



**G**lenair®

**RUGGEDIZED RJ45 AND USB**

**SUPERSEAL™**

**MIL-DTL-28840 NAVAL CONNECTOR**

**FEBRUARY 2016**





Glenair®

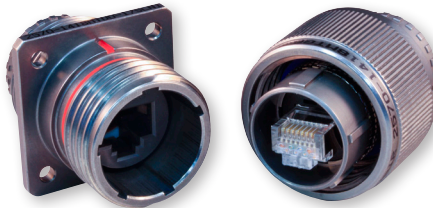


## SUPERSEAL™ 28840

# Ruggedized USB and RJ45 connectors ideally suited for naval applications

MIL-DTL-28840 type connectors available with USB or RJ45 inserts offer superior IP67 sealing (USB, RJ12 and RJ45 plugs and receptacles) in the unmated condition. Corrosion resistant shells—made from aluminum, stainless steel and marine bronze—and popular finishes including cadmium olive drab over electroless nickel, black cadmium over nickel and our 1000 Hour Grey™ are available to meet the requirements of your specific application, contact factory for additional material and finish options. Connectors are available in shell size 15 for USB and size 15 or 17 for RJ12 and size 15 or 17 for RJ45 with various termination options available.

MIL-DTL-28840 plug and receptacle with IP67 sealed RJ45 receptacle



MIL-DTL-28840 plug and receptacle with IP67 sealed USB receptacle



MIL-DTL-28840 plug and receptacle with IP67 sealed RJ12 receptacle



### Features:

- Available in shell size 15 (USB), 17 and 19 (RJ45) and 15 and 17 (RJ12) as jack-to-jack coupler or with crimp removable contacts
- IP67 sealing, unmated condition (USB, RJ12, and RJ45 receptacles) and IP68 in mated condition
- Standard material aluminum, stainless steel and marine bronze also available
- RoHS compliant plating options including Nickel-PTFE
- -40°C to +120°C operating temperature
- Shielded/grounded RJ45 coupler designs in both plug and receptacle connectors
- Highly durable RJ45 and USB designs, including enhanced operating temperature, increased life cycle, and rugged vibration and shock performance
- Crimp removable contacts conform to M39029/58-360 (RJ45)
- Crimp removable contacts conform to M39029/56-348

# SERIES ## 28840 SuperSeal™

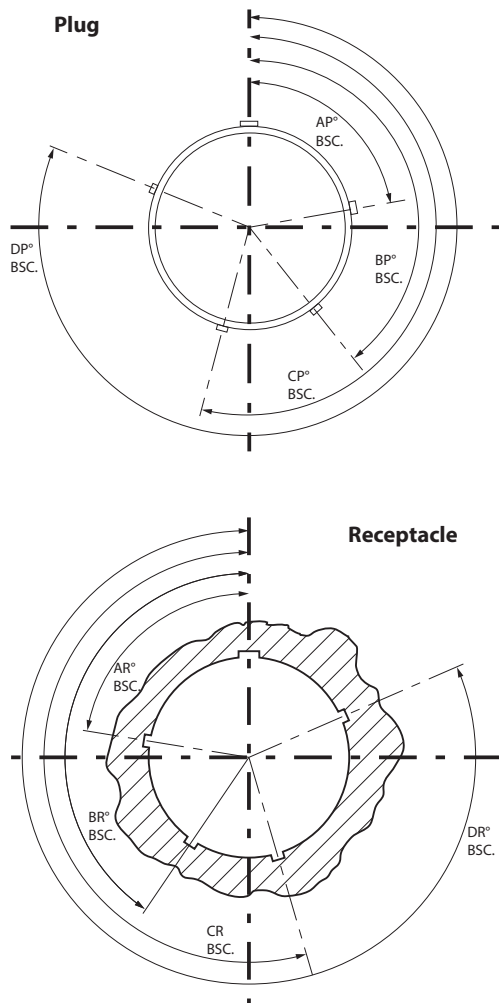


## USB and RJ45 Connector Specifications and Polarization Options

Material and Finish	
Shell, Barrel, Coupling Nut, Jam Nut	See Material and Finish Table
Insulators	High grade rigid dielectric/N.A.
Contacts	Copper alloy, gold plated
Seals	Silicone based elastomer
Coupler Housing	UL94V-0 compliant PPS
Dielectric	Hi-temp thermoplastic
Hardware	Stainless steel/passivated

Specifications		
Property	USB 2.0 Connectors	RJ12 and RJ45 Connectors
Shielding	Continuous	
Wiring	Straight Through	
Current Rating	1.5 Amp	
D.W.V.	500 VAC	1000 VDC (700 VAC)
I.R.	1000 MegOhms Minimum	500 MegOhms @ 500 VDC
Operating Temperature Range	-40° C to +120° C	-40° C to +120° C

### MIL-DTL-28840 POLARIZATION KEY AND KEYWAY ARRANGEMENTS



Alternate Keyways					
Designator	Key and Keyway Arrangement	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
C (15) D (17)	1	80	142	196	293
	2	135	170	200	310
	3	49	169	200	244
	4	66	140	200	257
	5	62	145	180	280
	6	79	153	197	272
E (19)	1	80	142	196	293
	2	135	170	200	310
	3	49	169	200	244
	4	66	140	200	257
	5	62	145	180	280
	6	79	153	197	272

How to Order							
<b>Part Number Example</b>	<b>900-320</b>	<b>NF</b>	<b>D0</b>	<b>-</b>	<b>17</b>	<b>1</b>	<b>1</b>
<b>Basic Number</b>	<b>900-320</b>						
<b>Material/Finish</b>	See Material and Finish Options Table						
<b>Connector Style</b>	<b>D0</b> = Receptacle, Wall Mount <b>05</b> = Receptacle, Inline <b>07</b> = Receptacle, Jam Nut <b>G6</b> = Plug						
<b>Shielding</b>	<b>-</b> = Inline Shielded RJ45 <b>G</b> = Inline Shielded and Grounded to Shell (See Note 2)						
<b>Shell Size</b>	<b>15</b> or <b>17</b>						
<b>Alternate Polarization</b>	<b>1, 2, 3, 4, 5, 6</b> See Section A for details (Per MIL-DTL-28840)						
<b>RJ12 Orientation Option</b>	<b>1, 2, 3, 4</b> (See below for options)						

### NOTES

1. Receptacle connector meets IP67 requirements in the unmated condition and plug meets IP68 requirements in the mated condition, consult factory for details.
2. "G" option only with receptacle.
3. Connector accessory features per M28840 connector designator G. Consult factory for accessory selection.

### SPECIFICATIONS

- RJ12 coupler maintains shield continuity
- Wiring: straight through
- RoHS compliant
- Electrical: current rating: 1.5 Amp
- D.W.V.: 1000 VDC (700 VAC)
- Operating temperature: -40°C to +125°C

Wall Mount & Inline						
Shell Size	A Thread	B Sq	C Bsc	D Thread	E	ØF
15	1.062-.1P-.2L-DS-2A	1.278 (32.46) 1.238 (31.45)	.968 (24.59)	1.000-20 UNEF 2A	1.080 (27.43) 1.070 (27.18)	1.275 (32.39) 1.255 (31.88)
17	1.125-.1P-.2L-DS-2A	1.403 (35.64) 1.363 (34.62)	1.015 (25.78)	1.125-18 UNEF 2A	1.143 (29.03) 1.133 (28.78)	1.338 (33.99) 1.318 (33.48)

Jam Nut Mount & Plug					
Shell Size	ØG	H	J Flat	K Thread	ØL Max
15	1.681 (42.70) 1.661 (42.19)	1.587 (40.31) 1.567 (39.80)	1.153 (29.29) 1.144 (29.06)	1.1875-18 UNEF 2A	1.263 (32.08)
17	1.743 (44.27) 1.723 (43.76)	1.649 (41.88) 1.629 (41.38)	1.216 (30.89) 1.207 (30.66)	1.250-18 UNEF 2A	1.387 (35.23)

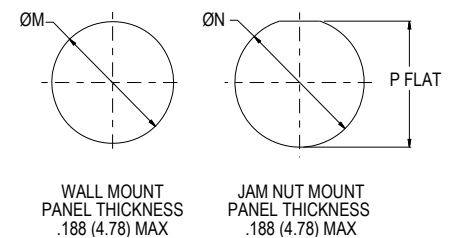
Material and Finish Options		
Code	Material	Finish Description
<b>NF</b>	Aluminum	Cadmium O. D. Over Electroless Nickel (500 hour Salt Spray)
<b>ZN</b>		Zinc Nickel, Olive Drab
<b>MT</b>		Nickel-PTFE, 1000 Hour Grey™
<b>Z1</b>	Stainless Steel	Passivate
<b>ZU</b>		Black Cadmium Over Nickel
<b>AB</b>	Marine Bronze	None (Clean Only)

Wiring Diagram*			
Pin	Modern Color Code (UTP)	Old Color Code	Destination
1	white/green	white	T3 (Tip 3)
2	white/orange	black	T2 (Tip 2)
3	blue/white	red	R1 (Ring 1)
4	white/blue	green	T1 (Tip 1)
5	orange/white	orange	R2 (Ring 2)
6	green/white	blue	R3 (Ring 3)

- Pair 1 = Primary dial tone or talk circuit on a single line
- Pair 2 = Secondary dial tone on a two line or data control circuit for an electronic key phone
- Pair 3 = Third dial tone on a three line or an accessory circuit for an electronic key phone

\*Wiring Diagram based on industry standard USOC-6

Recommended Panel Cutouts			
Shell Size	ØM	ØN	P Flat
15	1.124 (28.55)	1.203 (30.56) 1.193 (30.30)	1.165 (29.59) 1.155 (29.34)
17	1.187 (30.15)	1.265 (32.13) 1.255 (31.88)	1.228 (31.19) 1.218 (30.94)



### RJ12 JACK ORIENTATION OPTIONS

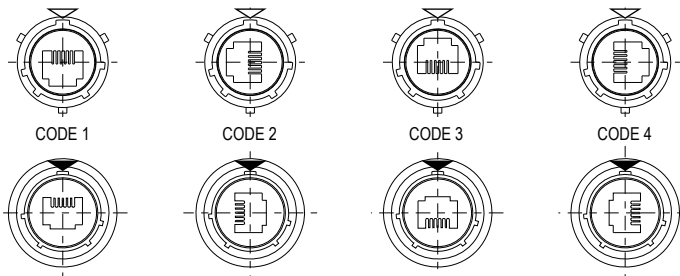
▽ = KEYWAY

RJ12 JACK ORIENTATION OPTIONS

(Partial Front Views Shown)

▼ = KEY

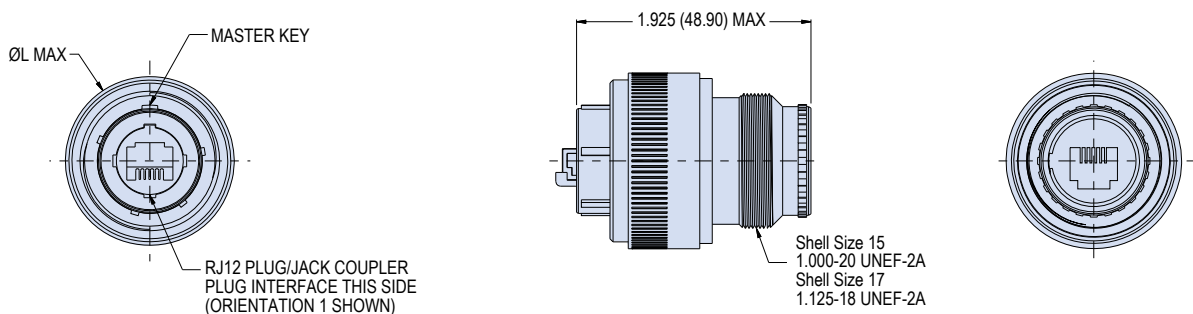
RJ12 PLUG ORIENTATION OPTIONS



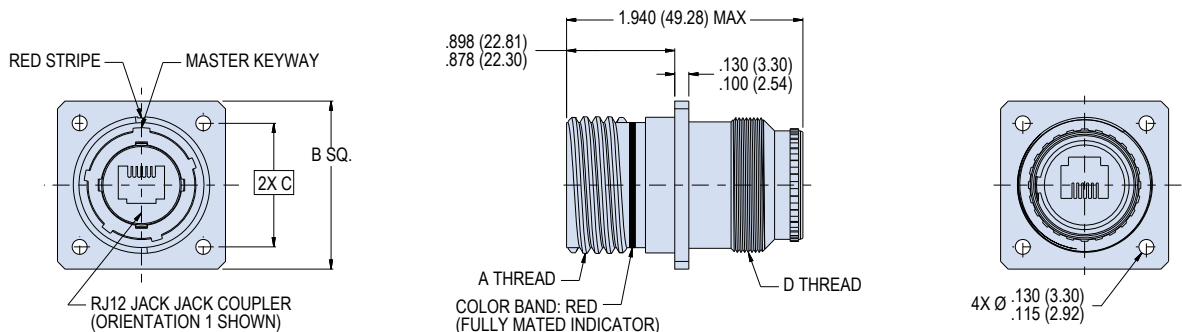
RJ12  
**28840 SuperSea™**  
 900-320 RJ12 Coupler Connector



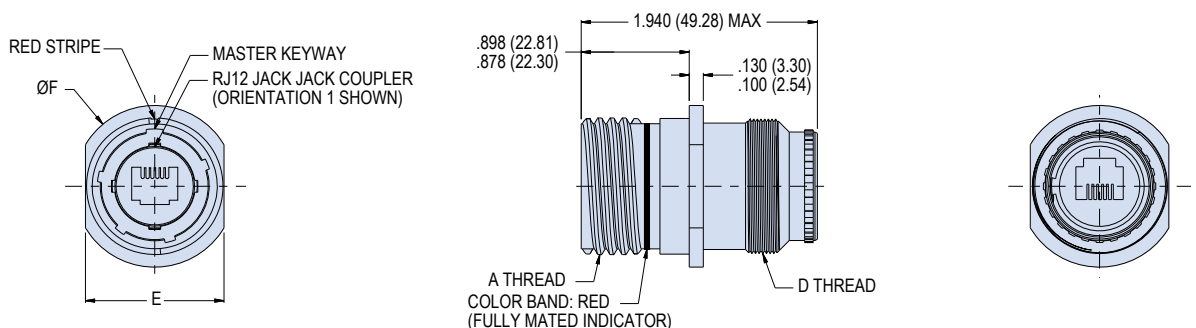
**G6 - PLUG (SEE JAM NUT MOUNT AND PLUG TABLE)**



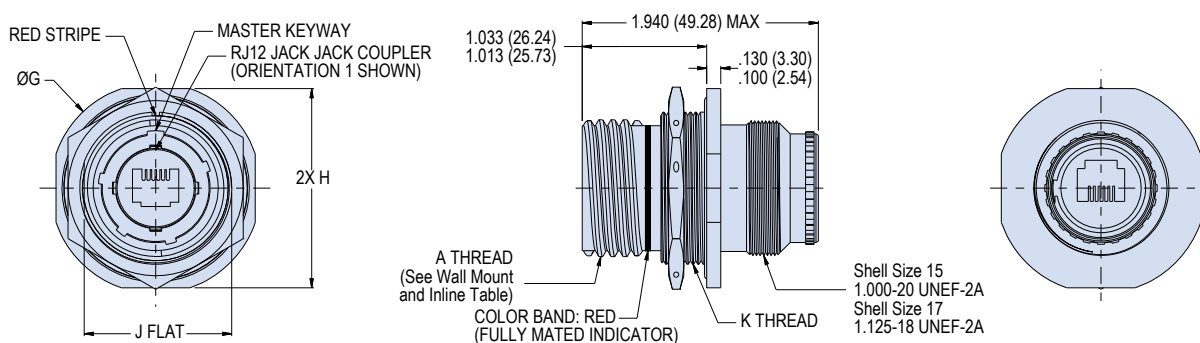
**D0 - WALL MOUNT RECEPTACLE (SEE WALL MOUNT AND INLINE TABLE)**



**05 - RECEPTACLE, INLINE (SEE WALL MOUNT AND INLINE TABLE)**



**07 - JAM NUT MOUNT RECEPTACLE (SEE JAM NUT MOUNT AND PLUG TABLE)**



# RJ45 CAT 6A AND RJ45 CAT 5E COMPATIBLE 28840 SuperSeal™



## 900-300 RJ45 Coupler Connector

How to Order	
<b>Part Number Example</b>	<b>900-300</b> <b>NF</b> <b>D0</b> <b>-</b> <b>17</b> <b>6A</b> <b>1</b> <b>1</b>
<b>Basic Number</b>	<b>900-300</b>
<b>Material/Finish</b>	See Material and Finish Options Table
<b>Connector Style</b>	<b>D0</b> = Receptacle, Wall Mount <b>05</b> = Receptacle, Inline <b>07</b> = Receptacle, Jam Nut <b>G6</b> = Plug
<b>Shielding</b>	<b>-</b> = Inline Shielded RJ45 <b>G</b> = Inline Shielded and Grounded to Shell
<b>Shell Size</b>	<b>17</b> or <b>19</b> (See Note 1)
<b>RJ45 Category</b>	<b>6A</b> = CAT6a (CAT6a is backward compatible with CAT5, CAT5e and CAT6) <b>5H</b> = CAT5e
<b>Alternate Polarization</b>	<b>1, 2, 3, 4, 5, 6</b> See connector specifications page for further information (Per MIL-DTL-28840)
<b>RJ45 Orientation Option</b>	<b>1, 2, 3, 4</b> (See below for options)

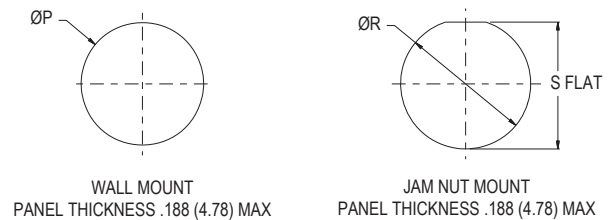
Wall Mount & Inline						
Shell Size	A Thread	B Sq	C Bsc	D Thread	E	ØF
17	1.125-.1P-.2L-DS-2A	1.403 (35.64) 1.363 (34.62)	1.015 (25.78)	1.125-18 UNEF 2A	1.143 (29.03) 1.133 (28.78)	1.338 (33.99) 1.318 (33.48)
19	1.312-.1P-.2L-DS-2A	1.528 (38.81) 1.488 (37.80)	1.140 (28.96)	1.250-18 UNEF 2A	1.330 (33.78) 1.320 (33.53)	1.525 (38.74) 1.505 (38.23)

Jam Nut Mount & Plug						
Shell Size	ØG	H	J Flat	K Thread	ØL	ØN Max
17	1.743 (44.27) 1.723 (43.76)	1.649 (41.88) 1.629 (41.38)	1.216 (30.89) 1.207 (30.66)	1.250-18 UNEF 2A	1.354 (34.39) 1.344 (34.14)	1.387 (35.23)
19	1.931 (49.05) 1.911 (48.54)	1.837 (46.66) 1.817 (46.16)	1.403 (35.64) 1.394 (35.41)	1.4375-18 UNEF 2A	1.542 (39.17) 1.532 (38.91)	1.513 (38.43)

Panel Cutouts			
Shell Size	ØP	ØR	S Flat
17	1.187 (30.15)	1.265 (32.13) 1.255 (31.88)	1.228 (31.19) 1.218 (30.94)
19	1.374 (34.90)	1.453 (36.91) 1.443 (36.65)	1.415 (35.94) 1.405 (35.69)

Material and Finish Options		
Code	Material	Finish Description
<b>NF</b>	Aluminum	Cadmium O. D. Over Electroless Nickel (500 hour Salt Spray)
<b>ZN</b>		Zinc Nickel, Olive Drab
<b>MT</b>		Nickel-PTFE, 1000 Hour Grey™
<b>Z1</b>	Stainless Steel	Passivate
<b>ZU</b>		Black Cadmium Over Nickel
<b>AB</b>	Marine Bronze	None (Clean Only)

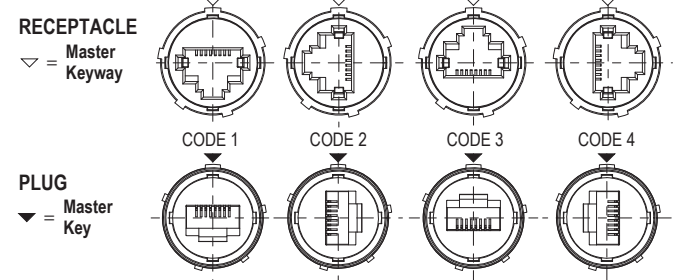
### RECOMMENDED PANEL CUT-OUTS



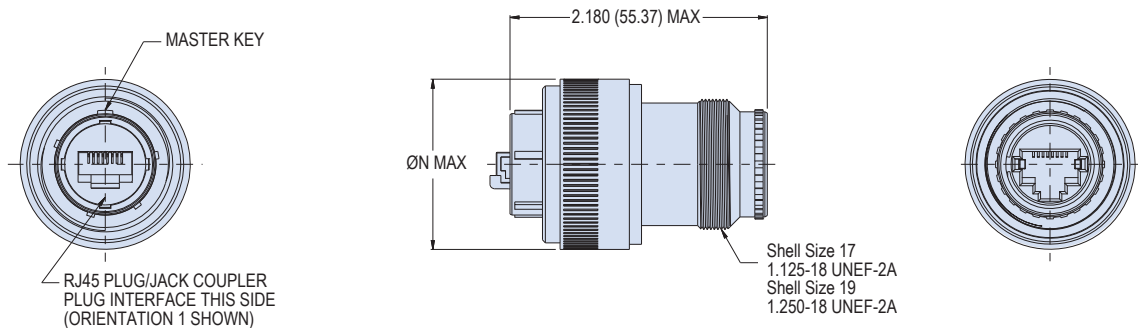
### NOTES

- Size 17 uses rear shielding sleeve.  
Size 19 uses front and rear shielding sleeve.
- Connector accessory features per M28840 connector designator G. Consult factory for accessory selection.
- Receptacle connector meets IP67 requirements in the unmated condition and plug meets IP68 requirements in the mated condition, consult factory for details.

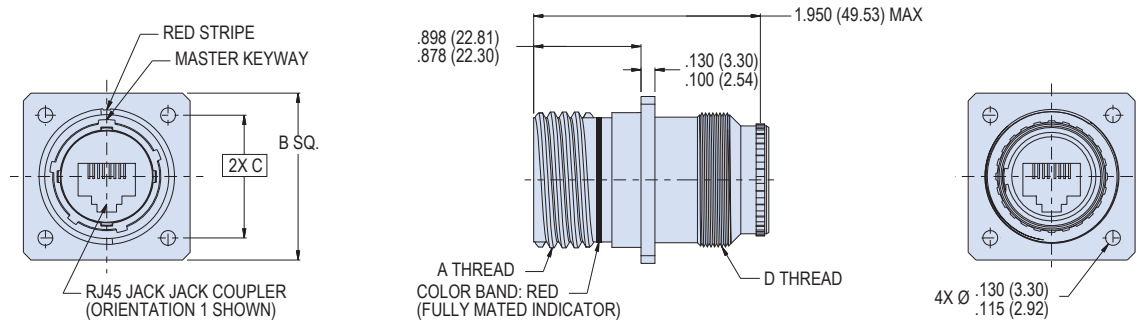
### RJ45 ORIENTATION OPTIONS



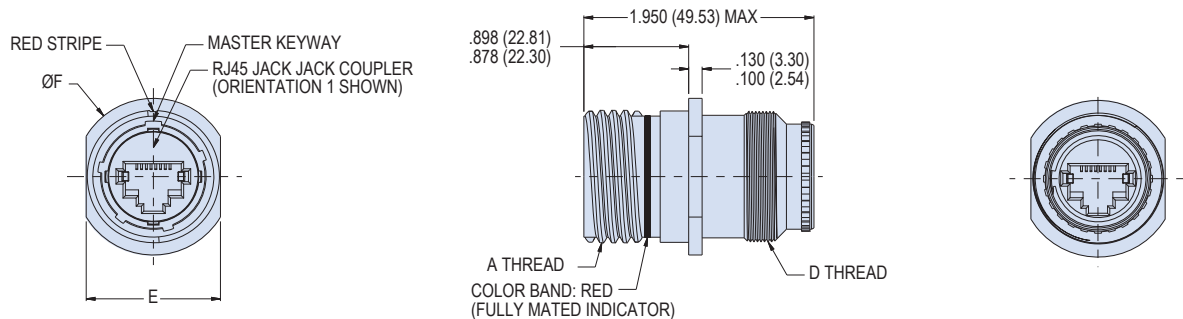
### G6 - PLUG (SEE JAM NUT MOUNT AND PLUG TABLE)



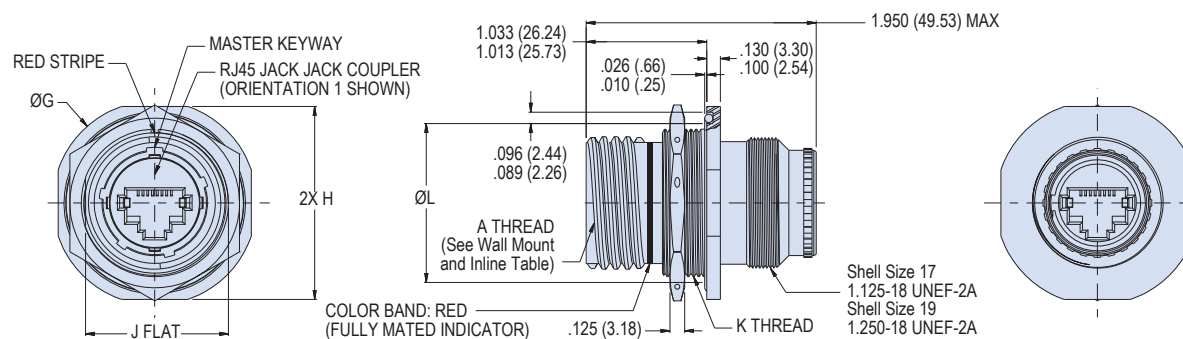
### D0 - WALL MOUNT RECEPTACLE (SEE WALL MOUNT AND INLINE TABLE)



### 05 - RECEPTACLE, INLINE (SEE WALL MOUNT AND INLINE TABLE)



### 07 - JAM NUT MOUNT RECEPTACLE (SEE JAM NUT MOUNT AND PLUG TABLE)



# RJ45 CAT 6A AND RJ45 CAT 5E COMPATIBLE 28840 SuperSeal™



## 900-301 RJ45 Connector with Crimp Removable Size 22 Contacts

How to Order									
<b>Part Number Example</b>	<b>900-301</b>	<b>NF</b>	<b>D0</b>	<b>-</b>	<b>17</b>	<b>6A</b>	<b>1</b>	<b>1</b>	
<b>Basic Number</b>	<b>900-301</b>								
<b>Material/Finish</b>	See Material and Finish Options Table								
<b>Connector Style</b>	<b>D0</b> = Receptacle, Wall Mount <b>07</b> = Receptacle, Jam Nut		<b>05</b> = Receptacle, Inline <b>G6</b> = Plug						
<b>Shielding</b>	<b>-</b> = Inline Shielded RJ45		<b>G</b> = Inline Shielded and Grounded to Shell (See Note 4)						
<b>Shell Size</b>	<b>17</b> or <b>19</b>								
<b>RJ45 Category</b>	<b>6A</b> = CAT6A (CAT6a is backward compatible with CAT5, CAT5e and CAT6)				<b>5H</b> = CAT5E;				
<b>Alternate Polarization</b>	<b>1, 2, 3, 4, 5, 6</b> See connector specifications page for further information (Per MIL-DTL-28840)								
<b>RJ45 Orientation</b>	<b>1, 2, 3, 4</b> (See below for options)								

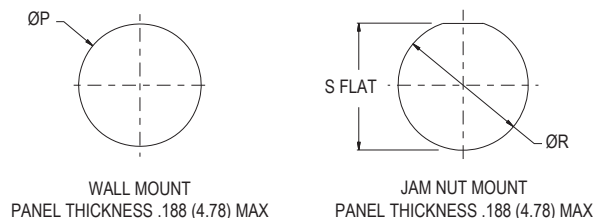
Wall Mount & Inline						
Shell Size	A Thread	B Sq	C Bsc	D Thread	E	ØF
17	1.125-.1P-.2L-DS-2A	1.403 (35.64)	1.015 (25.78)	1.125-18 UNEF 2A	1.143 (29.03)	1.338 (33.99)
		1.363 (34.62)			1.133 (28.78)	1.318 (33.48)
19	1.312-.1P-.2L-DS-2A	1.528 (38.81)	1.140 (28.96)	1.250-18 UNEF 2A	1.330 (33.78)	1.525 (38.74)
		1.488 (37.80)			1.320 (33.53)	1.505 (38.23)

Jam Nut Mount & Plug					
Shell Size	ØG	H	J Flat	K Thread	ØL Max
17	1.743 (44.27)	1.649 (41.88)	1.216 (30.89)	1.250-18 UNEF 2A	1.387 (35.23)
	1.723 (43.76)	1.629 (41.38)	1.207 (30.66)		
19	1.931 (49.05)	1.837 (46.66)	1.403 (35.64)	1.4375-18 UNEF 2A	1.513 (38.43)
	1.911 (48.54)	1.817 (46.16)	1.394 (35.41)		

Panel Cutouts			
Shell Size	ØP	ØR	S Flat
17	1.187 (30.15)	1.265 (32.13)	1.228 (31.19)
		1.255 (31.88)	1.218 (30.94)
19	1.374 (34.90)	1.453 (36.91)	1.415 (35.94)
		1.443 (36.65)	1.405 (35.69)

Material and Finish Options		
Code	Material	Finish Description
<b>NF</b>	Aluminum	Cadmium O. D. Over Electroless Nickel (500 hour Salt Spray)
<b>ZN</b>		Zinc Nickel, Olive Drab
<b>MT</b>		Nickel-PTFE, 1000 Hour Grey™
<b>Z1</b>	Stainless Steel	Passivate
<b>ZU</b>		Black Cadmium Over Nickel
<b>AB</b>	Marine Bronze	None (Clean Only)

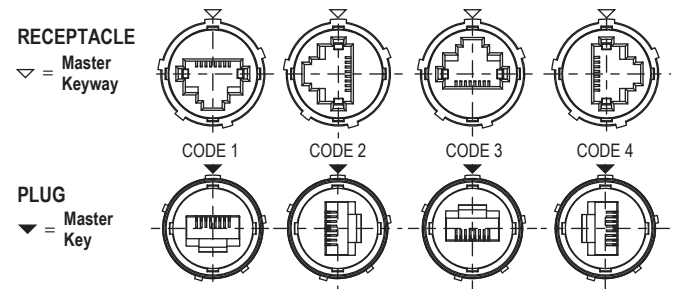
### RECOMMENDED PANEL CUT-OUTS



### NOTES

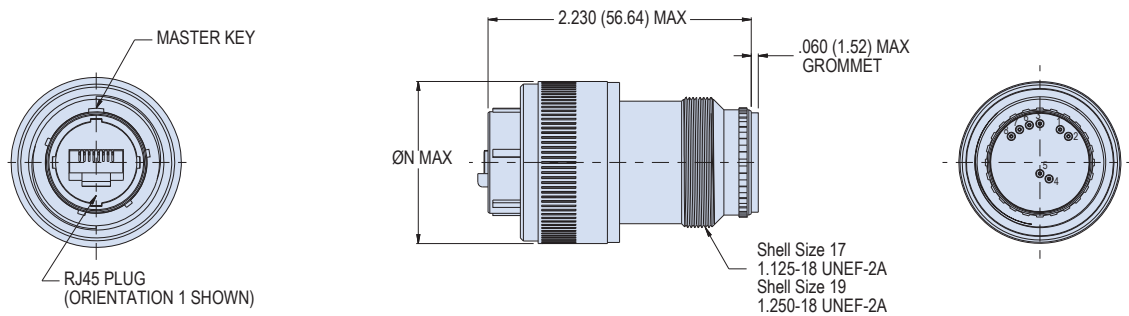
- Connector meets general requirements of MIL-DTL-28840 and RJ45 connector meets TIA 568B standard.
- Crimp removable contacts to conform to M39029/58-360 - size 22 pin contacts supplied loose.
- Receptacle connector designed to meet IP67 unmated condition. Plug connector designed to meet IP68 mated condition, consult factory for detailed information.
- "G" indicates RJ45 coupler is shielded inline and grounded to shell.
- Connector accessory features per M28840 connector designator G. Consult factory for crimp tool and accessory selection.

### RJ45 ORIENTATION OPTIONS

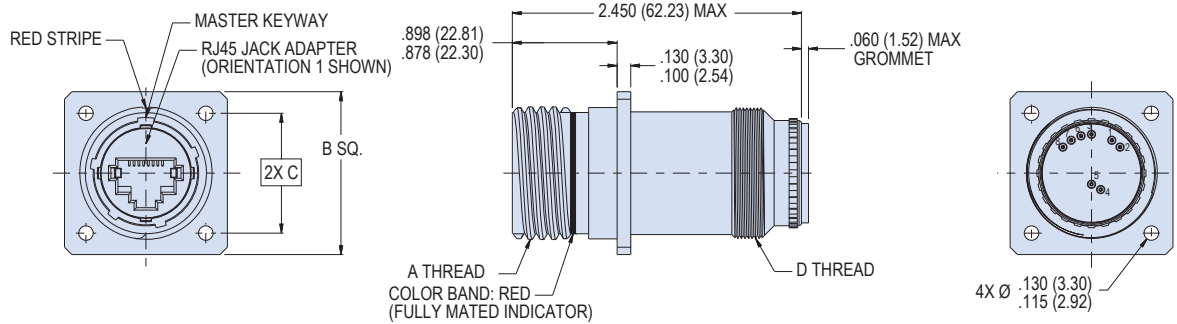




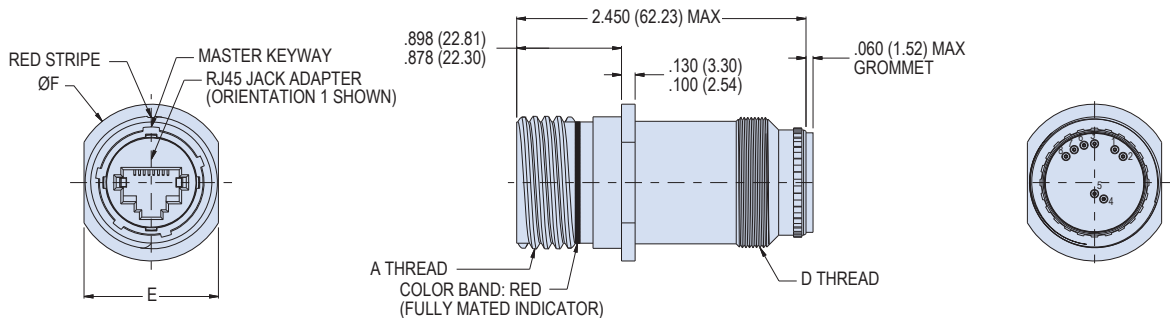
**G6 - PLUG (SEE JAM NUT MOUNT AND PLUG TABLE)**



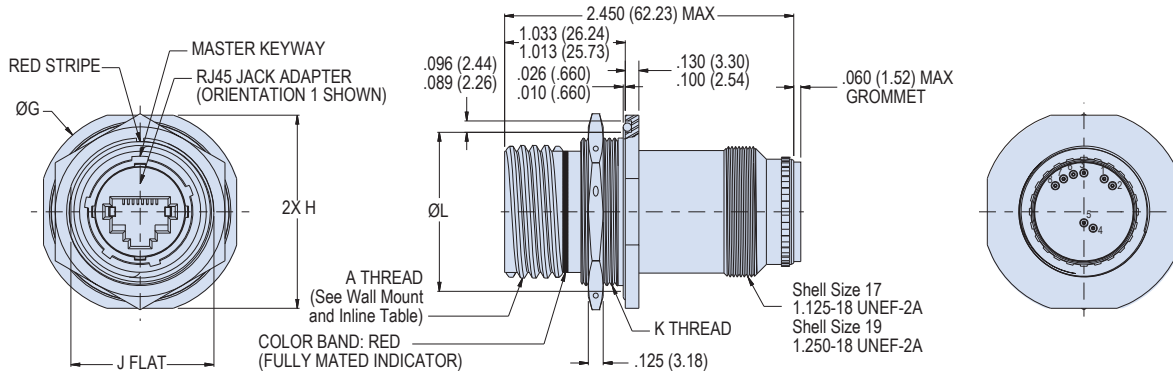
**D0 - WALL MOUNT RECEPTACLE (SEE WALL MOUNT AND INLINE TABLE)**



**05 - RECEPTACLE, INLINE (SEE WALL MOUNT AND INLINE TABLE)**



**07 - JAM NUT MOUNT RECEPTACLE (SEE JAM NUT MOUNT AND PLUG TABLE)**



How to Order	
<b>Part Number Example</b>	<b>900-340 NF D0 -15 2 A A 1 H</b>
<b>Basic Number</b>	<b>900-340</b>
<b>Material/Finish</b>	See Material and Finish Options Table
<b>Connector Style</b>	<b>D0</b> = Receptacle, Wall Mount <b>05</b> = Receptacle, Inline <b>07</b> = Receptacle, Jam Nut <b>G6</b> = Plug
<b>Shell Size</b>	<b>15</b>
<b>USB Performance</b>	<b>2</b> = USB 2.0
<b>USB Interface Type (Front)</b>	<b>A</b> = Type A
<b>USB Interface Type (Back)</b>	<b>A</b> = Type A
<b>Alternate Polarization</b>	<b>1, 2, 3, 4, 5,</b> and <b>6</b> See connector specifications page for further information (Per MIL-DTL-28840)
<b>USB Orientation</b>	<b>H</b> = Horizontal <b>V</b> = Vertical (See below for options)

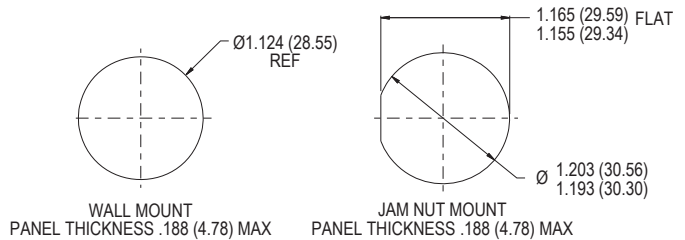
USB 2.0 Wiring			
Pin	Name	Cable Color (USB)	Description
1	(V BUS)	Red	+5 V
2	(D-)	White	Data -
3	(D+)	Green	Data +
4	(GND)	Black	Ground

Material and Finish Options		
Code	Material	Finish Description
<b>NF</b>	Aluminum	Cadmium O. D. Over Electroless Nickel (500 hour Salt Spray)
<b>ZN</b>		Zinc Nickel, Olive Drab
<b>MT</b>		Nickel-PTFE, 1000 Hour Grey™
<b>Z1</b>	Stainless Steel	Passivate
<b>ZU</b>		Black Cadmium Over Nickel
<b>AB</b>	Marine Bronze	None (Clean Only)

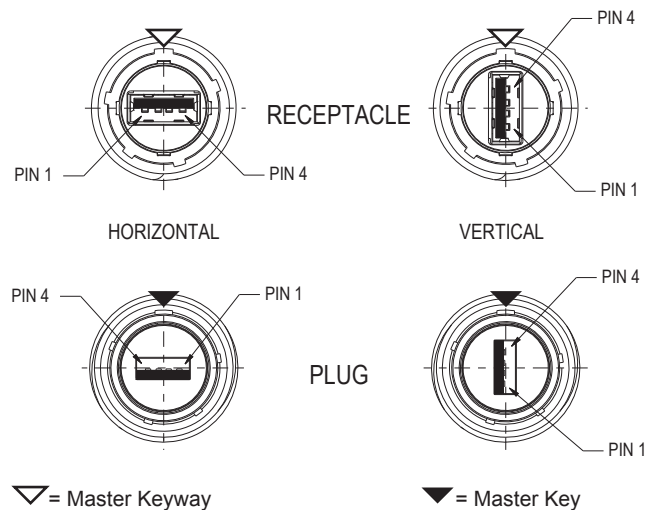
### NOTES

1. Connector and contacts shall meet general requirements of MIL-DTL-28840 and USB receptacle meets USB 2.0 standard.
2. Connector meets IP67 in the unmated condition.
3. Connector accessory features per M28840 connector designator G. Consult factory for shrink boot option and accessory selection.

### RECOMMENDED PANEL CUT-OUTS



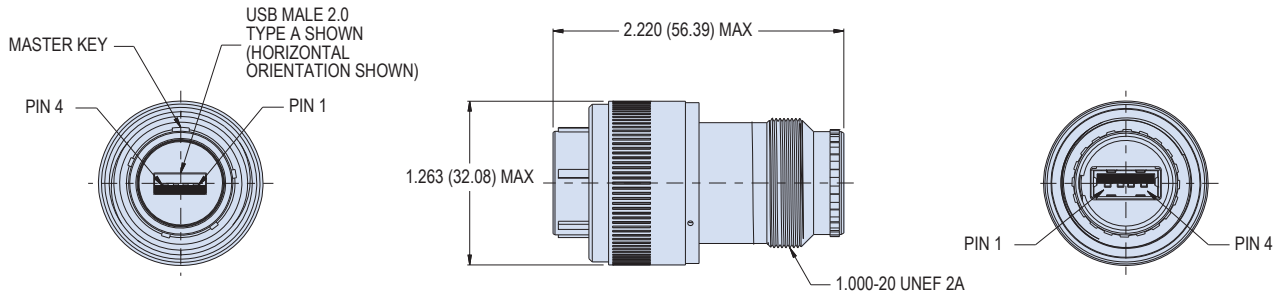
### USB ORIENTATION OPTIONS



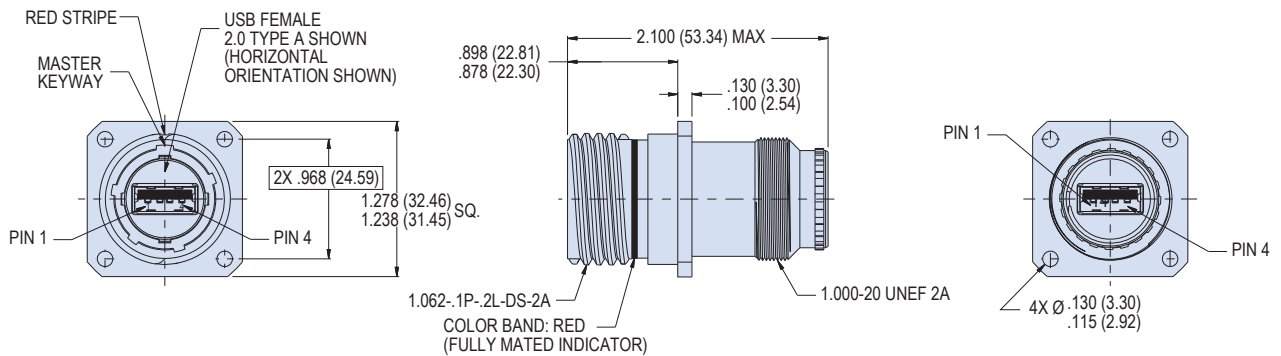
# USB 2.0 28840 SuperSeal™ 900-340 USB 2.0 Type A Coupler



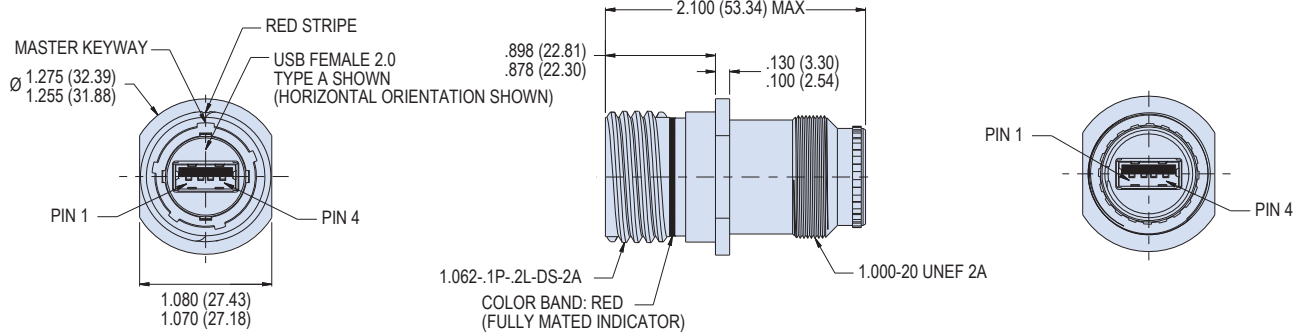
## G6 - PLUG



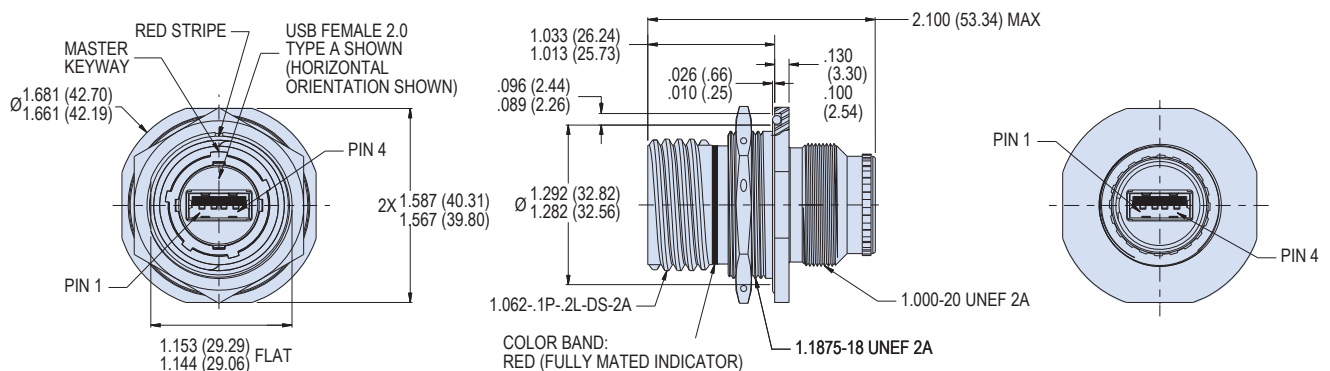
## D0 - WALL MOUNT RECEPTACLE



## 05 - RECEPTACLE, INLINE



## 07 - JAM NUT MOUNT RECEPTACLE



## 900-345 Coupler with USB to Crimp Removable Size 22 Contacts

How to Order	
<b>Part Number Example</b>	<b>900-345 NF D0 -15 2 A 1 H</b>
<b>Basic Number</b>	<b>900-345</b>
<b>Material/Finish</b>	See Material and Finish Options Table
<b>Connector Style</b>	<b>D0</b> = Receptacle, Wall Mount <b>05</b> = Receptacle, Inline <b>07</b> = Receptacle, Jam Nut <b>G6</b> = Plug
<b>Shell Size</b>	<b>15</b>
<b>USB Performance</b>	<b>2</b> = USB 2.0
<b>USB Interface Type</b>	<b>A</b> = Type A
<b>Alternate Polarization</b>	<b>1, 2, 3, 4, 5, and 6</b> See connector specifications page for further information (Per MIL-DTL-28840)
<b>USB Orientation</b>	<b>H</b> = Horizontal <b>V</b> = Vertical

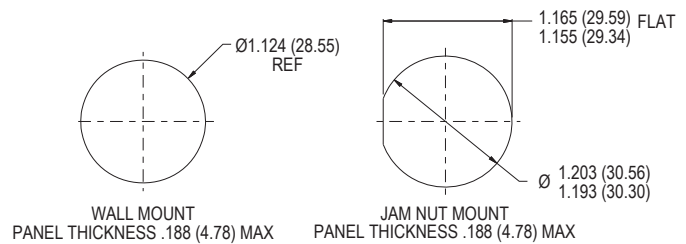
Material and Finish Options		
Code	Material	Finish Description
<b>NF</b>	Aluminum	Cadmium O. D. Over Electroless Nickel (500 hour Salt Spray)
<b>ZN</b>		Zinc Nickel, Olive Drab
<b>MT</b>		Nickel-PTFE, 1000 Hour Grey™
<b>Z1</b>	Stainless Steel	Passivate
<b>ZU</b>		Black Cadmium Over Nickel
<b>AB</b>	Marine Bronze	None (Clean Only)

USB 2.0 Wiring				
Pin	Name	Cable Color (USB)	Description	Recommended Wire Sizes (AWG)
1	(V BUS)	Red	+5 V	22
2	(D-)	White	DATA -	28
3	(D+)	Green	DATA +	28
4	(GND)	Black	GROUND	22

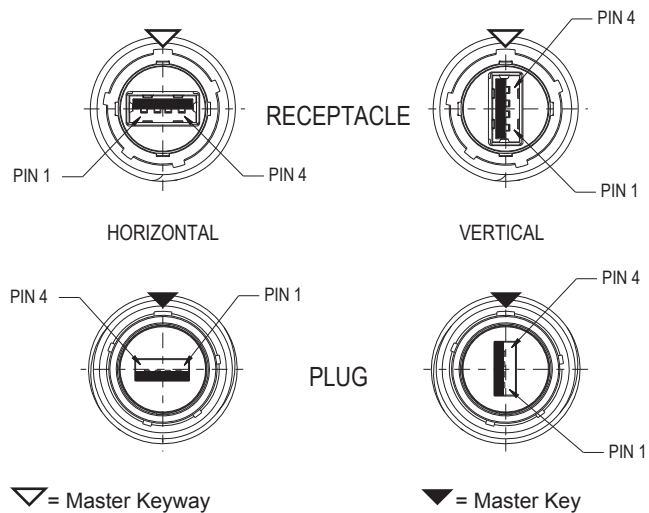
### NOTES

- Connector shall meet general requirements of MIL-DTL-28840. USB connector shall be per USB 2.0 standard.
- Crimp removable contacts conform to: M39029/56-348 - size 22 socket contacts (supplied loose). Connector meets IP67 in the unmated condition
- Connector accessory features per M28840 connector designator G. Consult factory for crimp tool and accessory selection.

### RECOMMENDED PANEL CUT-OUTS



### USB ORIENTATION OPTIONS

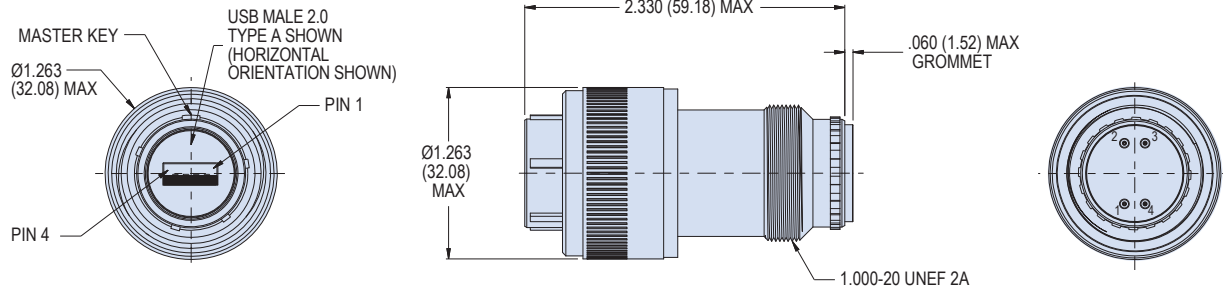


# USB 2.0 28840 SuperSeal™

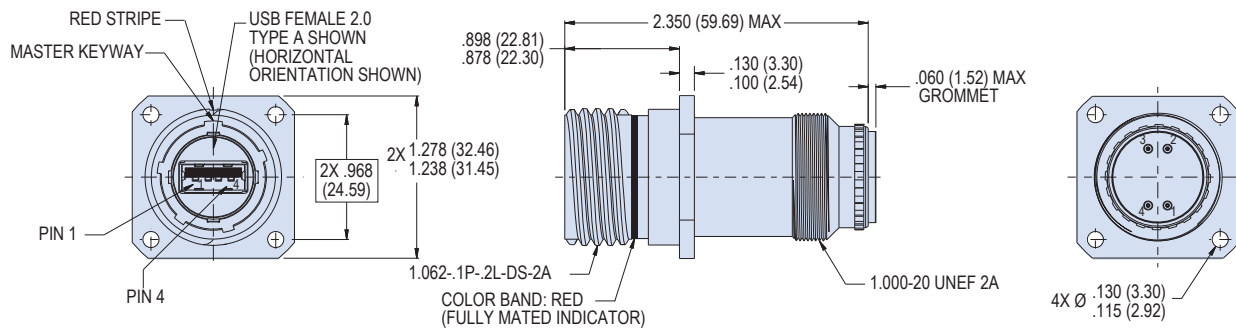


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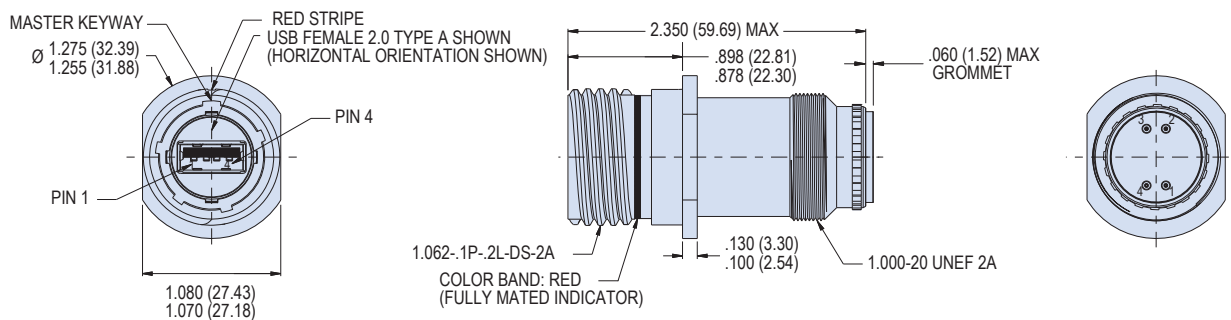
### G6 - PLUG



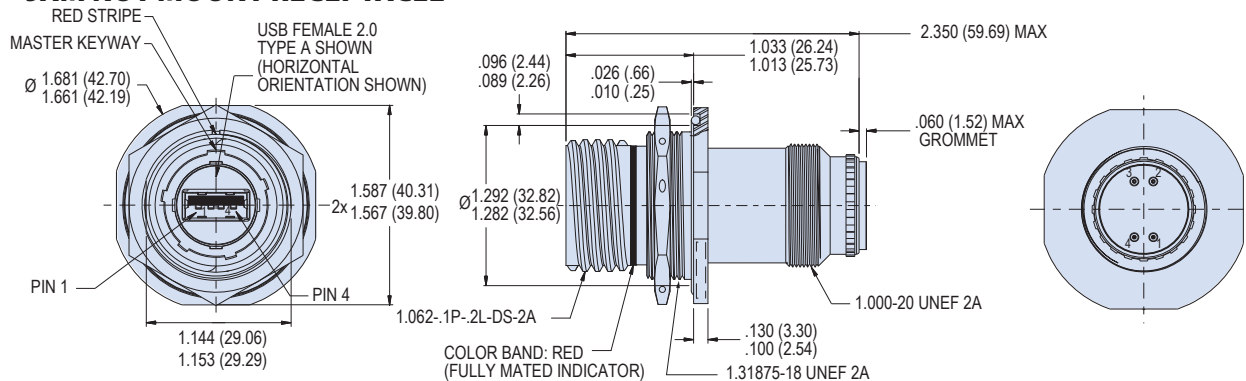
### D0 - WALL MOUNT RECEPTACLE



### 05 - RECEPTACLE, INLINE



### 07 - JAM NUT MOUNT RECEPTACLE



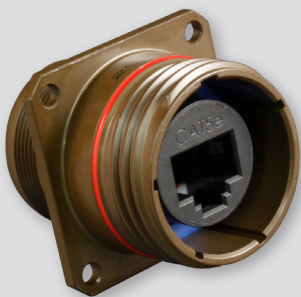


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MIL-DTL-38999 Series III with sealed RJ45



MIL-DTL-38999 Series III with RJ45 USB cable assemblies

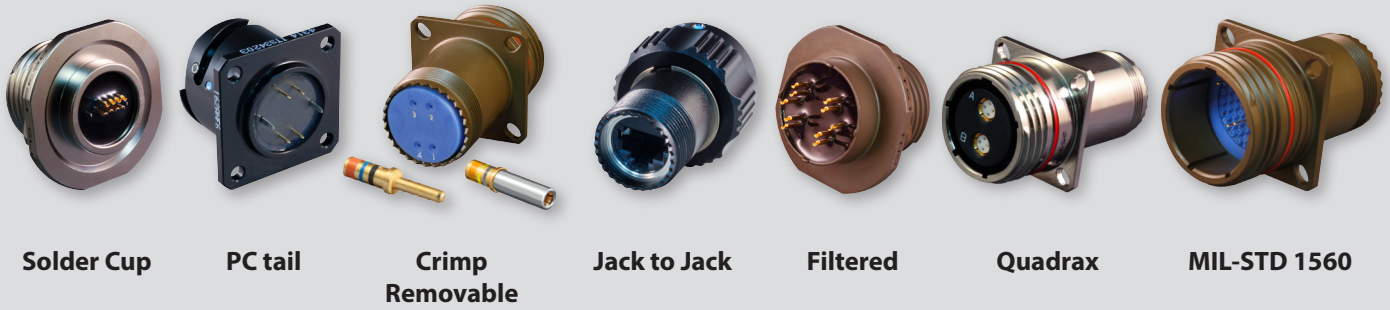


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