Amphenol RJ Field Series

NO HAZARDOUS ON-FIELD CABLING AND GROUNDING

The Amphenol RJ Field series allows the use of an Ethernet Class D/CAT5e and Class E/CAT6 connection for Ethernet over twisted-pair networks in harsh environments. The RJStop® connection system protects from shock, dust and fluid. No hazardous on-field cabling and grounding required!

- Connections for 10Base-T, 100Base-TX, or 1000Base-T networks
- No tools required
- Mechanical coding/polarization

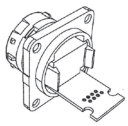
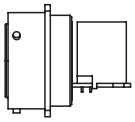
APPLICATIONS

- Robotics
- Military data hubs
- Special machines
- Welding machines
- Communications
- CNC machines
- Process & motion control
- Diagnostics

FEATURES

- CAT5e & CAT6 Cable
- USB-A 2.0, USB-B 2.0, USB-A 3.0
- Mating systems – tri-start thread, triple-lead, latch, push-pull

TECHNICAL SPECIFICATIONS

							
SERIES	RJF RB	RJF 544	RJF-EZ	RJF	RJFTV	USBFTV (USB-A)	USBBFTV (USB-B)
Shape	Circular	Circular	Rectangular	Circular	Circular	Circular	Circular
Coupling System	Reverse Bayonet	Push-Pull	Lever	Tri-Start Thread	Tri-Start Thread	Tri-Start Thread	Tri-Start Thread
Material	Plastic	Plastic	Plastic	Metal	Metal	Metal	Metal
Data Type	CAT5e & CAT6	CAT5e & CAT6	CAT5e	CAT5e & CAT6	CAT5e & CAT6	USB-A 2.0 & 3.0	USB-B 2.0
Number of possible Codings (polarizations)	1	1	1	4	4	4	4
RoHS Options Available	Yes	No	No	Yes	Yes	Yes	Yes
Mating Cycles	500 min.	500 min.	500 min.	500 min.	500 min.	up to 1500	up to 1500

RJF 544 SERIES

MAIN CHARACTERISTICS

- Composite material
- Compliant with IEC 60603-7 variant 12
- Shock, vibration and traction-resistant
- No-cabling operation in-field and no tools required
- Sealed against fluids and dust (IP68)
- Quick push-pull coupling
- RJ45 cordset retention in the plug: 100 N in the axis
- Mating cycles: 500 min.
- Improved EMI protection
- Compatible with cable diameter from 0.236 in. (6 mm) to 0.512 in. (13.0 mm)

ENVIRONMENTAL PROTECTION

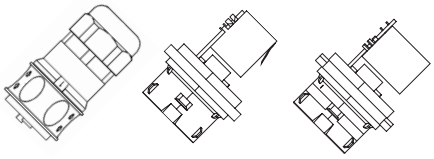
- Sealing: IP68
- Salt Spray > 1000-hour
- Fire retardant/low smoke: UL94 VO and NFF 16102, DIN 5510-2
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 10 nano seconds
- Thermal shock: 5 cycles at -40°F to +212°F (-40°C to +100°C)
- Operating temperature: -40°F to +185°F (-40°C to +85°C)

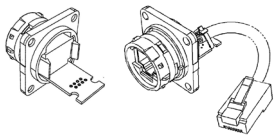
DATA TRANSMISSION

10 Base-T, 100 Base-TX, and 1000 Base-T networks

CAT5e per TIA/EIA 568B and Class D per ISO/IEC 11801

CAT6 per TIA/EIA 568B and Class E per ISO 11801





PLUG	RECEPTACLES						ACCESSORIES			
PLUG	FLANGE STRAIGHT	FLANGE STRAIGHT METAL INSERT	FLANGE RIGHT ANGLE	FLANGE RIGHT ANGLE METAL INSERT	FLANGE STRAIGHT 8 PCB TINNED HOLES	FLANGE CORDSET	DUST CAP FOR PLUG	DUST CAP FOR RECEPTACLE	PANEL FLANGED GASKET	INSERT REMOVAL TOOL FOR PLUG
RJF5446	RJF54421††	RJF5442M1††	RJF54421RA††	RJF5442M1RA††	RJF5442200††	RJF54422**100BTX††	54402BM	54402BE	RJF54402JE	5440T02

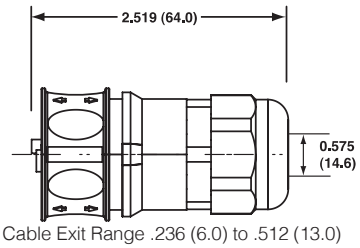
†† Use prefix RJF5446 for CAT6 version (receptacles only)

** Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)

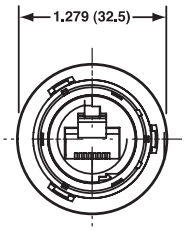
BOLD = Stocked items

PLUG

RJF 544 6

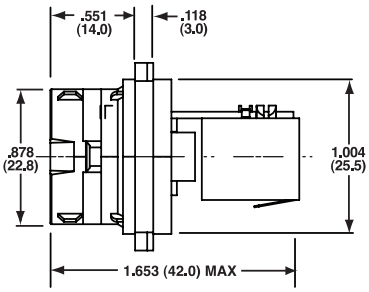


Cable Exit Range .236 (6.0) to .512 (13.0)

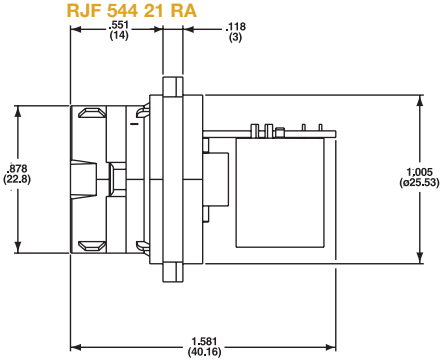


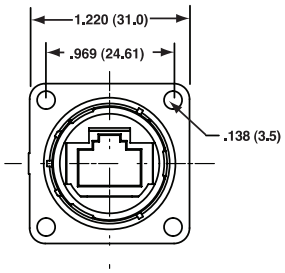
RECEPTACLE

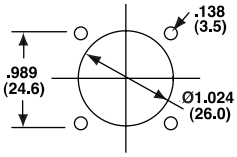
RJF 5446 21
RJF 544 21



RJF 5446 21 RA
RJF 544 21 RA



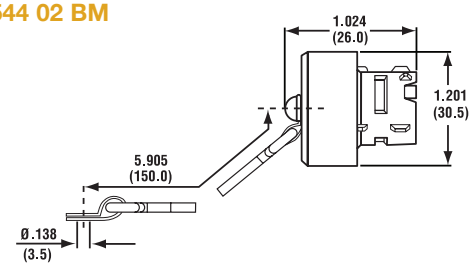




Panel Cutout

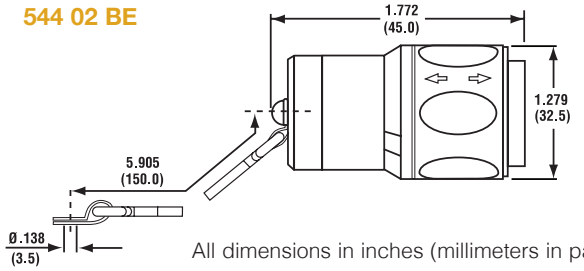
DUSTCAPS FOR PLUGS

544 02 BM



DUSTCAPS FOR RECEPTACLES

544 02 BE



All dimensions in inches (millimeters in parenthesis)

SELF-CLOSING CAP

This self-closing cap automatically protects the RJ Field square flange receptacles (MIL-C-26482-type), protecting your system from dust and water projections. The same cap can be used to protect USB and IEEE1394 receptacles. A spring automatically closes the upper part of the cap when either the RJ Field plug, RJ45 cordset, USB or IEEE1394 cordset, or USB key are removed from the receptacle.

Plating	RJ45	USB-A	USB-B	IEE1394
Black-Anodized	RJF21BSCC	USBF21BSCC	USBBF21BSCC	FWF21BSCC
Nickel	RJF21NSCC	USBF21NSCC	USBBF21NSCC	FWF21NSCC

BOLD = Stocked Items

CAT5e & CAT6 CABLE

General construction: A four-pair, 24 AWG, 100 Ohm SFTP round patch cable, designed to the ISO / IEC 11801 Category 5e requirements (CAT5e on 76m). The cable contains four twisted pairs, cabled, double-shielded with Kevlar reinforcement strands, jacketed in black UV-resistant polyurethane HFFR. Designed for fixed or portable applications in harsh environments.

HFFR: HALOGEN-FREE FLAME-RETARDANT

Jacket Compound Specification:

Halogen-free flame-retardant polyether-based polyurethane. Glossy finish.
Excellent hydrolysis resistance. High microbial resistance. UV-resistant. High flexibility.

CAT5e

PHYSICAL CHARACTERISTICS

Conductors	24 AWG (0.25 mm²) Tinned copper, 7x0.2 mm
Insulation	Color-coded 568-B, Linear low-density polyethylene, Nom. Dia. 0.039" (1mm) nickel
Assembly	Pairs cabled with Kevlar-strength members and separation-tape wrapped
Shields	Inner: Aluminum mylar 100% coverage Outer: Tinned-copper braid 80% coverage
Jacket	Black, special PUR compound
Weight	40 lbs / mft (59 kg/km)
Outside Dia.	0.28" (7.1 mm) nom.
Min. Bend Radius (During installation)	67.5mm (9 x O.D.)
Min. Bend Radius (During operation)	37.5mm (5 x O.D.)
Min. Flexes to Failure	Passes IEC 61156-6 requirements
Temperature	-40°F to +185°F (-40°C to +85°C)

ELECTRICAL CHARACTERISTICS

DC Resistance	96 Ohms/KM @ 20°C			
Impedance	100 ± 15 Ohms 1-100 MHz			
Attenuation	772 KHz	2.70 db/100m nom.	20 MHz	13.8 db/100m nom.
	1 MHz	3.15 db/100m nom.	31.25 MHz	17.7 db/100m nom.
	4 MHz	6.45 db/100m nom.	62.5 MHz	25.6 db/100m nom.
	10 MHz	9.90 db/100m nom.	100 MHz	33 db/100m nom.
	16 MHz	12.3 db/100m nom.		
Capacitance	46pF/m nom. @ 1KHz			
LCL	43 dB min. @ 64 KHz			
Capacitance Unbalance	3.4 pF/m max. @ 1KHz (wire to ground)			
Insulation Resistance	150 M Ohm min.			
Voltage Rating	230 VMS			
Dielectric Strength	VAC/1 min - 700 v/min.			
Propagation Delay	(100 MHz) 5.2 ns/m max. @ 100 MHz			
Delay Skew	20 ns/100m max. @ 100 MHZ			
Resistance Unbalance	3% max. @ 20°			
Structural Return Loss	(100 MHz) 23 db/100m min. @ 1-20 MHz			
Spark Test	3 KV (tested during production)			
Velocity of propagation	67% nom.			

CAT6

PHYSICAL CHARACTERISTICS

Conductors	26 AWG (0,14 mm²) tinned copper
Insulation	Polythylene Nom. Dia. 0,039" (1mm)
Assembly	Pairs cabled with Kevlar strength members and separation tape wrapped
Shields	Inner: aluminium mylar 100% coverage Outer: tinned copper braid 80% coverage
Jacket	Black, special PUR compound
Weight	36.9 lbs / mft (55 kg/km)
Outside Dia.	0.272"(6.9 mm) nom.
Min. Bend Radius (During installation)	72mm (10x O.D.)
Min. Bend Radius (During operation)	36mm (5 x O.D.)
Min. Flexes to Failure	Passes IEC 61156-6 requirements
Temperature	-40°F to +185°F (-40°C to +85°C)

ELECTRICAL CHARACTERISTICS

DC Resistance	290 Ohm/Km		
Impedance	100+/-5 Ohm		
Attenuation	Frequency	Insertion Loss	N.E.X.T (Near End Crosstalk Loss)
	1MHz	3.1 dB	75.3 dB min
	4MHz	5.8 dB	66.3 dB min
	8MHz	8.0 dB	61.8 dB min
	10MHz	9.0 dB	60.3 dB min
	16MHz	11.4 dB	57.2 dB min
	20MHz	12.8 dB	55.8 dB min
	25MHz	14.1 dB	54.3 dB min
	31.25MHz	16.1 dB	52.8 dB min
	62.5MHz	23.2 dB	48.4 dB min
	100MHz	29.9 dB	45.3 dB min
	200MHz	43.7 dB	40.8 dB min
	250MHz	49.7 dB	39.3 dB min
Capacitance	50nF/km nom. @ 1KHz		
Capacitance Unbalance	1600 pF/km max. @ 1KHz (wire to ground)		
Insulation Resistance	5 GOhm/km		
Voltage Rating	230 V		
Dielectric Strength	VAC/1 min - 700 v/min.		
Propagation Delay	4.6 ns/m		
Delay Skew	45 ns/100m		
Resistance Unbalance	2%		
Structural Return Loss	15.6dB		
Velocity of propagation	72% nom.		

REEL OF CABLE (WITHOUT RJ45 PLUG ON ENDS)

CAT5e		CAT6	
LENGTH (M/FT)	PART NUMBER	LENGTH (M/FT)	PART NUMBER
100 m /~328 ft	190-038045-00	100 m /~328 ft	191-031179-00
300 m /~984 ft	190-038045-01	300 m /~984 ft	191-031179-01