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# Rugged Digital Networks Solutions

Reinforced Infocom Connectors for Harsh Environment

RJ Field - USB Field

# Amphenol

January  
2014  
update













Connecting to people + technology

[www.rjfield.com](http://www.rjfield.com)

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# RUGGED ETHERNET SOLUTION SELECTION GUIDE

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	RJF544	IEC 60603-7 variant 12	Push Pull	Circular	Plastic	N/A	Industrial & Telecom	13
	RJF EZ	IEC 60603-7 variant 13	Lever	Rectangular	Plastic	N/A	Industrial & Telecom	15
	RJF	IEC 60603-7 variant 11	Bayonet	Circular	Metal	MIL-DTL-26482	Industrial Mil/Aero	17
	RJF Special	IEC 60603-7 variant 11	Bayonet	Circular	Metal	MIL-DTL-26482	Industrial Mil/Aero	20
	RJF Receptacles - Plugs with 360° EMI backshells		Bayonet	Circular	Metal	MIL-DTL-26482	Industrial Mil/Aero	21
	RJF Environmentally Sealed Transversally Sealed		Bayonet	Circular	Metal	MIL-DTL-26482	Mil/Aero & Industrial	22
	RJF Hermetic Receptacles		Bayonet	Circular	Metal	MIL-DTL-26482	Mil/Aero & Industrial	23
	RJF For big insulation wire up to 1.6mm [0.062 inch]		Bayonet	Circular	Metal	MIL-DTL-26482	Industrial Mil/Aero	24
	RJFTV		Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Rail Mass Transit	26
	RJF TV Receptacles - Plugs with 360° EMI backshells		Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Rail Mass Transit	30
	RJF TV Special Through bulkhead		Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Rail Mass Transit	32
	RJF TV Special PCB Stand-Off		Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Rail Mass Transit	33
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		High reliability Cat 6 cable and cordsets							Mil/Aero & Industrial	42
		High reliability Cat 6A cable and cordsets							Mil/Aero & Industrial	43

A S S E M B L I E S	Connectors	Series	Indust. Ethernet Spec.	Coupling Mechanism	Shape	Material	Specification	Prime Market	Page	
		RJ45/M12 Railway Cable Solution			Bayonet	Circular	Metal	MIL-DTL-26482	Industrial & Rail Mass Transit	46
		Jumper			Thread	Circular	Metal	MIL-DTL-38999 Series III	Rail Mass Transit	47



R U G G E D E L E C T R O N I C S	Connectors	Series	Sealing	Type	# of ports	Specification	Prime Market	Page	
		RES-GMC Media converter with Expanded Beam Tech.		IP67/68	Unmanaged	2 Gb ports		Mil/Aero	50
		RES-GMC Media converter with Butt Joint Fiber connect.		IP67/68	Unmanaged	2 or 4 Gb ports		Mil/Aero	52
		RES-GMC-1M-FORC Media converter with Remote Control		IP67/68	Unmanaged	1 Gb port + 1 Fiber port		Mil/Aero	54
		RES-SCE-AC-8US miniature portable switch		IP67/68	Unmanaged	8 Fast ports		Mil/Aero	56
		RES-SCE-AC-8MG miniature portable switch		IP67/68	Managed	8 Gb ports		Mil/Aero	58
		RESMLAC-8US-CAPS military Ethernet switch MIL-DTL-38999 connectors		IP67/68	Unmanaged	8 Fast ports		Mil/Aero	60
		RJSMLAC-8UG-CAPS military Ethernet switch MIL-DTL-38999 connectors		IP67/68	Unmanaged	8 Gb ports		Mil/Aero	62
		RJSMLAC-8MG-CAPS military Ethernet switch RJFTV connectors		IP67/68	Managed	8 Gb ports		Mil/Aero	64
		RESMLAC-8MG-CAPS military Ethernet switch MIL-DTL-38999 connectors		IP67/68	Managed	8 Gb ports		Mil/Aero	66
		RESMLAC-8MG-CAPS-F35 military Ethernet switch MIL-DTL-38999 connectors		IP67/68	Managed	8 Gb ports		Mil/Aero	68
		RESMLAC-28MG military Ethernet switch		IP67/68	Managed	24 Gb + 4 combo 10G ports		Mil/Aero	70
		RJSML-8US1 & RJSML-8UG1 military Ethernet switch		IP67/68	Unmanaged	8 Gb ports		Mil/Aero	73
		RJSML-MG7F3G military Ethernet switch		IP67/68	Managed	7 fast + 3 Gb ports		Mil/Aero	77
	RJSPC industrial Ethernet switch <i>For ATEX version, see page 138</i>		IP67/68	Unmanaged	5 fast ports		Industrial	81	

# RUGGED USB SOLUTION SELECTION GUIDE






	Connectors	Series	Coupling Mechanism	Shape	Material	Specification	Prime Market	Page
F I E L D  I N S T A L L A B L E		USB3FTV (USB-A)	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero, Rail Mass Transit & Industrial	86
		USB3FTV Transversally Sealed Receptacles	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero, Rail Mass Transit & Industrial	90
		USB3FTV Hermetic receptacles	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Industrial	93
		High reliability USB 3.0 Cordsets					Mil/Aero, Rail Mass Transit & Industrial	96
		USBFTV (USB-A)	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero, Rail Mass Transit & Industrial	97
		USBFTV Transversally Sealed Receptacles	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero, Rail Mass Transit & Industrial	100
		USBFTV Hermetic receptacles	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Industrial	102
		USBFTV special Receptacles with 360° EMI backshells	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero, Rail Mass Transit & Industrial	103
		Special USB version USB Through Bulkhead	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Industrial	104
		USBFTV Stand-Off receptacles	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero, Rail Mass transit & Industrial	105
		High reliability USB 2.0 Cordsets					Mil/Aero, Rail Mass Transit & Industrial	109
		USBFTV SC Quick release series	Spring Release	Circular	Metal	N/A	Mil/Aero & Industrial	110
		USBFTV (USB-B)	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero, Rail Mass Transit & Industrial	112
		USBFTV Stand-off receptacles	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero, Rail Mass Transit & Industrial	115
		USBFTV Transversally Sealed Receptacles	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero, Rail Mass Transit & Industrial	117
		Special USB adaptor for Military & Commercial Aeronautics		Circular	Metal		Aeronautic	120

	Connectors	Series	Coupling Mechanism	Shape	Material	Specification	Prime Market	Page
ASSEMBLIES		USB-A plastic with Self Closing Cap		Circular	Plastic	N/A	Industrial & Telecom	122
		USB B Field Plastic shell Overmolded cordset plug	Thread	Circular	Plastic	N/A	Industrial & Telecom	125
RUGGED ELECTRONICS		Reinforced USBF TV Memory Keys	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & industrial	128
		Reinforced USB Memory Keys	Bayonet	Circular	Metal	N/A	Mil/Aero & Industrial	129
		Reinforced USB 2.0 amplifier	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Industrial	130

## RUGGED ATEX ZONE 2 SOLUTION GUIDE

	Connectors	Series	Coupling mechanism	Shape	Material	Specification	Prime Market	Page
RUGGED ELECTRONICS		RJFTVX, USBFTVX RJ11FTVX	IP68	Metal & Plastic			Factory Automation, Video, Oil & Gaz	132
		RJSPCEX	IP68	Plastic	5	X	X	Oil & Gas

## OTHER RUGGED SOLUTIONS

	Connectors	Series	Coupling Mechanism	Shape	Material	Specification	Prime Market	Page	
FIELD INSTALLEDABLE		FWFTV (FireWire)	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Video	140	
		RJ11F (RJ11)	Bayonet	Circular	Metal	MIL-C-26482	MIL/Aero & Industrial	144	
		Special RJ11 adaptor for Military & Commercial Aeronautics			Circular	Metal		Aeronautic	146
		MTRJFTV (MTRJ)	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Rail Mass Transit	148	
		LC Field	Thread	Circular	Metal	MIL-DTL-38999 Series III	Mil/Aero & Rail Mass Transit	150	





# Rugged Ethernet Solutions



## Field installable

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	RJF - Hermetic receptacles .....	23
	RJF for big insulation wire up to 1.6 mm [0.062 inch] .....	24
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<b>NEW</b>	RJF TV - Environmentally sealed, Transversally sealed receptacles .....	36
<b>NEW</b>	RJF TV Hermetic receptacles .....	37
<b>NEW</b>	RJF TV for big insulation wire up to 1.6 mm .....	38
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<b>NEW</b>	High reliability Cat 6A Ethernet cable & cordsets .....	43

# RJF RB

Ethernet connection system for harsh environment – Industrial Ethernet



IDC Receptacle  
CAT 6



PCB Receptacle

RJFRB allows you to use an Ethernet Class D / Cat 5e and Class E / Cat 6 connection for 10 BaseT, 100 BaseTX or 1000 BaseT networks in harsh environments.

With the patented RJStop® system you can use a standard RJ45 cordset in a protective **composite** plug which will protect it from shocks, dust and fluids.

**No hazardous on-field cabling and grounding!**

### Main characteristics

- Sealed against fluids and dust (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field, no tools required
- **Reverse bayonet coupling**
- RJ45 cordset retention in the plug: 70 N in the axis
- Mating cycles: 500 min
- Compatible with cable diameter from 5,5 mm [0.216 in] to 7 mm [0.275 in]

### Environmental protection

- Sealing: IP68
- Salt spray > 1000 h
- Fire retardant / Low smoke: UL94 V0 and NFF 16102, DIN 5510-2
- Thermal shock: 5 cycles at - 40°C / +100°C
- Operating temperature: - 40°C / +85°C

### Data transmission

10 BaseT, 100 BaseTX and 1000 BaseT networks  
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801  
Cat6 per TIA/EIA 568B and ClassE per ISO/IEC 11801

### Applications

- Telecom equipments
- Video control
- Robotics
- Industrial process control
- CNC machines
- Special machines
- Motion control

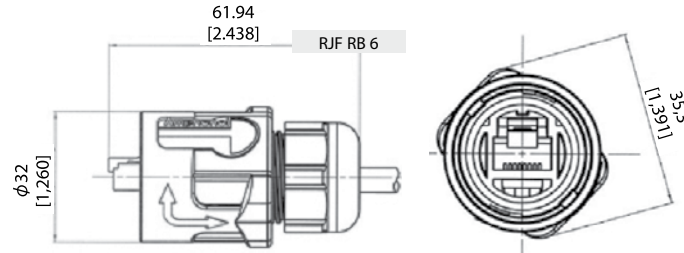
### Part number code

	RJF RB	7	1RA
<b>Shell type</b>			
<b>6:</b> composite reverse bayonet plug, plastic gland			
<b>7:</b> composite jam nut receptacle			
<b>Back terminations (for receptacles only)</b>			
<b>1:</b> female RJ45			
<b>1RA:</b> right angle female RJ45			
<b>2:</b> RJ45 Cordset			
<b>3U:</b> IDC cat6 - unshielded			
<b>3F:</b> IDC cat6 - partial shielding			
<b>3S:</b> IDC cat6 - 100% shielded			
<b>5:</b> straight PCB			
<b>Cordset length (for receptacles with "2" back termination only)</b>			
<b>03 100BTX:</b> 0.3m [11.81 inches]			
<b>05 100BTX:</b> 0.5m [19.68 inches]			
<b>10 100BTX:</b> 1m [39.37 inches]			
<b>15 100BTX:</b> 1.5m [59.05 inches]			
<b>Remark: cabling configuration</b> → 100 BTX = 568B (Ethernet specification)			

- Examples:
- Plug: RJF RB 6
  - Receptacle, female RJ45 Back termination: RJF RB 71
  - Receptacle, right angle female RJ45 back termination: RJF RB 71RA
  - Receptacle, 1,5m [59.05"] RJ45 cordset termination: RJF RB 72 15 100BTX

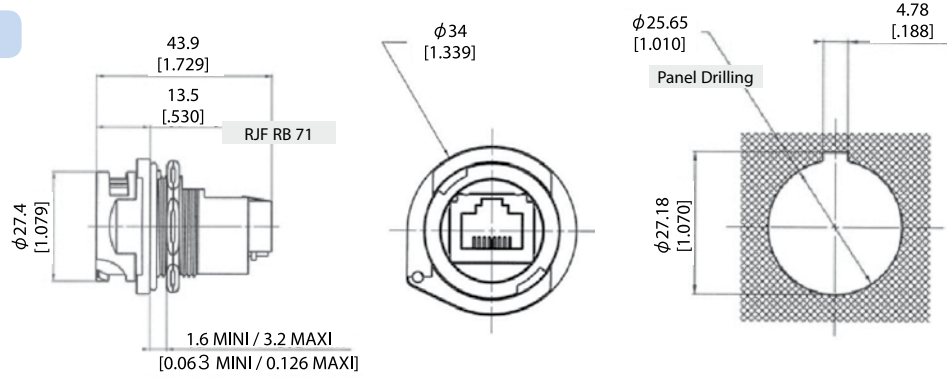
## Plug

- Type 6 shell with plastic gland

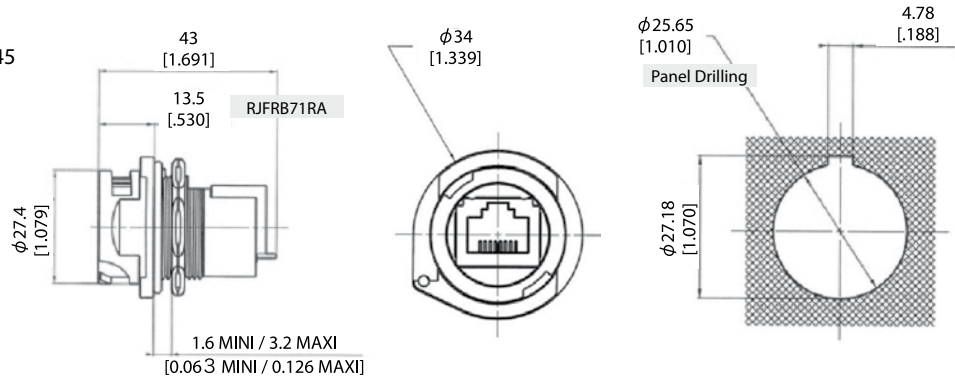


## Receptacles

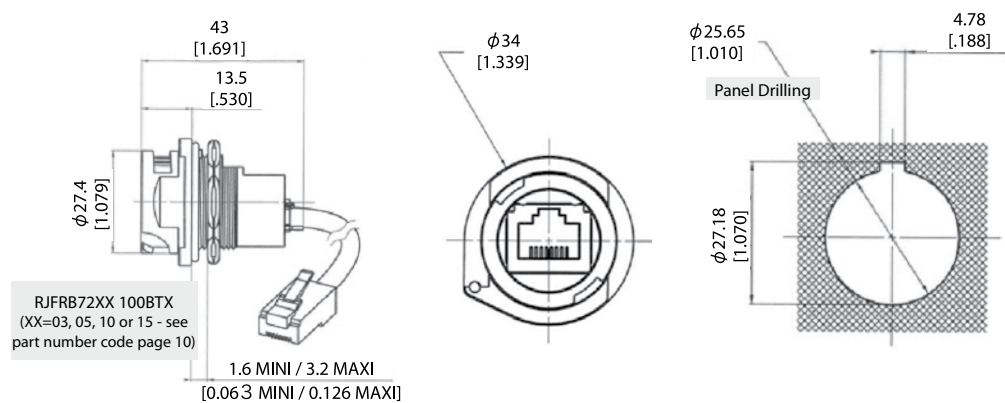
- Type 1: female RJ45 (front mounting)



- Type 1RA: right angle female RJ45 (front mounting)



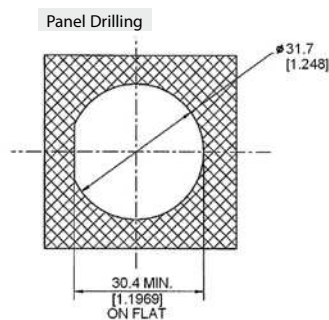
- Type 2: RJ45 cordset (front mounting)



- Type 3: IDC CAT 6 termination (rear mounting)



Unshielded: RJF RB 73U  
Partial shielding RJF RB 73F

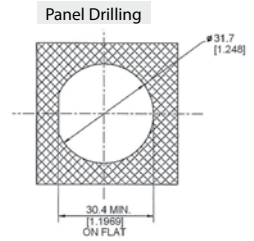
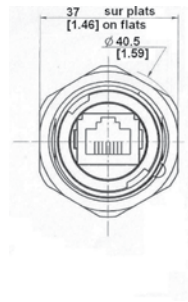
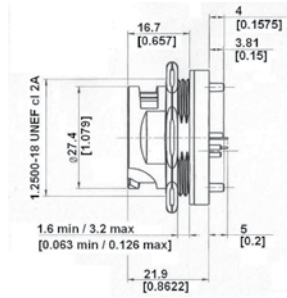


Shielded: RJFRB73S

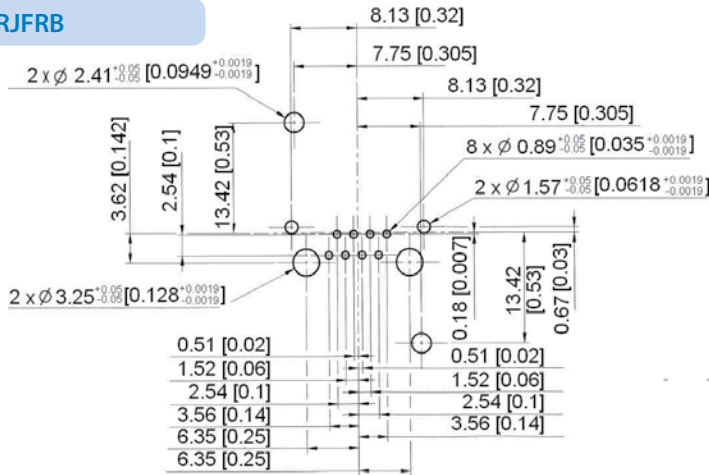
■ Straight PCB termination receptacle:  
(rear mounting)



Part number: RJF RB 75



PCB drilling RJFRB



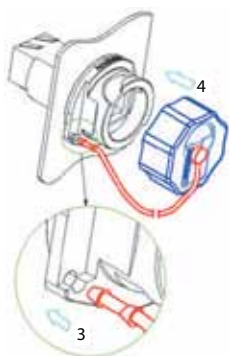
**IMPORTANT NOTE**  
The customer's PCB design will determine the receptacle category.

Assembly instructions

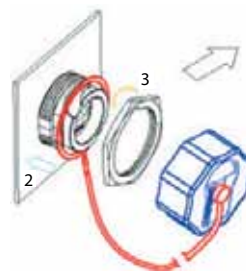


Accessories

■ IP68 Dust caps



**RJF RB C7**  
Cap for receptacles RJFRB71 / 71RA / 72xxx



**RJF RB C75**  
Cap for receptacles RJFRB75 and RJFRB73x

# RJF 544

Ethernet connection system for harsh environment – Industrial Ethernet



RJF544 allows you to use an Ethernet Class D / Cat 5e connection for 10 BaseT, 100 Base TX or 1000 BaseT networks in harsh environments.

With the patented RJStop® system you can use a standard RJ45 cordset in a protective **composite** plug which will protect it from shocks, dust and fluids.

**No hazardous on-field cabling and grounding !**

## Applications

- Telecom equipment
- Video control
- Robotics
- Industrial process control
- CNC machines
- Special machines
- Motion control
- Tele-maintenance

## Main characteristics

- Compliant with IEC 60603-7 variante 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 6 mm [0.236 in] to 13 mm [0.512 in]

## Environmental Protection

- Sealing: IP68
- Salt spray > 1000 h
- Fire retardant / Low smoke: UL94 V0 and NFF 16102, DIN 5510-2
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 10 nano s.
- Thermal shock: 5 cycles at - 40°C / +100°C
- Operating temperature: - 40°C / +85°C

## Data Transmission

10 BaseT, 100 BaseTX and 1000 BaseT networks  
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801



Now available with transversal sealing\*  
\*Seald in unmated condition

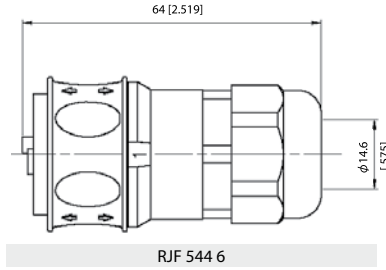
## Part number code

	RJF 544	2	2	03 100BTX
<b>Shell type</b>				
<b>6:</b> composite push pull plug, plastic gland				
<b>2:</b> composite square flange receptacle				
<b>2S:</b> composite square flange receptacle transversally sealed				
<b>2M:</b> metallized (Ni) composite square flange receptacle				
<b>2SM:</b> metallized (Ni) composite square flange receptacle transversally sealed				
<b>Back terminations (for receptacles only)</b>				
<b>1:</b> female RJ45				
<b>1RA:</b> right angle female RJ45				
<b>2:</b> RJ45 cordset				
<b>Cordset length (for receptacles with "2" back termination only) - Other lengths are available on demand</b>				
<b>03 100BTX:</b> 0.3 meters [11.81 inches]				
<b>05 100BTX:</b> 0.5 meters [19.68 inches]				
<b>10 100BTX:</b> 1 meter [39.37 inches]				
<b>15 100BTX:</b> 1.5 meters [59.05 inches]				
<b>00:</b> 8 tinned holes at the rear of the PCB to solder the cable				
<b>Remark: cabling configuration</b> → 100 BTX = 568B (Ethernet specification)				

- Examples:
- Plug: RJF 544 6
  - Square flange receptacle, female RJ45 back termination: RJF 544 21
  - Metallized square flange receptacle, female RJ45 back termination: RJF 544 2M 1
  - Square flange receptacle, 1,5m [59.05"] 100 BTX cordset termination: RJF 544 22 15 100BTX
  - Square flange receptacle, solder termination: RJF 544 22 00
  - Transversally sealed receptacle female RJ45 back termination: RJF544 2S1

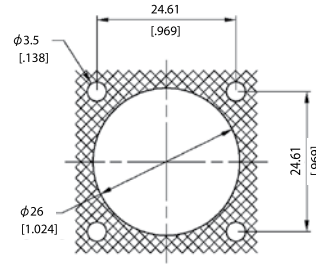
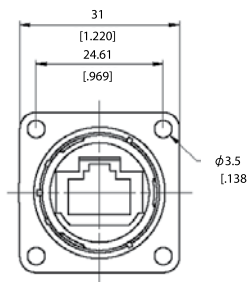
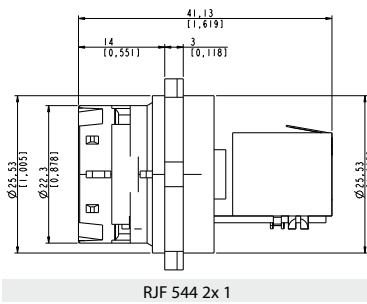
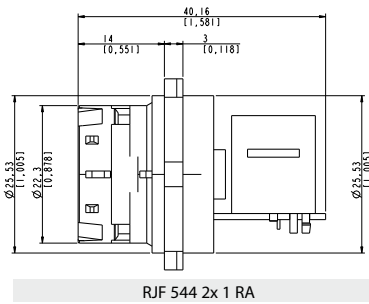
## Plug

- Type 6 shell with plastic gland



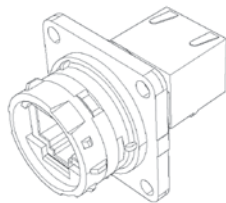
## Receptacle

- Type 2S/2M/2SM shell: square flange receptacle with 4 mounting holes

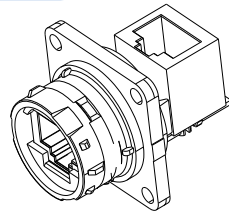


Panel Drilling  
(same as #16 ML-C-5015)

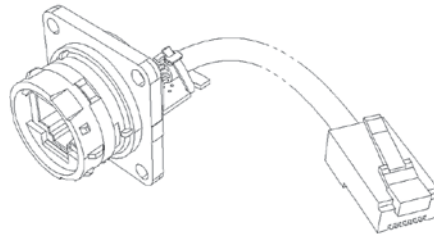
## Back terminations



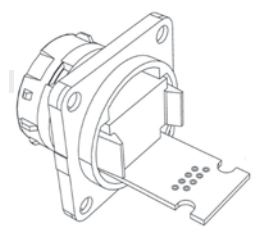
Type1: female RJ45



Type1RA: right angle female RJ45



Type2: RJ45 cordset



Type 2 - 00: solder - 8 tinned holes

Notes: type 2 without RJ45 plug at the end of the cable is also available: consult factory

## Accessories

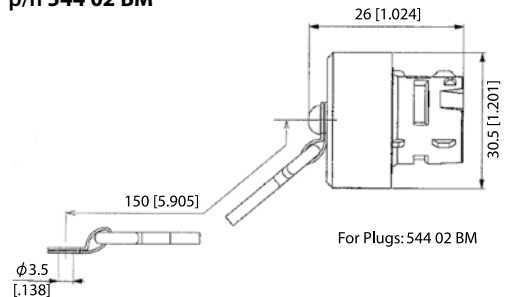
- Rubber IP68 receptacle cap p/n RJF 544BESC



- Panel gasket p/n RJF 544 02JE



- IP68 caps for plug p/n 544 02 BM



- Panel gasket (thickness: 0.6mm [0.039]): p/n RJF 544 02 JE
- Plug Insert removal tool: p/n 5440 OT 02

# RJF EZ

Ethernet connection system for harsh environment – Industrial Ethernet



RJFEZ allows you to use an Ethernet Class D / Cat. 5e connection for 10 BaseT, 100 BaseTX or 1000 BaseT networks in harsh environments. With the patented RJStop® system you can use a standard RJ45 cordset in a protective **composite** plug which will protect it from shocks, dust and fluids.

**No hazardous on-field cabling and grounding!**

## Applications

- Telecom equipment
- Video control
- Robotics
- Industrial process control
- CNC machines
- Special machines
- Motion control
- Tele-maintenance

## Main characteristics

- Compliant with IEC 60603-7 variante 13
- Sealed against fluids and dust (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- **Quick lever coupling**
- RJ45 cordset retention in the plug: 70 N in the axis
- Mating cycles: 500 min
- Compatible with cable diameter from 5,5 mm [0.216 in] to 7 mm [0.275 in]

## Environmental protection

- Sealing: IP68
- Salt spray > 1000 h
- Fire retardant / Low smoke: UL94 V0 and NFF 16102, DIN 5510-2
- Thermal shock: 5 cycles at - 40°C / +100°C
- Operating temperature: - 40°C / +85°C

## Data transmission

10 BaseT, 100 BaseTX and 1000 BaseT networks  
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801

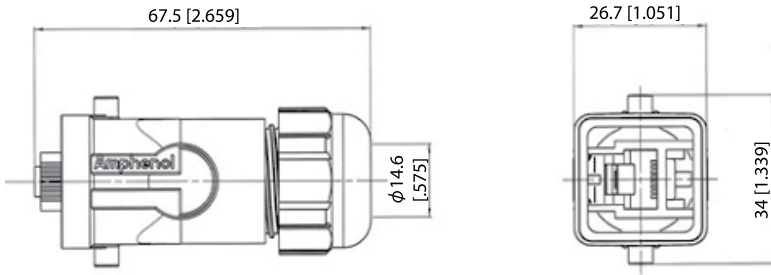
## Part number code

	RJF EZ	2	2	03 100BTX
<b>Shell type</b>				
6: composite lever plug, plastic gland				
2: composite square flange receptacle				
<b>Back terminations (for receptacles only)</b>				
1: female RJ45				
2: RJ45 cordset				
<b>Cordset length (for receptacles with "2" back termination only)</b>				
03 100BTX: 0.3m [11.81 inches]				
05 100BTX: 0.5m [19.68 inches]				
10 100BTX: 1m [39.37 inches]				
15 100BTX: 1.5m [59.05 inches]				
<b>Remark: Cabling configuration</b> → 100 BTX = 568B (Ethernet specification)				

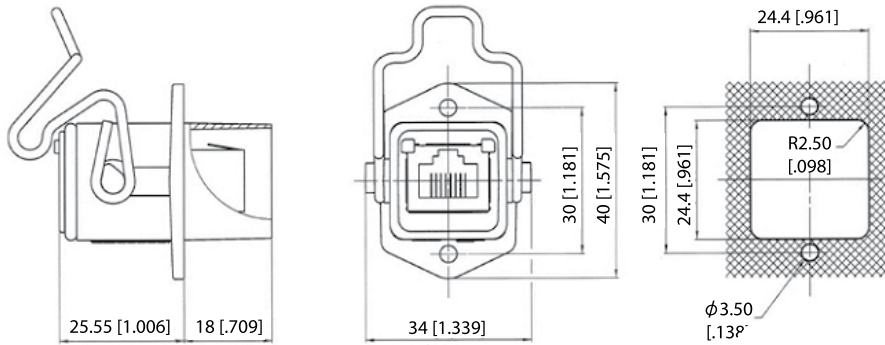
- Examples:
- Plug: RJF EZ 6
  - Receptacle, female RJ45 back termination: RJF EZ 21
  - Receptacle, 1,5m [59.05"] 100 BTX cordset termination: RJF EZ 22 15 100BTX



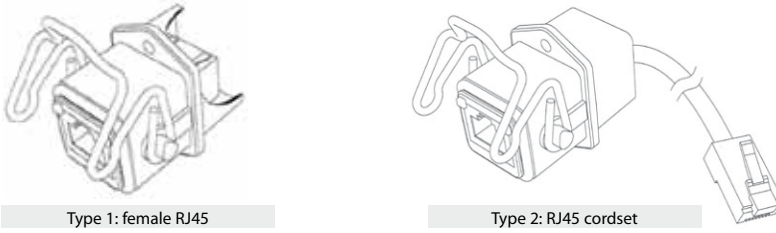
## Plug



## Receptacles

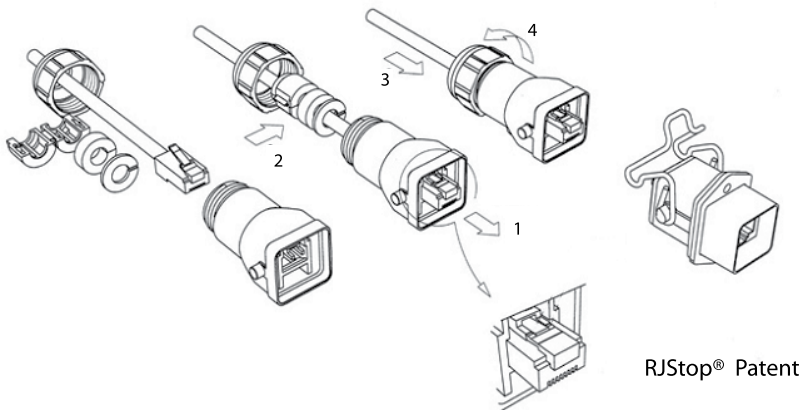


## Back terminations



Notes: type 2 without RJ45 plug at the end of the cable is also available: consult factory

## Assembly instructions



## Accessories

- IP68 dust caps  
For plugs: not available  
For receptacles: RJF EZ BE



- Panel gasket  
Thickness: 1 mm [.039]  
Part No. RJF EZ JE



# RJF

## Ethernet connection system for harsh environment – Industrial Ethernet



RJF allows you to use an Ethernet Class D / Cat. 5e connection for 10 BaseT, 100 BaseTX or 1000 BaseT networks in harsh environments. With the patented RJStop® system you can use a standard RJ45 cordset in a **metallic** plug which will protect it from shocks, dust and fluids. **No hazardous on-field cabling and grounding!**

### Applications

- Robotics
- Industrial process control
- CNC machines
- Special machines
- Oil & Gas
- Motion control
- Data acquisition and transmission in harsh environment
- Tele-maintenance

### Data transmission

10 BaseT, 100 BaseTX and 1000 BaseT networks  
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801

### Main characteristics

- Compliant with IEC 60603-7 variante 11
- **Bayonet coupling** ("Audible & Visual" coupling signal)
- **Robust metallic shells based on MIL-DTL-26482 H - Shell size 18**
- RJ45 cordset retention in the plug: 100 N in the axis
- Mating cycles: 500 min
- Sealed against fluids and dust (IP68)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Mechanical coding / polarization (4 positions)
- Compatible with cable diameter from 6 mm [0.236 in] to 13 mm [0.512 in]  
For smaller diameters, please consult us.

### Environmental protection

- Sealing: IP68
- Salt spray: 48 h with nickel plating  
> 96 h with black coating  
< 500 h with olive drab cadmium
- Fire retardant/Low smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10-500Hz, 10g, 3 axes: no discontinuity >10 nano s
- Shocks: IK06 ► weight of 250 g drop from 40cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 43°C, 98% humidity
- Thermal shock: 5 cycles at -40°C / +100°C
- Temperature range: -40°C / +85°C
- Storage temperature:

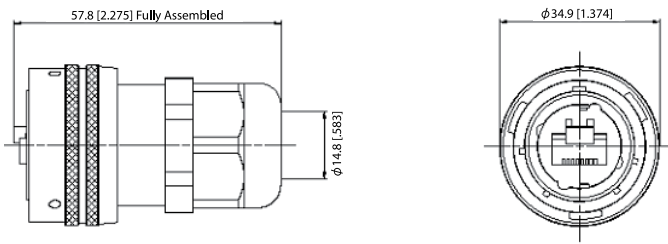
### Part number code

	RJF	2	2	B	03 100BTX
<b>Shell type</b>					
<b>6:</b> plug, plastic gland					
<b>6M:</b> plug, metal gland					
<b>2:</b> square flange receptacle					
<b>2PE:</b> square flange receptacle, IP68 backshell, plastic gland					
<b>2PEM:</b> square flange receptacle, IP68 backshell, metal gland					
<b>7:</b> jam nut receptacle					
<b>7PE:</b> jam nut receptacle, IP68 backshell, plastic gland					
<b>7PEM:</b> jam nut receptacle, IP68 backshell, metal gland					
<i>Note: also available a transversally sealed receptacle (unmated) ► see page 22</i>					
<b>Back terminations (for receptacles only)</b>					
<b>1:</b> female RJ45					
<b>1RA:</b> right angle female RJ45					
<b>2:</b> RJ45 cordset					
<b>Shell finishes</b>					
<b>B:</b> black Coating - ROHS compliant					
<b>N:</b> nickel (note: with this version, the inserts are metallized) - ROHS compliant					
<b>G:</b> olive drab cadmium (note: with this version, the inserts are metallized)					
<b>BZC:</b> aluminium shell - black zinc cobalt plating					
<b>ZC:</b> aluminium shell - green zinc cobalt plating - ROHS compliant					
<b>Cordset length (for receptacles with "2" back termination only) - Other lengths are available on demand</b>					
<b>03 100 BTX:</b> 0.3m [11.81 inches]					<b>00:</b> 8 tinned holes at the rear of the PCB to solder the cable
<b>05 100 BTX:</b> 0.5m [19.68 inches]					<b>OPEN:</b> open cable - with no plug at the end
<b>10 100 BTX:</b> 1m [39.37 inches]					
<b>15 100 BTX:</b> 1.5m [59.05 inches]					
<b>Remark: Cabling configuration</b> → 100 BTX = 568B (Ethernet specification)					

- Examples:
- Nickel plug: RJF 6 N
  - Black square flange receptacle, female RJ45 back termination: RJF 2 1 B
  - Olive drab cadmium jam nut receptacle, 1.5m [59.05"] 100 BTX cordset termination: RJF 7 2 G 15 100BTX
  - Black in line square flange receptacle, 30cm [11.81"] 100BTX cordset termination: RJF 2PE 2 B 03 100BTX
  - Nickel jam nut receptacle, solder termination: RJF 72 N 00

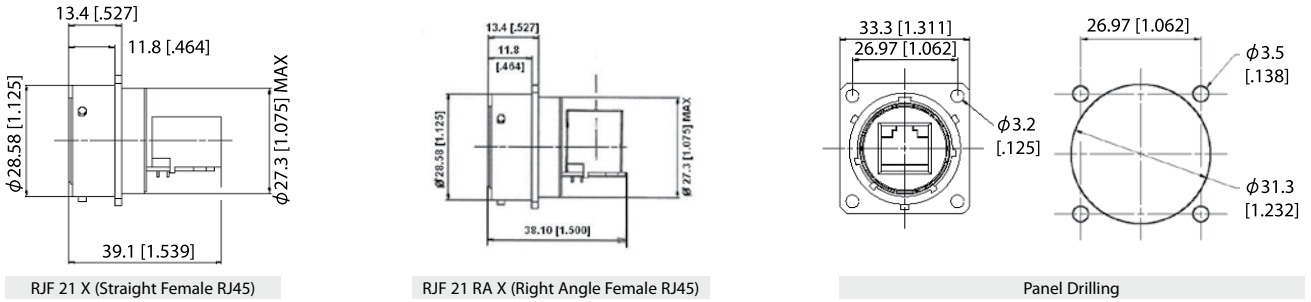
## Plug

- Shell type 6 with plastic or metal gland

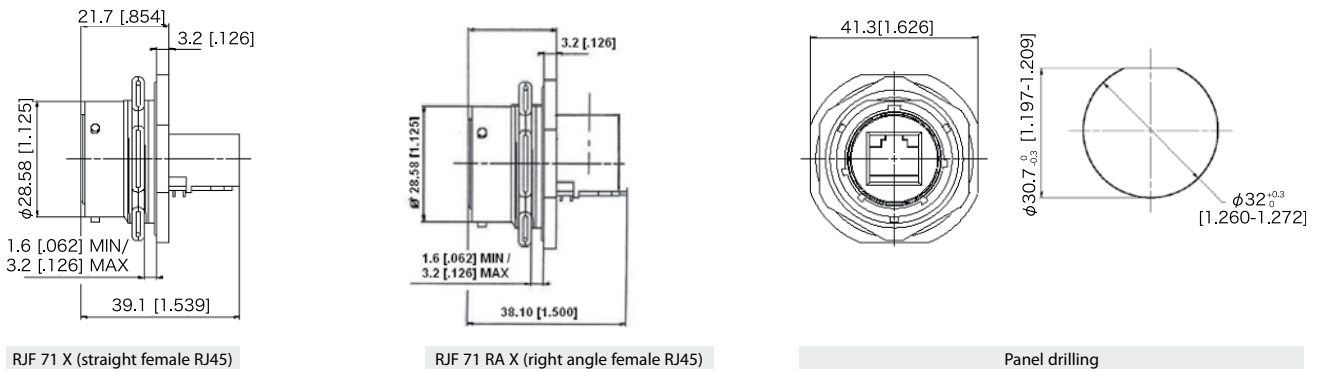


## Receptacles

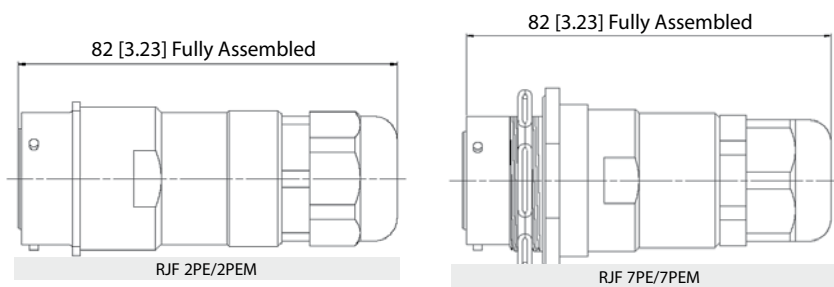
- Square flange receptacle • 4 mounting holes: shell type 2



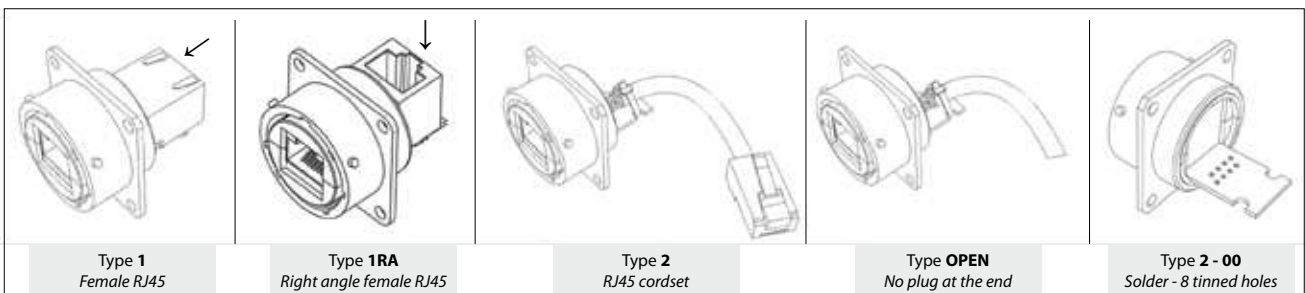
- Jam nut receptacle • Hexagonal nut mounting: shell type 7



- Receptacles with IP68 backshell : shell type 2PE and 7PE with plastic or metal gland



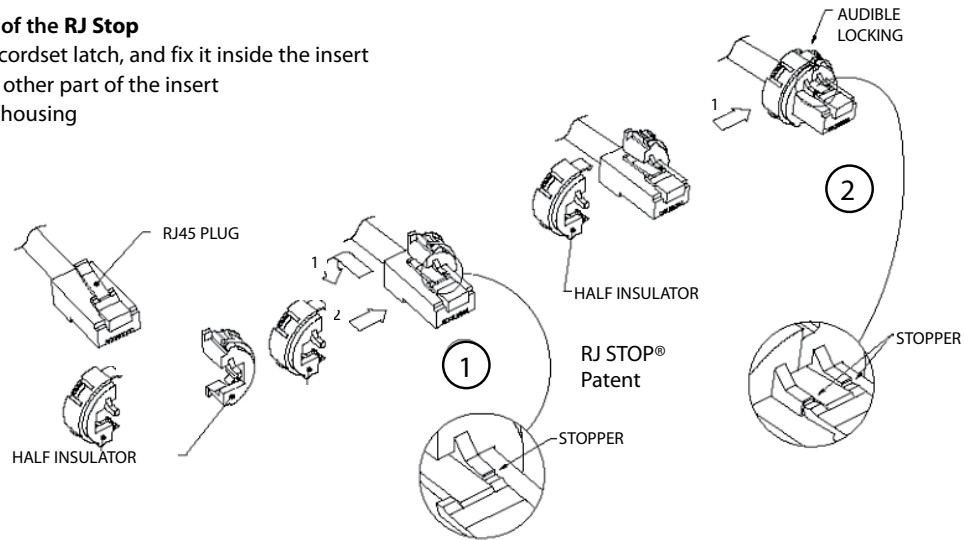
## Back terminations



Universal: can be used with all standard RJ45 Cat.5e cordset brands.

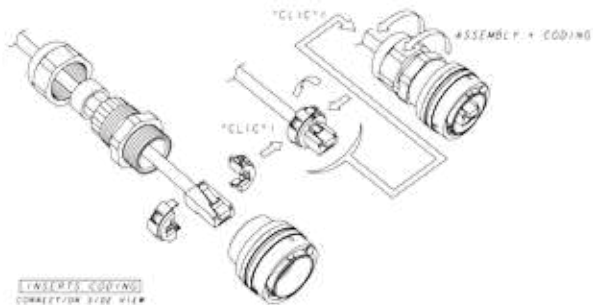
### Assembly instructions of the RJ Stop

1. Push down the RJ45 cordset latch, and fix it inside the insert
2. Press in and click the other part of the insert
3. Insert in the metallic housing

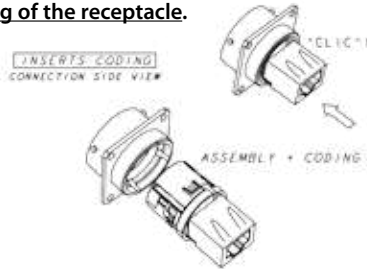


Easy and safe - No field cabling tools required for cabling

#### Assembling of the plug.

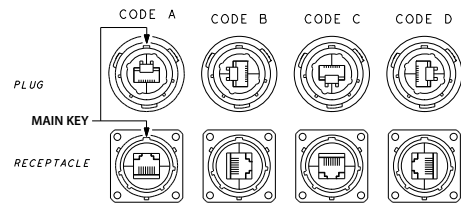


#### Assembling of the receptacle.



#### 4 codings possibilities

(defined by the customer during the assembling).



**IMPORTANT NOTE:** to remove the insert, use the

- Insert removal tool for receptacle and plug

P/N: RJF ODE



### Accessories

#### ■ Metallic cap

RJFC 2 G

#### Connector type

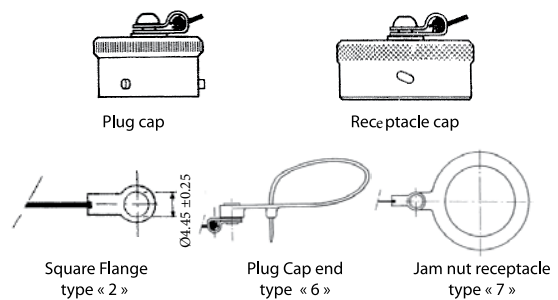
- 6: plug
- 2: square Flange Receptacle
- 7: jam Nut Receptacle

#### Shell material & finish

- B: black coating - ROHS compliant
- N: aluminium shell - nickel plating - ROHS compliant
- G: aluminium shell - olive drab cadmium plating

#### ■ Panel gasket for square flange 2 »thickness - 0,6 mm

P/N: JE 18

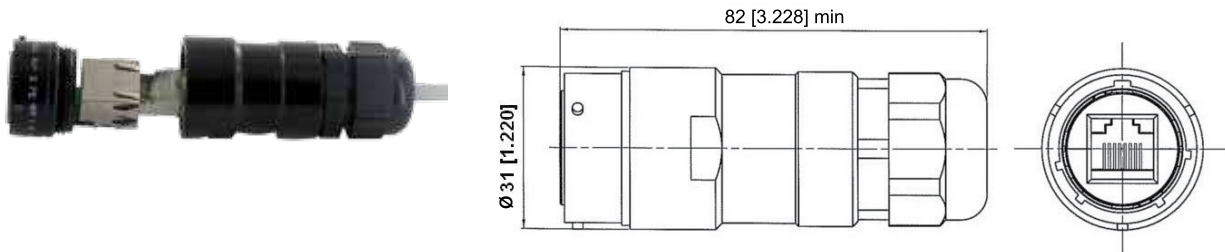


# RJF

## Special receptacles: cable mount inline & PC tails

### Inline cable mount receptacles

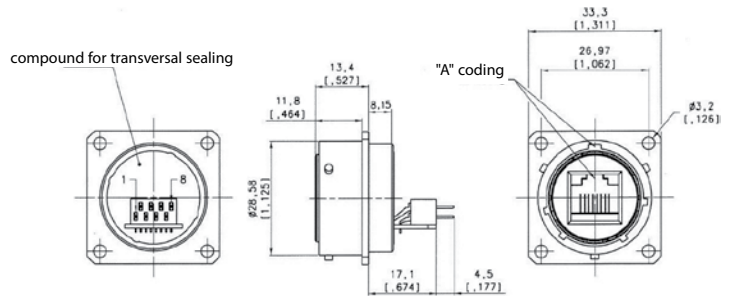
Inline receptacles allow you to make cable extensions in the field by using them with rugged RJ Field series plugs.



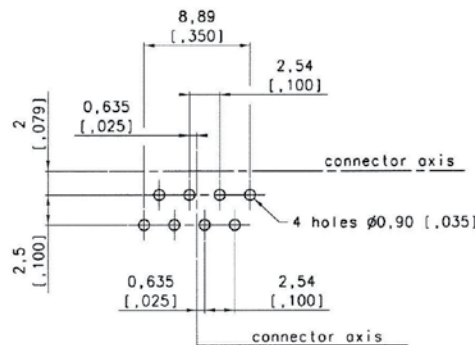
Part number	Plating	Plastic gland	Metallic gland
	Black coating - ROHS compliant	RJF2PEWF1B	RJF2PEMWF1B
Nickel - ROHS compliant	RJF2PEWF1N	RJF2PEMWF1N	
Olive drab cadmium	RJF2PEWF1G	RJF2PEMWF1G	

### PC tails receptacles

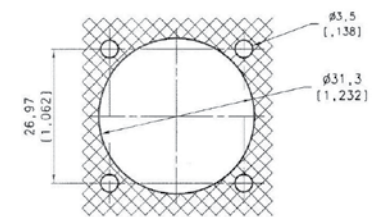
These receptacles can be soldered directly on your PCB. A compound insures a transversal sealing and good performance in high vibration environments. They can be connected with rugged RJField series plugs.



#### PCB LAYOUT - SOLDER FACE VIEW

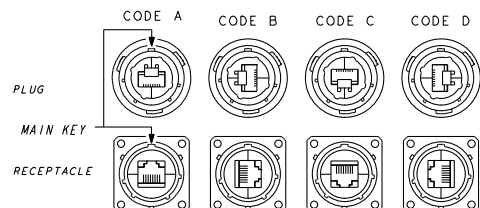


#### Panel Drilling



Part number	Plating	Part number
	Black coating - ROHS compliant	RJF 2S X 5B
Nickel - ROHS compliant	RJF 2S X 5N	
Olive drab cadmium	RJF 2S X 5G	

X to be replaced by the letter of the coding position you need (A, B, C, or D) ▶



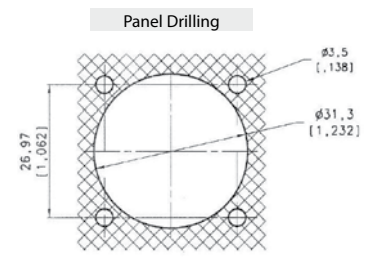
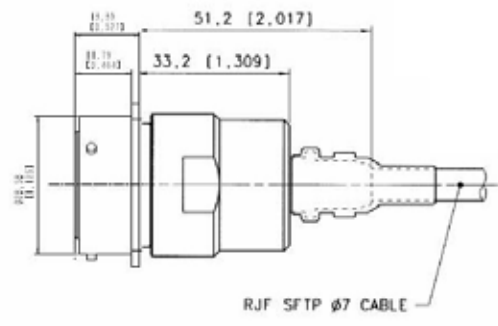


# RJF

## Receptacles & plugs with 360° EMI backshell

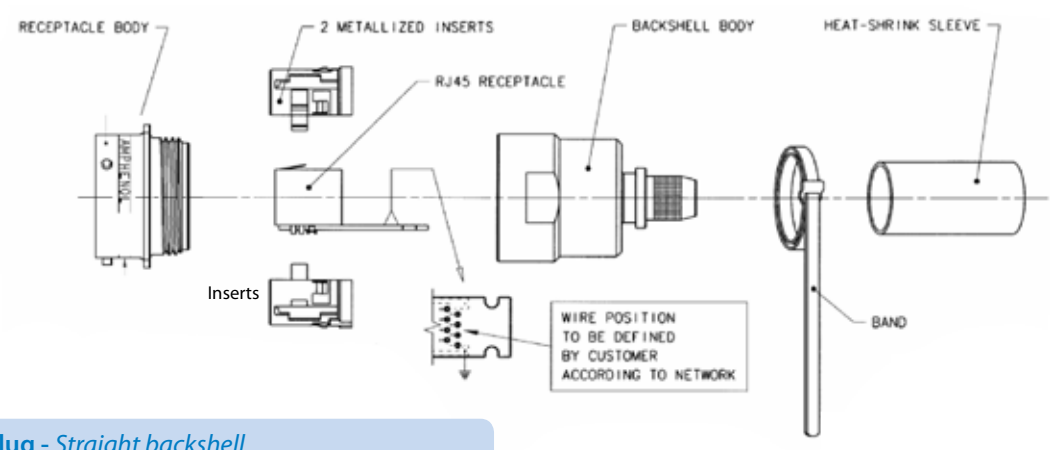
RJF series receptacles and plugs with EMI backshells provide a solution with 360° shielding: same protection than the one proposed by standard MIL-DTL-26482H connectors. With those solutions we recommend using our reinforced and double shielded Cat5E, Cat6, or Cat6A cable ► see pages 41-42-43.

### Square flange receptacle - Straight backshell

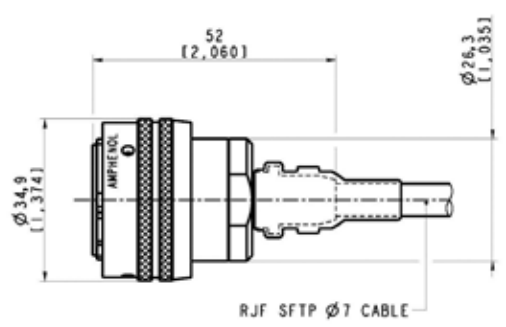


Part number	Plating	Part number
	Nickel - ROHS compliant	Kit30439NI
	Olive drab cadmium	Kit30439

Kit30439 & Kit30439NI include:



### Plug - Straight backshell



Part number	Plating	Part number
	Nickel - ROHS compliant	Kit30394NI
	Olive drab cadmium	Kit30394

Kit30394 & Kit30394NI include:



# RJF

Environmentally sealed receptacles, transversally sealed receptacles



In some applications, a transversal sealing for the receptacle is a « must ». This will prevent fluids and dust from going through the receptacle when plug or cap are not mated to the receptacle.

The sealed solution (version "S") has a compound at the rear of the receptacle as shown on the examples below. This feature is available both in RJF and RJF TV shells (please consult the relevant data sheet for product details and accessories).

In addition, the Sealed RJF TV has been successfully tested in very high vibration corresponding to airplane applications.

### Applications

- Outdoor equipment
- Airplanes equipment
- Tactical radios
- Shelters
- Rugged computers
- Data acquisition and transmission in harsh environments

### Data transmission

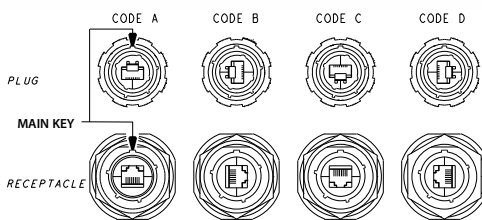
10 BaseT, 100 BaseTX and 1000 BaseT networks  
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801

### Main characteristics

- Same as the RJF and RJF TV series.
- A complete IP68 sealing of the receptacle (even with no plug or no protective cap mated) is added.
- Outside dimensions are the same as the standard RJF and RJF TV series.
- Vibrations: the compounded versions of the RJF TV have been tested in vibration following the NAS 1599 Aeronautic specification (Ambient temperature):  
5 - 3000 Hz, 20g, 2,5 mm [.1 inch] double amplitude, 3 axes, 12 hours  
Note: this specification exceeds MIL-C-26500 requirements.

### IMPORTANT NOTE

Due to the compound, the coding of the connector must be done in the factory : use the codes A, B, C or D in the part number: see below.



Example :  
RJFTV 2S A2 G 15 100BTX

### Part number code

Series	RJF	7S	A	2	G	03 100BTX
RJF: MIL-DTL-26482 H bayonet						
Shell type						
2S: sealed square flange receptacle						
7S: sealed jam nut receptacle						
Coding						
A,B,C,D						
Back terminations (for receptacles only)						
1: female RJ45						
1RA: right angle female RJ45						
2: RJ45 Cordset						
Shell material & finish						
B: aluminium shell - black coating - ROHS compliant						
N: aluminium shell - nickel plating - ROHS compliant						
G: aluminium shell - olive drab cadmium plating						
Note: for nickel and olive drab cadmium plating, receptacle inserts are metallized.						
Cordset length (For Receptacles with "2" Back Termination only) - Other lengths are available on demand						
03 100 BTX: 0.3m [11.81 inches]						
05 100 BTX: 0.5m [19.68 inches]						
10 100 BTX: 1m [39.37 inches]						
15 100 BTX: 1.5m [59.05 inches]						
OPEN: open cable - with no plug at the end						

Remark: cabling configuration: 100 BTX = 568B (Ethernet specification)

- Examples:
- bayonet, sealed jam nut receptacle, A coding, with female RJ45 back termination, olive drab cadmium plating: **RJF 7SA 1 G**
  - bayonet, sealed square flange receptacle, A coding, with female RJ45 back termination, black plating: **RJF 2SA 1 B**
  - bayonet, sealed jam nut receptacle, A coding, 1.5m [59.05"] 100 BTX cordset, olive drab cadmium plating: **RJF 7SA 2 G15 100BTX**

# RJF

## Hermetic receptacles



In some applications, a transversal hermiticity for the receptacle is a « must ». This will prevent gas from going through the receptacle when plug or cap are not mated to the receptacle. The hermetic solution (version "H") has a compound at the rear of the receptacle as shown on the examples below. This feature is available both in RJF and RJF TV shells (please consult the relevant data sheet for product details and accessories). Helium leakage is less than  $1.10^{-6} \text{ cm}^3$  per second [0.1 micron cubic ft per hour] at one bar [15 psi] pressure differential.

- Applications**
- Outdoor equipment
  - Airplanes equipment
  - Tactical radios
  - Shelters
  - Rugged computers
  - Data acquisition and transmission in harsh environments

**Data Transmission**  
10 BaseT, 100 BaseTX and 1000 BaseT networks  
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801

- Main characteristics**
- Same as the RJF and RJF TV series.
  - A complete IP68 sealing of the receptacle (even with no plug or no protective cap mated) is added.
  - Outside dimensions are the same as the standard RJF and RJF TV series.
  - Vibrations: the compounded versions of the RJF TV have been tested in vibration following the NAS 1599 Aeronautic specification (Ambient temperature):  
5 - 3000 Hz, 20g, 2,5 mm [.1 inch] double amplitude, 3 axes, 12 hours  
Note: this specification exceeds MIL-C-26500 requirements.

**IMPORTANT NOTE**

Due to the compound, the coding of the connector must be done in the factory: use the codes A, B, C or D in the part number: **see below.**

PLUG

MAIN KEY

RECEPTACLE

CODE A

CODE B

CODE C

CODE D

**Example :**  
RJFTV 2H A2 N 15 100BTX

### Part number code

Series	RJF	7H	A	2	G	03 100BTX
<b>RJF:</b> MIL-DTL-26482 H bayonet						
<b>Shell type</b>						
<b>2H:</b> transversally sealed and hermetic square flange receptacle						
<b>7H:</b> transversally sealed and hermetic jam nut receptacle						
<b>Coding</b>						
<b>A,B,C,D</b>						
<b>Back terminations (for receptacles only)</b>						
<b>1:</b> female RJ45						
<b>1RA:</b> right angle female RJ45						
<b>2:</b> RJ45 Cordset						
<b>Shell material &amp; finish</b>						
<b>B:</b> aluminium shell - black coating - ROHS compliant						
<b>N:</b> aluminium shell - nickel plating - ROHS compliant						
<b>G:</b> aluminium shell - olive drab cadmium plating						
<b>Nota:</b> for nickel and olive drab cadmium plating, receptacle inserts are metallized.						
<b>Cordset length (for receptacles with "2" back termination only) - Other lengths are available on demand</b>						
<b>03 100 BTX:</b> 0.3m [11.81 inches]						
<b>05 100 BTX:</b> 0.5m [19.68 inches]						
<b>10 100 BTX:</b> 1m [39.37 inches]						
<b>15 100 BTX:</b> 1.5m [59.05 inches]						
<b>OPEN:</b> open cable - with no plug at the end						
<b>Remark: cabling configuration:</b> 100 BTX = 568B (Ethernet specification)						

- Examples:**
- bayonet, sealed jam nut receptacle, A coding, with female RJ45 Back termination, olive drab cadmium plating: **RJF 7HA 1 G**
  - bayonet, sealed square flange receptacle, A coding, with female RJ45 back termination, black plating: **RJF 2HA 1 B**
  - bayonet, sealed jam nut receptacle, A coding, 1.5m [59.05"] 100 BTX cordset, olive drab cadmium plating: **RJF 7HA 2 G15 100BTX**



# RJF

Special plug for big insulation wire up to 1.6 mm [0.062 in]



Rugged plug dedicated to cable with insulation wire from 1,1 to 1,6 mm [from 0.043 in to 0.062 in]

**Remark:**

- Solution compatible with any RJF receptacle
- For cables which are not compatible with standard RJ45 plug.

**Applications**

- Robotics
- Industrial process control
- CNC machines
- Special machines
- Oil & Gas
- Motion control
- Data acquisition and transmission in harsh environment
- Tele-maintenance

**Main characteristics**

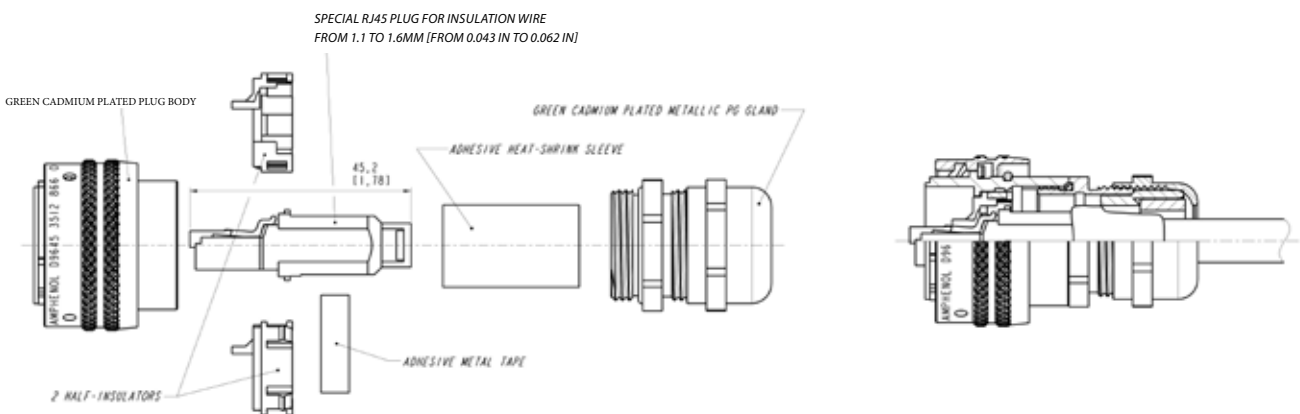
- **Bayonet coupling** ("Audible & Visual" coupling signal)
- **Robust metallic shells based on MIL-DTL-26482 H - Shell size 18**
- RJ45 cordset retention in the plug: 100 N in the axis
- Mating cycles: 500 min
- Sealed against fluids and dust (IP68)
- Shock, vibration and traction resistant
- Mechanical coding / polarization (4 positions)
- Compatible with cable diameter from 6 mm [0.216 in] to 13 mm [0.512 in], for smaller diameters, please consult us

**Environmental protection**

- Sealing: IP68
- Salt Spray: 48 h with nickel plating  
> 96 h with black coating  
> 500 h with oliv drab cadmium
- Fire retardant/Low smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity >10 nano s.
- Shocks: IK06 ► weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 43°C, 98% humidity
- Thermal shock: 5 cycles at - 40°C / +100°C
- Temperature range: - 40°C / +85°C

**Data transmission**

10 BaseT, 100 BaseTX and 1000 BaseT networks  
Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801



Part number	Plating	Part number
	Nickel - ROHS compliant	Kit39992NI
	Olive drab cadmium	Kit39992G

# RJ Field Receptacle with Self Closing Cap

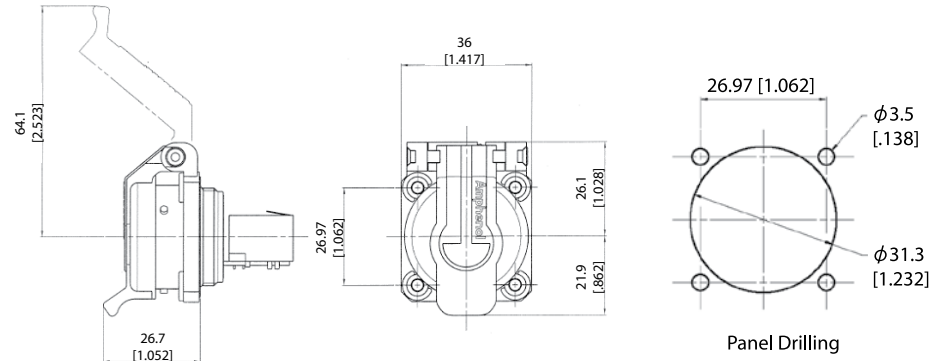


This kit includes a receptacle and a Self Closing Cap which protects the RJ Field square flange receptacles (MIL-C-26482 type). This cap offers a protection against dust and water projections. A spring automatically closes the upper part of the cap when either the RJfield plug, USB or IEEE1394 cordset, or USB key are removed from the receptacle.

**Sealing level IP54**  
(Splash and dust Proof)

## RJF 21 X SCC

RJ45 version



Part number *	Plating	Metallized insert (EMI)	Part number
	Black coating - ROHS compliant	No	RJF 21B SCC
	Nickel - ROHS compliant	Yes	RJF 21N SCC
	Olive drab cadmium	Yes	RJF 21G SCC

\* The part number includes the receptacle + the self closing cap

**Remarks:**

- the back termination is female RJ45
- it could be used with our RJF series plug (part number RJF6xx ▶ see page 17)

■ **Note:** Panel gasket with any of these receptacles: JE18

## USBF 21 x SCC, USBF 21 x SCC, & IEEE1394



**USB2.0 & 3.0 - A version**  
(see pages 94 & 107)



**USB-B version**  
(see page 118)



**IEEE1394 version**  
(see page 143)