3.Withstanding voltage	No flashover or insulation breakdown.	Primary (RJ45 side) to secondary (PCB side) 1500V AC / one minute
			Terminal to shield 1500V AC / one minute
	4.Insertion resistance	-1dB min.	1 to 65MHz
	5.Return loss	-20 dB max.	1 to 10 MHz
		-16 dB max.	10 to 30 MHz
		-12 dB max.	30 to 60 MHz
		-10 dB max.	60 to 80 MHz
	6.Inductance	350 <i>μ</i> H min.	0.1V, 100KHz, 8mADC
	7.Cross talk (Reference)	-40 dB max.	1 to 30 MHz
		-35 dB max.	30 to 60 MHz
		-30 dB max.	60 to 100 MHz
	8.Common mode rejection ratio	-30 dB max.	1 to 50 MHz
	(Reference)	-20 dB max.	50 to 150 MHz

Note: Includes temperature rise caused by current flow.

# **■**Materials

Component	Material	Finish/Color	Remarks
Insulator	PBT	Black	UL94V-0
Contacts	Copper alloy	Contact area : Gold plated Termination area: Tin plated	
Shield	Copper alloy	Tin plated	
Incorrect insertion prevention key	Stainless		
Pulse transformer			
Optical pipe	Polycarbonate	Clear	UL94V-0

# **■**Ordering information



Series name	: TM11
Connector type	R: Jack
Direction of locking lever	D: Down
(mating plug)	
4 Jack suffix number	: 5
6 Transformer	T: With transformer
Transformer type	A: Transformer circuit type
Incorrect insertion prevention key	NA-A: With built-in key
8 Jack opening code	8: 8 contacts
Number of inserted contacts	8: 8 contacts
Optical pipe	LP: With optical pipe inserted
	Blank: Without optical pipe

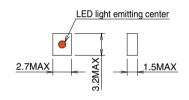
# ■ Modular Jack Connectors (With built-in optical pipe)



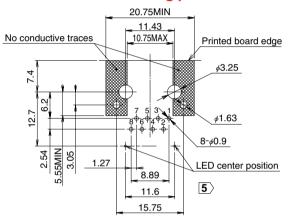
Part Number	CL No.	RoHS
TM11RD-5TANA-A-88-LP	CL222-2936-3	YES

# Contact No.1 16 Contact No.8 21.3 © Contact No.8 10.8 0.3 15.75 17.5 24.2

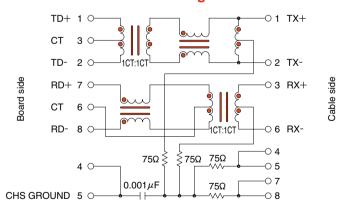
4 Suggested dimensions of LEDs



### Recommended PCB mounting pattern



### ◆Pulse Transformer Circuit Diagram



### Precautions

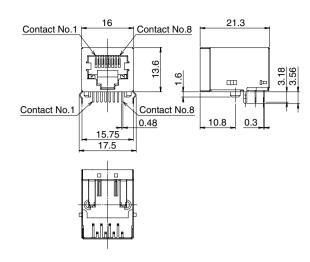
- 1 Hirose Electric did not check the compatibility with the PHY chip. When replacing other manufacturers jack it is recommended to verify the compatibility with the actual equipment.
- 2 This connector is mounted on the board using wave or manual soldering. Do not use reflow soldering.
- 3 Recommended board thickness: 1.6mm
- 4 To assure correct operation of the indicator light pipes LED's must be installed directly on the PCB, within recommended dimensions and with light emitting center in upward direction.
- 5 Mount the LED so that the center of the light emitting center aligns with the center point as dimensioned on the Recommended PCB mounting pattern above.
- 6 Verify the actual LED's mounting pattern with it's manufacturer, then add it to the PCB mounting pattern, assuring the correct placement of the center point.
- 7 IPA cleaning at room temperature is recommended for the cleaning of this product.

  When an aqueous cleaning agent is to be used, there is a concern that the light pipe (made of polycarbonate resin) may change color; therefore, please make a selection based on a table showing the effects on the resin. These tables are issued by the various manufacturers of cleaning agents.

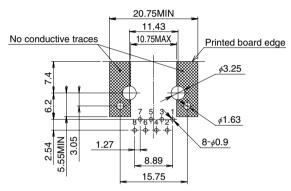
# ■ Modular Jack Connectors (Without built-in optical pipe)



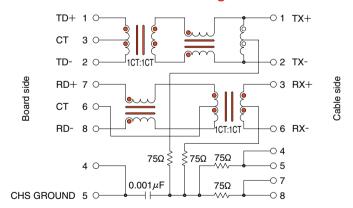
Part Number	CL No.	RoHS
TM11RD-5TANA-A-88	CL222-2932-2	YES



### 



### **● Pulse Transformer Circuit Diagram**



### Precautions

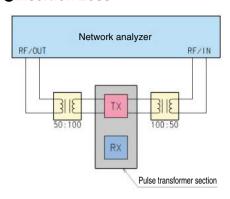
- 1 Hirose Electric did not check the compatibility with the PHY chip. When replacing other manufacturers jacks it is recommended to verify the compatibility with the actual equipment.
- 2 This connector is mounted on the board using wave or manual soldering. Do not use reflow soldering.
- 3 Recommended board thickness: 1.6mm
- 4 IPA cleaning at room temperature is recommended for the cleaning of this product.

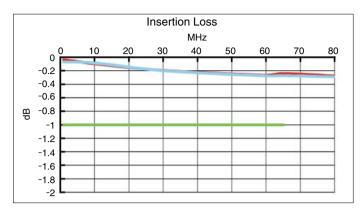
  When an aqueous cleaning agent is to be used, there is a concern that the light pipe (made of polycarbonate resin) may change color; therefore, please make a selection based on a table showing the effects on the resin. These tables are issued by the various manufacturers of cleaning agents.

### ■Technical Data

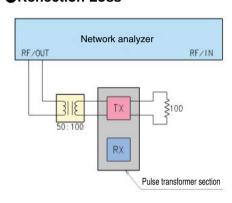
Measurement results of electrical characteristics

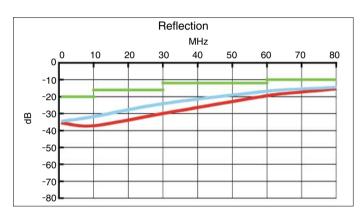
### Insertion Loss



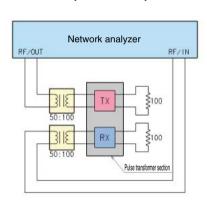


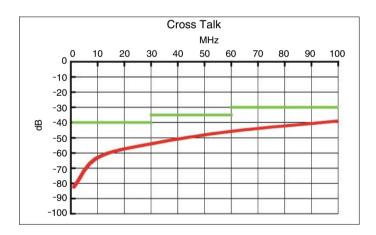
### Reflection Loss





### ●Crosstalk (Reference)





### **●**Common Mode Rejection Ratio (Reference Value)

