

# Waterproof D-Sub Connector Solutions

**molex**

**Robust Waterproof D-Sub Connector Solutions provide protection in harsh environments from external particles including dust, foreign objects and moisture up to temporary immersion in water (IP67)**



Waterproof D-Sub Connector Solutions

## Features and Advantages

### Metal watertight frame

Provides mechanical strength, shielding and rust prevention

### Available in mixed layout

Offers various contact arrangements which include signal contacts, high power, coaxial or pneumatic

### Machined copper alloy contacts

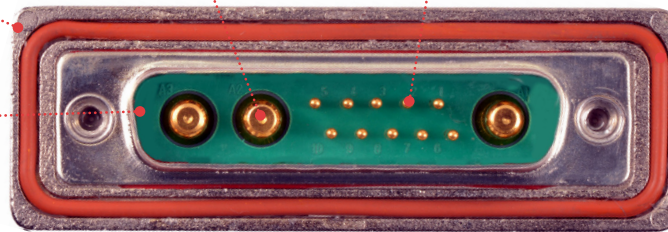
Provides robust contact with low resistance

### Silicone seal

Affords confidence in water protection with a pre-installed integrated O-ring seal

### Watertight insulator

Delivers watertight insulation between contacts and watertight lining to shell



Mixed Layout, Metal Frame, Rear Mount, High Power



### RoHS compliant by exemption

Meets European Union regulations for banned materials hazardous to the environment

## Additional Product Information

**FWA series- IP67 when mated. Simple sealing of non-waterproof connectors.**

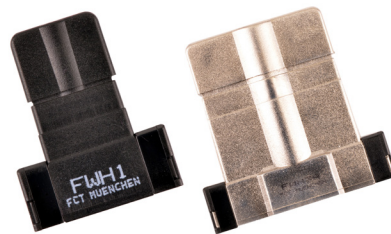


Waterproof Backshells



Waterproof Dust Caps

**FwH series- IP67 mated or unmated. Must be used with D-sub connectors with modification -K700 or -2429.**



**Easy sealing of non-waterproof interfaces IP67 rating when fully assembled & mated Shell sizes 1, 2 and 3 available**

## Markets and Applications

### Commercial Vehicle

- Telemetry
- GPS Navigation
- Marine

### Industrial Automation

- Food processing equipment
- Sanitary equipment
- Devices exposed to water spray

### Industrial

- Control panels on ruggedized laptops
- Outdoor Installations
  - Communication towers
  - Security cameras



Food and Beverage Equipment



Outdoor Installations

# Waterproof D-Sub Connector Solutions

**molex**

## Specifications

### STANDARD WATERPROOF CONNECTORS

#### ELECTRICAL

Test Voltage (max.): 1200V/1 minute

Current (max.): 5.0A

Contact Resistance:

Straight contacts  $\leq$  10 milliohms

Right-angled contacts  $\leq$  25 milliohms

Right-angled contacts 50 way  $\leq$  35 milliohms

Insulation Resistance:  $\geq$  5000 M $\Omega$

#### MECHANICAL

Mating Force per Signal Contact:  $\leq$ 3.4N

Unmating Force per Signal Contact:  $\geq$  0.2N

Torque (max.): 40Ncm

### HIGH DENSITY WATERPROOF CONNECTORS

#### ELECTRICAL

Test Voltage (max.): 1000V/1 minute

Current (max.): 3.0A

Contact Resistance:

Straight contacts  $\leq$  15 milliohms

Right-angled contacts  $\leq$  25 milliohms

Right-angled contacts 50 way  $\leq$  35 milliohms

Insulation Resistance:  $\geq$  3000 M $\Omega$

#### MECHANICAL

Mating Force per Signal Contact:  $\leq$ 3.4N

Unmating Force per Signal Contact:  $\geq$  0.2N

Torque (max.): 40Ncm

### WATERPROOF BACKSHELLS

#### PHYSICAL

Standard Versions: PC-ABS, Flame Retardant

Shielded Versions: PC-ABS, Flame Retardant with

Nickel plating over Copper

Locking Screw: Brass, nickel plated

Color / Plating

Standard Versions: Black

Shielded Versions: Nickel

Waterproofing elements: Silicone

Operating Temperature:

Standard -35 to +120°C

Shielded -25 to +70°C

### WATERPROOF PROTECTIVE CAPS

#### PHYSICAL

Cap: PC+ABS (black)

Locking Screw: Brass, nickel plated

Waterproofing elements: Elastomer

Operating Temperatures:

-35 to +120°C

#### PHYSICAL

Shell: Brass

Shell Plating: Tin over nickel

Insulator: Thermoplastic, glass fiber filled

Metal watertight frame: nickel plated zinc die-cast

Contact: Machined copper alloy

Contact Plating: Au over Ni

Waterproofing elements: Silicone

Operating Temperatures: -25 to +70°C

#### REFERENCE INFORMATION

Based on: IEC 60807-3 / DIN 41652

UL Recognized File No 168813

Protection Standard: DIN EN 60529 – IP67

Packaging: Box

RoHS: Yes by exemption

#### PHYSICAL

Shell: Brass

Shell Plating: Tin over nickel

Insulator: Thermoplastic, glass fiber filled

Metal watertight frame: nickel plated zinc die-cast

Contact: Machined copper alloy

Contact Plating: Au over Ni

Waterproofing elements: Silicone

Operating Temperatures: -25 to +70°C

#### REFERENCE INFORMATION

Based on: IEC 60807-3 / DIN 41652

UL Recognized File No 168813

Protection Standard: DIN EN 60529 – IP67

Packaging: Box

RoHS: Yes by exemption

#### MECHANICAL

Torque (max.): 40Ncm

#### REFERENCE INFORMATION

Protection Standard: DIN EN 60529 – IP67

RoHS: Yes by exemption

#### PACKAGING

All components are seal packed together in a transparent bag

#### MECHANICAL

Torque (max.): 40Ncm

#### REFERENCE INFORMATION

Protection Standard: DIN EN 60529 – IP67

RoHS: Yes by exemption

#### PACKAGING

Box

# Waterproof D-Sub Connector Solutions



## Ordering Information

Part No.	Engineering No.	Contact Type	Shell Size	No. Contacts	Termination	Panel Mount	
<b>High Density Waterproof Connectors</b>							
<u>1731100004</u>	FWDR09P	Plug	1	9	Solder Cup	Rear	
1731100006	FWDR15P	Plug	2	15		Rear	
1731100008	FWDR25P	Plug	3	25		Rear	
1731100005	FWDR09S	Socket	1	9		Rear	
1731100007	FWDR15S	Socket	2	15		Rear	
1731100009	FWDR25S	Socket	3	25		Rear	
1731100114	FWDF09P	Plug	1	9		Front	
1731100022	FWDF15P	Plug	2	15		Front	
1731100092	FWDF25P	Plug	3	25		Front	
1731100021	FWDF09S	Socket	1	9		Front	
1731100023	FWDF15S	Socket	2	15		Front	
1731100142	FWDF25S	Socket	3	25		Front	
1731100024	FWDR09P1	Plug	1	9		Straight, PCB	Rear
1731100028	FWDR15P1	Plug	2	15			Rear
1731100031	FWDR25P1	Plug	3	25	Rear		
1731100026	FWDR09S1	Socket	1	9	Rear		
1731100030	FWDR15S1	Socket	2	15	Rear		
1731100033	FWDR25S1	Socket	3	25	Rear		

Part No.	Engineering No.	Contact Type	Shell Size	No. Contacts	Termination	Panel Mount
<b>Standard Waterproof Connectors</b>						
<u>1731100025</u>	FWDR09P25	Plug	1	9	Right Angle, PCB	Rear
1731100029	FWDR15P25	Plug	2	15		Rear
1731100032	FWDR25P25	Plug	3	25		Rear
1731100027	FWDR09S25	Socket	1	9		Rear
1731100104	FWDR15S25	Socket	2	15		Rear
1731100034	FWDR25S25	Socket	3	25		Rear
1731100010	F09P-K700	Plug	1	9	Solder Cup	For FWH
1731100012	F15P-K700	Plug	2	15		For FWH
1731100014	F25P-K700	Plug	3	25		For FWH
<u>1731090648</u>	F37P-K700	Plug	4	37		For FWH
1731100011	F09S-K700	Socket	1	9		For FWH
1731100013	F15S-K700	Socket	2	15		For FWH
1731100015	F25S-K700	Socket	3	25		For FWH
1731100233	F37S-K700	Socket	4	37		For FWH

# Waterproof D-Sub Connector Solutions



## Ordering Information

Part No.	Engineering No.	Contact Type	Shell Size	No. Contacts	Termination	Panel Mount
<b>High Density Waterproof Connectors</b>						
<u>1731100035</u>	FWDRM09-15P-K1444	Plug	1	15		Rear
1731100097	FWDRM15-26P-K1444	Plug	2	26		Rear
1731100099	FWDRM25-44P-K1444	Plug	3	44		Rear
1731100036	FWDRM09-15S-K1444	Socket	1	15		Rear
1731100098	FWDRM15-26S-K1444	Socket	2	26		Rear
1731100100	FWDRM25-44S-K1444	Socket	3	44		Rear
1731100095	FWDFM09-15P-K1444	Plug	1	15		Front
1731100180	FWDFM15-26P-K1444	Plug	2	26		Front
1731100183	FWDFM25-44P-K1444	Plug	3	44		Front
1731100179	FWDFM09-15S-K1444	Socket	1	15		Front
1731100181	FWDFM15-26S-K1444	Socket	2	26		Front
1731100184	FWDFM25-44S-K1444	Socket	3	44		Front

Part No.	Engineering No.	Contact Type	Shell Size	No. Contacts	Termination	Panel Mount
<b>High Density Waterproof Connectors</b>						
<u>1731140378</u>	FWDRM09-15P1-K1676	Plug	1	15	Straight, PCB	Rear
1731140379	FWDRM15-26P1-K1676	Plug	2	26		Rear
1731140381	FWDRM25-44P1-K1676	Plug	3	44		Rear
<u>1731100247</u>	FWDRM09-15S1-K1676	Socket	1	15		Rear
1731140380	FWDRM15-26S1-K1676	Socket	2	26		Rear
1731140382	FWDRM25-44S1-K1676	Socket	3	44		Rear
1731140231	CT09-15P-2429	Plug	1	15	Solder Cup	For FWH
1731100235	CT15-26P-2429	Plug	2	26		For FWH
1731140376	CT25-44P-2429	Plug	3	44		For FWH
1731100111	CT09-15S-2429	Socket	1	15		For FWH
1731140396	CT15-26S-2429	Socket	2	26		For FWH
1731100236	CT25-44S-2429	Socket	3	44		For FWH

# Waterproof D-Sub Connector Solutions



## Ordering Information

Part No.	Engineering No.	Shell Size	Metalized (Y or N)	Orientation	Cable Diameter (mm)
<b>WATERPROOF BACKSHELLS</b>					
1727040192	FWA1GAE	1	Y	Straight	6.00 to 8.00
1727040105	FWA1GE	1	N	Straight	6.00 to 8.00
1727040193	FWA2GAE	2	Y	Straight	6.00 to 8.00
1727040194	FWA2GE	2	N	Straight	6.00 to 8.00
1727040195	FWA3GAE	3	Y	Straight	8.00 to 10.50
1727040196	FWA3GE	3	N	Straight	8.00 to 10.50
1727040197	FWA4GAE	4	Y	Straight	8.00 to 10.50
1727040198	FWA4GE	4	N	Straight	8.00 to 10.50
1727040199	FWA5GAE	5	Y	Straight	9.00 to 11.00
1727040200	FWA5GE	5	N	Straight	9.00 to 11.00
1727040106	FWH1AE	1	Y	Straight	6.00 to 8.00
1731100016	FWH1E	1	N	Straight	6.00 to 8.00
1727040107	FWH2AE	2	Y	Straight	6.00 to 8.00
1731100017	FWH2E	2	N	Straight	6.00 to 8.00
1727040108	FWH3AE	3	Y	Straight	8.00 to 10.50
1731100018	FWH3E	3	N	Straight	8.00 to 10.50
<b>WATERPROOF PROTECTIVE CAPS</b>					
1731100103	FWAB1	1	N	Straight	
1731100093	FWAB2	2	N	Straight	
1731100102	FWAB3	3	N	Straight	

[www.molex.com/link/dsubconnectors.html](http://www.molex.com/link/dsubconnectors.html)

Molex is a registered trademark of Molex, LLC in the United States of America and may be registered in other countries; all other trademarks listed herein belong to their respective owners.