



# M Series Connector Solutions

Reliable connectivity solutions and more.



QUANTUM  
HOLDING

Group Company

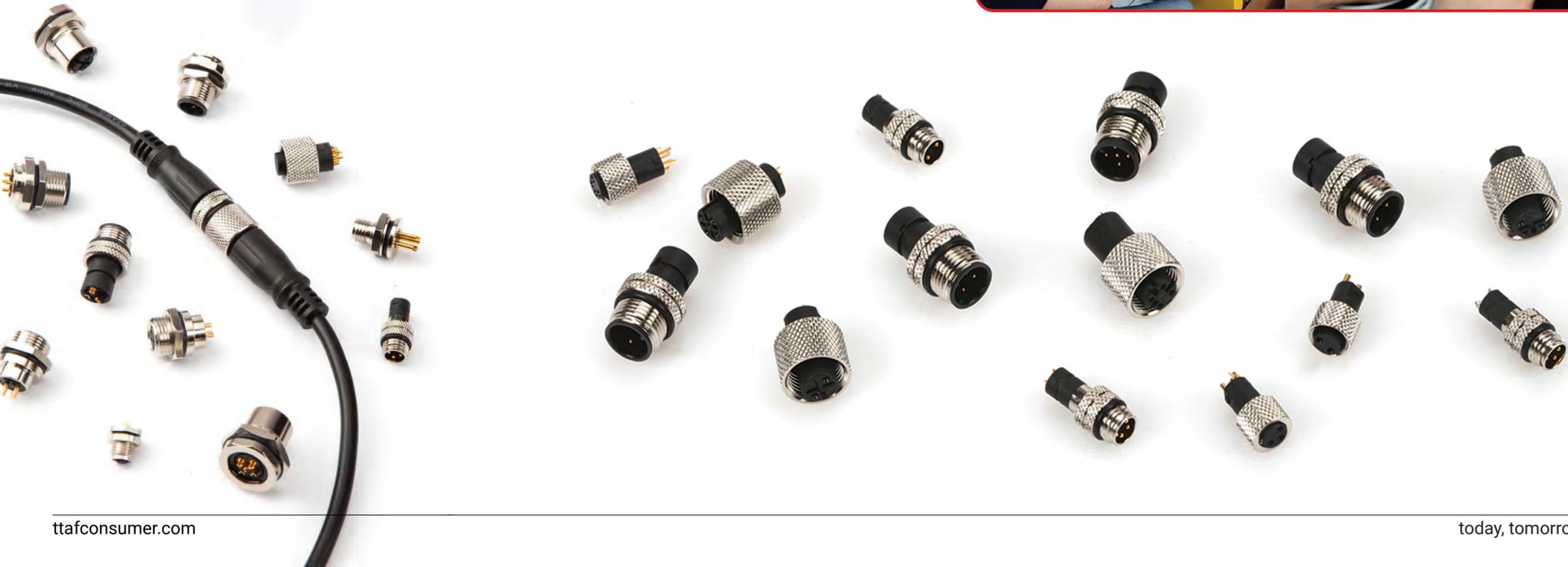
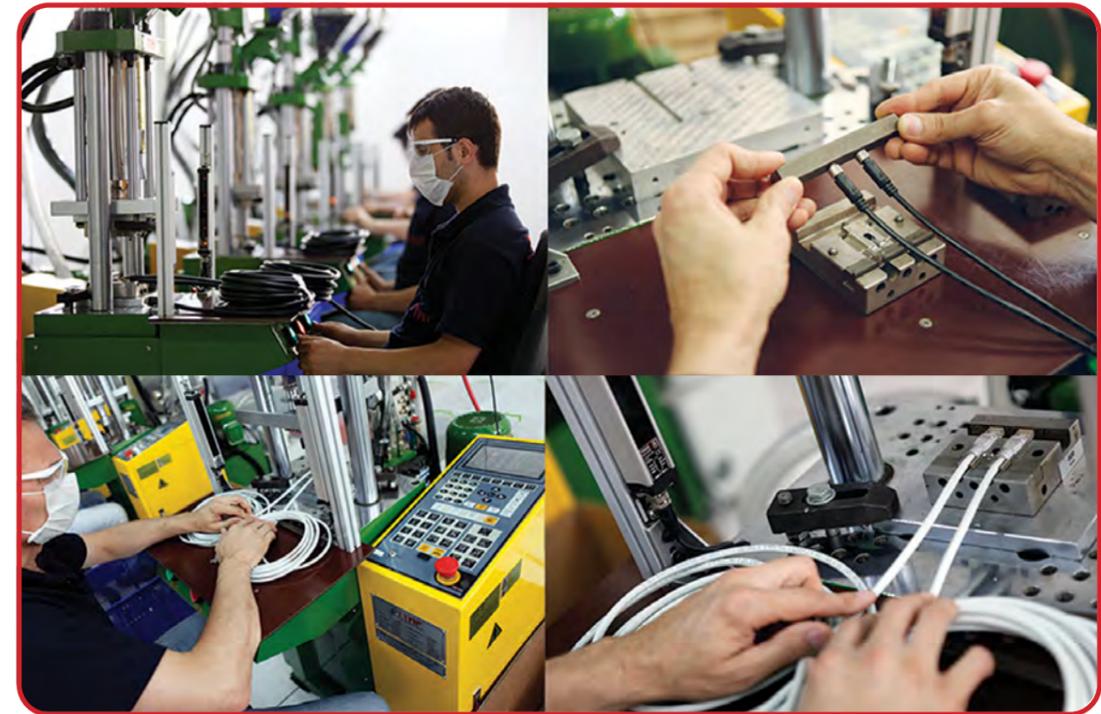
2024 v.1



# Quality & Engineering

TTAF is a leading cable assembly manufacturer and interconnect solutions supplier, gaining trust of domestic and international clients by means of the solutions provided for special interconnect product requirements.

TTAF manufactures straight, right angle or customer specific molded backshells for different connectivity situations and provides flexible solutions in terms of MOQ's and cable lengths, enabling low quantity-high mix options depending on the industry requirements. Having a background of 20 years experience at connector business, TTAF can help customers with all interconnect needs of a system. In case of a special requirement; TTAF offers non-standard solutions, design, engineering, tooling & prototyping capabilities in order to support the customers.





## M5, M8 & M12 Connector Series

TTAF developed a modular system with M5, M8 & M12 connector series which brings completely flexible solutions. This system enables production of connectors with different heights and pin configurations. M5/M8/M12 connectors comply with Lead-free processing requirements.

Besides connector series, TTAF provides cable assembly solutions for sensor/actuator or other automation system devices. TTAF product range includes assembled and overmolded patchcords and pigtailed.

In order to meet all industry requirements, TTAF can manufacture cable assemblies with different overmolding materials. As a price competitive and economic solution PVC or as a harsh environment solution PUR can be used.

### PUR

- + Highly resistant against abrasion.
- + Resistant to oil, lubricants and chemicals.
- + Halogen-free, hidrolisis and UV resistant
- + Flame retardant
- + UL/CSA Approved

### PVC

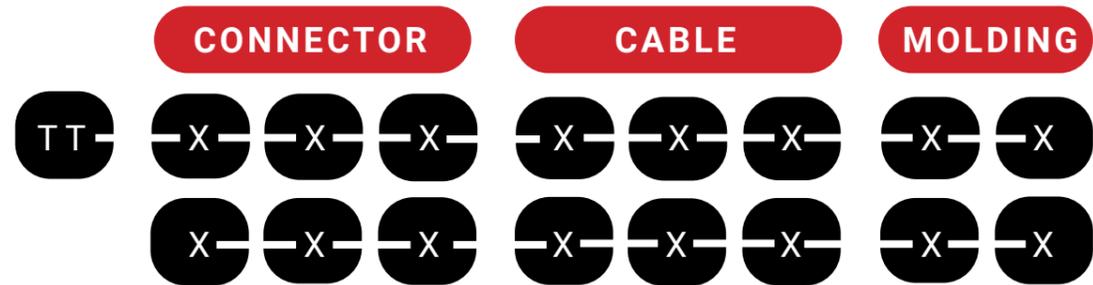
- + Suitable for medium mechanical load
- + Easy to dismantle
- + Limited resistance against abrasion and oil.
- + Competitive and economic solution.



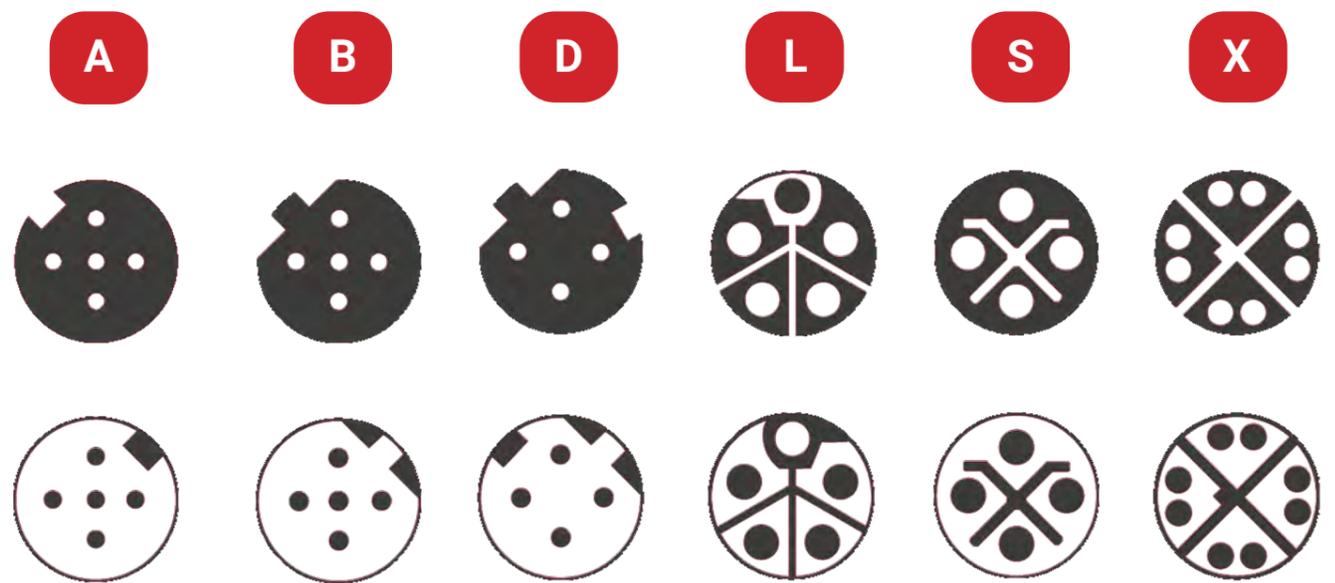
# CODING SYSTEM



# CODING SYSTEM



- 1** Type
  - 05 M5
  - 08 M8
  - 12 M12
- 2** Pole Number
  - 01 1
  - 02 2
  - 03 3
  - 04 4
  - 05 5
- 3** Connector Position
  - FS Female 180°
  - FR Female 90°
  - MS Male 180°
  - MR Male 90°
  - FSFS Female 180° / Female 180°
  - FRFR Female 90° / Female 90°
  - MSMS Male 180° / Male 180°
  - MRMR Male 90° / Male 90°
  - FSMR Female 180° / Male 90°
  - FRMS Female 90° / Male 90°
- 4** Cable Material
  - A PVC
  - B PUR
- 5** Cable Length (m)
  - 1M 1
  - 2M 2
  - 3M 3
  - 4M 4
  - 5M 5
  - ...M ... etc
- 6** Cable Strip (cm)
  - 0 0
  - 10 10
  - 20 20
  - 30 30
  - 40 40
  - 50 50
  - ... etc
- 7** Color
  - A Black
  - B Green
  - C Orange
  - D Yellow
  - E Grey
- 8** Output
  - O No LED
  - P With LED for PNP
  - N With LED for NPN



# 8 ELECTRICAL AND MECHANICAL SPECIFICATIONS

# 9 ELECTRICAL AND MECHANICAL SPECIFICATIONS

	STANDARD	M5	M8	M12
Pin Number		4	2,3,4	2,3,4,5
Technical Data				
Temperature Category	DIN EN 60068-1 test b	55/125/56	55/125/56	55/125/56
Temperature Range		-55/125°C	-55/125°C	-55/125°C
Current Rating For Each Contact	IEC 60512 test 5b	According to ambient temp. 20°C 5.7 A 40°C 4.8 A 70°C 2.6 A	According to ambient temp. 20°C 5.7 A 40°C 4.8 A 70°C 2.6 A	According to ambient temp. 20°C 5.7 A 40°C 4.8 A 70°C 2.6 A
Dialectic Streight	IEC 60512 test 4a	4 Pin; Contact-Contact 1400V	2 Pin; Contact-Contact 1400V 3 Pin; Contact-Contact 1000V 4 Pin; Contact-Contact 650V	2 Pin; Contact-Contact 2000V 3 Pin; Contact-Contact 1750V 4 Pin; Contact-Contact 1400V 5 Pin; Contact-Contact 1000V
Contact Disturbance	IEC 60512 test 2a	<10mΩ	<10mΩ	<10mΩ
Insulation Resistance	IEC 60512 test 3a	<10 <sup>12</sup> Ω	<10 <sup>12</sup> Ω	<10 <sup>12</sup> Ω
Vibration	IEC 60512 test 6d	10-500 Hz 5g	10-500 Hz 5g	10-500 Hz 5g
Contact Disturbance (during vibration test)	IEC 60512 test 2e	<1 μs	<1 μs	<1 μs
Shock	IEC 60512 test 6c	50 g 11 ms	50 g 11 ms	50 g 11 ms
Contact Disturbance (during shock test)	IEC 60512 test 2e	<1 μs	<1 μs	<1 μs
Mechanical Operations (mating cycle)	IEC 60512 test 9a	> 100 Mating Loops	> 100 Mating Loops	> 100 Mating Loops
Insertion and Withdrawal	IEC 60512 test 13b	max. 23 N	max. 23 N	max. 23 N
Gauge Retention Force	IEC 60512 test 16e	> 0.2 N	> 0.2 N	> 0.2 N

	STANDARD	M5	M8	M12
Pin Number		4	2,3,4	2,3,4,5
Connection		Screw Locking M5x1 (Max. Compression Force 0.2 Nm)	Screw Locking M8x1 (Max. Compression Force 0.4 Nm)	Screw Locking M12x1 (Max. Compression Force 0.6 Nm)
Insulation Material		PUR,PVC	PUR,PVC	PUR,PVC
Insulation Diameter		4 pins PUR 3.5 mm PVC 2.5 mm	2 pins 3 pins 4 pins PUR 3.5mm 4.1mm 4.4 mm PVC 4 mm 4.4 mm 4.7 mm	2 pins 3 pins PUR 3.8 mm 4mm PVC 4.5 mm 4.8mm 4 pins 5 pins PUR 3.8 mm 4mm PVC 4.5 mm 4.8mm
Conductor Cross-Section		0.25 mm <sup>2</sup>	0.25 mm <sup>2</sup>	0.34 mm <sup>2</sup> 0.25 mm <sup>2</sup> +0.34 mm <sup>2</sup>
Bending Radius		10 x Cover Diameter -25 .... + 80°C (PUR) -5 .... + 70°C (PVC)	10 x Cover Diameter -25 .... + 80°C (PUR) -5 .... + 70°C (PVC)	10 x Cover Diameter 15 x Cover Diameter -25 .... + 80°C (PUR) -25 .... + 75°C (PUR) -5 .... + 70°C (PVC)
Finished, Mating Spot		Gold Plated	Gold Plated	Gold Plated
Screw Material		Zinc Casting	Zinc Casting	Zinc Casting
Screw Plating		4-6 μm Ni	4-6 μm Ni	4-6 μm Ni
Current rating for each contact	IEC 61076-2-101	Max. 4 A	Max. 4 A	Max. 4 A
Dialectic Power	IEC 61076-2-101	Max. 1.5 kV (depends on type)	Max. 1.5 kV (depends on type)	Max. 1.5 kV (depends on type)
Protection Class	IEC 60529	IP67	IP67	IP67

# M SERIES



# M SERIES



**“Unite and empower with seamless connections.”**



## M5 Cable Solutions

TTAF M5 cable solutions fit with PCB counterpart and the threaded panel flange offered in addition. TTAF provides assembled and overmolded patchcord or pigtail M5 cable assembly solutions.

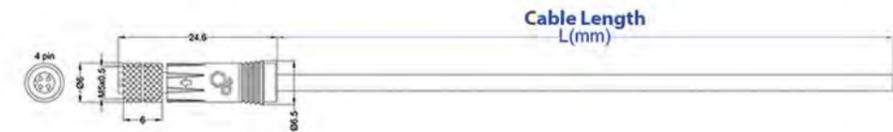
Number of contacts: **4.**

Cable: **PVC/PUR.**

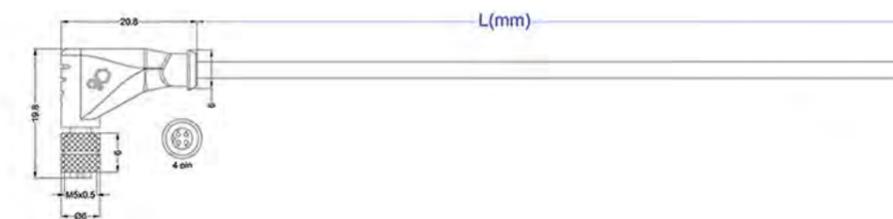
Cable Length: **Various lengths based on customer requirement.**



### ● M5 / Flat Female Pigtail



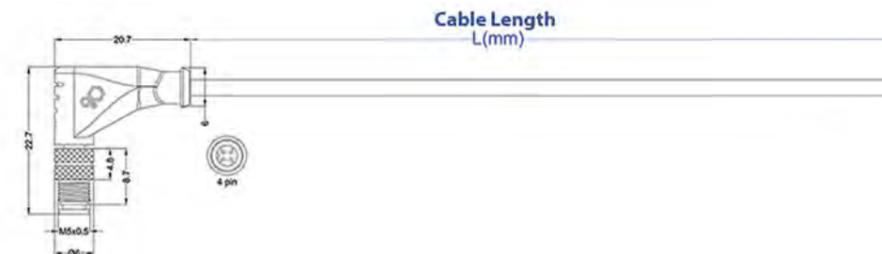
### ● M5 / 90° Female Pigtail



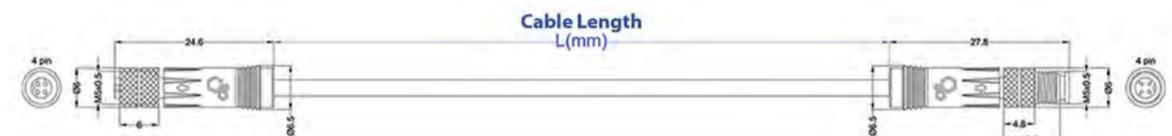
### ● M5 / Flat Male Pigtail



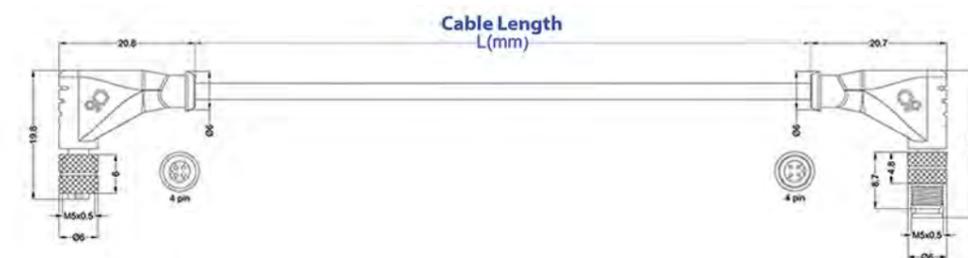
### ● M5 / 90° Male Pigtail



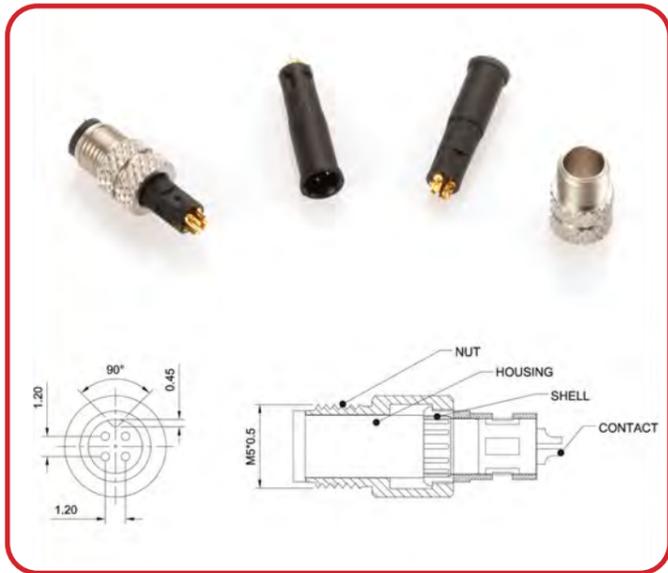
### ● M5 / Flat Female - Flat Male



### ● M5 / 90° Female - 90° Male



## M5-4 Pin Male



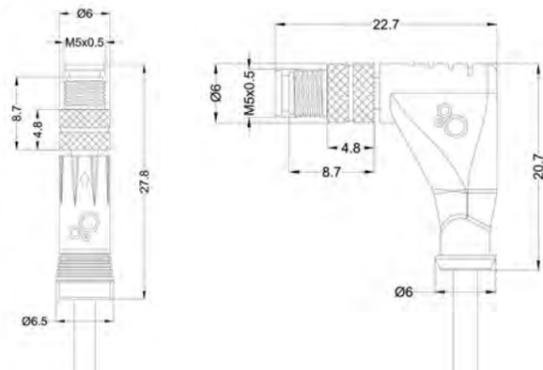
● **Contact Configuration:**



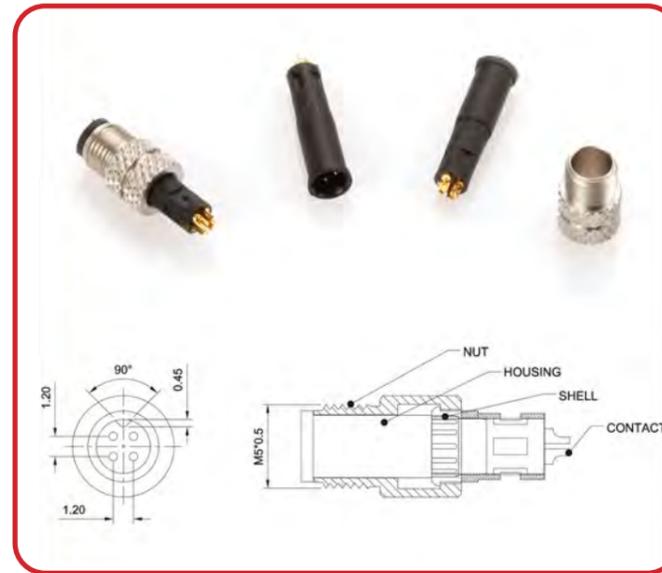
- 1 - Brown
- 2 - White
- 3 - Blue
- 4 - Black



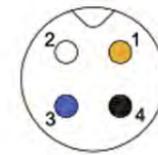
- **Product Description:**  
M5 Male connector with cable, straight/right angle, shield connected to the nut.
- **Standard:**  
IEC 61076-2-101/IEC 60974-5-2
- **Number of Contacts:**  
4 Poles
- **Material:**  
Housing: TPU; Color:Black  
Contact: Brass  
Nut: Brass  
O-Ring: NBR;Color:Black  
Shell: Brass
- **Finish:**  
Contact: Gold Flash Micro Inches Min.  
Nut: Nickel Plated 60u"~100"  
Shell: Tin Plated 60u"~100"
- **Electric specifications:**  
Rated Current: 1A Max.  
Voltage: 60V  
IP Rating: IP67
- **Environmental Conditions:**  
Protection Class: IP67 (IEC 60529)  
Temperature Range: -20° to +85°C



## M5-4 Pin Female



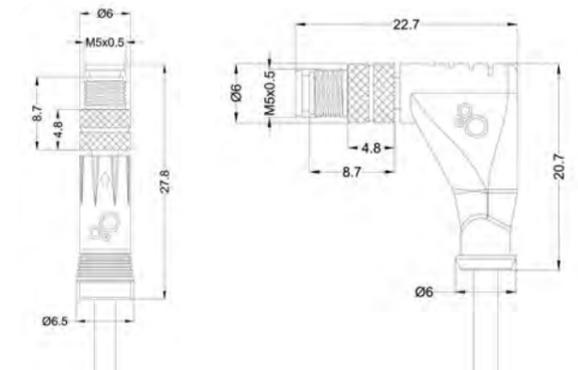
● **Contact Configuration:**



- 1 - Brown
- 2 - White
- 3 - Blue
- 4 - Black



- **Product Description:**  
M5 Male connector with cable, straight/right angle, shield connected to the nut.
- **Standard:**  
IEC 61076-2-101/IEC 60974-5-2
- **Number of Contacts:**  
4 Poles
- **Material:**  
Housing: TPU; Color:Black  
Contact: Brass  
Nut: Brass  
O-Ring: NBR;Color:Black  
Shell: Brass
- **Finish:**  
Contact: Gold Flash Micro Inches Min.  
Nut: Nickel Plated 60u"~100"  
Shell: Tin Plated 60u"~100"
- **Electric specifications:**  
Rated Current: 1A Max.  
Voltage: 60V  
IP Rating: IP67
- **Environmental Conditions:**  
Protection Class: IP67 (IEC 60529)  
Temperature Range: -20° to +85°C





## M5-4 Pin Male / Panel Type Circular Connectors



- **Product Code:**  
TT-5M4P-B-A-FL-5x0.5-CDGF
- **Number of Contacts:**  
4 Pin
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Brass  
Nut: Brass  
Shell:Brass  
O-Ring: NBR;Color:Black  
Epoxy Base: EF400A & EF004B.  
Color: Black
- **Finish:**  
Contact: Gold Flash Micro Inches Min.  
Nut: Nickel Plated  
Shell: Nickel Plated
- **Electric specifications:**  
Rated Current: 1A  
Voltage: 60V  
IP Rating: IP67
- **Environmental Conditions:**  
Operation Temperature: -200°C~850°C

## M5-4 Pin Female / Panel Type Circular Connectors



- **Product Code:**  
TT-5F4P-B-A-FL-7x0.75CDGF
- **Number of Contacts:**  
4 Pin
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Phosphor Bronze  
Nut: Brass  
Shell: Brass  
O-Ring: NBR;Color:Black  
Epoxy Base: EF400A & EF004B.  
Color: Black
- **Finish:**  
Contact: Gold Flash Micro Inches Min.  
Nut: Nickel Plated  
Shell: Nickel Plated
- **Electric specifications:**  
Rated Current: 1A  
Voltage: 60V  
IP Rating: IP67
- **Environmental Conditions:**  
Operation Temperature: -200°C~850°C





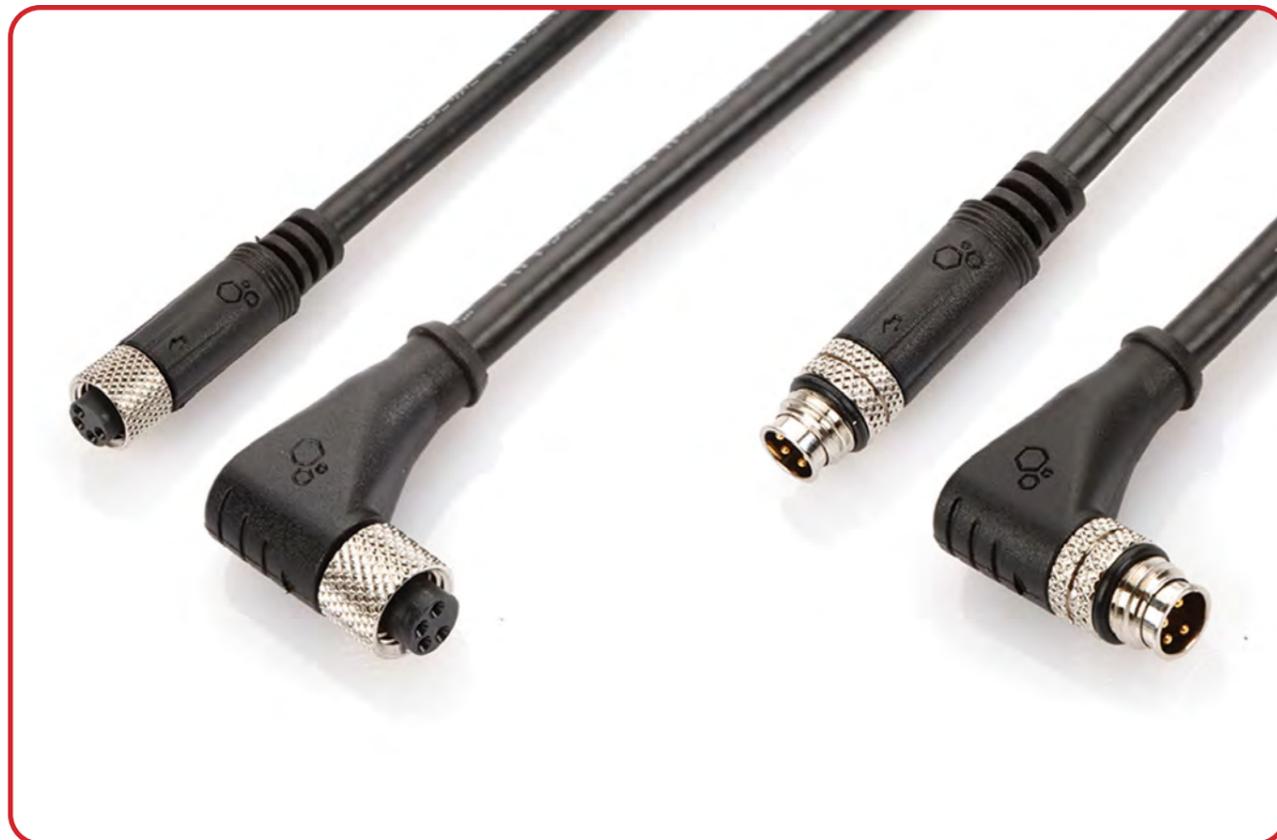
## M8 Cable Solutions

TTAF M8 cable solutions fit with PCB counterpart and the threaded panel flange offered in addition. TTAF provides assembled and overmolded patchcord or pigtail M8 cable assembly solutions.

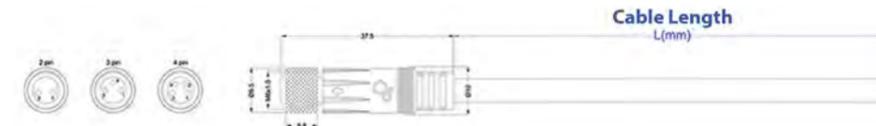
Number of contacts: **2,3,4.**

Cable: **PVC/PUR (UL).**

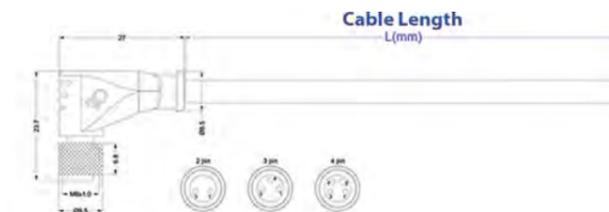
Cable Length: **Various lengths based on customer requirement.**



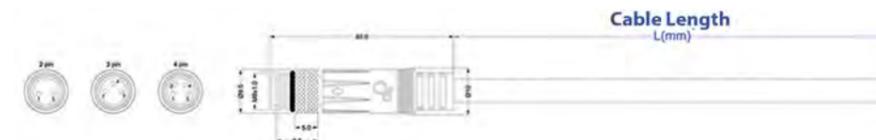
### ● M8 / Flat Female Pigtail



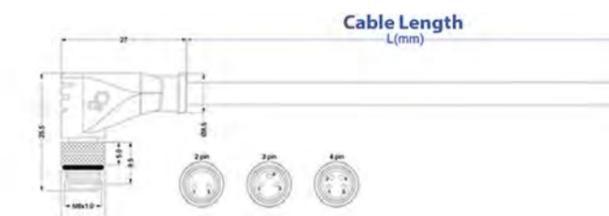
### ● M8 / 90° Female Pigtail



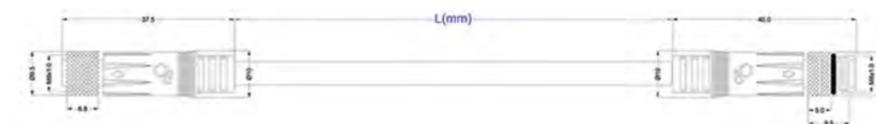
### ● M8 / Flat Male Pigtail



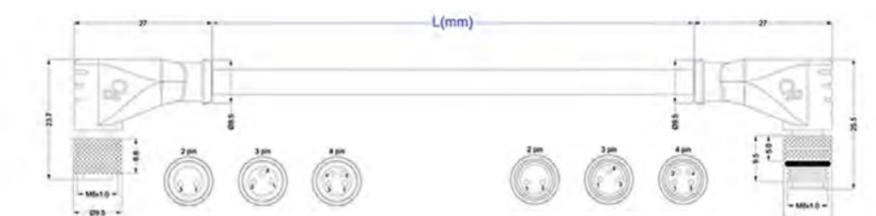
### ● M8 / 90° Male Pigtail



### ● M8 / Flat Female - Flat Male



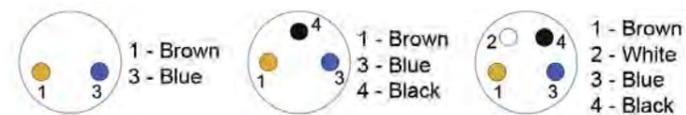
### ● M8 / 90° Female - 90° Male



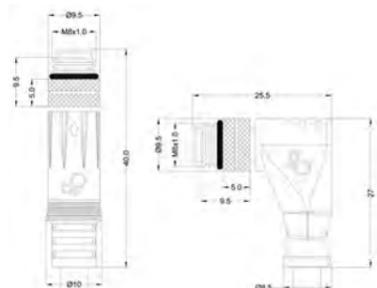
## M8-2, 3, 4 Pin Male



● **Contact Configuration:**



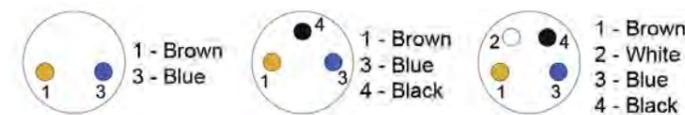
- **Product Description:**  
M8 Male connector with cable, straight/right angle, shield connected to the nut.
- **Standard:**  
IEC 61076-2-101/IEC 60947-5-2
- **Number of Contacts:**  
2,3,4 Poles
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Brass  
Nut: Copper Alloy  
O-Ring: NBR;Color:Black  
Shell: Brass
- **Finish:**  
Contact: 1u" Gold Plated  
Nut: Nickel Plated 60u"~100"  
Shell: Nickel Plated 60u"~100"
- **Electric specifications:**  
Rated Current: 5A Max.  
Voltage: 125V  
IP Rating: IP67
- **Environmental Conditions:**  
Protection Class: IP67 (IEC 60529)  
Temperature Range: -40° to +85°C



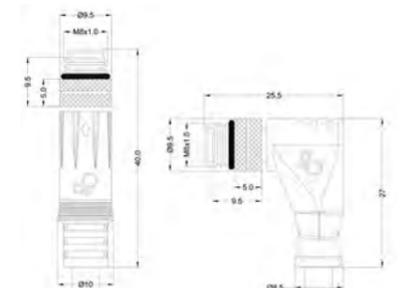
## M8-2, 3, 4 Pin Female



● **Contact Configuration:**

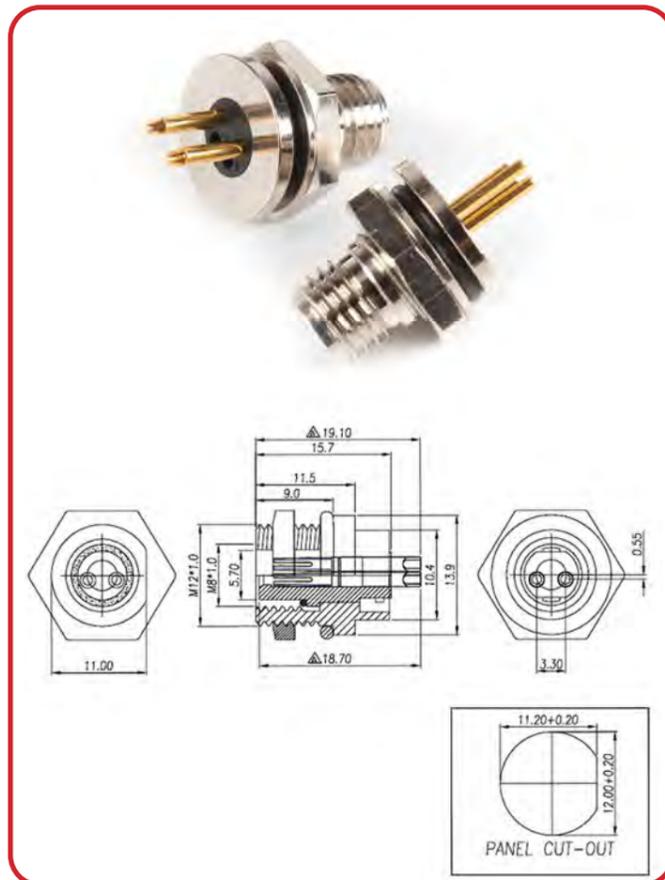


- **Product Description:**  
M8 Male connector with cable, straight/right angle, shield connected to the nut.
- **Standard:**  
IEC 61076-2-101/IEC 60947-5-2
- **Number of Contacts:**  
2,3,4 Poles
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Phosphor Bronze  
Nut: Brass  
O-Ring: NBR;Color:Black
- **Finish:**  
Contact: 1u" Gold Plated  
Solder Area: Gold Flash  
Under Plate: Nickel  
Nut: Nickel Plated 60"u~100u"
- **Electric specifications:**  
Rated Current: 5A Max.  
Voltage: 125V  
IP Rating: IP67
- **Environmental Conditions:**  
Protection Class: IP67 (IEC 60529)  
Temperature Range: -20° to +85°C



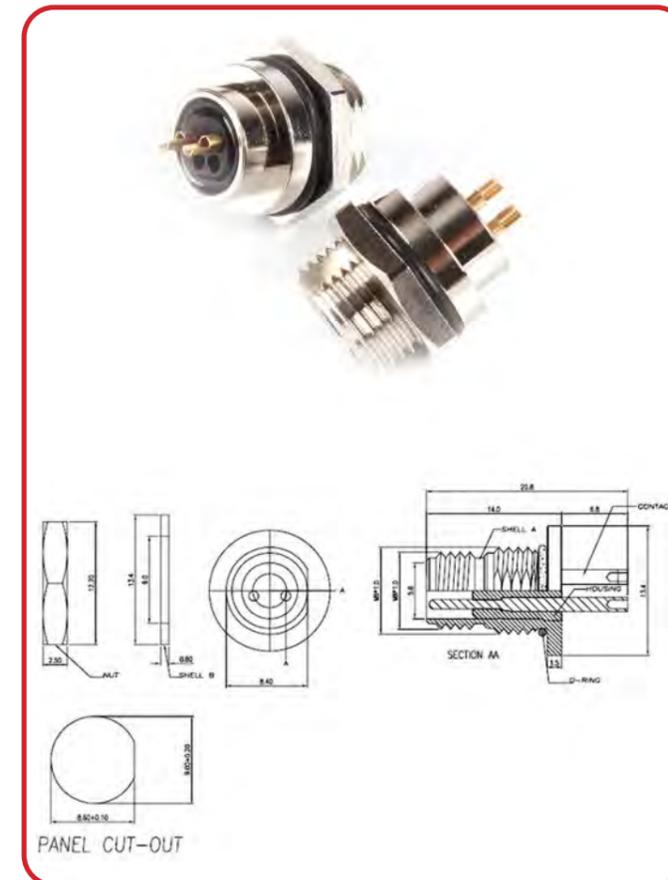


## M8-2 Pin Male / Panel Type Circular Connectors



- **Product Code:**  
TT-8M2P-B-E-FL-9x1SSG10
- **Number of Contacts:**  
2 Pin
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Brass  
Nut: Brass  
Shell:Brass  
O-Ring: NBR;Color:Black
- **Finish:**  
Contact Area: Micro Inches Min. Gold Plating.  
Nickel Plated  
Nut: Nickel Plated 60u"~100u" Over All.
- **Electric Specifications:**  
Rated Current: 5A  
Voltage: 125V  
IP Rating: IPX7
- **Environmental Conditions:**  
Operation Temperature: -200°C~850°C

## M8-2 Pin Female / Panel Type Circular Connectors



- **Product Code:**  
TT-8F2P-B-E-FL-12x1.0-SSG
- **Number of Contacts:**  
2 Pin
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Brass  
Nut: Brass  
Shell A: Brass  
Shell B: Brass  
O-Ring: NBR;Color:Black
- **Finish:**  
Contact: 10 Micro Inches Min.  
Gold Plated Under Plate: Nickel  
Nut: Nickel Plated 60u"~100u" Over All.  
Shell A: Nickel Plated 60u"~100u" Over All.  
Shell B: Nickel Plated 60u"~100u" Over All.
- **Electric Specifications:**  
Rated Current: 5A  
Voltage: 125V  
IP Rating: IPX7
- **Environmental Conditions:**  
Operation Temperature: -200°C~850°C









## M12 Cable Solutions

TTAF M12 cable solutions fit with PCB counterpart and the threaded panel flange offered in addition. TTAF provides assembled and overmolded patchcord or pigtail M12 cable assembly solutions.

Number of contacts: **2,3,4,5**

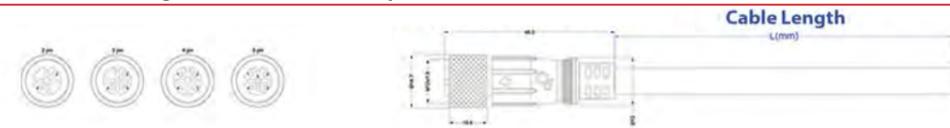
Led: **3 Led optional**

Cable: **PVC/PUR (UL)**

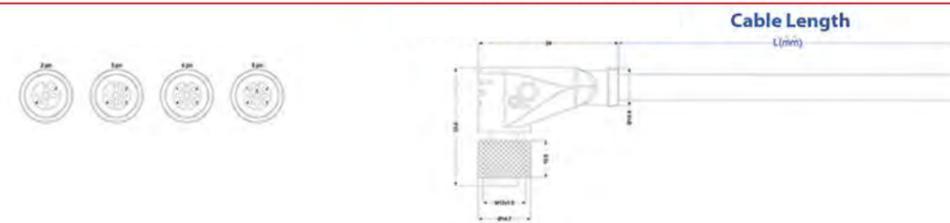
Cable Length: **Various lengths based on customer requirement.**



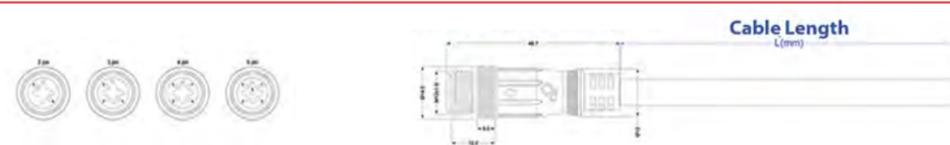
- **M12 / Straight Female Pigtail**



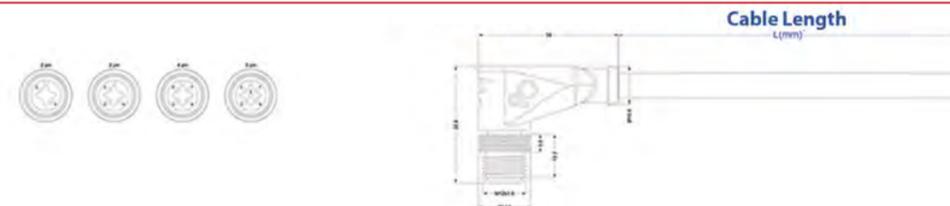
- **M12 / 90° Female Pigtail**



- **M12 / Straight Male Pigtail**



- **M12 / 90° Male Pigtail**



- **M12 / Straight Female - Flat Male**



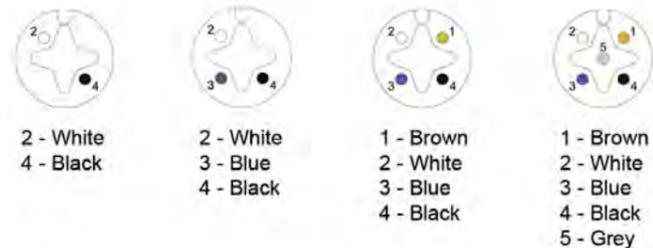
- **M12 / 90° Female 90° Male**



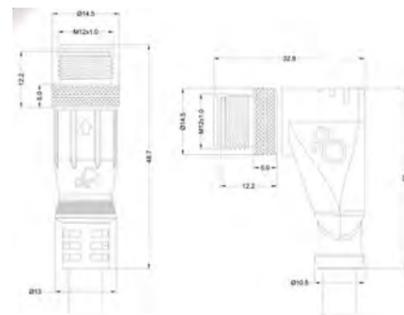
## M12-2, 3, 4, 5, 8, 12 Pin Male



● **Contact Configuration:**



- **Product Description:**  
M12 Male connector with cable, straight/right angle, shield connected to the nut.
- **Standard:**  
IEC 61076-2-101/IEC 60947-5-2
- **Number of Contacts:**  
2,3,4,5 Poles
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Brass  
Nut: Brass  
O-Ring: EPDM;Color:Black  
Shell: Brass
- **Finish:**  
Contact: 1u" Gold Plated  
Nut: Nickel  
Shell: Nickel Plated 60u"~100"
- **Electric specifications:**  
Rated Current: 5A Max.  
Voltage: 125V  
IP Rating: IP67
- **Environmental Conditions:**  
Protection Class: IP67 (IEC 60529)  
Temperature Range: -40° to +85°C



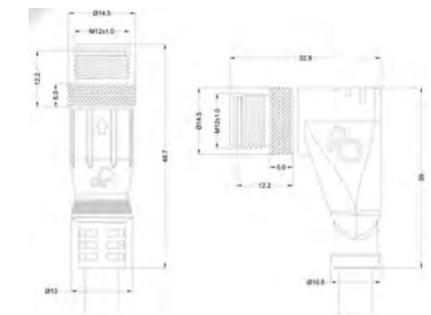
## M12-2, 3, 4, 5, 8, 12 Pin Female



● **Contact Configuration:**

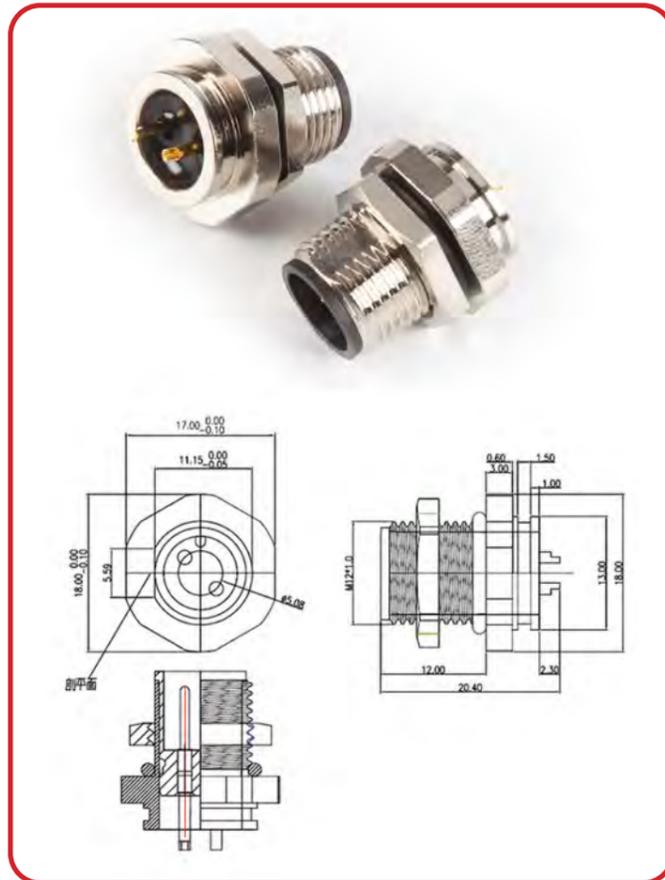


- **Product Description:**  
M12 Female connector with cable, straight/right angle, shield connected to the nut.
- **Standard:**  
IEC 61076-2-101/IEC 60947-5-2
- **Number of Contacts:**  
2,3,4,5 Poles
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Brass  
Nut: Brass  
O-Ring: EPDM;Color:Black
- **Finish:**  
Contact: 1u" Gold Plated  
Nut: Nickel  
Shell: Nickel Plated 60u"~100"
- **Electric specifications:**  
Rated Current: 5A Max.  
Voltage: 125V  
IP Rating: IP67
- **Environmental Conditions:**  
Protection Class: IP67 (IEC 60529)  
Temperature Range: -20° to +85°C





## M12-2 Pin Male / Panel Type Circular Connectors



- **Product Code:**  
TT-12M2P-B-A-FL-12x1SSG10
- **Material:**  
Epoxy Material: EF400A & EF400B  
Gasket Material: EDPM  
Nut Material: Brass Plated Pin Body  
Material: Phosphor Bronze Connector  
Material: TPU Color: Black
- **Finish:**  
Contact: Gold Flash On Over All  
Under Plated: Nickel  
Nut: Nickel Plated  
Shell: Nickel Plated
- **Electrical Specification:**  
Rated Current: 5A  
Rated Voltage: 125V  
Waterproof: IPX7
- **Environmental:**  
Operation Temperature: -40° to +85°C

## M12-2 Pin Female / Panel Type Circular Connectors

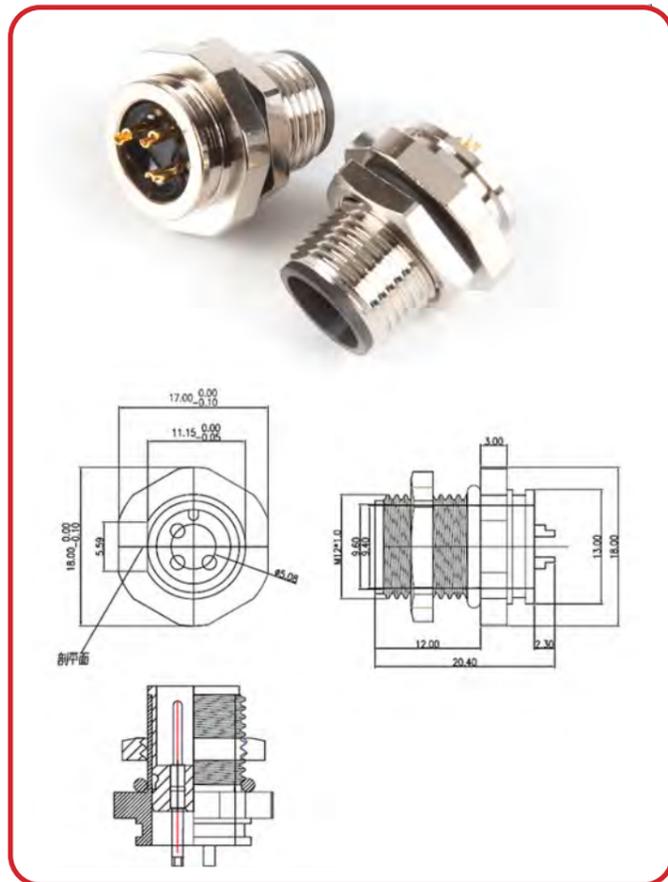


- **Product Code:**  
TT-12F2P-B-A-FL-15x1CSG10
- **Material:**  
Housing: PBT +15GF (Black)  
Contact: Brass  
Nut: Brass  
Shell: Brass  
O-Ring: NBR;Black
- **Planning:**  
Contact: Gold 10u"  
Nut: NI 100u"  
Shell: NI 100u"





## M12-3 Pin Male / Panel Type Circular Connectors



- **Product Code:**  
TT-12M3P-B-A-FL-12x1SSG10
- **Material:**  
Housing: PBT UL94V-0 ; Color: Black  
Contact: Brass  
Nut: Brass  
Shell: Brass  
O-Ring: EPDM; Color; Black  
Back Housing: PBT UL94V-0 ; Color; Black  
Down Housing: PBT UL94V-0 ; Color; Black
- **Finish:**  
Contact: Gold 10u" On Over All  
Under Plated: Nickel  
Nut: Nickel Plated  
Shell: Nickel Plated
- **Electrical Specification:**  
Rated Current: 5A  
Rated Voltage: 125V  
Waterproof: IPX7
- **Environmental:**  
Operation Temperature: -40° to +85°C

## M12-3 Pin Male / Panel Type Circular Connectors



- **Product Code:**  
TT-12F3P-B-A-FL-15x1CSG10
- **Material:**  
Housing: PBT +15GF (Black)  
Contact: Brass (C3604)  
Nut: Brass(C3604)  
Shell:Brass (C3604)  
O-Ring: NBR;Black
- **Planning:**  
Contact: Gold 10u"  
Nut: NI 100u"  
Shell: NI 100u"





## M12-4 Pin Male / Panel Type Circular Connectors



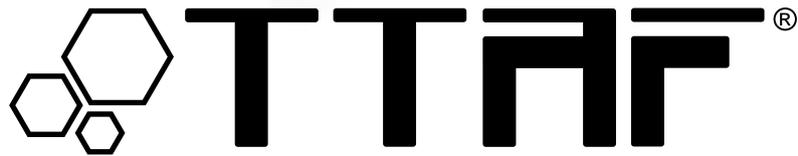
- **Product Code:**  
TT-12M4P-B-A-FL-12x1SSG10
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Copper Alloy  
Nut: Copper Alloy  
Shell:Copper Alloy  
O-Ring: EPDM;Color:Black  
Epoxy Base: EF400A & EF004B. Color: Black
- **Finish:**  
Contact: 10 Micro Inches Min. Gold Plating Over Nickel  
Nut: Nickel Plated 60u"~100u"Over all  
Shell: Nickel Plated 60u"~100u"Over all
- **Electric specifications:**  
Rated Current: 5A  
Voltage: 125V  
IP Rating: IPX7
- **Environmental Conditions:**  
Operation Temperature: -400°C~850°C

## M12-4 Pin Female / Panel Type Circular Connectors



- **Product Code:**  
TT-12F4P-B-A-FL-15x1CSG10
- **Material:**  
Housing: PBT UL94V-0; Color:Black  
Contact: Brass  
Nut: Brass  
Shell: Brass  
O-Ring A: NBR;Color:Black  
O-Ring B: NBR;Color:Black
- **Finish:**  
Contact A: 10 Micro Inches MIN. Gold Plated Under Plate:Nickel.  
Shell: Nickel Plated 60u"~100u"Over All.
- **Electric specifications:**  
Rated Current: 5A  
Voltage: 125V  
IP Rating: IPX8
- **Environmental Conditions:**  
Operation Temperature: -400°C~850°C





# M SERIES CONNECTOR SOLUTIONS

2024-v1