



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Amphenol Commercial Products

HARSH ENVIRONMENT CONNECTORS



Product Catalogue

Amphenol
Now You're Connected!

Amphenol Commercial Products

The Company

Amphenol Commercial Products are dedicated to the design, development and manufacturing of connector products which are used in Commercial, Industrial, Communications, Military and Aerospace applications worldwide. Our expertise in understanding and supporting our customers' interconnect needs has earned Amphenol a reputation of quality and excellence among the world's leading users of electronic components.

Harsh Environment Connectors

A Rugged Connector is the ideal solution for data transfers in harsh or demanding environments. These connectors offer environmental sealing on the widely used connector standards for RJs, USBs, D-Subs and HDMI's all within standard package sizes.

These Harsh Connectors are designed to provide outstanding corrosion resistance and rugged performance. They can be used in a wide range of applications like in factory automation, outdoor communications, portable vehicle-mounted instrumentation or navigation system and security/surveillance equipment.

All Rugged Connectors provide excellent strength and durability in the most demanding applications with a high-temperature-resistant plastic housing and contacts made of a copper alloy with gold and nickel plating.

Generation 1:

- Epoxy seal
- Provides sealing requirements per IP67

Generation 2:

- Epoxy free
- Utilizes gaskets and seals internal to the connector
- Provides sealing requirements per IP68
- Improved thermal cycling performance

Mission Statement

To Our Customers: We will provide services and quality products on time at the lowest cost, engineered with maximum innovation.

To Our Employees: We will provide a safe working environment in which to work, opportunities for training and advancement and equitable compensation for their efforts.

To Our Suppliers: We will provide opportunities to participate in our business successes and will work with them on our goal of continuous improvement.

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Specifications

Connectors are designed to conform to the requirements of TIA-1096-A and IEC 60603-7.

Material

All Materials are RoHS Compliant per EU Directive 2011/65/EU

External Shell:	Die Cast Zinc, Nickel Plated
Front Insert:	Clear Polycarbonate, UL94V-0
Rear Inserts:	High Temperature Resistant Nylon, Glass Reinforced, UL94-0, Black
Contacts:	Phosphor Bronze Alloy Plated with 1.27µm (50µ") min Gold over 1.27µm (50µ") min Nickel on the Mating Area and 2.54µm (100µ") min Matte Tin over Nickel on the Contact Tails
Panel Gasket:	Conductive Silicone Rubber, Black
Mating Area Ground Tab:	Nickel Plated Copper Alloy
LED's:	Epoxy Lens, Tin Plated Steel Tails
Rear Screws:	Nickel Plated Steel
Internal O-rings:	Silicone Rubber, Beige
PCB:	FR4 Fibreglass, Lead Free
Additional Connector:	UL Recognized Component
Ferrite:	Nickel Zinc Soft Ferrite Ceramic

Electrical

Current Rating:	1.5A max per Contact ($\Delta T \leq 30^{\circ}C$)
Contact Resistance:	20 mΩ max
Insulation Resistance:	500 MΩ min
DWV:	1000 VAC rms (between adjacent contacts), 1500 VAC rms (contacts to ground)
LED Characteristics:	Forward DC Current 25mA max, Forward Voltage 2.5V max @2mA
Ferrite Characteristics:	38 Ω at 25 MHz min Impedance, Common Mode Rejection -30dB min up to 250 MHz

Mechanical, Environmental, Regulatory

UL Recognition:	Level DUXR2, File Number E135615	Humidity:	Per EIA-364-31, Steady State, 21 Days, 50°C, 90-95%RH
Water & Dust Protection Level:	Code IP67 per IEC 60529	Mixed Flowing Gas:	Per EIA 364-65 Class IIA (Cl ₂ , NO ₂ , H ₂ S, & SO ₂), 14 Day Exposure
Operating Temperature:	-55°C to +105°C	Salt Spray:	Per EIA 364-26, 250 Hours, 5% Salt, 35°C
Durability:	Per EIA 364-09, 2500 Mating Cycles	Solvent Resistance:	Isopropyl Alcohol & 5% Sodium Hydroxide Solution, 24 Hrs Each
Vibration:	Per EIA 364-28 Condition II (10g, 10-500Hz, 6 hours), No Discontinuity $\geq 1\mu s$	LED Luminous Intensity:	0.5mCd min at 2mA Forward Current
Shock:	Per EIA 364-27 Test Condition A (11ms, 50g, ½ Sine), No Discontinuity $\geq 1\mu s$	Solderability:	Per EIA-364-52, 95% Coverage after Category 2 Steam Aging
Temperature Life w/ Load:	Per EIA-364-17, 1.5 A, 70°C, 500 Hours	Insertion & Withdrawal Force:	Per EIA-364-13, 20N (4.5lb _f) max (Latch Disengaged)
Temperature Life w/o Load:	Per EIA-364-17, 105°C, 1000 Hours	Effectiveness of Plug Latch (Coupling Device):	Per EIA-364-13, 50N (11.2lb _f) min
Thermal Shock:	Per EIA-364-32, -55°C to +105°C, 25 Cycles		
Humidity:	Per EIA-364-31, 21 Cycles, 504 Hrs, 25°C to 65°C, 90-95%RH, with -10°C Cold Shock		

Application Recommendations

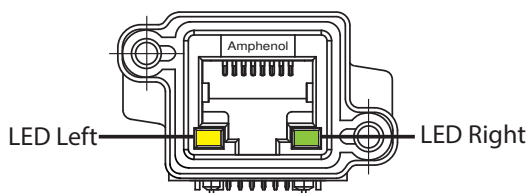
Recommended Mounting Screw Torque:	0.45 to 0.65 N-m (4 to 5.75 In-lbs) for steel screws with 3mm (.118") thread engagement
Recommended Soldering Methods:	Manual or wave soldering (solder temperature 260°C max, time 10s max, preheat 100-140°C)

Customer cleaning processes to be polycarbonate compatible to avoid front insertion degradation.

LED Options for MRJR Series

Example Part Number: MRJR-538(X)-01 (X) = LED designation code

For all MRJR Connectors:



LED Code	LED Left	LED Right
0	No LED	No LED
1	Green	Yellow
4	Yellow	Green
5	Green	Green
A	Bi-color Green & Yellow	Bi-color Green & Yellow

MRJR - X X X X X - X X

Rugged RJ Series, Generation 2

Modular Jack Type

- 3 - RJ11, 6 Position¹
- 4 - RJ11, 6 Position with EMI Ferrite Filtering²
- 5 - RJ45, 8 or 10 Position³
- 6 - RJ45, 8 or 10 Position with EMI Ferrite Filtering²
- 7 - RJ45, 8 or 10 Position with Transient Voltage Suppression⁴
- 8 - RJ45, 8 Position with Cat5e Performance Level⁴

Termination Style

- 3 - Right Angle
- 4 - Vertical
- 5 - Right Angle on PCB with Right Angle Cable Header⁵
- 7 - Right Angle on PCB with Right Angle RJ45 Modular Jack⁶
- 8 - Right Angle on PCB with Vertical RJ45 Modular Jack⁷
- 9 - Right Angle on PCB with Terminal Blocks
- A - Right Angle on PCB with Holes for Wiring (Style 5 PCB)⁸
- B - Right Angle on PCB with Vertical Cable Header⁹
- C - Right Angle on PCB with Holes for Wiring (Style 7 PCB)⁸
- D - Right Angle on PCB with Vertical Cable Header⁹

Number of Contacts

- 4 - 4 Contacts
- 6 - 6 Contacts
- 8 - 8 Contacts
- A - 10 Contacts

LED Options

- 0 - No LEDs
- 1 - Green Left, Yellow Right
- 4 - Yellow Left, Green Right
- 5 - Green Left, Green Right
- A - Bi-colour Green/Yellow Left & Right

Tail Length & Thread Options

- 0 - 2.54mm [.100"] Tail Length, #4-40 UNC Thread
- B - 3.81mm [.150"] Tail Length, #4-40 UNC Thread
- M - 2.54mm [.100"] Tail Length, M3 x 0.5 Thread
- P - 3.81mm [.150"] Tail Length, M3 x 0.5 Thread

Other Options¹⁰

- 1 - Single Port, Right Angle with Threaded Holes
- F - Single Port, Vertical with Threaded Holes (Use this code with termination style 4 above)

Unique Special Code

No Digit - Part Defined by Previous Digits of Part Number

1 to 9 - Identifies Unique Special Feature

Many unique features are readily available to suit customer requirements. Consult with Amphenol Canada for details.

Notes:

- 1) Term RJ11 refers to jack for 6P2C, 6P4C or 6P6C (RJ11, RJ12, RJ13, RJ14, RJ18 or RJ25).
- 2) Ferrite option currently available for right angle connectors only.
- 3) Term RJ45 refers to non-keyed jack for 8P8C or 10P10C (RJ31, RJ38, RJ48C, RJ49, RJ50, RJ61).
- 4) Transient voltage suppression and Cat5e performance level for connectors on a PCB only. Consult with Amphenol for availability.
- 5) Termination style 5 suitable for both RJ11 and RJ45 jacks. Consult with Amphenol regarding applications where a smaller 14 pin cable header would be preferred.
- 6) Termination style 7 currently available for RJ11 (6P4C & 6P6C) and RJ45 (8P8C) only.

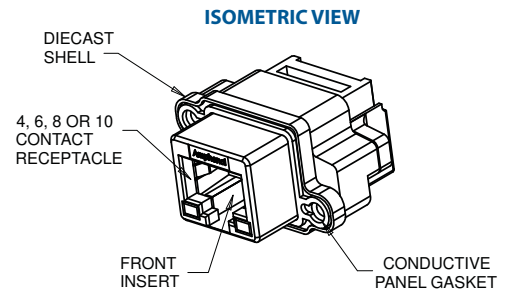
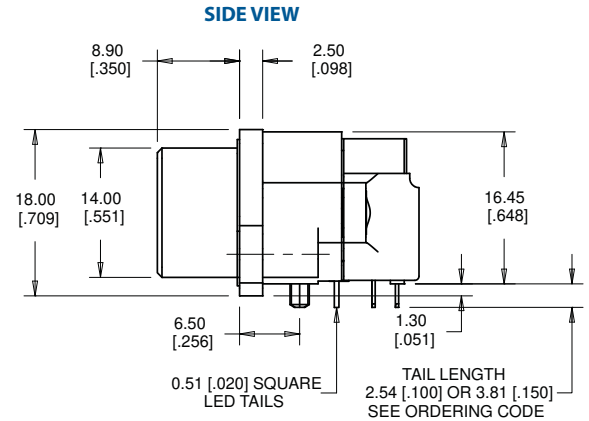
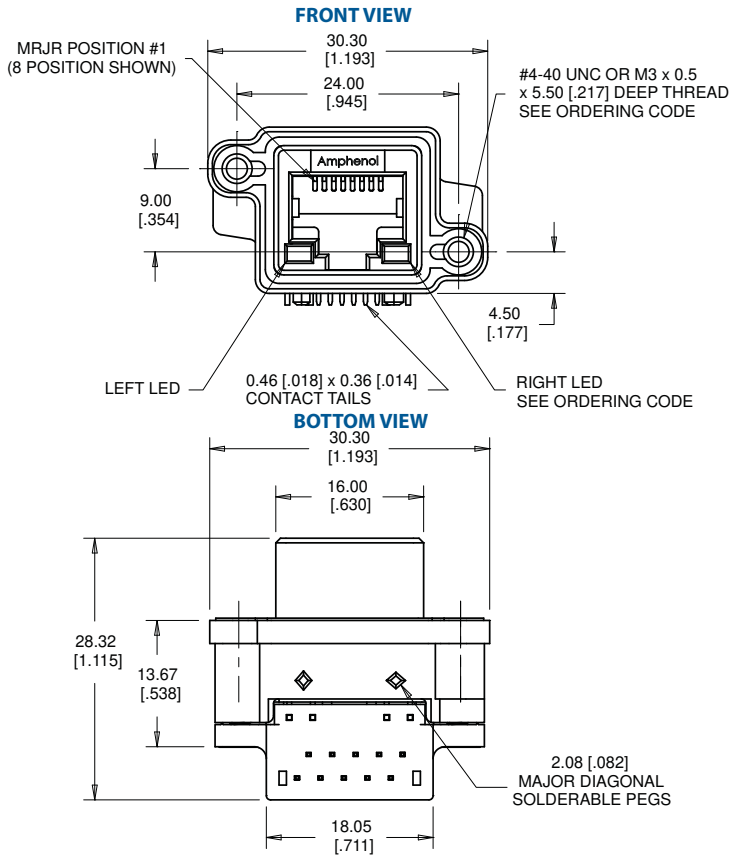
- 7) Termination style 8 currently available for RJ45 (8P8C) only.
- 8) Termination style A uses the PCB from termination style 5. Termination style C uses the PCB from termination style 7.
- 9) Termination styles B & D currently available for RJ11 (6P4C & 6P6C) without LEDs and RJ45 (8P8C) without LEDs only.
- 10) Consult with Amphenol for additional termination styles, solder cup contacts, LED colours, contact tail lengths, mounting styles, conductive gaskets or other requirements of interest. See catalogue Accessories pages for dust cover and plug boot options.

MRJR SERIES

GENERATION 2 RUGGED RJ11/RJ45

MRJR-33XX-X1

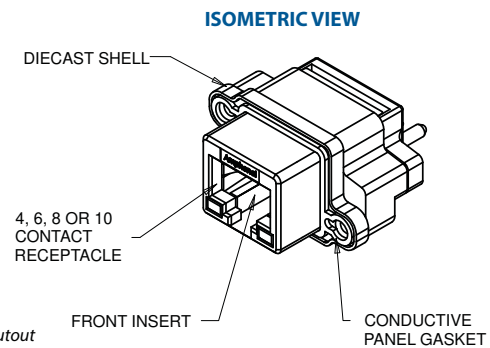
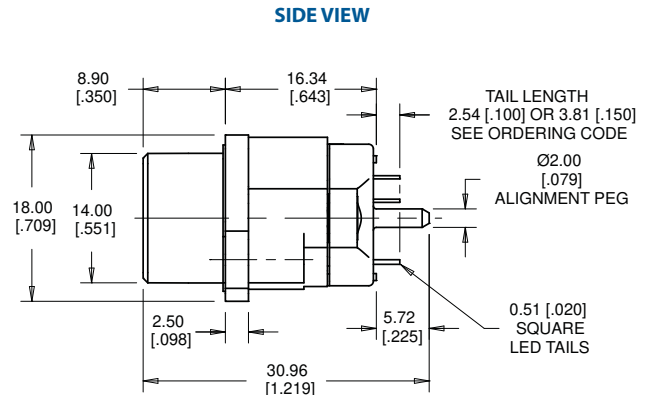
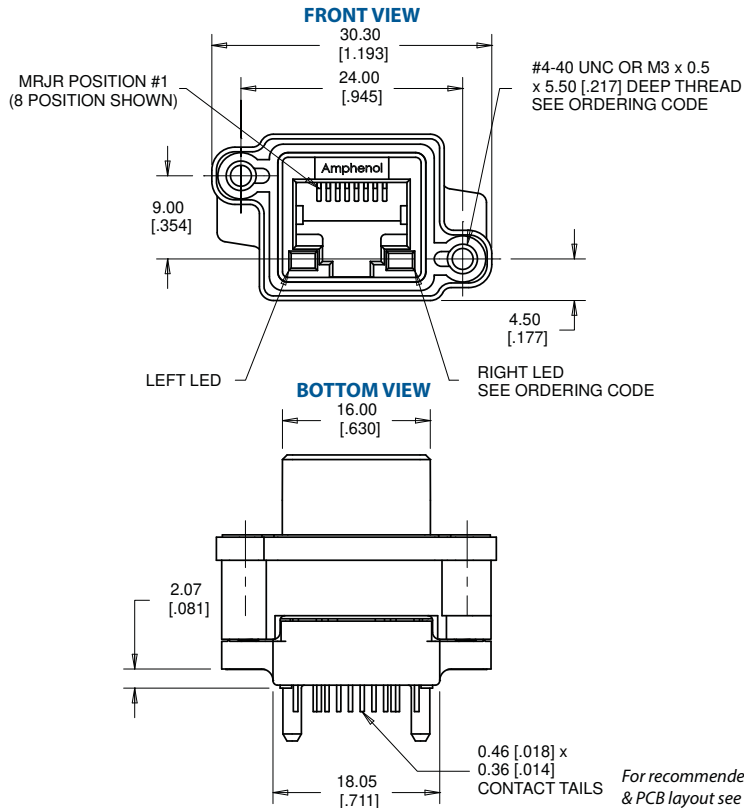
MRJR-53XX-X1



For recommended panel cutout & PCB layout see catalogue page 9

MRJR-34XX-X1

MRJR-54XX-X1

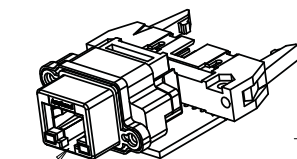


For recommended panel cutout & PCB layout see catalogue page 9

CONNECTIONS CHART

MRJR Connector Type			Cable Header Position
6 Position	8 Position	10 Position	
-	-	1	2
-	1	2	12
1	2	3	3
2	3	4	3
3	4	5	4
4	5	6	14
5	6	7	5
6	7	8	15
-	8	9	6
-	-	10	16
Shell/GND	Shell/GND	Shell/GND	10
LED 1	LED 1	LED 1	1
LED 2	LED 2	LED 2	11
LED 3	LED 3	LED 3	7
LED 4	LED 4	LED 4	17

ISOMETRIC VIEW

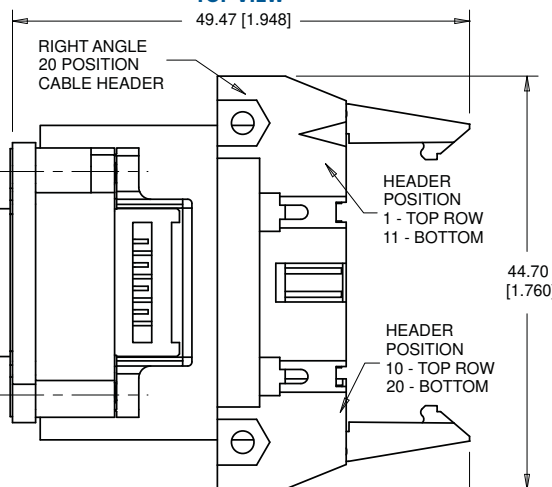


4, 6, 8 OR 10 CONTACT RECEPTACLE

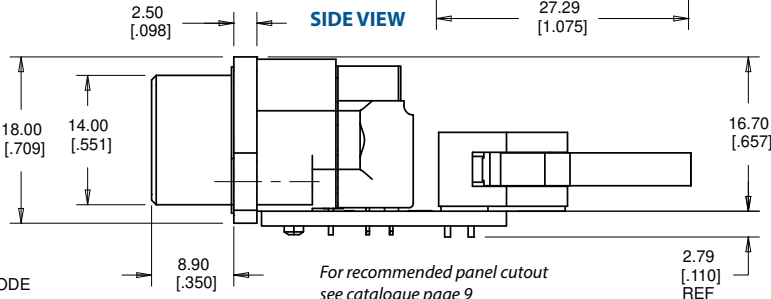
MRJR-35XX-X1

MRJR-55XX-X1

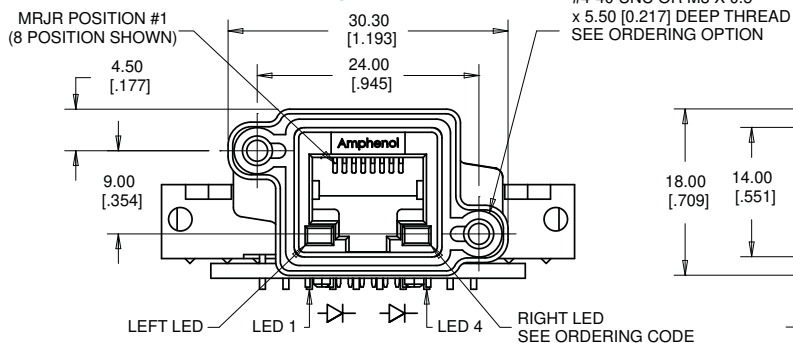
TOP VIEW



SIDE VIEW



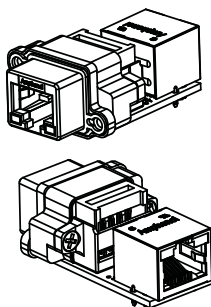
FRONT VIEW



CONNECTIONS CHART

MRJR Connector Type			
MRJR 6 Position	RJ 6 Position	MRJR 8 Position	RJ 8 Position
-	-	1	1
1	1	2	2
2	2	3	3
3	3	4	4
4	4	5	5
5	5	6	6
6	6	7	7
-	-	8	8
Shell/GND	Shell/GND	Shell/GND	Shell/GND
LED 1	LED 1	LED 1	LED 1
LED 2	LED 2	LED 2	LED 2
LED 3	LED 3	LED 3	LED 3
LED 4	LED 4	LED 4	LED 4

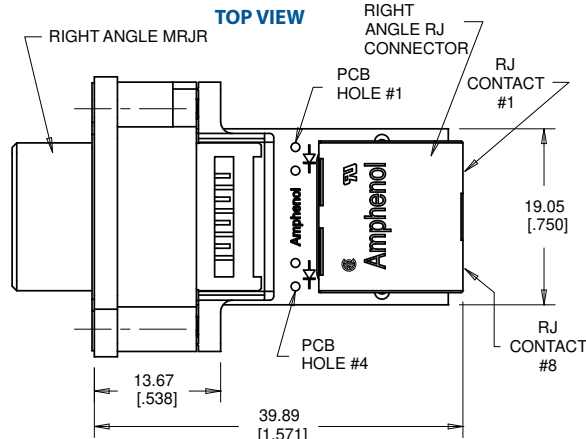
ISOMETRIC VIEWS



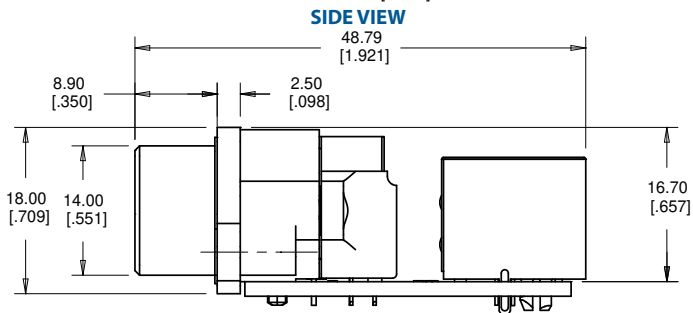
MRJR-37XX-X1

MRJR-578X-X1

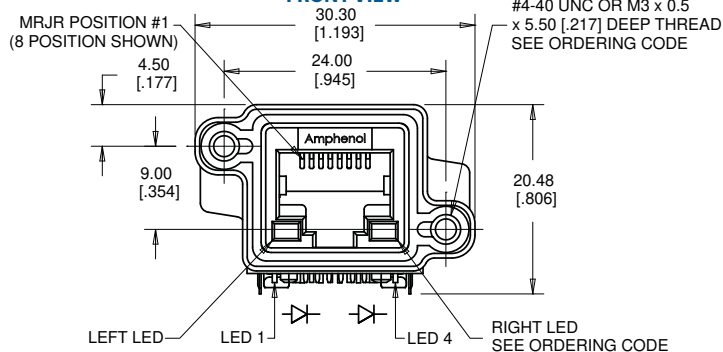
TOP VIEW



SIDE VIEW



FRONT VIEW



For recommended panel cutout see catalogue page 9

3.78 [.149] REF

MRJR SERIES

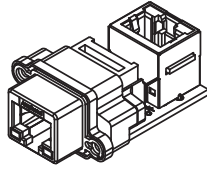
GENERATION 2 RUGGED RJ11/RJ45

MRJR-588X-X1

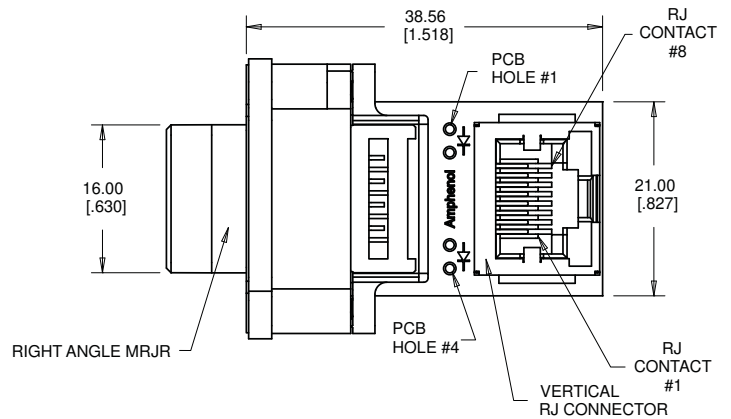
CONNECTIONS CHART

MRJ Contact	RJ Contact
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
Shell/GND	Shield/GND
MRJ LED	PCB Holes
LED 1	1
LED 2	2
LED 3	3
LED 4	4

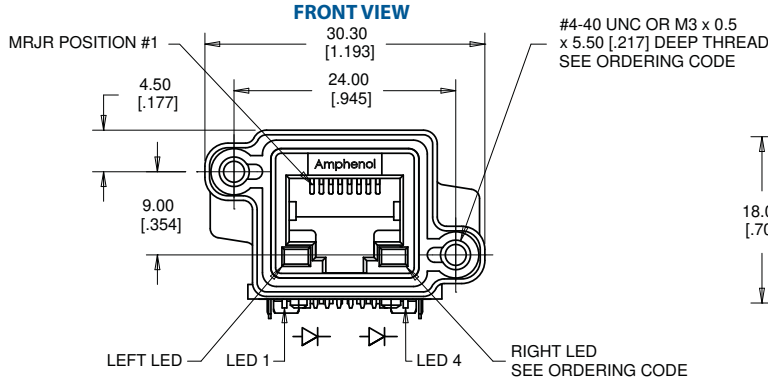
ISOMETRIC VIEW



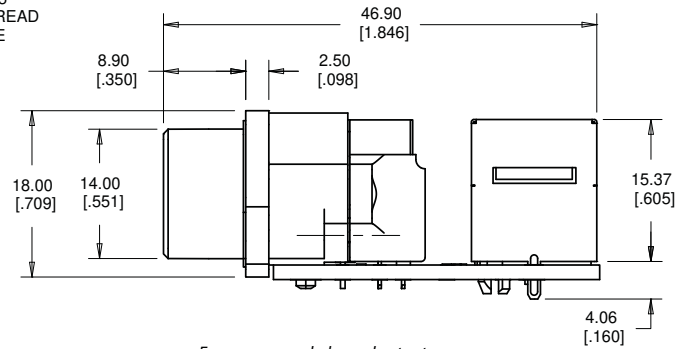
TOP VIEW



FRONT VIEW



SIDE VIEW



For recommended panel cutout see catalogue page 9

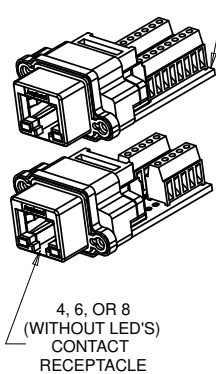
MRJR-39XX-X1 MRJR-59XX-X1

CONNECTIONS CHART

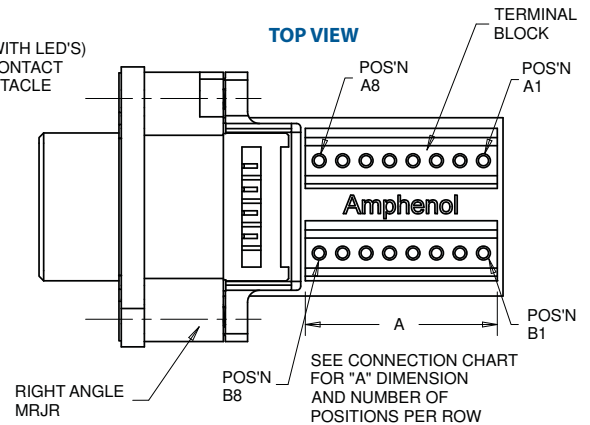
MRJR Connector Type				Terminal Block Position
6 Position	8 Position No LEDs	8 Position with LEDs	10 Position	
Shell/GND	Shell/GND	Shell/GND	Shell/GND	A1 & B1
3	4	4	5	A2
2	3	3	4	A3
1	2	2	3	A4
-	1	1	2	A5
-	-	-	1	A6
-	-	LED 1	LED 1	A7
-	-	LED 2	LED 2	A8
4	5	5	6	B2
5	6	6	7	B3
6	4	4	8	B4
-	8	8	9	B6
-	-	-	10	B6
-	-	LED 4	LED 4	B7
-	-	LED 3	LED 3	B8
5/Row	5/Row	8/Row	8/Row	Position
13.16 [.518]	13.16 [.518]	20.87 [.818]	20.87 [.818]	A' Dim'n

For 6 position with LEDs, the terminal block will be 20.78 [.818] with 8 positions per row.

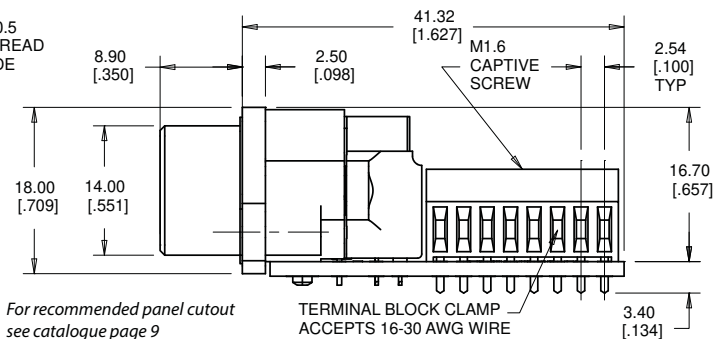
ISOMETRIC VIEWS



TOP VIEW

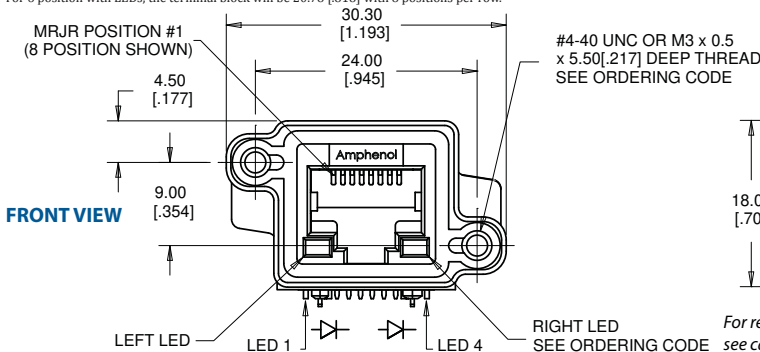


SIDE VIEW



For recommended panel cutout see catalogue page 9

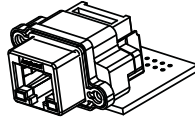
FRONT VIEW



CONNECTIONS CHART

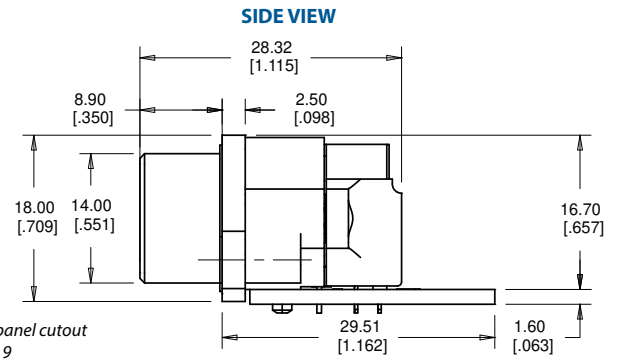
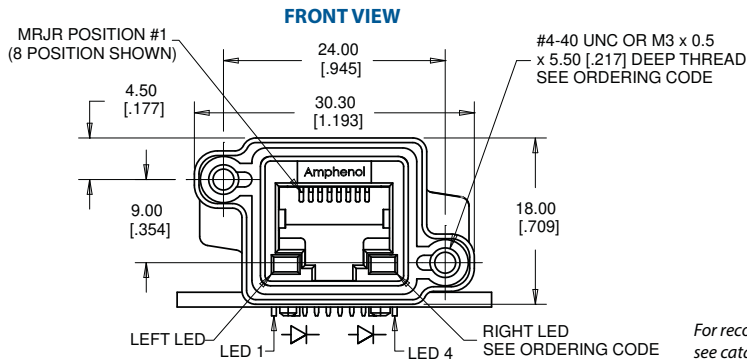
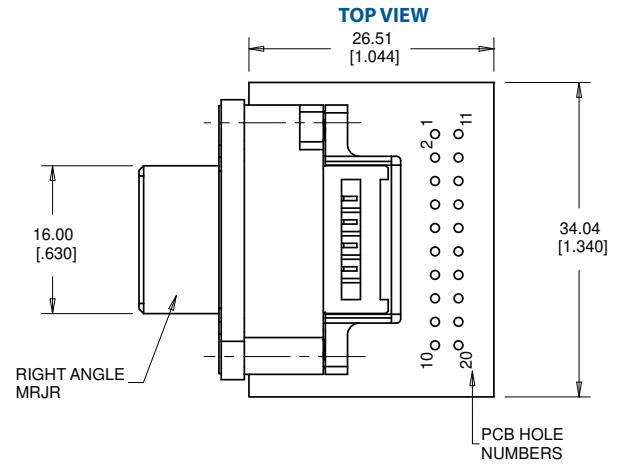
MRJR Connector Type			PCB Hole Numbers
6 Position	8 Position	10 Position	
-	-	1	2
-	1	2	12
1	2	3	3
2	3	4	13
3	4	5	4
4	5	6	14
5	6	7	5
6	7	8	15
-	8	9	6
-	-	10	16
Shell/GND	Shell/GND	Shell/GND	10
LED 1	LED 1	LED 1	1
LED 2	LED 2	LED 2	11
LED 3	LED 3	LED 3	7
LED 4	LED 4	LED 4	17

ISOMETRIC VIEW



MRJR-3AXX-X1

MRJR-5AXX-X1

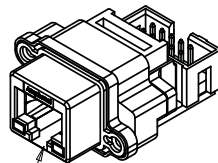


For recommended panel cutout see catalogue page 9

CONNECTIONS CHART

MRJR Connector Type		Cable Header
6 Position	8 Position	
Shell/GND	Shell/GND	2 & 9
-	1	10
1	2	7
2	3	8
3	4	5
4	5	6
5	6	3
6	7	4
-	8	1

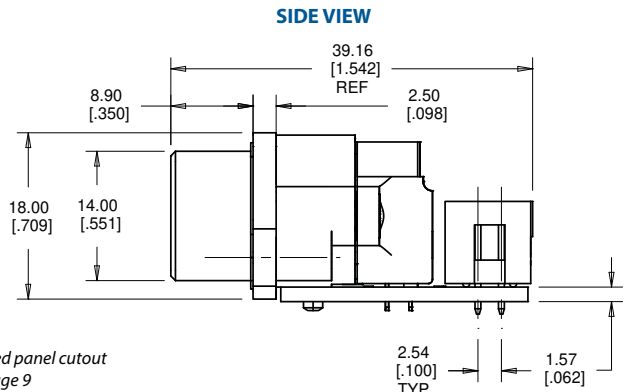
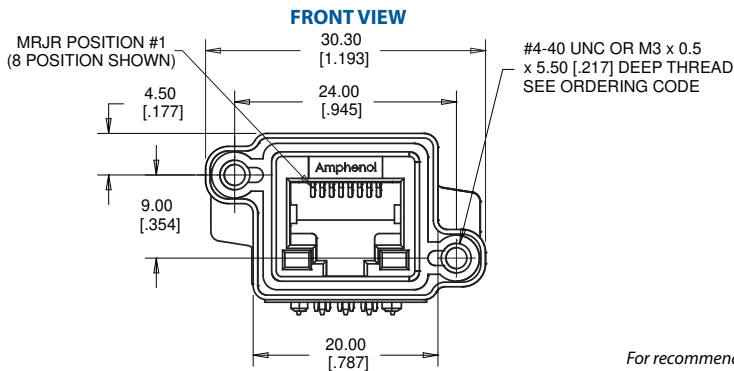
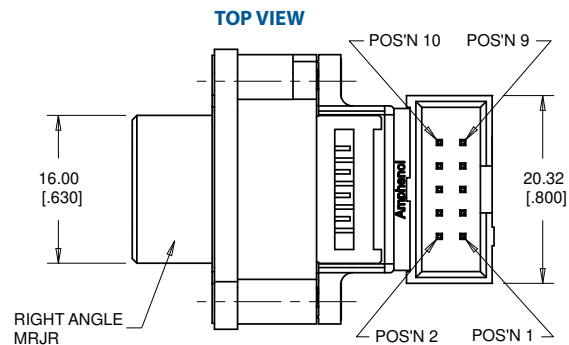
ISOMETRIC VIEW



4, 6 OR 8 CONTACT RECEPTACLE

MRJR-3BXX-X1

MRJR-5BXX-X1



For recommended panel cutout see catalogue page 9

MRJR SERIES

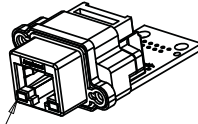
GENERATION 2 RUGGED RJ11/RJ45

MRJR-3CXX-X1 MRJR-5CXX-X1

CONNECTIONS CHART

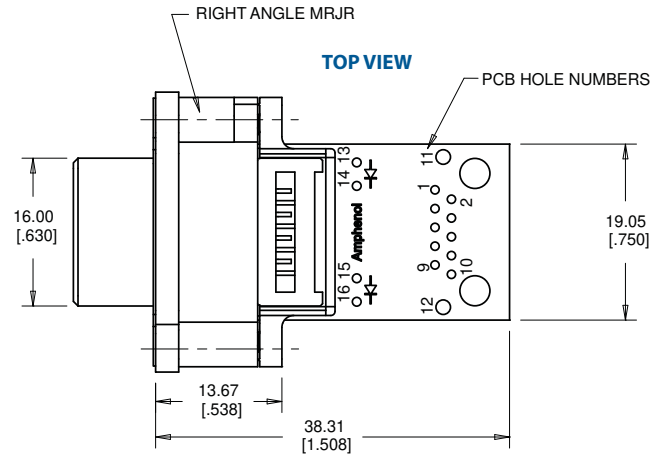
MRJR Connector Type			PCB Hole Numbers
6 Position	8 Position	10 Position	
-	-	1	11 & 12
-	1	2	2
1	2	3	3
2	3	4	4
3	4	5	5
4	5	6	6
5	6	7	7
6	7	8	8
-	8	9	9
-	-	10	10
Shell/GND	Shell/GND	Shell/GND	12
LED 1	LED 1	LED 1	13
LED 2	LED 2	LED 2	14
LED 3	LED 3	LED 3	15
LED 4	LED 4	LED 4	16

ISOMETRIC VIEW

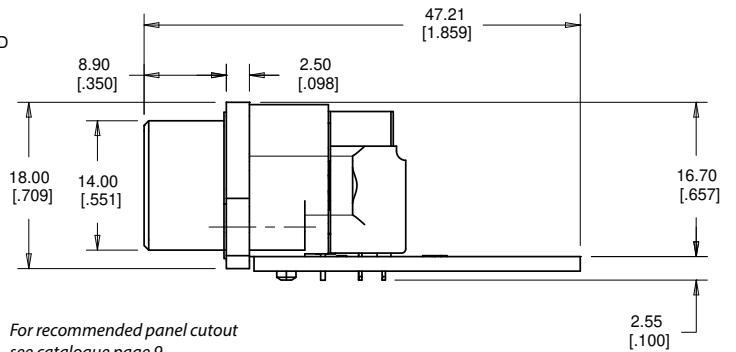


4, 6, 8, OR 10 CONTACT RECEPTACLE

TOP VIEW

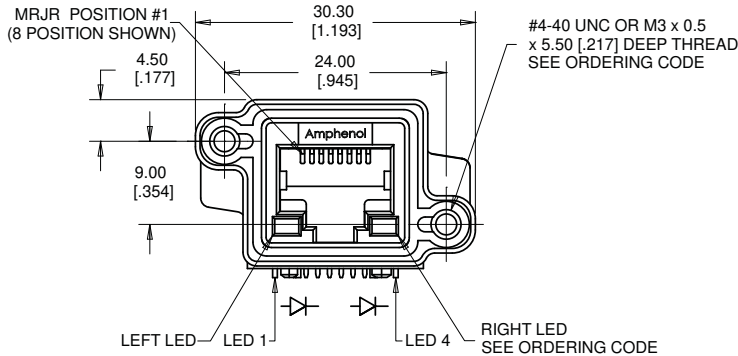


SIDE VIEW



For recommended panel cutout see catalogue page 9

FRONT VIEW

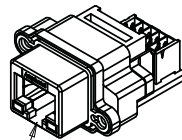


MRJR-3DX0-X1 MRJR-5D8X-X1

CONNECTIONS CHART

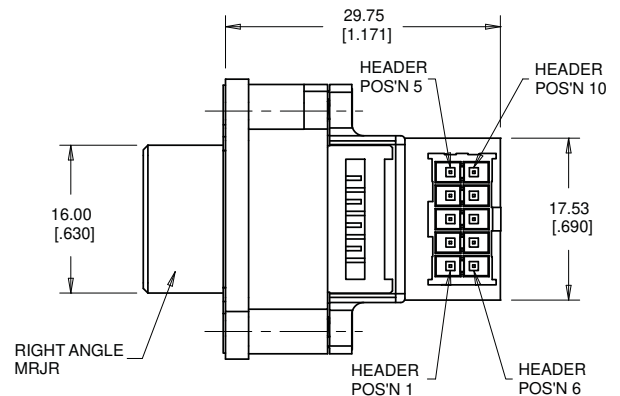
MRJR Connector Type		Header Position
6 Position	8 Position	
Shell/GND	Shell/GND	1 & 10
-	1	5
1	2	9
2	3	4
3	4	8
4	5	3
5	6	7
6	7	2
-	8	6

ISOMETRIC VIEW

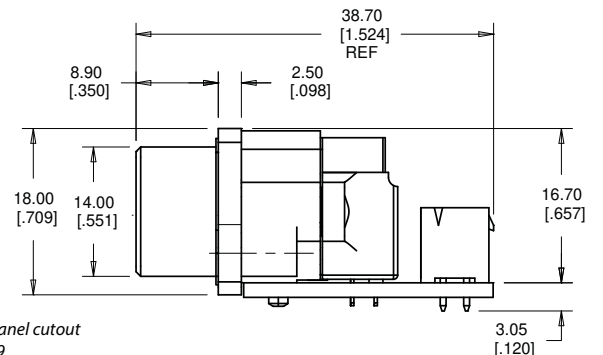


4, 6, OR 8 CONTACT RECEPTACLE

TOP VIEW

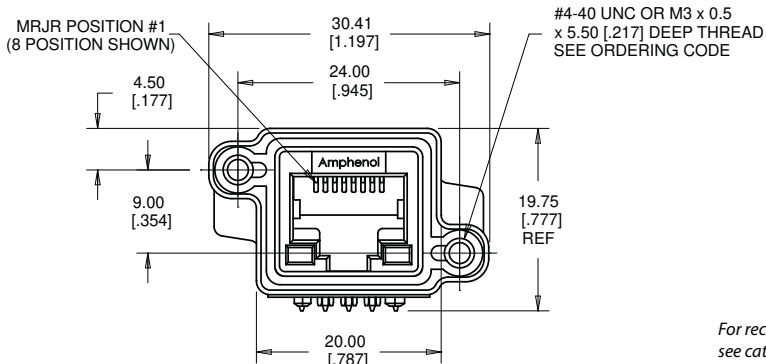


SIDE VIEW

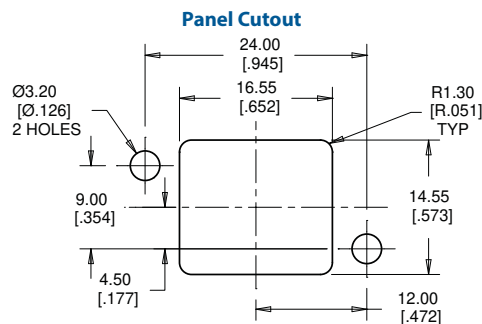
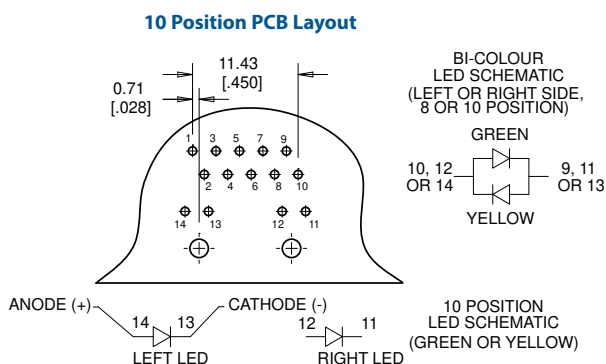
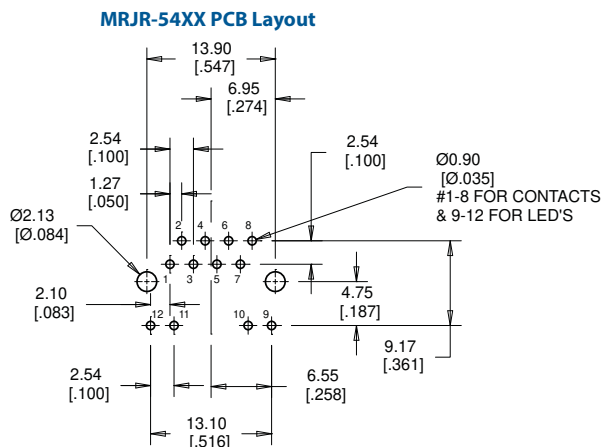
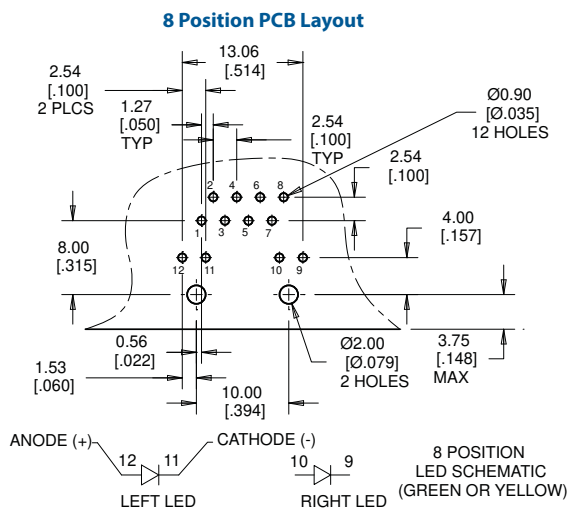


For recommended panel cutout see catalogue page 9

FRONT VIEW



Recommended PCB & Panel Layout



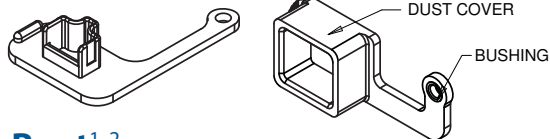
MRJ & MRJR Accessories

Dust Covers

Material: Silicone Rubber

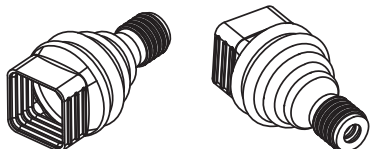
MRJ-2586-10BP (Grey)
MRJ-2586-20BP (Black)

MRJ-2586-01BP (Grey)
MRJ-2586-02BP (Black)

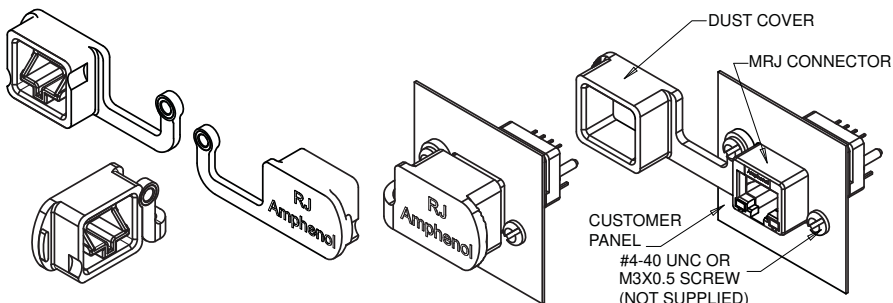


Boot^{1,2}

MRJ-258E-11BP (Transparent)
MRJ-258E-12BP (Black)



MRJ-2586-12BP (Grey)
MRJ-2586-22BP (Black)
MRJ-2586-42BP (Black, Conductive)



Notes:

- 1) Boot to be assembled over RJ cable prior to termination of RJ plug. Slide boot towards cable end to cover plug and mating interface.
- 2) Square end of boot fits over mating end of Amphenol MRJ or MRJR series modular jacks.



Specifications

Connectors are designed to conform to the requirements of TIA-1096-A and IEC 60603-7.

Material

All Materials are RoHS Compliant per EU Directive 2011/65/EU

External Shell:	Die Cast Zinc, Nickel Plated
Front Insert:	Clear Polycarbonate, UL94V-0
Rear Inserts:	High Temperature Resistant Nylon, Glass Reinforced, UL94-0, Black
Contacts:	Phosphor Bronze Alloy Plated with 1.7µm (50µ") min Gold over 1.27µm (50µ") min Nickel on the Mating Area and 2.54µm (100µ") min Matte Tin over Nickel on the Contact Tails
Panel Gasket:	Conductive Silicone Rubber, Black
Mating Area Ground Tab:	Nickel Plated Copper Alloy
LED's:	Epoxy Lens, Tin Plated Steel Tails
Rear Screws:	Nickel Plated Steel
Internal O-rings:	Silicone Rubber, Beige
PCB:	FR4 Fibreglass, Lead Free
Additional Connector:	UL Recognized Component
Ferrite:	Nickel Zinc Soft Ferrite Ceramic

Electrical

Current Rating:	1.5A max per Contact ($\Delta T \leq 30^{\circ}C$)
Contact Resistance:	20 mΩ max
Insulation Resistance:	500 MΩ min
DWV:	1000 VAC rms (between adjacent contacts), 1500 VAC rms (contacts to ground)
LED Characteristics:	Forward DC Current 25mA max, Forward Voltage 2.5V max @2mA
Ferrite Characteristics:	38 Ω at 25 MHz min Impedance, Common Mode Rejection -30dB min up to 250 MHz

Mechanical, Environmental, Regulatory

UL Recognition:	Level DUXR2, File Number E135615	Humidity:	Per EIA-364-31, Steady State, 21 Days, 50°C, 90-95%RH
Water & Dust		Mixed Flowing Gas:	Per EIA 364-65 Class IIA (Cl ₂ , NO ₂ , H ₂ S, & SO ₂), 14 Day Exposure
Protection Level:	Code IP67 per IEC 60529	Salt Spray:	Per EIA 364-26, 250 Hours, 5% Salt, 35°C
Operating Temperature:	-55°C to +105°C	Solvent Resistance:	Isopropyl Alcohol & 5% Sodium Hydroxide Solution, 24 Hrs Each
Durability:	Per EIA 364-09, 2500 Mating Cycles	LED Luminous Intensity:	0.5mCd min at 2mA Forward Current
Vibration:	Per EIA 364-28 Condition II (10g, 10-500 Hz, 6 hours), No Discontinuity ≥ 1µs	Solderability:	Per EIA-364-52, 95% Coverage after Category 2 Steam Aging
Shock:	Per EIA 364-27 Test Condition H (11ms, 30g, ½ Sine), No Discontinuity ≥ 1µs	Insertion & Withdrawal Force:	Per EIA-364-13, 20N (4.5lb _f) max (Latch Disengaged)
Temperature Life w/ Load:	Per EIA-364-17, 1.5 A, 70°C, 500 Hours	Effectiveness of Plug Latch (Coupling Device):	Per EIA-364-13, 50N (11.2lb _f) min
Temperature Life w/o Load:	Per EIA-364-32, -55°C to +105°C, 25 Cycles		
Thermal Shock:	Per EIA-364-31, 21 Cycles, 504 Hrs, 25°C to 65°C,		
Humidity:	90-95%RH, with -10°C Cold Shock		

Application Recommendations

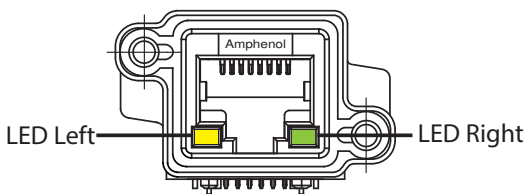
Recommended Mounting Screw Torque: 0.45 to 0.65 N-m (4 to 5.75 In-lbs) for steel screws with 3mm (.118") thread engagement
Recommended Soldering Methods: Manual or wave soldering (solder temperature 260°C max, time 10s max, preheat 100-140°C)

Customer cleaning processes to be polycarbonate compatible to avoid front insertion degradation.

LED Options for MRJ Series

Example Part Number: MRJ-538(X)-01 (X) = LED designation code

For all MRJ Connectors:



LED Code	LED Left	LED Right
0	No LED	No LED
1	Green	Yellow
4	Yellow	Green
5	Green	Green
A	Bi-color Green & Yellow	Bi-color Green & Yellow



MRJ	-	X	X	X	X	-	X	X	X
Rugged RJ Series, Generation 1									
Modular Jack Type									
3 - RJ11, 6 Position ^{1,2}									
5 - RJ45, 8 or 10 Position ^{3,4}									
6 - RJ45, 8 or 10 Position with EMI Ferrite Filtering ⁵									
7 - RJ45, 8 or 10 Position with Transient Voltage Suppression ⁶									
Termination Style									
1 - Vertical, supplied with dust cover									
3 - Right Angle									
4 - Vertical									
5 - Right Angle on PCB with Right Angle Cable Header									
7 - Right Angle on PCB with Right Angle RJ45 Modular Jack ⁷									
8 - Right Angle on PCB with Vertical RJ45 Modular Jack ⁷									
9 - Right Angle on PCB with Terminal Blocks									
A - Right Angle on PCB with Holes for Wiring (Style 5 PCB) ⁸									
B - Right Angle on PCB with Vertical Cable Header ⁹									
C - Right Angle on PCB with Holes for Wiring (Style 7 PCB) ⁸									
D - Right Angle on PCB with Vertical Cable Header ⁹									
Number of Contacts									
8 - 8 Contacts									
A - 10 Contacts									
LED Options									
0 - No LEDs									
1 - Green Left, Yellow Right									
4 - Yellow Left, Green Right									
5 - Green Left, Green Right									
A - Bi-colour Green/Yellow Left & Right									
Tail Length & Thread Options									
0 - 2.54mm [.100"] Tail Length, #4-40 UNC (or Through Hole for Vertical with Other Option 1 or B)									
B - 3.81mm [.150"] Tail Length, #4-40 UNC (or Through Hole for Vertical with Other Option 1 or B)									
M - 2.54mm [.100"] Tail Length, M3 x 0.5 Thread									
P - 3.81mm [.150"] Tail Length, M3 x 0.5 Thread									
Other Options¹⁰									
1 - Single Port, Right Angle with Threaded Holes or Vertical with Through Hole & Gasket on Back of Flange									
B - Single Port, Vertical with Through Hole & Gasket on Front of Flange									
F - Single Port, Vertical with Threaded Holes									
Unique Special Code									
No Digit - Part Defined by Previous Digits of Part Number									
1 to 9 - Identifies Unique Special Feature									
Many unique features are readily available to suit customer requirements. Consult with Amphenol Canada for details.									

Notes:

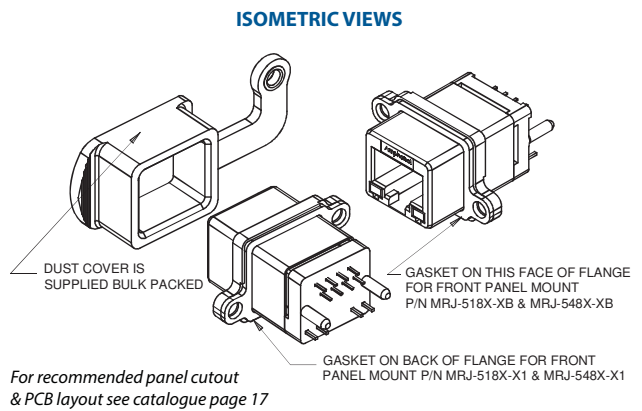
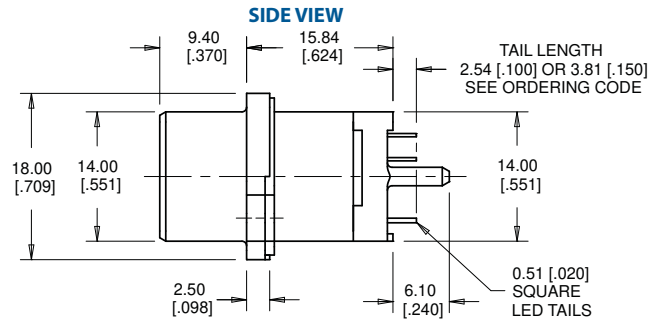
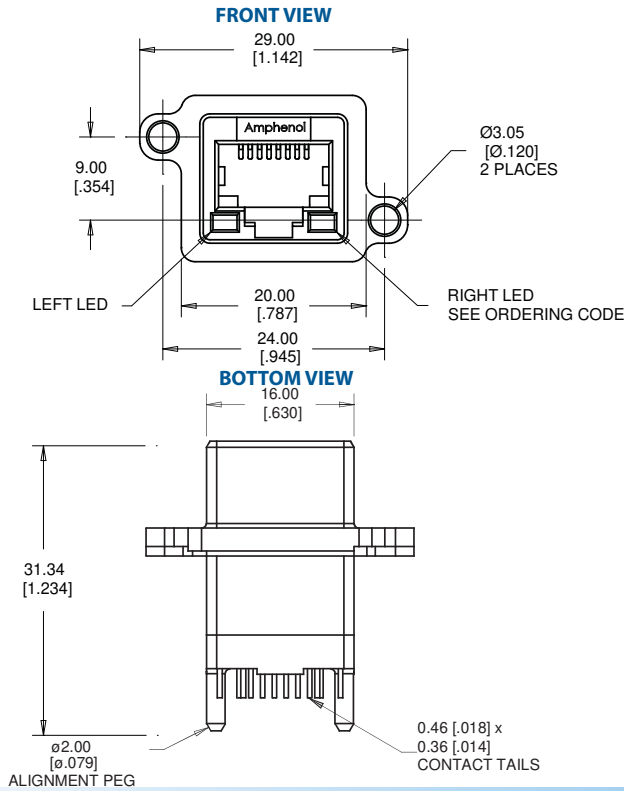
- 1) Term RJ11 refers to jack for 6P2C, 6P4C or 6P6C (RJ11, RJ12, RJ13, RJ14, RJ18 or RJ25).
- 2) RJ11 jacks currently available in MRJR series only. See MRJR catalogue pages.
- 3) Term RJ45 refers to non-keyed jack for 8P8C or 10P10C (RJ31, RJ38, RJ48C, RJ49, RJ50, RJ61).
- 4) 10 position jack currently available for right angle connectors only.
- 5) Ferrite option currently available for right angle connectors only.
- 6) Transient voltage suppression for connectors on a PCB only. Consult with Amphenol for availability.
- 7) Termination styles 7 & 8 currently available for RJ45 (8P8C) only.
- 8) Termination style A uses the PCB from termination style 5. Termination style C uses the PCB from termination style 7.
- 9) Termination styles B & D currently available for RJ45 (8P8C) without LEDs only.
- 10) Consult with Amphenol for additional termination styles, solder cup contacts, LED colours, contact tail lengths, mounting styles, conductive gaskets or other requirements of interest. See catalogue Accessories pages for dust cover and plug boot options.

MRJ SERIES

GENERATION 1 RUGGED RJ45

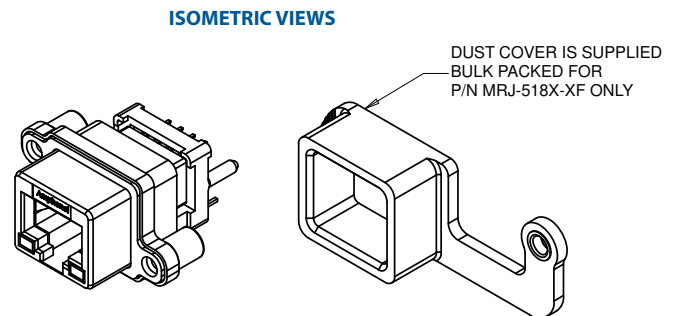
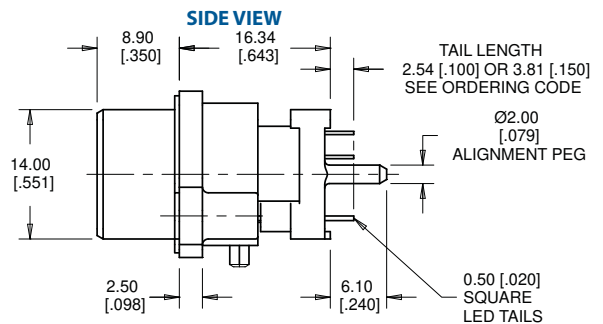
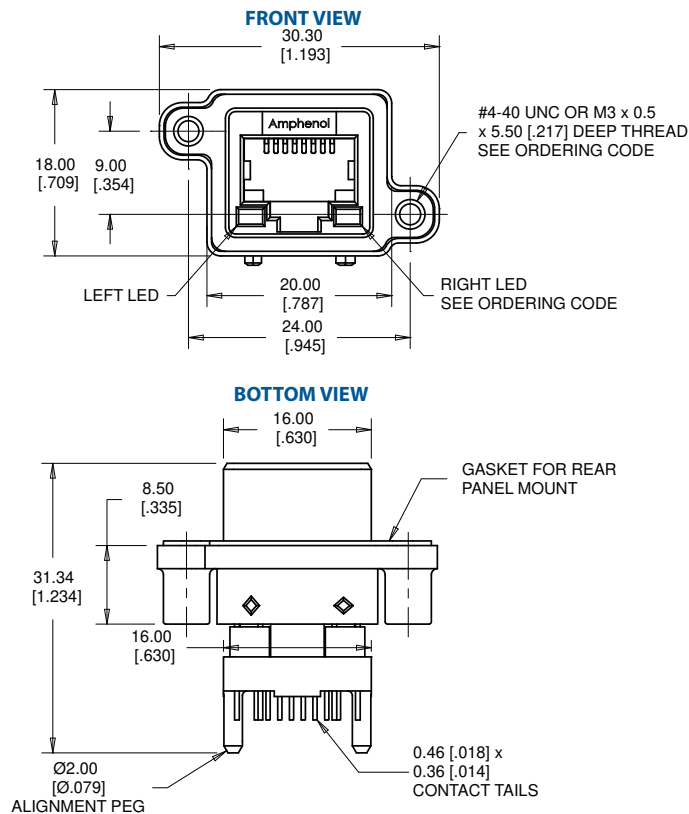
MRJ-518X-X1
MRJ-518X-XB

MRJ-548X-X1
MRJ-548X-XB



MRJ-518X-XF

MRJ-548X-XF

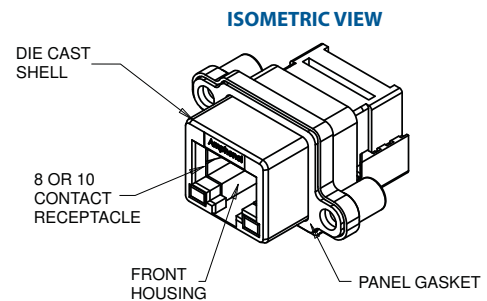
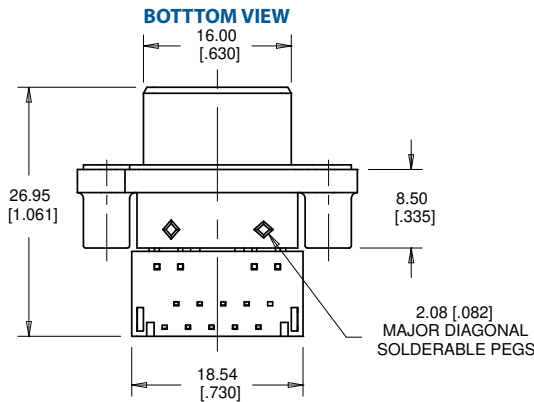
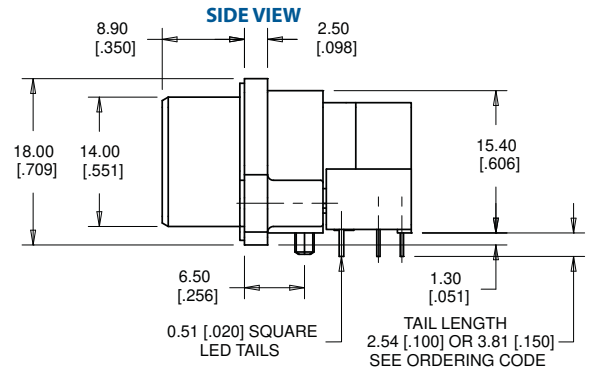
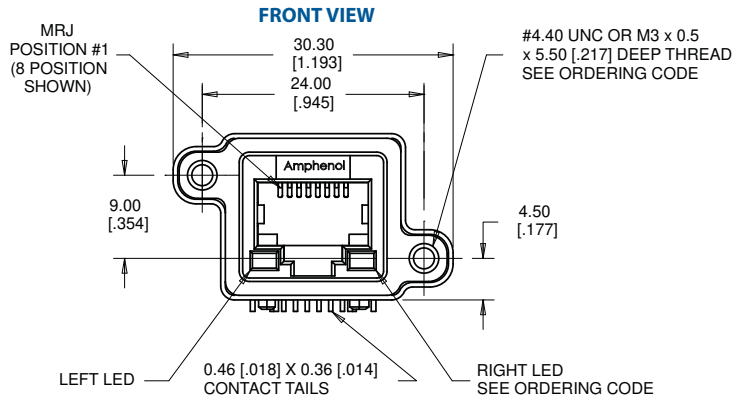


For recommended panel cutout & PCB layout see catalogue page 17

GENERATION 1 RUGGED RJ45

MRJ SERIES

MRJ-53XX-X1

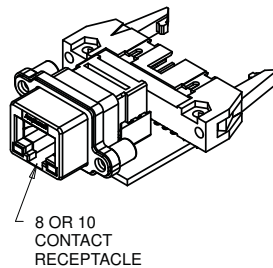


For recommended panel cutout & PCB layout see catalogue page 17

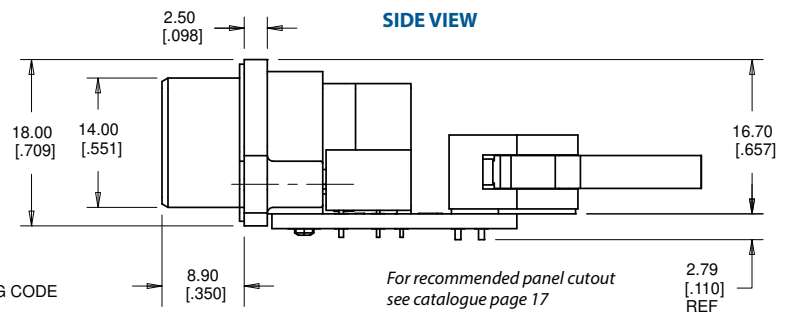
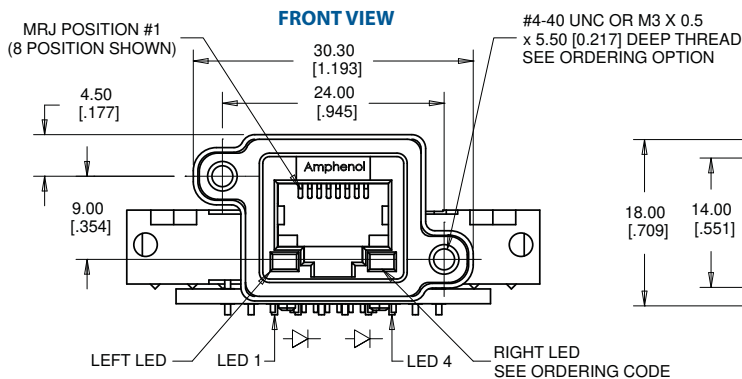
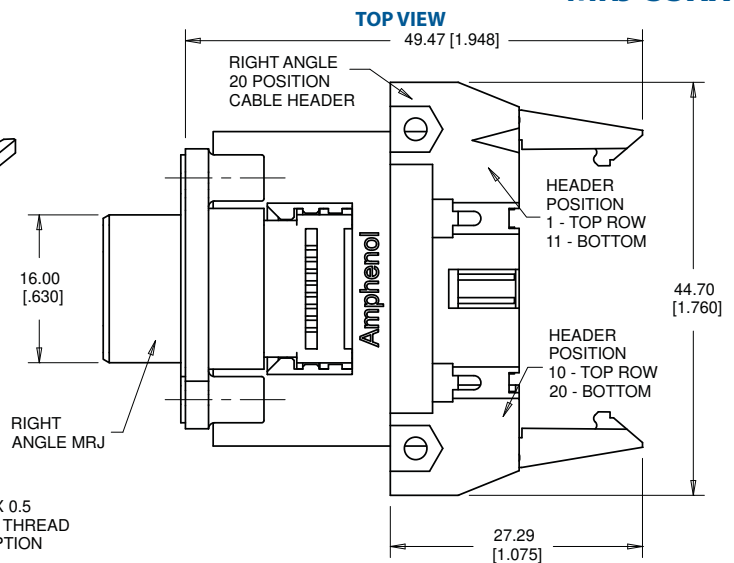
CONNECTIONS CHART

MRJ Connector Type		PCB Hole Number
8 Position	10 Position	
Shell/GND	Shell/GND	10
-	1	2
1	2	12
2	3	3
3	4	13
4	5	4
5	6	14
6	7	5
7	8	15
8	9	6
-	10	16
LED 1	LED 1	1
LED 2	LED 2	11
LED 3	LED 3	7
LED 4	LED 4	17

ISOMETRIC VIEW



MRJ-55XX-X1



MRJ SERIES

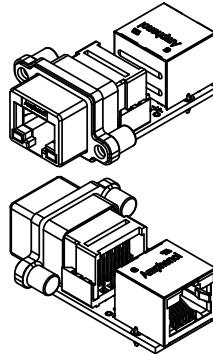
GENERATION 1 RUGGED RJ45

MRJ-578X-X1

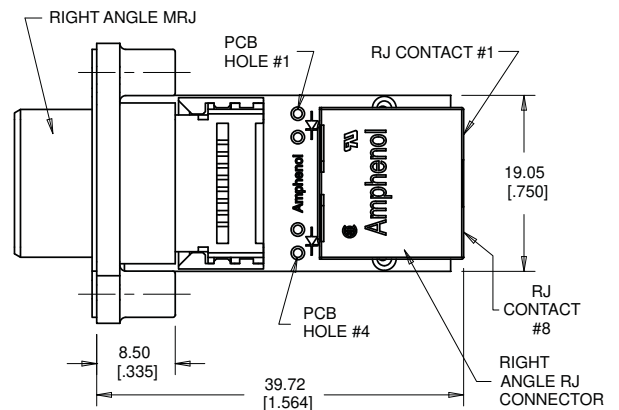
CONNECTIONS CHART

MRJ Contact	RJ Contact
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
Shell/GND	Shield/GND
MRJ LED	PCB Holes
LED 1	1
LED 2	2
LED 3	3
LED 4	4

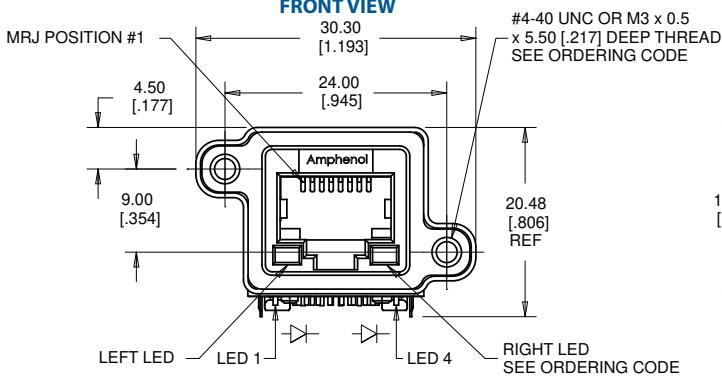
ISOMETRIC VIEWS



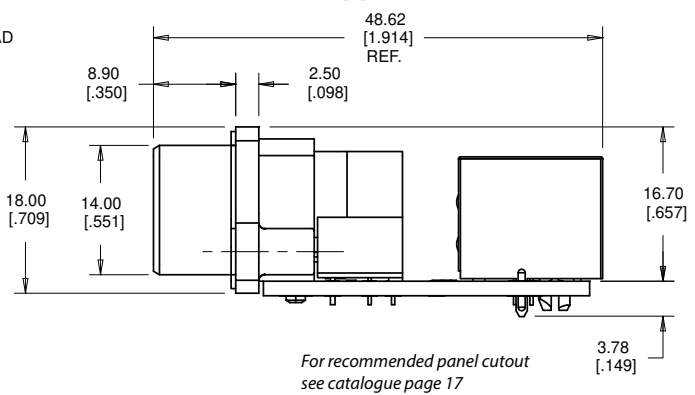
TOP VIEW



FRONT VIEW



SIDE VIEW

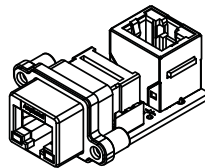


MRJ-588X-X1

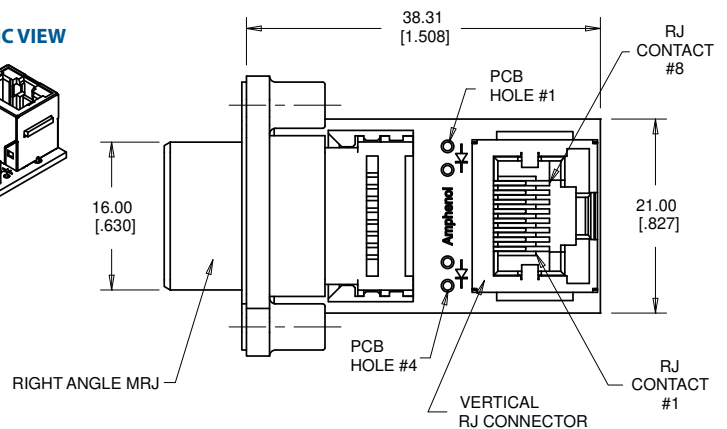
CONNECTIONS CHART

MRJ Contact	RJ Contact
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
Shell/GND	Shield/GND
MRJ LED	PCB Holes
LED 1	1
LED 2	2
LED 3	3
LED 4	4

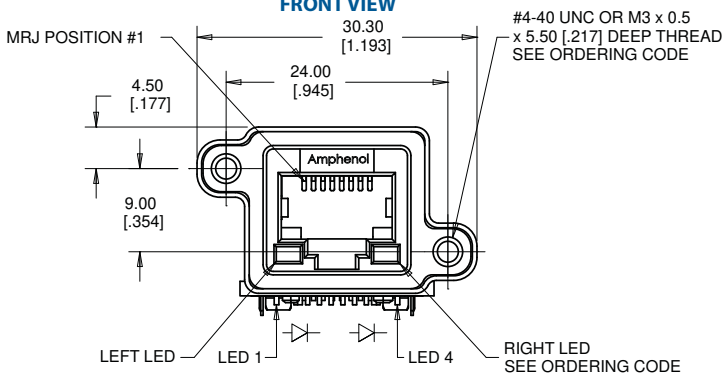
ISOMETRIC VIEW



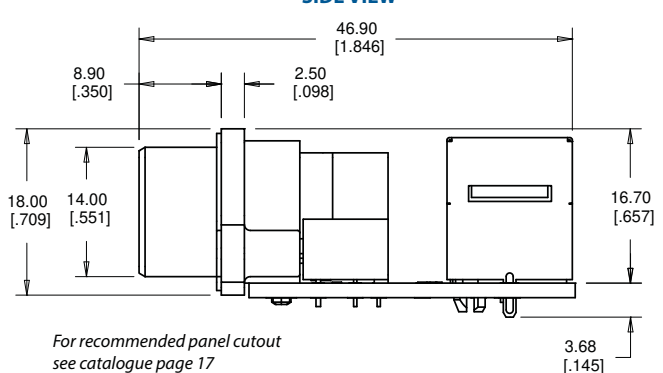
TOP VIEW



FRONT VIEW



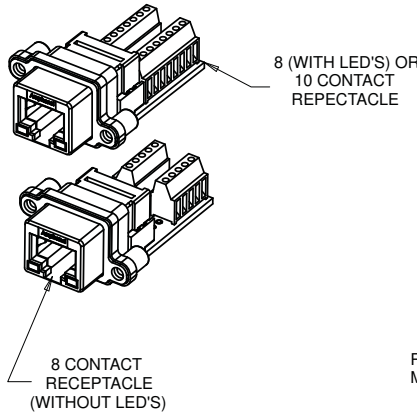
SIDE VIEW



CONNECTIONS CHART

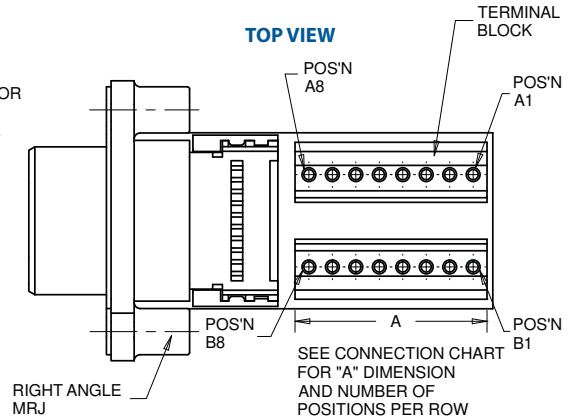
MRJ Connector Type			Terminal Block Position
8 Position No LEDs	8 Position with LEDs	10 Position Shell/GND	
Shell/GND	Shell/GND	Shell/GND	A1 & B1
4	4	5	A2
3	3	4	A3
2	2	3	A4
1	1	2	A5
-	-	1	A6
-	LED 1	LED 1	A7
-	LED 2	LED 2	A8
5	5	6	B2
6	6	7	B3
4	4	8	B4
8	8	9	B5
-	-	10	B6
-	LED 4	LED 4	B7
-	LED 3	LED 3	B8
5/Row	8/Row	8/Row	Position
13.16 [518]	20.87 [818]	20.87 [818]	A' Dim'n

ISOMETRIC VIEWS

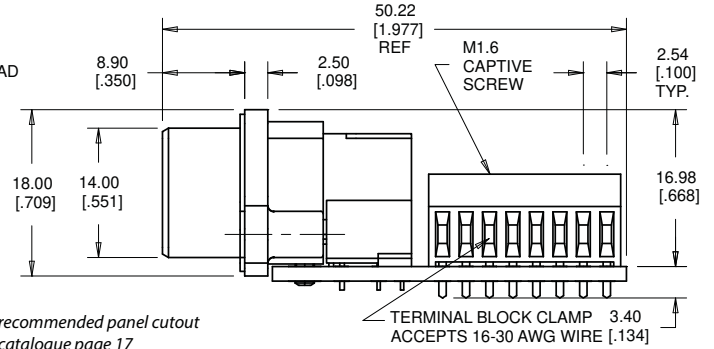


MRJ-59XX-X1

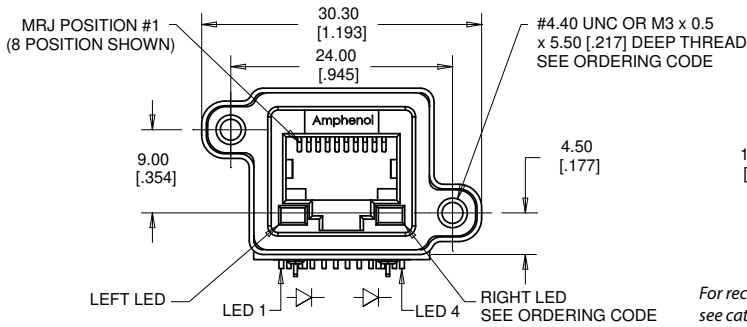
TOP VIEW



SIDE VIEW



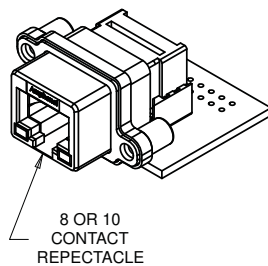
FRONT VIEW



CONNECTIONS CHART

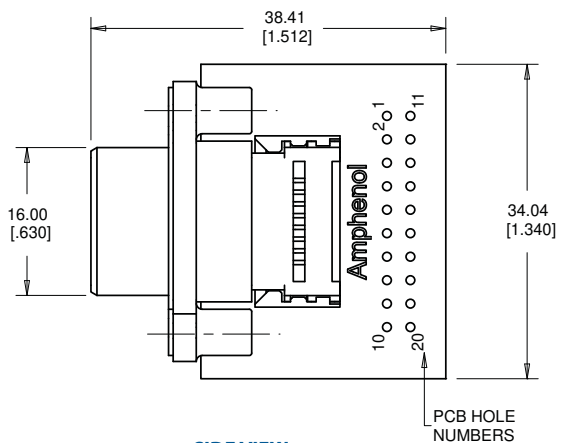
MRJ Connector Type		PCB Hole Number
8 Position	10 Position	
Shell/GND	Shell/GND	10
-	1	2
1	2	12
2	3	3
3	4	13
4	5	4
5	6	14
6	7	5
7	8	15
8	9	6
-	10	16
LED 1	LED 1	1
LED 2	LED 2	11
LED 3	LED 3	7
LED 4	LED 4	17

ISOMETRIC VIEW

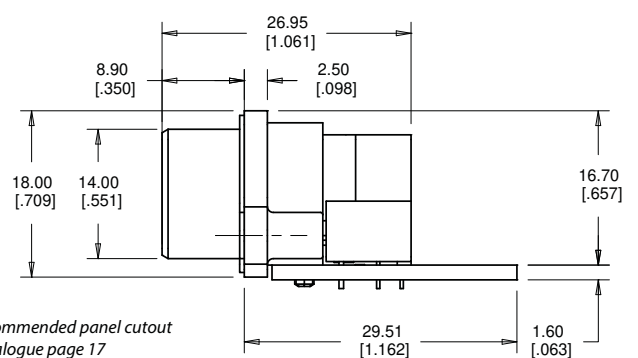


MRJ-5AXX-X1

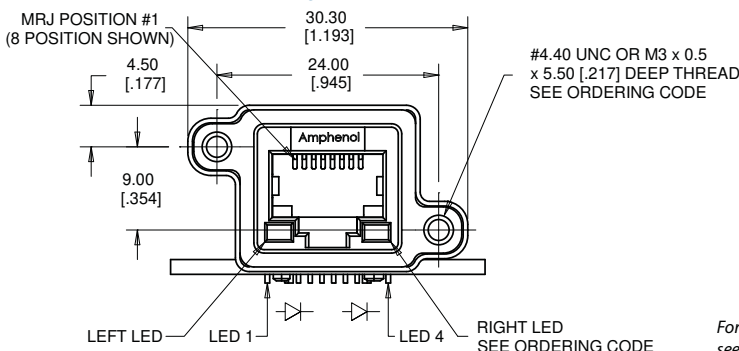
TOP VIEW



SIDE VIEW



FRONT VIEW



MRJ SERIES

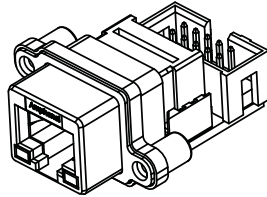
GENERATION 1 RUGGED RJ45

MRJ-5B80-X1

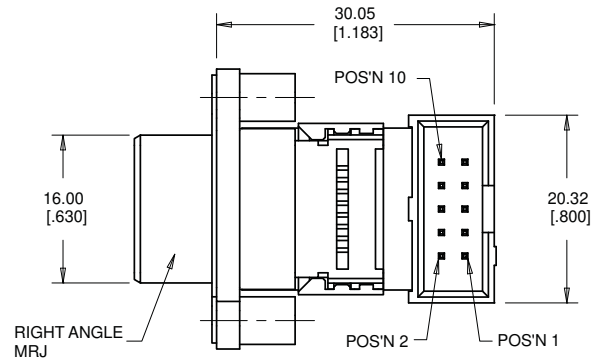
CONNECTIONS CHART

MRJ 8 Position	Header Position
Shell/GND	2 & 9
1	10
2	7
3	8
4	5
5	6
6	3
7	4
8	1

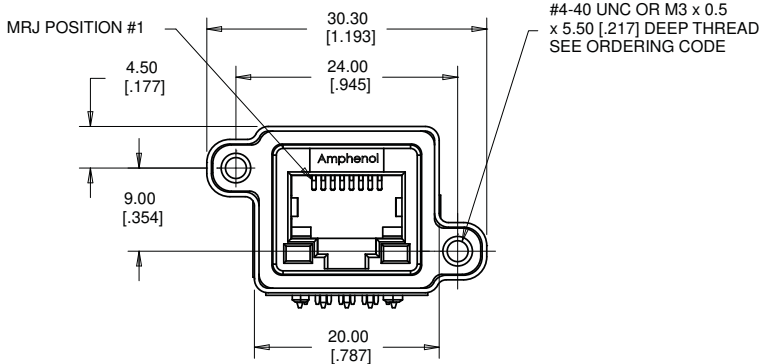
ISOMETRIC VIEW



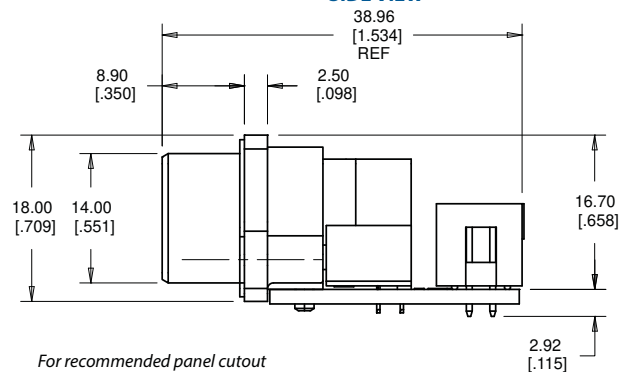
TOP VIEW



FRONT VIEW



SIDE VIEW

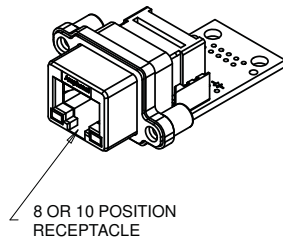


MRJ-5CXX-X1

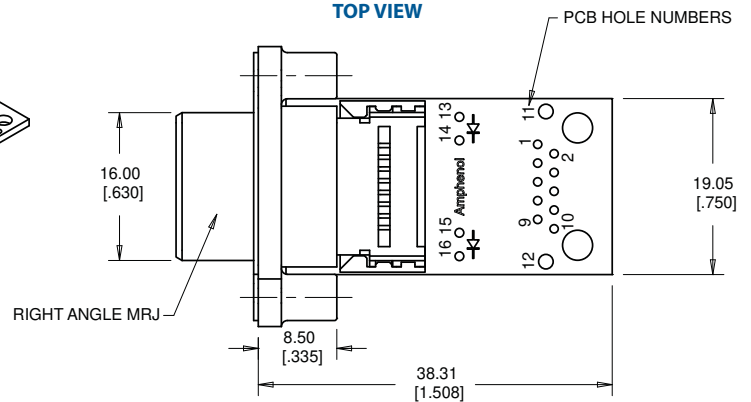
CONNECTIONS CHART

MRJ Connector Type	8 Position	10 Position	PCB Hole Number
Shell/GND	Shell/GND	Shell/GND	11 & 12
-	1	1	1
1	2	2	2
2	3	3	3
3	4	4	4
4	5	5	5
5	6	6	6
6	7	7	7
7	8	8	8
8	9	9	9
-	10	10	10
LED 1	LED 1	LED 1	13
LED 2	LED 2	LED 2	14
LED 3	LED 3	LED 3	15
LED 4	LED 4	LED 4	16

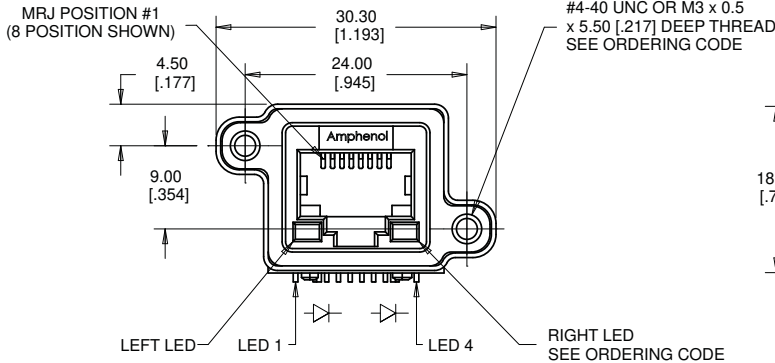
ISOMETRIC VIEW



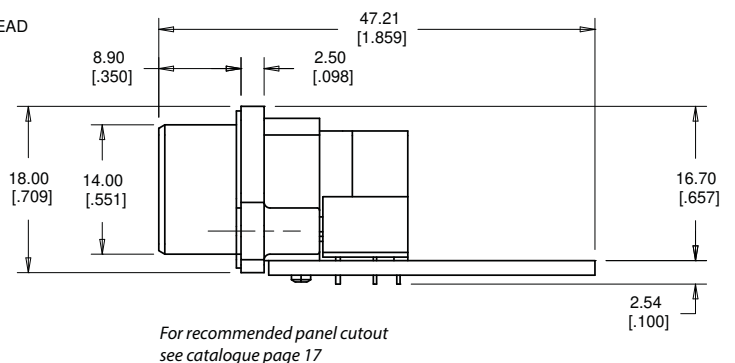
TOP VIEW



FRONT VIEW



SIDE VIEW

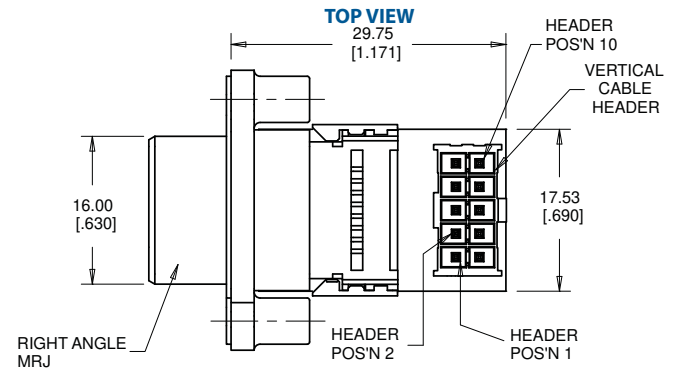
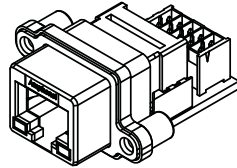


MRJ-5D8X-X1

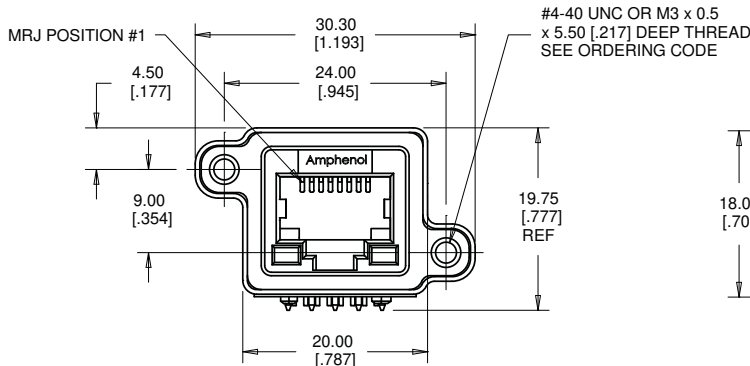
CONNECTIONS CHART

MRJ 8 Position	Header Position
Shell/GND	1 & 10
1	5
2	9
3	4
4	8
5	3
6	7
7	2
8	6

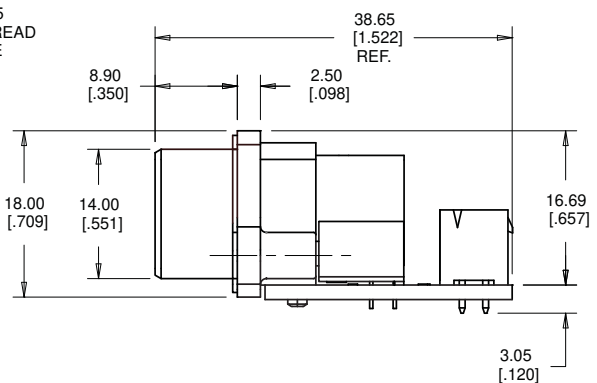
ISOMETRIC VIEW



FRONT VIEW

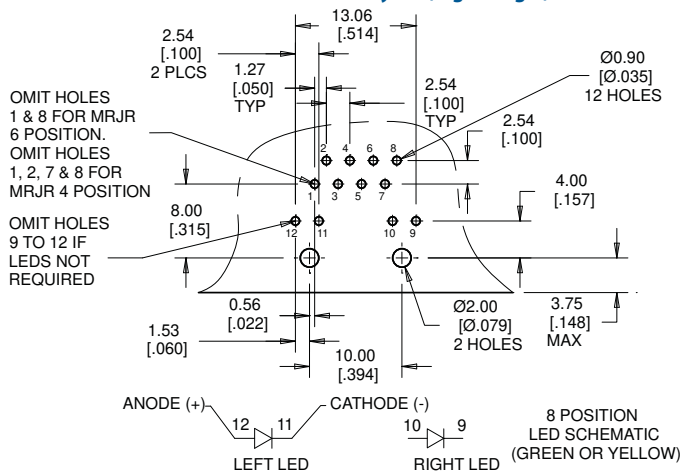


SIDE VIEW



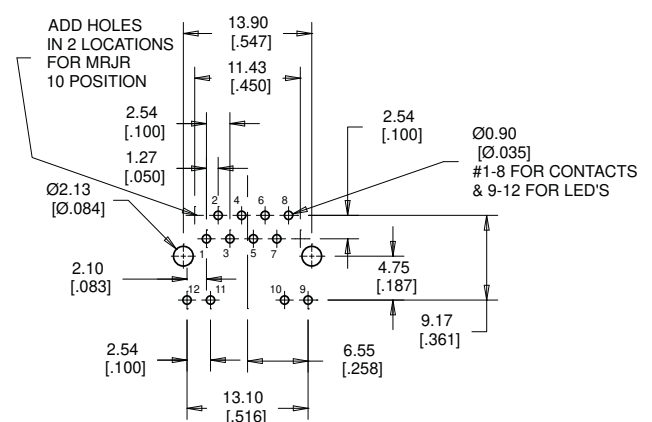
For recommended panel cutout see below

Recommended PCB Layout (Right Angle)

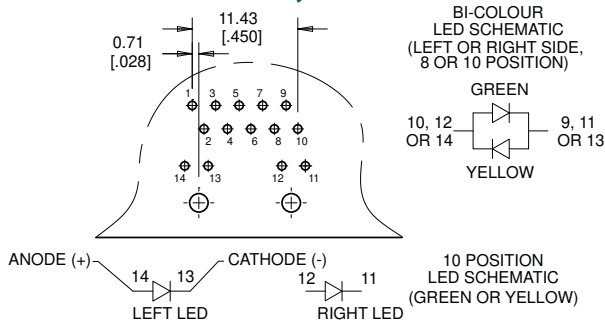


Recommended PCB & Panel Layouts

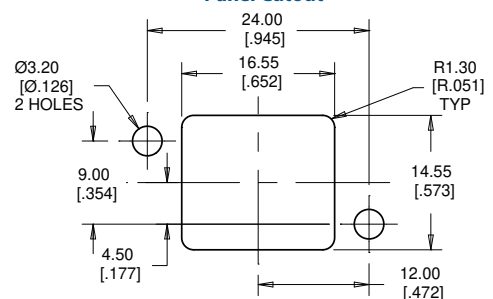
Recommended PCB Layout (Vertical)



10 Position PCB Layout



Panel Cutout





Specifications

Connectors are designed to conform to the requirements of the USB 2.0 specification.

Material

All Materials are RoHS Compliant per EU Directive 2011/65/EU

External Shell:	Die Cast Zinc, Nickel Plated
Insulator Housing:	High Temperature Resistant Engineering Thermoplastic, Glass Reinforced, UL94V-0, Black
Contacts:	Phosphor Bronze, Plated with 0.76µm (30µ") min Gold over 1.27µm (50µ") min Nickel on the Mating Area and 2.54µm (100µ") min Matte Tin over Nickel on the Contact Tails
Internal Shield & Rear Shield:	Stainless Steel, Passivated
Panel Gasket:	Conductive Silicone Rubber, Black
Internal O-ring:	Silicone Rubber, Beige
PCB:	FR4 Fibreglass, Lead Free
Additional Connector:	UL Recognized Component

Electrical

Current Rating:	<i>Standard A</i> - 30 mA max per Contact ($\Delta T \leq 30^{\circ}C$) <i>Mini</i> - 1A max per Contact ($\Delta T \leq 30^{\circ}C$)
Contact Resistance:	<i>Standard A</i> - 30 mΩ max <i>Mini</i> - 50 mΩ max
Insulation Resistance:	<i>Standard A</i> - 1000 MΩ min <i>Mini</i> - 100 MΩ min
DWV:	<i>Standard A</i> - 500 VAC rms <i>Mini</i> - 100 VAC rms

Mechanical, Environmental, Regulatory

UL Recognition:	Level DUXR2, File Number E135615, see Listing	Thermal Shock:	Per EIA-364-32, -40°C to +125°C, 5 Cycles
Water & Dust Protection Level:	Code IP67 per IEC 60529	Humidity:	Per EIA 364-31, 10 Cycles, 240 Hrs, 25°C to 65°C 90-95%RH, with -10C Cold Shock
Operating Temperature:	-40°C to +105°C	Mixed Flowing Gas:	Per EIA 364-65 Class IIA (Cl ₂ , NO ₂ , H ₂ S & SO ₂), 14 Day Exposure
Insertion Force:	Per EIA-364-13, 35N (7.9lb _f) max	Solvent Resistance:	Isopropyl Alcohol & 5% Sodium Hydroxide Solution, 24 Hrs Each
Extraction Force:	Per EIA-364-13, <i>Standard A</i> - 10N (2.2lb _f) min <i>Mini</i> - 7N (1.6lb _f) min Initial, 3N (0.7lb _f) min after Durability	Solderability:	Per EIA-364-52, 95% Coverage after Category 2 Steam Aging
Durability:	Per EIA 364-09, <i>Standard A</i> - 1500 Mating Cycles <i>Mini</i> - 5000 Mating Cycles		
Vibration:	Per EIA 364-28 Random Condition V, Letter A No Discontinuity $\geq 1\mu s$		
Shock:	Per EIA 364-27 Test Condition H (11 ms, 30, ½ Sine), No Discontinuity $\geq 1\mu s$		
Temperature Life w/o Load:	Per EIA-364-17, 105°C, 1000 Hours		

Application Recommendations

Recommended Mounting Screw Torque:	<i>Standard A</i> - 0.45 to 0.65N-m (4 to 5.75 In-lbs) for steel screws with 3mm (.118") thread engagement, <i>Micro</i> - 0.23 to 0.34N-m (2 to 3 In-lbs) for steel screws with 2.5mm (.098") thread engagement
Recommended Soldering Methods:	Manual or wave (solder temperature 260°C max, time 10s max, preheat 100-140°C)

MUSBR - X X X 1 - X X X

Rugged USB Receptacle Series, Generation 2

Receptacle Type Per USB 2.0¹

- A - Standard A Series
- B - Mini B Series
- E - Mini AB Series

Termination Style

- 1 - Right Angle
- 2 - Right Angle on PCB with Right Angle Cable Header
- 3 - Right Angle on PCB with Right Angle Matching USB Type Connector
- 4 - Right Angle on PCB with Terminal Blocks
- 5 - Vertical²
- 8 - Right Angle on PCB with Vertical Cable Header²
- A - Right Angle on PCB with Holes for Wiring (Style 3 PCB)³
- B - Right Angle on PCB with Vertical Single Row Isolated Header²
- E - Right Angle on PCB with Vertical Matching USB Type Connector²

Number of Contacts

- 1 - Standard 4 Contacts per Port for Types A
- 5 - Standard 5 Contacts per Port for Types B & E

Insulator Housing Colour

- 1 - Black for Types A, B & E

Shell & Thread Options^{4, 5}

- 3 - Standard Shell, Unified Thread
- 4 - Low Profile Shell for Type A, Unified Thread
- 5 - Rear Flange Shell for Types B & E, Unified Thread
- M - Standard Shell, Metric Thread
- R - Low Profile Shell for Type A, Metric Thread
- T - Rear Flange Shell for Types B & E, Metric Thread

Dust Cover Options⁶

- 0 - With No Dust Cover
- 1 - With Grey Dust Cover
- 5 - With Black Dust Cover

Unique Special Code⁷

- No Digit - Part Defined by Previous Digits of Part Number
- 1 to 9 - Identifies Unique Special Features

Many unique features are readily available to suit customer requirements. Consult with Amphenol Canada for details.

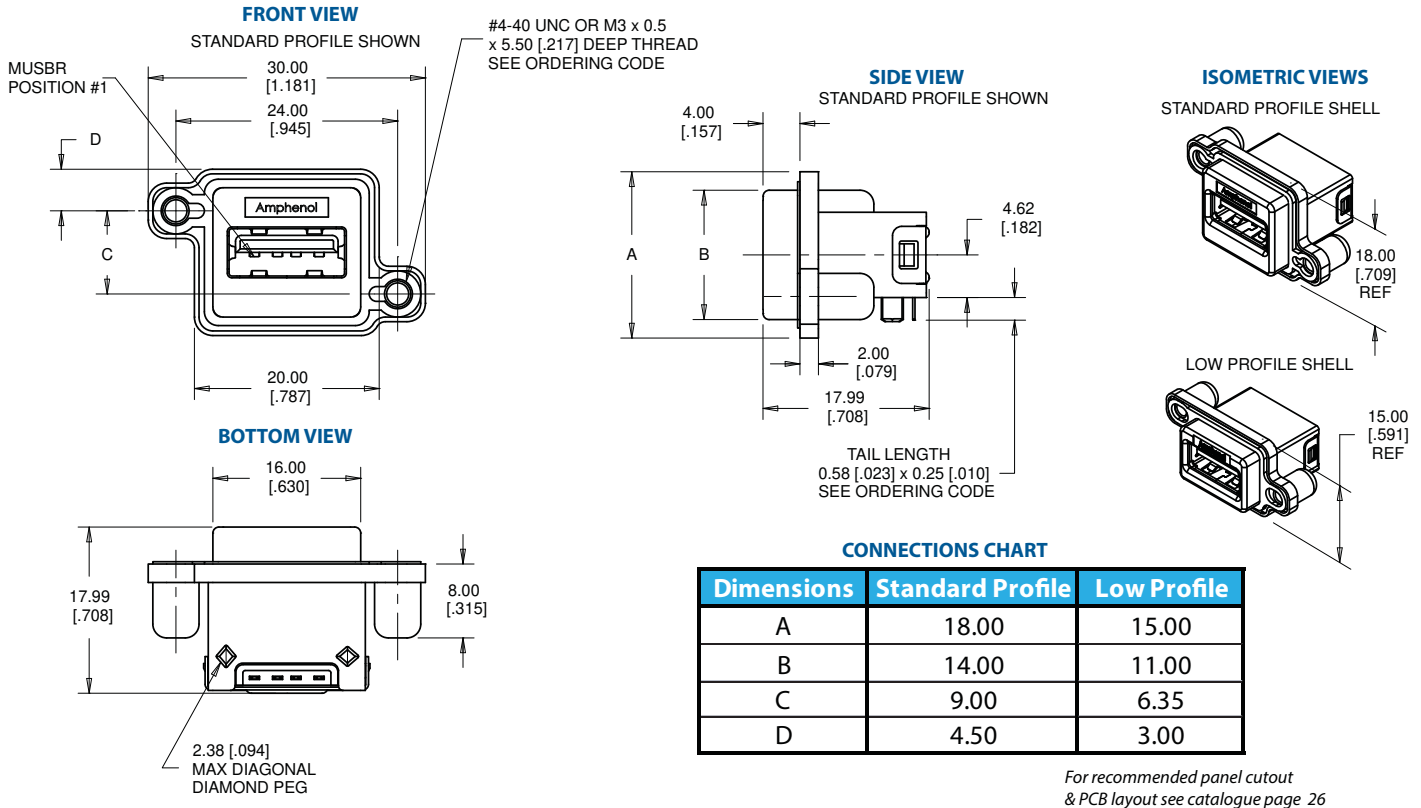
Notes:

- 1) For a Micro AB receptacle with epoxy free design, refer to MUSB series receptacle type K.
- 2) Termination styles 8, B & E are currently available for receptacle type A only.
- 3) Termination style A uses the PCB from termination style 3.
- 4) For receptacle type A (Standard A Series), the term standard shell relates to the shell profile. For receptacle types B & E (Mini B & Mini AB), the term standard shell relates to the position of the flange. It is not an indication of connector availability.
- 5) For receptacle type A (Standard A Series), the unified thread is #4-40UNC and the metric thread is M3 x 0.5. For receptacle types B & E (Mini B & Mini AB), the unified thread is #2-56UNC and the metric thread is M2.5 x 0.45.
- 6) When dust covers are supplied with the connector, they are not installed. They are supplied in bulk inside each package of connectors.
- 7) Consult with Amphenol for additional termination styles, solder cup contacts, contact tail lengths, mounting styles, non-conductive gaskets or other requirements of interest. See catalogue Accessories page for dust cover options.

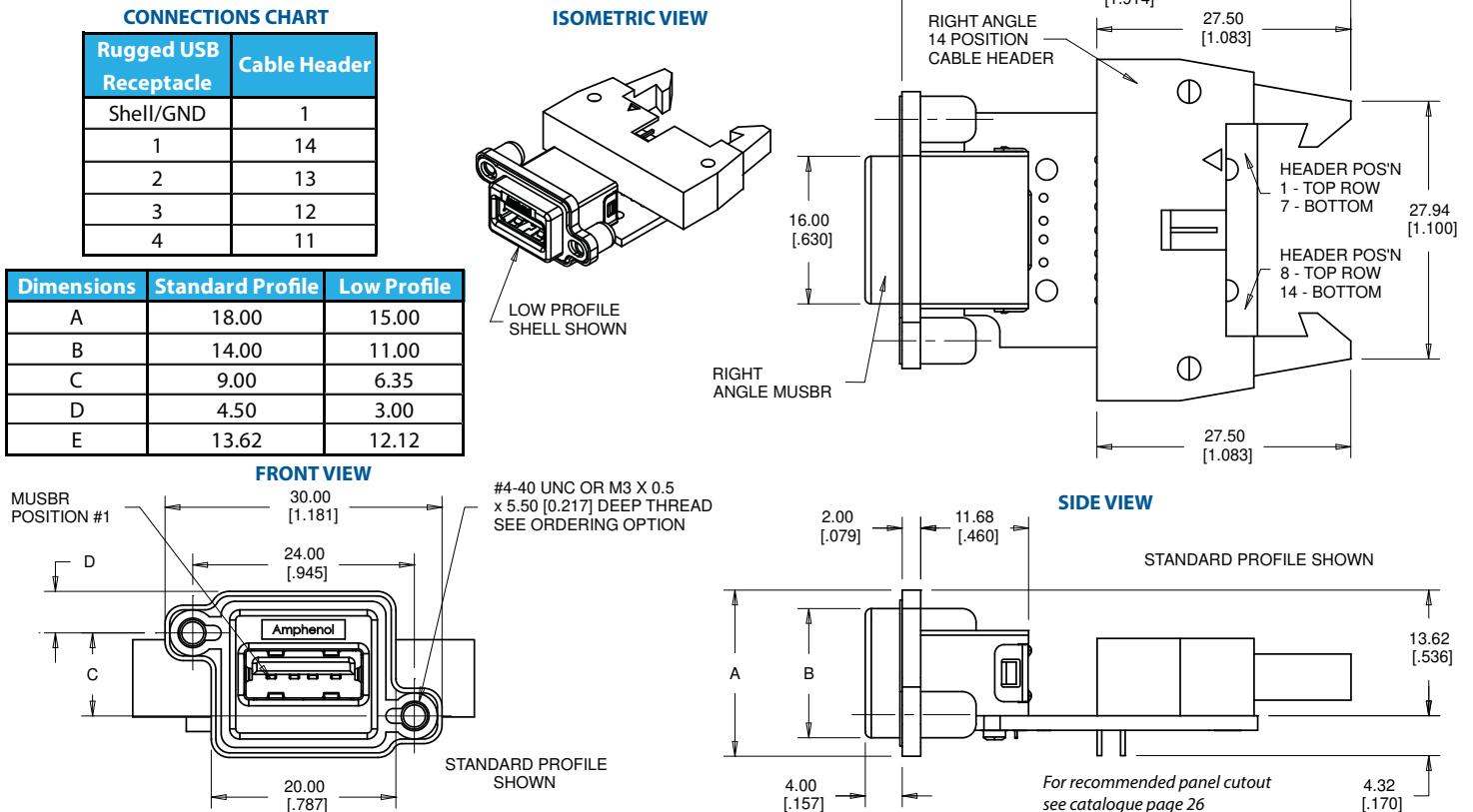
MUSBR SERIES

GENERATION 2 RUGGED USB

MUSBR-A111-XX



MUSBR-A211-XX

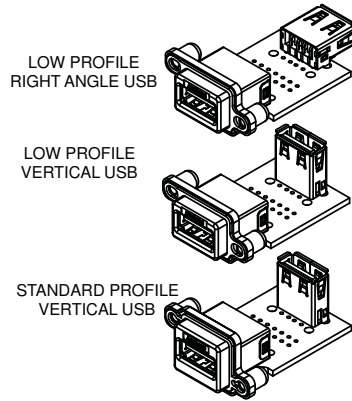


CONNECTIONS CHART

MUSBR Contact	USB Position
Shell/GND	Shell/GND
1	1
2	2
3	3
4	4

Dimension	Standard Profile	Low Profile
A	18.00	15.00
B	14.00	11.00
C	9.00	6.35
D	4.50	3.00
E	13.62	12.12

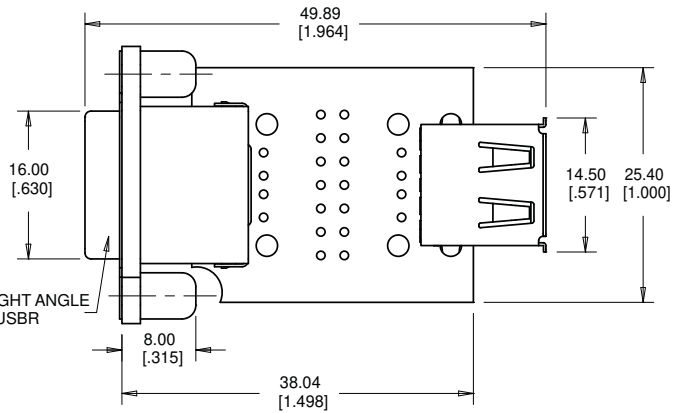
ISOMETRIC VIEWS



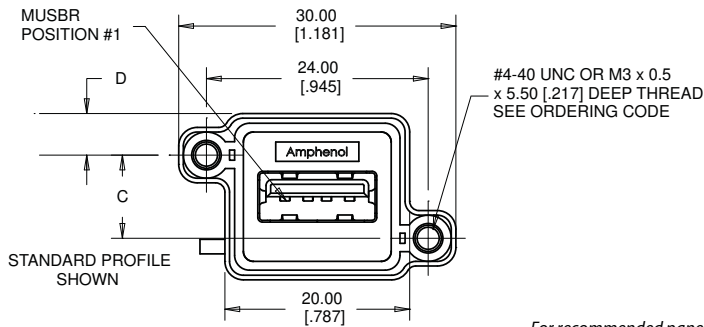
MUSBR-A311-XX

MUSBR-AE11-XX

TOP VIEW

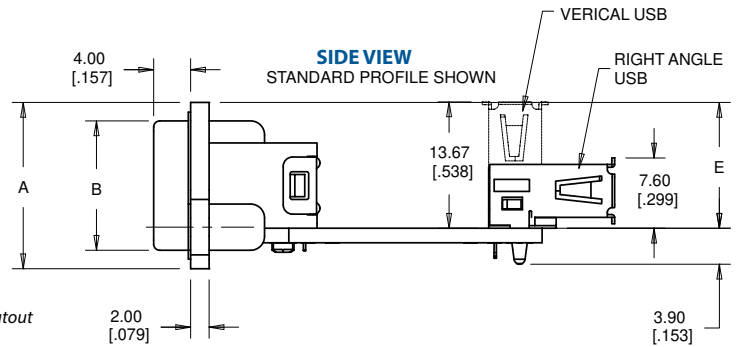


FRONT VIEW



For recommended panel cutout see catalogue page 26

SIDE VIEW



MUSBR-A411-XX

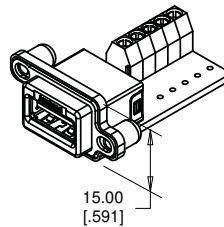
CONNECTIONS CHART

MUSBR Position	Terminal Position
Shell/GND	5
1	1
2	2
3	3
4	4

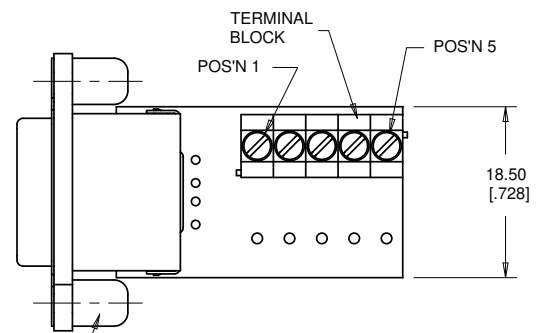
Dimension	Standard Profile	Low Profile
A	18.00	15.00
B	14.00	11.00
C	9.00	6.35
D	4.50	3.00
E	13.62	12.12

ISOMETRIC VIEW

LOW PROFILE

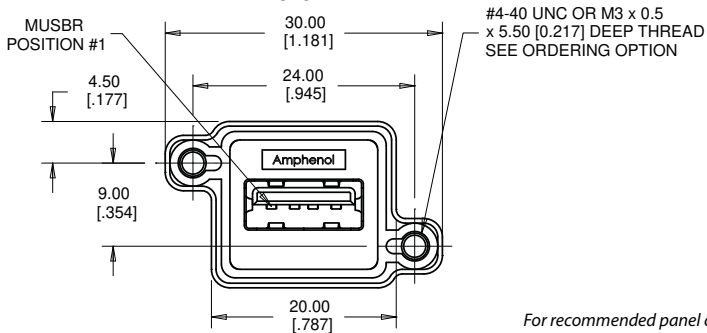


TOP VIEW



FRONT VIEW

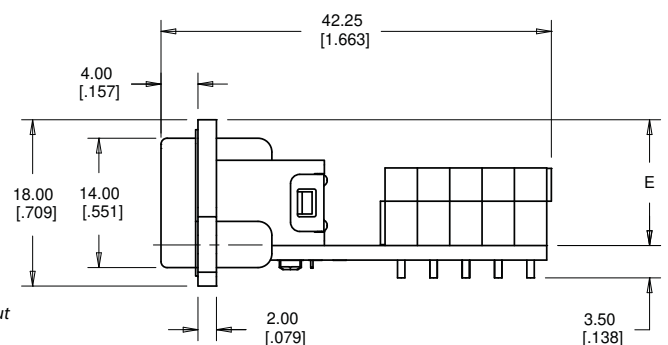
STANDARD PROFILE SHOWN



For recommended panel cutout see catalogue page 26

SIDE VIEW

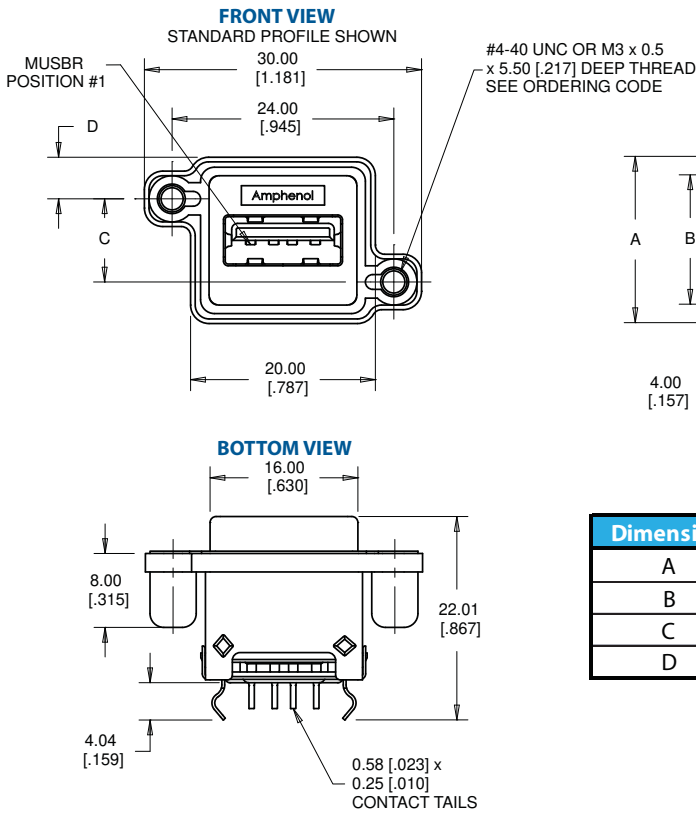
STANDARD PROFILE SHOWN



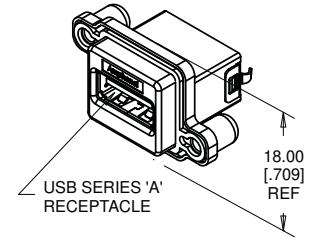
MUSBR SERIES

GENERATION 2 RUGGED USB

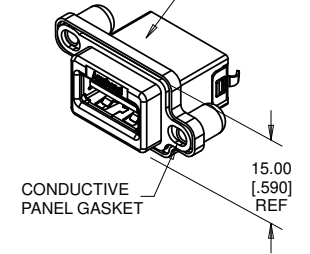
MUSBR-A511-XX



ISOMETRIC VIEWS
STANDARD PROFILE SHELL



LOW PROFILE SHELL
DIECAST SHELL



CONNECTIONS CHART

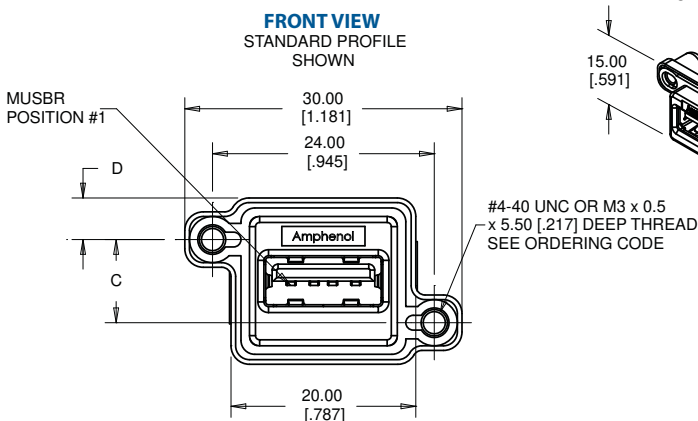
Dimension	Standard Profile	Low Profile
A	18.00	15.00
B	14.00	11.00
C	9.00	6.35
D	4.50	3.00

For recommended panel cutout & PCB layout see catalogue page 26

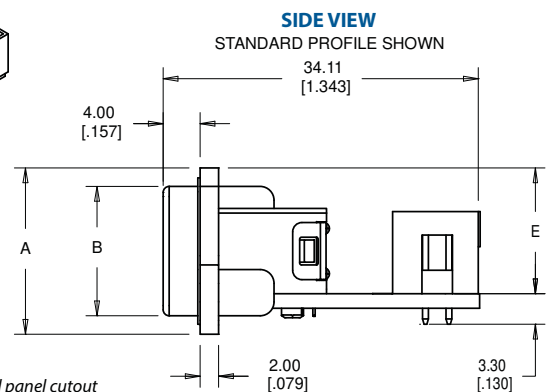
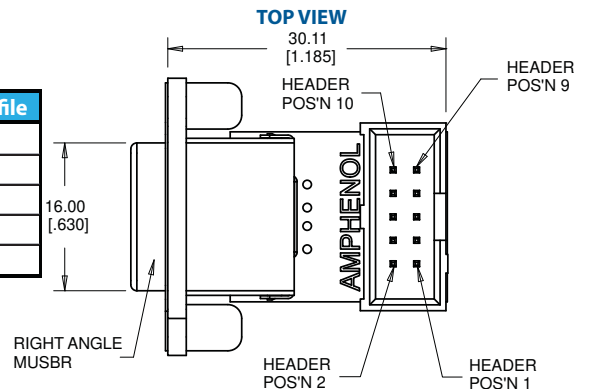
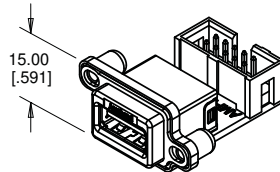
MUSBR-A811-XX

CONNECTIONS CHART

Rugged USB Receptacle	Cable Header	Dimension	Standard Profile	Low Profile
Shell/GND	2 & 9	A	18.00	15.00
1	10	B	14.00	11.00
2	8	C	9.00	6.35
3	6	D	4.50	3.00
4	4	E	13.62	12.12



ISOMETRIC VIEW
LOW PROFILE SHELL

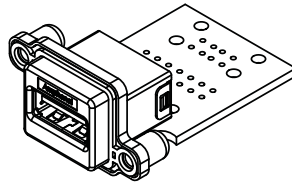


For recommended panel cutout see catalogue page 26

CONNECTIONS CHART

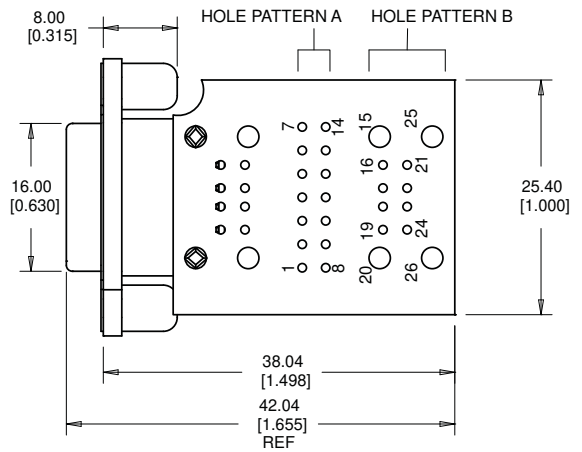
Rugged USB Receptacle	Cable Header
Shell/GND	2 & 9
1	10
2	8
3	6
4	4

ISOMETRIC VIEW

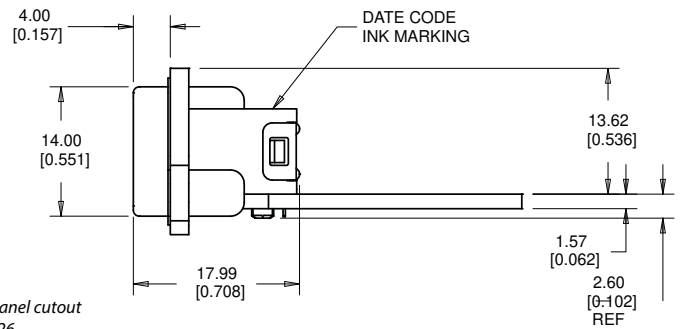


MUSBR-AA11-XX

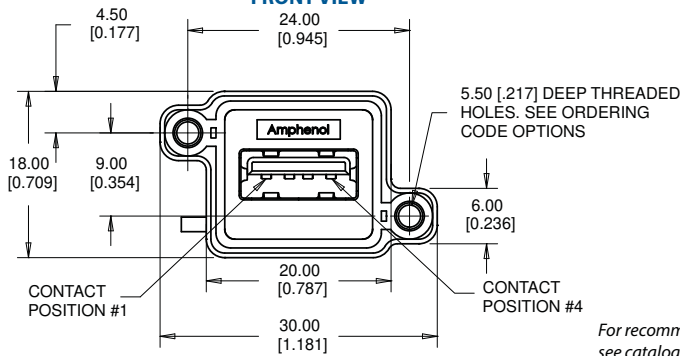
BOTTOM VIEW



SIDE VIEW



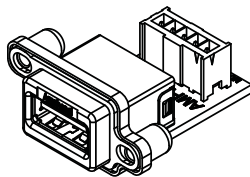
FRONT VIEW



CONNECTIONS CHART

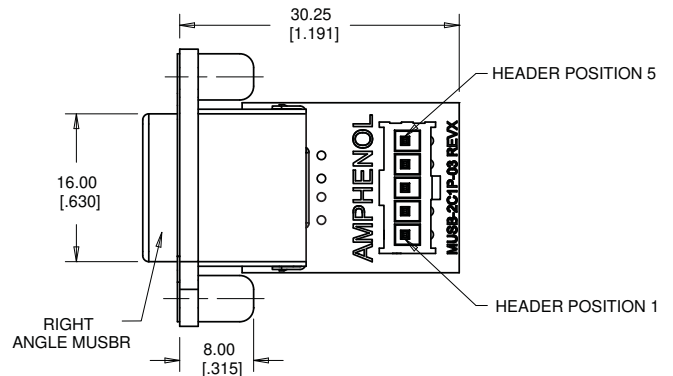
Rugged USB Receptacle	Header Position
Shell/GND	1
1	5
2	4
3	3
4	2

ISOMETRIC VIEW

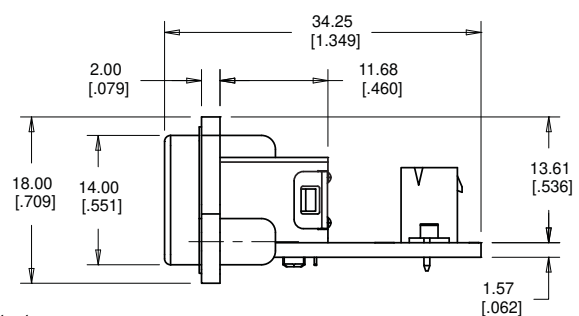


MUSBR-AB11-XX

TOP VIEW



SIDE VIEW



FRONT VIEW

