Amphenol LTW®
Unrivaled InterConnects for Harsh Environments

Heavy Duty

Product Catalogue

Q-FLEX
www.q-flex.fi info@q-flex.fi
+358 2 4894 500

Amphenol

- IP68 (Mated)
- Salt Spray Up To 500h
- Current Rating Up To 40A
- Shielded Design For Reliable Data Transmission
- Sealing Nut With Cable Cover To Ensure Better Cable Holding
- Flammability UL94V-0
- Meets IEC Standard

IP68

UL 94-V0

IEC Standard

Fully Shielded

UV Resistant

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PRODUCT SELECTION GUIDE

Circular (Ceres, X-Lok, M)

	Mating Style						Materials	No. of Contacs	Contacts		Operating Voltage (AC/DC)	Nominal Current	Applicable Wires (AWG)	Mating Cycles (Pin Contact)	High Speed		Salt Spray (Connector, Mated)
	2 Points Lock	3 Points Lock	Push Lock	Push Pull	Screw Thread	Others			Gold Plated	Silver Plated					Cat. 5e	Cat. 6A	
Ceres Series																	
Mini	•				•		B	2-6	•		250V	2A-5A	26-24	2,000			500h
Standard	•				•		B	2-12	•		250-600V	2A-10A 5A+2A 10A+5A	26-20	2,000			500h
Middle	•	•			•		P	2-18	•	•	250-600V	2A-20A 5A+2A 10A+2A 10A+5A	24-14	2,000			500h
Large	•				•		B	2-22	•	•	250-600V	2A-20A 20A+2A 20A+5A	26-16	2,000			500h
Macro	•						P	31	•		200V	5A	26	2,000			500h
PLD			•				P	2-4	•		250V	5A	26-20	2,000			500h
MAB	•						P	4	•		250V	10A	20	2,000			500h
GBD		•					P	8	•		250V	10A+5A	24-20	2,000			500h
X-LOK Series																	
Mini / LED			•				B	2-33	•		30-630V	0.5A-16A	32-14	1,000	•	•	500h
Standard			•				P	2-8	•		300-600V	5A-10A 10A+5A	26-16	1,000			500h
Middle			•				P	2-12	•	•	300-600V	5A-20A 10A+5A	26-12	1,000			500h
Large			•				B	2-100	•	•	60V (0.5A) 300-600V	0.5A-20A 20A+5A 50A	32-26	1,000			500h
Macro			•				P	4-31	•	•	300-600V	50A+5A	22-8	1,000			500h
M Series																	
M5					•		M	3-4	•		60V	1A	26	1,000			48h
Guided M8 / LED					•	Snap-in	B	2-6	•		30-60V	1.5A-3A 3A+1.5A	24-22	1,000			48h
M8 / LED					•	Snap-in	B	3-13	•		30-60V	0.5A-3A	32-22	1,000			48h
M10.5					•		M	2-5	•		30V	2A	24	1,000			48h
M12 A / LED				•	•		B	3-28	•		30-250V	0.5A-4A	30-22	1,000	•		48h
M12 B / LED				•	•		B	5	•		60V	4A	26-22	1,000			48h
M12 D / LED				•	•		B	4	•		250V	4A	26-22	1,000	•		48h
M12 I				•	•		B	5	•		60V	4A	22	1,000			48h
M12 K / LED				•	•		B	3-5	•		630V	12A, 16A	14	1,000			48h
M12 L / LED				•	•		B	2-5	•		63V	16A	14	1,000			48h
M12 M / LED				•	•		B	3-6	•		630V	8A	16	1,000			48h
M12 S				•	•		B	3-4	•		630V	12A	16	1,000			48h
M12 T				•	•		B	2-4	•		63V	12A	16	1,000			48h
M12 X				•	•		M	8	•		30-60V	0.5A	26	1,000		•	48h
M23					•		M	6	•		600V	28A	14-12	1,000			48h

Remarks:
Materials: **P** (Plastic), **M** (Metal), **B** (Both)
Assemble Style: **R0** (Receptacle), **RW** (Receptacle With Wires), **RP** (Receptacle With Pigtail), **RC** (Receptacle With Overmolded Cable), **OC** (Overmolded With Cables), **FI** (Field Installable)
Vibration: **(1)** 10-500 Hz @Ampliture 0.35mm; **(2)** 10-55Hz @Amplitude 1.52mm
Operation Temperature & IP Rating: **R0** (Receptacle), **RW** (Receptacle With Wires), **OC** (Overmolded With Cables), **FI** (Field Installable)

PRODUCT SELECTION GUIDE

(R0) Receptacle							(FI) Field Installable													
Solder	Crimp	SMT	PCB 180	PCB 90	RW	RC	Solder	Crimp	Screw In	Push In	IDC	OC	UV Resistant	UL 94V-0	Vibration	EMI Option	ROHS 2.0 & REACH	Standard / Compliant	Certifications	Operating Temperature & IP Rating
•			•			•	•					•	•	•	(2)	•	•			◦ **R0**: -40°C - 105°C, IP67 (Unmated)
•			•	•		•	•	•				•	•	•	(2)	•	•		UL1977	
•			•			•	•	•				•	•	•	(2)		•		UL1977	◦ **RW**: -20°C - 85°C, IP67 (Unmated)
•			•				•	•	•			•	•	•	(2)	•	•		UL1977	◦ **OC**: -20°C - 85°C, IP67 (Mated)
•			•									•	•	•	(2)		•		UL1977	
•							•						•	•	(2)		•			◦ **FI**: -40°C - 105°C, IP67 (Mated)
												•	•	•	(2)		•			
												•	•	•	(2)		•			
•			•	•			•	•	•	•		•	•	•	(2)	•	•			
•			•				•	•	•	•		•	•	•	(2)	•	•		CSA, UL1977, UL2238, UL50e	◦ **R0** & **RW**: -40°C - 105°C, IP68 (Unmated)
•			•				•	•	•	•		•	•	•	(2)		•			
•			•				•	•	•	•		•	•	•	(2)	•	•			◦ **OC** & **FI**: -40°C ~ 105°C, IP68 (Mated)
•	•		•					•	•			•	•	•	(2)		•			
•			•	•	•							•	•	•	(1)		•	IEC 61076-2-105		
•		•	•	•	•		•	•	•		•	•	•	•	(1)	•	•			
•		•	•	•	•		•	•	•		•	•	•	•	(1)	•	•	IEC 61076-2-104	UL1977, UL2238	
•					•							•	•	94-HB	(1)		•			
•		•	•	•	•		•	•	•	•	•	•	•	•	(1)	•	•	IEC 61076-2-101	UL1977, UL2238, UL1863	◦ **R0**: -40°C ~ 105°C, IP67 (Mated / Unmated), IP68 (Unmated), IP69K (Mated)
•		•	•	•	•		•	•	•	•	•	•	•	•	(1)	•	•	IEC 61076-2-101	UL1977, UL2238	
•		•	•	•	•		•	•	•	•	•	•	•	•	(1)	•	•	IEC 61076-2-101	UL1977, UL2238, UL1863	◦ **RW**: -20°C ~ 85°C, IP67 (Mated / Unmated), IP68 (Unmated), IP69K (Mated)
•			•				•					•	•	94-HB	(1)		•			
•		•	•	•	•		•	•	•			•	•	•	(1)		•	IEC 61076-2-111	UL1977, UL2237	◦ **OC**: -20°C ~ 85°C, IP67 / IP68 (Mated)
•		•	•	•	•		•	•	•			•	•	•	(1)		•	IEC 61076-2-111	UL1977, UL2238	
•		•	•	•	•		•	•	•			•	•	•	(1)	•	•	IEC 61076-2-111		◦ **FI**: -40°C ~ 105°C, IP67 / IP68 (Mated)
•		•	•	•	•		•	•	•			•	•	•	(1)		•	IEC 61076-2-111	UL1977, UL2237	
•		•	•	•	•		•	•	•			•	•	•	(1)		•	IEC 61076-2-111	UL1977, UL2238	
		•	•	•	•		•	•			•	•	•	•	(1)	•	•	IEC 61076-2-109	UL1863	
	•							•				•	•	•	(1)	•	•			

PRODUCT SELECTION GUIDE

Circular (FLOS, Power, RBL, DeepTronica)

	Mating Style						Materials	No. of Contacs	Contacts		Operating Voltage (AC/DC)	Nominal Current	Applicable Wires (AWG)	Mating Cycles (Pin Contact)	Salt Spray (Connector, Mated)
	2 Points Lock	3 Points Lock	Push Lock	Push Pull	Screw Thread	Others			Gold Plated	Silver Plated					
FLOS Series															
B				•			M	2-32	•		160-700V	1.5A-25A	28-16	5,000	144h
K				•			M	2-32	•		160-700V	1.5A-25A	28-16	5,000	144h
K (FLOS+)				•			M	2-32	•		160-700V	1.5A-25A	28-16	5,000	1000h
C				•			M	2-19	•		160-700V	1.5A-20A	28-16	3,000	144h
S				•			M	1	•		260-1000V	15A	28-16	3,000	144h
Y				•		Break Away	M	2-26	•		260-1000V	5A-14A	28-16	5,000	96h
P				•			P	2-14	•		200-400V	2A-10A	28-16	2,000	
N				•			M	2-19	•		200-800V	5A-22A	28-16	3,000	144h
Power Series															
PWE					•		P	5-7	•		277V	8A	20-17	500	500h
PWF					•		P	2-4	•		277V	12A	18-15	500	500h
PWG					•		P	4	•		277V	16A	18-14	500	500h
PWC	•	•					P	3	•		277V	20A	14-12	500	500h
PWCU	•	•					P	4 & 12	•		277V	20A+2A	14-12, 24-22	500	500h
PWH		•			•		P	3, 5	•		660V (AC) 1000V (DC)	25A	12	500	500h
PWL		•					P	3	•		300V	30A	14-8	500	500h
PWM		•					P	2	•		600V	50A	9-8	500	720h
PWMU		•					P	2+2, 2+4	•		600V	50A+2A	9-8, 22-20	500	720h
PWN		•					P	2	•		600V	70A	8-6	500	720h
PWNU		•					P	2+2, 2+4	•		600V	70A + 2A	8-6, 22-20	500	720h
PWP		•					P	2 & 3	•		600V	80A	4	500	720h
PWPD		•					P	2+2, 2+4, 3+2, 3+4	•		600V	80A+5A	4, 20	500	720h
PWX		•					P	9 (30A) 14 (30A+5A) 5 (50A) 12 (50A+5A) 4 (80A) 7 (80A+5A)		•	300-600V	30A, 30A+5A 50A, 50A+5A 80A, 80A+5A	22-20, 14-8, 9-8, 4	500	720h
RBL Series															
Middle			With Latch				P	2-9	•		300V	5A-10A 10A+5A	20-16	250	48h
Large			With Latch				P	2-18	•		300V	5A-20A 20A+5A	24-12	250	48h
DeepTronica															
Bathypelagic (4,000 m)				•			B								
Abyssopelagic (6,000 m)				•			B	1-27			200V-1000V	2A-50A	22-8	500-1,000	1000h
Hadopelagic (11,000 m)				•			B								

Remarks:
Materials: **P** (Plastic), **M** (Metal), **B** (Both)
Assemble Style: **R0** (Receptacle), **RW** (Receptacle With Wires), **RP** (Receptacle With Pigtail), **RC** (Receptacle With Overmolded Cable), **OC** (Overmolded With Cables), **FI** (Field Installable)
Vibration: **(1)** 10-500 Hz @Ampliture 0.35mm; **(2)** 10-55Hz @Amplitude 1.52mm
Operation Temperature & IP Rating: **R0** (Receptacle), **RW** (Receptacle With Wires), **OC** (Overmolded With Cables), **FI** (Field Installable)

PRODUCT SELECTION GUIDE

(R0) Receptacle						(FI) Field Installable													
Solder	Crimp	Screw In	PCB 180	PCB 90	RW	Solder	Crimp	Screw In	Push In	IDC	OC	UV Resistant	UL 94V-0	Vibration	EMI Option	ROHS 2.0 & REACH	Certifications	IP Rating	Operating Temperature
•			•	•		•	•				•		•	(2)	•	•		IP50 (Mated)	◦ **R0**: -40°C - 125°C ◦ **OC**: -20°C - 85°C ◦ **FI**: -40°C - 125°C
•			•	•		•	•				•		•	(2)	•	•		IP68 (Mated)	
•			•	•		•	•				•		•	(2)	•	•		**R0:** IP68 (Unmated) **OC:** IP68 (Mated) **FI:** IP68 (Mated)	
•			•	•		•	•				•		•	(2)	•	•		IP68 (Mated)	
•			•	•		•	•				•		•	(2)	•	•		IP50 (Mated)	
•			•	•		•	•				•		•	(2)	•	•		IP68 (Mated)	
•			•	•		•	•				•	•	•	(2)		•		IP50 / IP66 (Mated)	
•			•	•		•	•				•		•	(2)	•	•		IP68 (Mated)	
•						•					•		94-HB	(2)		•	UL1977	IP67 / IP68	◦ **R0**: -40°C - 105°C ◦ **OC**: -20°C ~ 80°C ◦ **FI**: -40°C ~ 105°C
•						•					•		94-HB	(2)		•	UL1977, TUV	IP67 / IP68	
		•						•			•		•	(2)		*	UL1977	IP67 / IP68	
•						•		•			•	•	•	(2)		•	UL1977, TUV	IP67 / IP68	
•						•					•	•	•	(2)		•	UL1977, TUV	IP67 / IP68	
	•	•					•	•			•	•	•	(2)		•	UL1977, UL6703A, TUV	IP67 / IP68	
		•				•		•				•	•	(2)		•	UL2238	IP67 / IP68	
•								•				•	•	(2)		•	UL1977	IP67 (Mated)	
•								•				•	•	(2)		•	UL1977	IP67 (Mated)	
•								•			•	•	•	(2)		•	UL1977	IP67 (Mated)	
•								•			•	•	•	(2)		•	UL1977	IP67 (Mated)	
	•						•					•	•	(2)		•	UL1977	IP67 (Mated)	
	•						•					•	•	(2)		•	UL1977	IP67 (Mated)	
	•						•					•	•			•	UL1977	IP69K (Mated)	
					•		•				•	•	•	(2)		•	UL1977	**RW:** IP68 (Unmated) **OC:** IP68 (Mated) **FI:** IP67 (Mated)	◦ **RW**: -40°C ~ 105°C ◦ **OC**: -20°C ~ 80°C, Data: -20°C ~ 80°C Power: -20°C ~ 105°C Hybrid: -40°C ~ 105°C ◦ **FI**: -40°C ~ 105°C
					•		•				•	*	•	(2)		•			
					•						•					•		Deep Mating: 300 ~ 800 bar	◦ **Air:** -40°C - 90°C ◦ **Water:** -4°C ~ 60°C
					•						•					•			
					•						•					•			

PRODUCT SELECTION GUIDE

Circular (HS-Lok, NMEA 2000, Mini, Heavy Duty Shielded)

	Mating Style						Materials	No. of Contacs	Contacts		Operating Voltage (AC/DC)	Nominal Current	Applicable Wires (AWG)	Mating Cycles (Pin Contact)	Salt Spray (Connector, Mated)
	2 Points Lock	3 Points Lock	Push Lock	Push Pull	Screw Thread	Others			Gold Plated	Silver Plated					
HS-Lok Series															
Q8				•			B	2-6	•		100V (DC), 300V, 300V (AC) + 100V (DC)	2A 5A 5A+2A	24-20	2,000	500h
NMEA 2000															
Lite (Micro)				•	•		B	5	•		60V	4A	16*1P+20*1P 18*1P+22*1P 22*1P+24*1P	Push Pull 500, Screw Thread 1,000	Metal: 48h Plastic: 1,000h
Heavy (Mini)					•		M	4-5	•		600V	8A	15*1P+18*1P 16*1P+18*1P	1,000	
7/8" Mini															
7/8" Mini					•		M	2, 2+PE, 4, 4+PE, 6	•		600V	8A-13A	16	1,000	48h
Heavy Duty Shielded															
Heavy Duty Shielded					*		M	2-14	•		50-300V	5A-40A	22-8	1,000	48h / 500h

Remarks:
Materials: **P** (Plastic), **M** (Metal), **B** (Both)
Assemble Style: **R0** (Receptacle), **RW** (Receptacle With Wires), **RP** (Receptacle With Pigtail), **RC** (Receptacle With Overmolded Cable), **OC** (Overmolded With Cables), **FI** (Field Installable)
Vibration: **(1)** 10-500 Hz @Ampliture 0.35mm; **(2)** 10-55Hz @Amplitude 1.52mm
Operation Temperature & IP Rating: **R0** (Receptacle), **RW** (Receptacle With Wires), **OC** (Overmolded With Cables), **FI** (Field Installable)

PRODUCT SELECTION GUIDE

(R0) Receptacle			RW	(FI) Field Installable					OC	UV Resistant	UL 94V-0	Vibration	EMI Option	ROHS 2.0 & REACH	Certifications	IP Rating	Operating Temperature
Solder	PCB 180	PCB 90		Solder	Crimp	Screw In	Push In	IDC									
•				•					•	•	•	(2)		•	UL2238, UL50e	**R0:** IP68 (Unmated) **OC:** IP68 (Mated) **FI:** IP68 (Mated)	◦ **R0:** -40°C - 105°C ◦ **OC:** -40°C - 105°C ◦ **FI:** -40°C - 105°C
•	•		•	•		•	•		•		•	(1)	•	•	NMEA 2000	**R0:** IP68 (Unmated) **RW:** IP68 (Unmated) **OC:** IP68 (Mated) **FI:** IP67 (Mated)	◦ **R0:** -40°C - 105°C ◦ **RW:** -20°C - 85°C ◦ **OC:** -20°C - 85°C ◦ **FI:** -40°C - 105°C
•	•					•	•		•		94-HB	(1)	•	•	NMEA 2000		
•	•		•	•	•	•			•		•	(1)		•		**R0:** IP68 (Unmated) **RW:** IP68 (Unmated) **OC:** IP68 (Mated) **FI:** IP67 (Mated)	◦ **R0:** -40°C - 105°C ◦ **OC:** -40°C - 105°C ◦ **FI:** -40°C - 105°C
•				•					•	•	94-HB	(1)	•	•		**R0:** IP68 (Unmated) **OC:** IP68 (Mated) **FI:** IP68 (Mated)	◦ **R0**: -40°C - 105°C ◦ **RW:** -20°C - 85°C ◦ **OC:** -20°C - 85°C ◦ **FI:** -40°C - 105°C

RRODUCT SELECTION GUIDE

Other IO (RJ45, USB, D-Sub, SSL, HDMI, DVI)

	Mating Style					Materials	No. of Contacs	Gold Plated	Operating Voltage (AC/DC)	Nominal Current	Applicable Wires (AWG)	Mating Cycles (Pin Contact)	High Speed	
	2 Points Lock	3 Points Lock	Push Lock	Screw Thread	Others								Cat. 5e	Cat. 6A
RJ45 Series														
Middle		•		•		B	8		44-57V (DC)	Max. 1.5A	24	750	•	•
Large / I-Adaptor	•	•		•		P	8		44-57V (DC)	Max. 1.5A	24	750	•	
ODVA	•					P	8		44-57V (DC)	Max. 1.5A	24	750	•	
Self-Closing Cover						P	8		44-57V (DC)	Max. 1.5A		750	•	•
USB Series														
Mini USB Type B				•		P		•	30V	1.5A	28*1P + 28*3C	5,000		
Type A	•			•		B		•	30V	USB 2.0: 1.5A USB 3.2Gen1:	28*1P + 24*2C	1,500		
Type B	•			•		B		•	30V	USB 2.0: 1.5A	28*1P + 24*2C	1,500		
Micro USB Swift						M		•	30V (AC) 5V (DC)	1 & 5 Pin: 1.8A 2, 3 & 4 Pin: 1A		10,000		
Micro USB Swift-MU					Snap-in	P		•	30V (AC) 5V (DC)	1 & 5 Pin: 1.8A 2, 3 & 4 Pin: 1A	28	10,000		
Type C Swift-LP						M		•	30V (DC)	Up To 5A	32*1P + 24*1C + 28*1D	10,000		
Type C Swift-LA					Snap-in	P		•	30V (DC)	Up To 3A	32*1P + 24*1C + 28*1D	10,000		
Type C Swift-GG				•		B		•	30V (DC)	Up To 5A	32*1P + 24*1C + 28*1D	10,000		
Type C Swift-XL			•			P		•	30V (DC)	Up To 3A	32*1P + 24*1C + 28*1D	10,000		
D-SUB Series														
Standard				•	Automated Latch	M	9, 15, 25, 37, 50*	•	125V (DC)	5A	24	500		
High Density				•	Automated Latch	M	15, 26, 44, 62*, 78*	•	125V (DC)	2A	26	500		
SSL Series														
SSL1.1			•			P	2-6	•	100V	3A	22	100		
SSL1.2			•			P	2-4	•	250V	5A	22-18	30		
SSL1.3						P	1	•	500V	5A		10		
SSL2.1						P	2	•	600V	12A		20		
SSL2.3						P	2	•	500V	3A		100		
HDMI Series														
Circular				•		P	19	•	30V (AC)	0.5A	26	500		
Rectangular			•		With Latch	P	19	•	30V (AC)	0.5A	26	500		
Mini-HDMI				•		P	19	•	30V (AC)	0.5A	30	500		
DVI Series														
DDD						M	25	•	40V (AC)	1.5A	28	100		
DDS						M	19	•	40V (AC)	1.5A	28	100		
DID						M	29	•	40V (AC)	1.5A	28	100		
DIS						M	23	•	40V (AC)	1.5A	28	100		

Remarks:
Materials: **P** (Plastic), **M** (Metal), **B** (Both)
Assemble Style: **R0** (Receptacle), **RW** (Receptacle With Wires), **RP** (Receptacle With Pigtail), **RC** (Receptacle With Overmolded Cable), **OC** (Overmolded With Cables), **FI** (Field Installable)
Vibration: **(1)** 10-500 Hz @Ampliture 0.35mm; **(2)** 10-55Hz @Amplitude 1.52mm
Operation Temperature & IP Rating: **R0** (Receptacle), **RW** (Receptacle With Wires), **OC** (Overmolded With Cables), **FI** (Field Installable)

RRODUCT SELECTION GUIDE

High Speed			Salt Spray (Connector, Mated)	R0	RW	RP	OC	FI	UV Resistant	UL 94V-0	Vibration	EMI Option	ROHS 2.0 & REACH	Standard / Compliant / Certifications	Operating Temperature & IP Rating
USB 2.0	USB 3.2 Gen1	USB 3.2 Gen2													
			48h	PCB 90 & 180, Jack 90 & 180		•	•	•	•	•	(2)	•	•	TIA/EIA-568, IEC 60603-7	◦ **R0:** -40°C - 105°C, IP67 (Unmated) ◦ **RP:** -20°C - 85°C, IP67 (Unmated) ◦ **OC:** -20°C - 85°C, IP67P (Mated) ◦ **FI:** -40°C - 105°C, IP67 (Mated)
			48h	PCB180, Jack 90 & 180		•	•	•	•	•	(2)	•	•	TIA/EIA-568, IEC 60603-7	
			48h	Jack 180		•	•	•	•	•	(2)	•	•	TIA/EIA-568, IEC 60603-7	
			48h	•					•	•	(2)	•	•	TIA/EIA-568, IEC 60603-7	-40°C - 105°C, IP67 (Unmated)
•			48h	•	•		•	•		94V-HB	(2)	•	•		◦ **R0:** -40°C - 105°C, IP67 (Unmated) ◦ **RW:** -20°C - 85°C, IP67 (Unmated) ◦ **OC:** -20°C - 85°C, IP67P (Mated) ◦ **FI:** -40°C - 105°C, IP67 (Mated)
•	•		48h	Type 1 & 2, Jack, PCB 180	•		•	Solder		•	(2)	•	•		
•			48h	Type 1 & 2, Jack, PCB 180	•		•	Solder		•	(2)	•	•		
•			48h	•						•	(2)	•	•		-30°C - 80°C, IP67/IP68 (Unmated)
•			48h				•			•	(2)	•	•		-40°C - 80°C, IP67 (Mated)
		•	48h	•						•	(2)	•	•		-40°C - 85°C, IP67 (Unmated)
•	•		48h	•			•			•	(2)	•	•		◦ **R0:** -40°C - 85°C, IP68 (Unmated) ◦ **OC:** -20°C - 85°C, IP67 (Mated)
	•	•	48h	•			•			•	(2)	•	•		◦ **R0:** -40°C - 85°C, IP67 (Unmated) ◦ **OC:** -20°C - 85°C, IP67 (Mated)
	•		48h				•			•	(2)	•	•		◦ **OC:** -20°C - 85°C, IP68 (Mated)
			8h	Solder, PCB 90& 180			•	Solder, Crimp			(2)	•	•		◦ **R0:** -40°C - 105°C, IP68 (Unmated) ◦ **OC:** -20°C - 85°C, IP67P (Mated) ◦ **FI:** -40°C - 105°C, IP67 (Mated)
			8h	Solder, PCB 90& 180			•	Solder, Crimp			(2)	•	•		
				•			•			•	(2)		•	CSA C22.2, UL1977	-40°C - 105°C, Non-IP
				•			•	•	•	•	(2)		•	CSA C22.2, UL1977, cUL UL2238+UL50e	-40°C - 105°C, IP68 (Mated)
				•						•	(2)		•	CSA, UL1977	-40°C - 105°C, Non-IP
				•						•	(2)		•	CSA, UL1977	-40°C - 105°C, Non-IP
										•	(2)		•		-40°C - 105°C, Non-IP
			48h	•			•			94V-HB	(2)	•	•		◦ **R0:** -20°C - 85°C, IP67 (Unmated) ◦ **OC:** -20°C - 85°C, IP67P (Mated)
			48h	•			•			94V-1	(2)	•	•		
			48h	•			•			•	(2)	•	•		
			8h	•			•				(2)		•		◦ **R0:** -40°C - 105°C, IP68 (Unmated) ◦ **OC:** -20°C - 85°C, IP67P (Mated)
			8h	•			•				(2)		•		
			8h	•			•				(2)		•		
			8h	•			•				(2)		•		

RRODUCT SELECTION GUIDE

Other IO (Fiber, ZConnect, RF)

	Mating Style					Materials	No. of Contacs	Gold Plated	Operating Voltage (AC/DC)	Nominal Current	Applicable Wires (AWG)	Mating Cycles (Pin Contact)	High Speed	
	2 Points Lock	3 Points Lock	Push Lock	Screw Thread	Others								Cat. 5e	Cat. 6A
Fiber Optic Series														
LC		•												
SC		•												
ZConnect Series														
FPC / FFC / WTB					Quick Plug	B	40, 36, 20, 18, 12	•	120V	1A		10		
RF Series														
SMA Type				•		M	1	•	335 Volts RMS At Sea Level		1.13mm, 1.32mm, 1.37mm, RG178	500		
N Type				•		M	1	•	1,000 Volts RMS At Sea Level		1.13mm, 1.32mm, 1.37mm, RG142, RG178, G58 A/U	500		

Other (Cable Joiner, Cable Gland, Protective Vent, LED)

	Mating Style		Materials	No. of Contacs	Contacts				Operating Voltage (AC/DC)	Nominal Current	Applicable Wires (AWG)	Salt Spray (Connector, Mated)	Receptacle
	Push Lock With Latch	Screw Thread			Gold Plated	Nickel Plated	Thermo plastic	SUS316L					
Cable Joiner Series													
M20		•	P	None, 4	•					10A	22-16		
M32	•		P	None, 4	•					15A-30A	16-10		
FICX I Tube (11)		•	P	2-5		•			450V (Non-UL) 600V (UL)	10A-30A	20-12		
FICX I Tube (12)		•	P	2-5		•			450V (Non-UL) 600V (UL)	8A-20A	18-12		
FICX XI Tube (13)		•	P	2-5		•			450V (Non-UL) 600V (UL)	8A-20A	18-12		
FICX T Tube (T2)		•	P	2-5		•			450V (Non-UL) 600V (UL)	10A-20A	20-12		
Cable Gland Series													
Cable Gland		•	B										•
Protective Vent													
M6 Plastic		•	P				•					1,000h	•
M12 Snap-in		•	P				•					1,000h	•
M12 Stainless		•	M					•				1,000h	•
M12 Plastic		•	P				•					1,000h	•
M12 Metal		•	M			•						48h	•
LED Light Guide													
Ø3mm			B				•		4V				•
Ø5mm			M				•		4V				•

Remarks:
Materials: **P** (Plastic), **M** (Metal), **B** (Both)
Assemble Style: **R0** (Receptacle), **RW** (Receptacle With Wires), **RP** (Receptacle With Pigtail), **RC** (Receptacle With Overmolded Cable), **OC** (Overmolded With Cables), **FI** (Field Installable)
Vibration: **(1)** 10-500 Hz @Ampliture 0.35mm; **(2)** 10-55Hz @Amplitude 1.52mm
Operation Temperature & IP Rating: **R0** (Receptacle), **RW** (Receptacle With Wires), **OC** (Overmolded With Cables), **FI** (Field Installable)

RRODUCT SELECTION GUIDE

High Speed			Salt Spray (Connector, Mated)	R0	RW	RP	OC	FI	UV Resistant	UL 94V-0	Vibration	EMI Option	ROHS 2.0 & REACH	Standard / Compliant / Certifications	Operating Temperature & IP Rating
USB 2.0	USB 3.2 Gen1	USB 3.2 Gen2													
			48h	•				•	•	•			•		-40°C - 105°C, IP67 (Mated)
			48h	•				•	•	•			•		-40°C - 105°C, IP67 (Mated)
			48h							•			•		-40°C - 110°C, Non-IP
			48h	•								•	•	MIL-C-39012	-40°C - 105°C, IP68 (Unmated)
			48h	•								•	•	MIL-C-39012	-40°C - 105°C, IP68 (Unmated)

Field Installable	UV Resistant	UL 94V-0	Vibration	ROHS 2.0 & REACH	Certifications	IP Rating	Operating Temperature
•	•	94V-2		•		IP67	-40°C - 105°C
•	•	•		•	UL6703A	IP67	-40°C - 105°C
•	•	•		•	CSA, UL2238, UL50e	IP68 (Mated)	-40°C - 105°C
•	•	•		•	CSA, UL2238, UL50e	IP68 (Mated)	-40°C - 105°C
•	•	•		•	CSA, UL2238, UL50e	IP68 (Mated)	-40°C - 105°C
•	•	•		•	CSA, UL2238, UL50e	IP68 (Mated)	-40°C - 105°C
•		94V-0 94V-2	(2)	•		IP67 (Mated) IP68 (Mated)	◦ **R0:** -20°C - 105°C ◦ **FI:** -20°C - 105°C
	•	•		•		IP66, IP68	-40°C - 125°C
	•	•		•		IP68, IP69K	-40°C - 125°C
	•	•		•		IP68, IP69K	-40°C - 125°C
	•	•		•		IP68, IP69K	-40°C - 125°C
	•	•		•		IP68, IP69K	-40°C - 125°C
						IP67	◦ **Red & Green:** -30°C - 80°C ◦ **Others:** -40°C - 80°C
						IP67	◦ **Red & Green:** -30°C - 80°C ◦ **Others:** -40°C - 80°C

Served Markets & Applications

Applications	Ceres	X-Lok	M series	FLOS & FLOS+	Power	RBL	Deep Tronica	HS-Lok	NMEA 2000	7/8" Mini	Heavy Duty Shielded	RJ45	USB	SSL	HDMI	DVI	Fiber Optics	Zconnect	RF	Cable Joiner	Cable Gland	Vent	LED Light Guide	D-Sub
LED Lighting																								
Architectural Lighting	•	•	•		•	•		•		•		•		•				•		•	•	•		
Outdoor LED Displays	•	•	•	•	•	•				•		•		•				•		•	•	•		
Outdoor Signage	•	•			•	•				•		•		•				•		•	•	•		
Entertainment Lighting & Systems	•	•			•	•		•		•		•		•				•		•	•	•		
Smart City, Street Lighting	•	•			•	•				•		•		•				•		•	•	•		
Tunnel Lighting	•	•	•		•	•				•		•		•				•		•	•	•		
Parking Lighting	•	•			•	•		•		•		•		•				•		•	•	•		
Cruise & Shipyards Lighting	•	•	•		•	•		•	•	•		•		•				•		•	•	•		
High Speed Train & EV Bus	•	•			•	•		•		•	•	•		•				•			•	•		
Commercial Lighting	•	•	•		•	•		•		•		•		•				•		•	•	•		
Refrigeration Lighting	•	•	•		•	•		•		•		•		•				•			•	•		
Horticulture Lighting	•	•	•		•	•				•		•		•				•		•	•	•		
Warehouse Lighting	•	•			•	•				•		•		•				•		•	•	•		
Emergency Lighting	•	•	•		•	•		•		•		•		•				•		•	•	•		
UV and Sanitary Lighting	•	•	•		•	•		•		•		•		•				•		•	•	•		
Li-Fi	•	•			•	•						•		•				•	•	•	•	•		
Hospital Surgical Lighting & Room	•	•	•		•	•		•		•		•		•				•		•	•	•		
ATEX Lighting	•	•			•	•		•						•				•						
Underwater / Submerged Lighting	•	•			•	•								•				•				•		
Marine																								
Multi-FunctionDisplay	•	•	•	•	•	•			•	•	•	•	•		•	•		•	•			•	•	•
Outboard Motors	•	•	•		•	•			•	•	•							•			•			
Bilge Pump	•	•	•		•	•			•	•	•							•			•			
Heater	•	•	•		•	•		•	•	•	•	•						•		•	•	•		
HVAC (Heating Ventilation Air Conditioning)	•	•	•		•	•		•	•	•	•	•						•		•	•	•		
Fridge	•	•	•		•	•		•	•	•	•							•						
Docking System	•	•	•		•	•	•		•	•	•							•			•			
Windlass	•	•	•		•	•			•	•	•							•			•			
Sensors	•	•	•		•	•			•	•	•							•						
RADAR	•	•	•		•	•		•	•	•	•	•	•					•	•					
Antenna			•					•	•	•	•							•	•					
USB Charger	•	•	•		•	•		•	•	•	•		•					•		•				
Audio System	•	•	•		•	•		•	•	•	•	•	•		•			•		•	•	•		
Lighting System	•	•	•		•	•		•	•	•	•	•	•	•	•			•		•	•	•		•
CCTV	•	•	•		•	•		•	•	•	•	•	•		•	•		•						
Power Controller	•	•	•		•	•			•	•	•							•		•	•	•		•
Autopilot System	•	•	•		•	•			•	•	•				•	•		•	•			•		•
Automatic Identification System	•	•	•		•	•		•	•	•	•	•			•	•		•	•			•		•
GPS, Beacon & Lifebuoy	•	•	•		•	•		•	•	•	•	•	•					•	•					
Sonar / Transducer	•	•	•						•									•						
Fish-Finders	•	•	•						•	•	•	•	•					•						
Chartplotter	•	•	•						•	•	•	•	•		•	•		•						•
Sailing Instruments	•	•	•						•	•	•	•	•		•	•		•				•		•
Shipyards & Cruise	•	•	•						•	•	•	•	•		•	•		•				•		•
Drilling Systems							•																	
Seaport							•																	
Submarine							•																	
ROVs							•																	
Marine Renewable Energy							•																	
ROTV							•																	
Buoys							•																	
Underwater Vehicles							•																	
Underwater Equipment							•																	
Diving							•																	
Broadband Wireless Access																								
General Small Cells	•	•	•		•	•		•		•	•	•	•				•	•	•	•	•	•	•	•
RRH (Remote Radio Head)	•	•	•		•	•		•		•	•	•	•				•	•	•	•	•	•		
Wireless Mobile Backhaul	•	•	•		•	•		•		•	•	•	•				•	•	•	•	•	•		
High Capacity Mobile Subscriber Unit	•	•	•		•	•		•		•	•	•	•				•	•	•	•	•	•	•	
Outdoor Base Station Unit	•	•	•		•	•		•		•	•	•	•				•	•	•	•	•	•	•	
Outdoor LTE	•	•			•	•		•		•	•	•						•	•	•	•	•	•	
Outdoor AP	•	•	•		•	•		•		•	•	•	•				•	•	•	•	•	•		•
Subscriber Station	•	•			•	•		•		•	•	•					•	•	•	•	•	•	•	
Outdoor Wireless Mesh Router	•	•	•		•	•		•		•	•	•	•				•	•	•	•	•	•		
Base Station Power Supply	•	•		•	•	•		•		•	•							•	•	•	•	•	•	
Communication System															•			•						
Outdoor Wireless Mesh Router	•	•			•	•		•		•	•	•	•				•	•	•	•	•	•	•	

Served Markets & Applications

Applications	Ceres	X-Lok	M series	FLOS & FLOS+	Power	RBL	Deep Tronica	HS-Lok	NMEA 2000	7/8" Mini	Heavy Duty Shielded	RJ45	USB	SSL	HDMI	DVI	Fiber Optics	Zconnect	RF	Cable Joiner	Cable Gland	Vent	LED Light Guide	D-Sub
Industrial Automation																								
Robotic Arm			•	•				•		•	•							•						
Industrial Server / Network	•	•	•	•	•			•		•	•	•	•		•	•	•	•	•			•	•	•
Industrial Forklifts (Truck)	•	•	•	•	•	•		•		•	•	•	•		•	•		•			•	•		•
AVI (Automatic visual inspection)	•	•	•	•				•		•	•							•						
Data Communication System	•	•	•	•	•			•		•	•	•	•		•	•		•	•			•	•	•
Industrial Control Center	•	•	•	•	•			•		•	•	•	•		•	•		•				•	•	•
Packaging Center	•	•	•	•				•		•	•							•						
Conveyors	•	•	•	•				•		•	•							•						
Sensors			•							•	•							•						
Power Distribution	•	•	•	•	•					•	•							•						
Actuators	•	•	•							•	•							•						
Motor Drives	•	•	•		•	•				•	•							•						
Industrial PC & Displays	•	•	•	•	•			•		•	•	•	•		•	•		•	•			•	•	•
Machine Tools	•	•	•	•	•					•	•							•						
Switches		•	•							•	•	•	•					•						•
Production Equipment	•	•	•	•	•	•		•		•	•	•	•					•				•	•	•
Renewable Energy																								
PV / DC Inverter	•	•	•		•	•				•	•	•						•		•	•	•	•	
Micro Inverter																		•			•	•	•	
CSP & CPV	•	•	•		•	•				•	•							•			•	•	•	
Heliostat	•	•	•		•	•				•	•							•			•	•	•	
PV Trackers	•	•	•		•	•				•	•							•			•	•	•	
PV ICS (Integrated Control Systems)					•	•				•	•	•						•			•		•	
Portable Energy	•	•	•		•	•		•		•	•	•	•					•						
Communication System	•	•	•	•	•	•				•	•	•	•		•	•	•	•	•		•	•	•	•
PDC (Power Distribution Control)	•	•	•	•	•	•				•	•	•						•	•		•	•	•	•
Wind Turbine	•	•	•	•	•	•				•	•	•						•			•	•	•	•
Energy Storage System	•	•	•		•	•				•	•	•						•			•	•	•	
Tidal Power Generation System	•	•	•	•	•	•				•		•						•			•	•		•
Heavy Equipment																								
Electronic Toll System	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•		•
Automotive Diagnotics	•	•	•	•	•			•		•	•	•	•	•	•	•		•	•				•	•
Agriculture Electronic Equipment	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•		•
Lidar & Radar	•	•	•	•						•	•	•	•		•	•		•						
ADAS (Advanced Driver Assistance Systems)	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•		•
Telematics & Tracking	•	•	•		•	•		•		•	•	•	•		•	•		•	•	•	•	•	•	•
Camera & Monitoring	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•		•
Control System	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•		•
Display	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•		•
GPS System	•	•	•	•	•	•		•		•	•	•	•					•	•		•	•		
Lighting	•	•	•		•	•				•	•			•				•		•	•			
Measurement Systems	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•		•
Sensors		•	•	•				•		•	•							•						
Automated Meter Reading																								
Water Meter	•	•	•	•				•				•	•					•	•		•	•	•	
Electricity Meter	•	•	•	•				•				•	•					•	•		•	•	•	
Gas Meter	•	•	•	•				•				•	•					•	•		•	•	•	
Alarm System	•	•	•	•				•				•	•					•	•		•	•	•	
Military Drone	•	•	•	•				•										•	•		•	•	•	
Vehicle Tracking	•	•	•	•				•				•	•					•	•		•	•	•	
Telemetry	•	•	•	•				•				•	•					•	•		•	•	•	
Sewage	•	•	•	•	•	•		•				•	•					•	•		•	•	•	
Rugged IT																								
Telemetry		•	•	•				•				•						•	•		•	•		
Rugged & Military VR and AR		•	•	•				•					•					•	•		•			
Rugged Notebook				•								•	•		•	•		•	•					•
Night Vision Goggle			•	•				•					•					•						
Miniature Camera													•					•	•					
Rugged Tablet													•		•	•		•	•					
Communication Devices				•								•	•		•	•		•	•				•	•

Served Markets & Applications

Applications	Ceres	X-Lok	M series	FLOS & FLOS+	Power	RBL	Deep Tronica	HS-Lok	NMEA 2000	7/8" Mini	Heavy Duty Shielded	RJ45	USB	SSL	HDMI	DVI	Fiber Optics	Zconnect	RF	Cable Joiner	Cable Gland	Vent	LED Light Guide	D-Sub
Test Equipments																								
Air Flow Measurement	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Gas Detectors	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Precision Surveying	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•			•		•
Earthquake Monitoring	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Humidity Measurement	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Leak Detectors	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Light Measuring	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Sound Measuring	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Water Measurement	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Weighing Devices	•	•	•	•	•	•		•		•	•	•	•					•	•		•	•		
Weigh Modules	•	•	•	•	•	•		•		•	•	•	•					•	•		•	•		
Heavy-duty Scales	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•			•		•
Floor Scales	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•			•		•
Wet Area Weighing	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Dosing Systems	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
In-Motion Weighing	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Borescope	•	•	•	•				•		•	•	•	•					•	•			•		
Image Measurement	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Timers / Timer Display	•	•	•	•				•		•	•	•	•					•	•			•		
Laser Marking System	•	•	•	•	•	•		•		•	•	•	•					•	•			•		
Digital Microscopes	•	•	•	•				•		•	•	•	•					•	•			•		
Hybrid Electric Vehicles																								
Electric Wheelchair	•	•	•	•	•	•		•		•	•							•						
Electrical and Electronic Speed Control	•	•	•	•	•	•		•		•	•							•						
Electrical and Electronic Brake System	•	•	•	•	•	•		•		•	•							•						
Throttle Controller	•	•	•	•	•	•		•		•	•							•						
Battery Module	•	•	•		•					•	•	•	•	•				•			•	•		
Motor Module	•	•	•	•						•	•	•	•	•				•			•	•		
Gear Shift Module	•	•								•	•	•	•	•				•				•		
Controller Unit	•	•	•	•						•	•	•	•	•				•				•		
Charge Plug / Inlet	•	•			•					•	•	•	•	•				•				•		
Charging Station	•	•			•					•	•	•	•	•				•				•		
Home Charge Platform	•	•			•					•	•	•	•	•				•				•		
Hoverboard	•	•	•	•	•					•	•	•	•	•				•				•		
Electric Scooter	•	•	•	•	•	•		•		•	•							•			•			
Railway Mass Transit																								
Infotainment Systems	•	•	•	•	•	•		•		•	•	•	•		•	•		•			•	•	•	•
In-Vehicle Information System	•	•	•	•	•			•		•	•	•	•		•	•		•			•	•	•	•
Indication Display	•	•	•	•	•			•		•	•	•	•		•	•		•				•		•
Navigation/GPS	•	•	•					•		•	•	•	•		•	•		•	•					•
HVAC (Heating Ventilation Air Conditioning)	•	•	•	•	•			•		•	•	•						•						
Fuel Leakage Detector	•	•	•	•	•	•		•		•	•	•	•					•						
Broadcasting System	•	•	•	•	•			•		•	•	•	•					•			•			
Vehicle Monitoring	•	•	•	•	•			•		•	•	•	•		•	•		•				•		•
Cleaning Control	•	•	•	•		•		•		•	•	•	•					•						
Speedometer	•	•	•	•				•		•	•							•						
Interior Lighting	•	•	•	•	•			•		•	•	•	•	•				•				•		
Mobile Devices																								
DRC (Drone Remote Controller)	•	•	•	•				•					•					•	•					
Altimeter	•	•	•	•				•					•					•	•					
Barcode Reader	•	•	•	•				•					•					•						
GPS Safety Guard		•											•					•	•					
Portable Lamp	•	•						•					•					•						
Gesture Measurement	•	•						•					•					•						
Wearables													•					•	•					

Served Markets & Applications

Applications	Ceres	X-Lok	M series	FLOS & FLOS+	Power	RBL	Deep Tronica	HS-Lok	NMEA 2000	7/8" Mini	Heavy Duty Shielded	RJ45	USB	SSL	HDMI	DVI	Fiber Optics	Zconnect	RF	Cable Joiner	Cable Gland	Vent	LED Light Guide	D-Sub
Transportation																								
Vehicle Camera	•	•	•	•		•		•					•		•			•			•	•		
Switch			•									•	•					•						•
Dome Vehicle Camera	•	•	•			•												•						
RFID Reader																		•	•					
Bus GPS	•	•	•	•		•		•				•	•		•	•		•	•					
Displayer	•	•	•	•		•												•						
Outdoor Speaker	•	•	•	•		•												•						
Automotive Winches																		•						
Vehicle Charger	•	•	•			•												•						
Wifi Router												•						•						
Fleet Management	•	•	•	•		•												•						
Digital Video Surveillance System	•	•	•	•	•	•				•	•	•						•					•	
Medical Equipment																								
Medical Displays				•	•							•	•		•	•		•				•		•
Mobile Nursing Carts	•	•			•	•		•		•	•							•			•	•		
Non-invasive Devices	•	•		•	•	•		•		•	•	•	•		•	•		•			•	•		•
Electrical Beds	•	•	•		•	•				•	•							•			•	•		
Charges	•	•			•	•				•	•							•			•	•		
Wheelchair Lift	•	•			•	•				•	•							•			•	•		
Wheelchair Stair Lift	•	•			•	•				•	•							•			•	•		
Rehabilitation System	•	•			•	•				•	•							•			•	•		
Automotive Diagnostics																								
Auto Crash Notification	•	•	•	•	•	•		•		•	•	•	•					•	•					•
Vehicle Tracking	•	•	•		•	•		•		•	•		•					•	•			•		
Vehicle Health Alert & Roadside Assistance	•	•	•	•	•	•		•		•	•	•	•					•	•					•
Remote Vehicle Diagnostics	•	•	•	•	•	•		•		•	•	•	•	•	•	•		•	•			•	•	•
UAV																								
Commercial Drone	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•	•	•
Military Drone	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•	•	•
Consumer Drone	•	•	•	•	•	•		•		•	•	•	•		•	•		•	•		•	•	•	•
Lifts & Materials Handling																								
Forklift	•	•	•	•	•	•		•		•	•	•	•		•	•		•			•	•	•	•
Industrial Lift	•	•	•	•	•	•		•		•	•	•	•		•	•		•			•	•	•	•
Materials Handling	•	•	•	•	•	•		•		•	•	•	•		•	•		•			•	•	•	•
Remote Video Response Center																								
Encoders	•	•	•	•	•			•		•	•	•	•		•	•		•	•			•	•	•
Monitoring Station	•	•	•		•	•				•	•	•	•		•	•		•			•			•
CCTV/Dome/IP Camera	•	•	•	•	•			•		•	•	•	•		•	•		•	•	•	•	•	•	•
Remote Control	•	•			•			•				•	•					•			•			
Junction Box	•	•			•							•	•		•	•		•			•	•		•
Automatic LPRS (License Plate Recognition System)	•	•	•	•	•			•		•	•	•	•		•	•		•	•	•	•	•	•	•
Fingerprint ID													•					•						
Alarm System	•	•	•	•	•			•				•	•		•	•		•	•	•	•	•	•	•
Sensor			•															•						
Autonomous																								
GPS	•	•	•	•				•		•	•	•	•		•	•		•	•					
Lidar	•	•	•	•				•		•	•	•	•		•			•			•	•		
Radar Sensors	•	•	•	•				•		•	•							•	•					
Video Cameras	•	•	•	•				•		•	•		•		•			•			•	•		
Central Computer	•	•	•	•				•		•	•	•	•		•			•						
Inertial Measurement Unit	•	•	•	•				•		•	•							•			•			
Inertial Navigation Systems	•	•	•	•				•		•	•							•	•		•			
Commercial Military																								
Commercial Military				•														•						

Heavy Duty Shielded Markets / Applications

Marine

- AIS
- Antenna
- Audio System
- Autopilot System
- Bilge Pump
- Heater
- RADAR
- Windlass
- Outboard & Trolling Motors
- Chartplotter
- Docking System
- Fish-Finders
- Fridge & Refrigeration
- GPS, Beacon & Lifebuoy
- Ligting System
- Power Controller
- IP and Infrared CCTV & Cameras
- Sensors
- Shipyards & Cruise
- Sonar / Transducer
- USB Charger
- HVAC (Heating Ventilation Air Conditioning)
- Multi-Function Display
- Sailing Instruments

Broadband Wireless Access

- Outdoor AP
- Outdoor Base Station Unit
- Outdoor Repeater
- Outdoor Wireless Mesh Router
- RRH (Remote Radio Head)
- General Small Cells
- Wireless Mobile Backhaul
- High Capacity Mobile Subscriber Unit
- Subscriber Station
- Base Station Power Supply

Industrial Automation

- Machine Tools
- Motor Drives
- Packaging
- Power
- Sensors
- Production Equipment
- Switches
- Actuators
- Conveyors
- Industrial Network
- Industrial PC & Displays
- Industrial Control
- Industrial Forklifts
- Industrial Robots
- AVI (Automatic Visual Inspection)
- Communication System

Test Equipment

- Sound Measuring
- Timers / Timer Display
- Water Measurement
- Weigh Modules
- Weighing Devices
- Leak Detectors
- Laser Marking System
- Borescope
- Digital Microscopes
- Dosing Systems
- Earthquake monitoring
- Floor Scales
- Light Measuring
- Wet Area Weighing
- Gas Detectors
- Heavy-duty Scales
- Humidity Measurement
- Image Measurement
- In-Motion Weighing
- Precision Surveying
- Air Flow Measurement

Heavy Equipment

- Lidar & Radar
- Lighting
- Measurement Systems
- Sensors
- Telematics & Tracking
- Automotive Diagnotics
- Camera & Monitoring
- Agriculture Electronic Equipment
- ADAS (Advanced Driver Assistance Systems)
- Control System
- Display
- Electronic Toll System
- GPS System

Hybrid Electric Vehicles

- Battery Module
- Controller Unit
- Electric Scooter
- Electric Wheelchair
- Hoverboard
- Motor Module
- Throttle Controller
- Gear Shift Module
- Electrical and Electronic Brake System
- Electrical and Electronic Speed Control
- Charge Plug / Inlet
- Charging Station
- Home Charge Platform

Railway Mass Transit

- Interior Lighting
- In-Vehicle Information
- Navigation / GPS
- Speedometer
- Vehicle Monitoring
- Indication Display
- Broadcasting System
- Cleaning Control
- Fuel Leakage Detector
- HVAC (Heating Ventilation Air Conditioning)
- Infortainment Systems

Autonomous

- Radar Sensors
- Video Cameras
- Central Computer
- Inertial Measurement Unit
- Inertial Navigation Systems
- GPS
- Lidar

Automotive Diagnostics

- Auto Crash Notification
- Remote Vehicle Diagnostics
- Vehicle Health Alert & Roadside Assistance
- Vehicle Tracking

Heavy Duty Shielded Markets / Applications

Lifts & Materials Handling

- Forklift
- Industrial Lift
- Materials Handling

Transportation

- Digital Video Surveillance System

LED

- High Speed Train & EV Bus

Renewable Energy

- PV / DC Inverter
- CSP & CPV
- Heliostat
- PV Trackers
- PV ICS (Integrated Control Systems)
- Portable Energy
- Communication System
- PDC (Power Distribution Control)
- Wind Turbine
- Energy Storage System

UAV

- Commercial Drone
- Consumer Drone
- Military Drone

Medical Equipment

- Charges
- Electrical Beds
- Mobile Nursing Carts
- Non-invasive Devices
- Rehabilitation System
- Wheelchair Lift
- Wheelchair Stair Lift

Remote Video Response Center

- Encoders
- Monitoring Station
- CCTV/Dome/IP Camera
- Automatic LPRS (License Plate Recognition System)

Automotive Diagnostics

- Auto Crash Notification
- Remote Vehicle Diagnostics
- Vehicle Health Alert & Roadside Assistance
- Vehicle Tracking

Heavy Duty Shielded

No of Contacts		2	
Rated Voltage (AC/DC)		300V	50V
Nominal Current		20A	40A
Pin Assignment **MF**: Male Connector Female Contact **FM**: Female Connector Male Contact			
Receptacle, Square Flange, **FRONT** Fastened Nut, Soder Contact, IP68 (Mated) Nut Torque Value: 5 ~ 8 kgf-cm | Recommend Panel Thickness: Max 9.0mm			
	Salt Spray 48h	LC20-02P**MF**S-SW8001	LN20-02P**MF**S-SW8001
	Salt Spray 500h	HC20-02P**MF**S-SW8001	HN20-02P**MF**S-SW8001
Receptacle, Square Flange, **REAR** Fastened Nut, Soder Contact, IP68 (Mated) Nut Torque Value: 5 ~ 8 kgf-cm | Recommend Panel Thickness: Max 5.0mm			
	Salt Spray 48h	LC20-02P**MF**S-SN8001	LN20-02P**MF**S-SN8001
	Salt Spray 500h	HC20-02P**MF**S-SN8001	HN20-02P**MF**S-SN8001
Field Serviceable/Installable, **STRAIGHT**, Solder Contacts, IP68 (Mated) Sealing Nut Torque Value: 5 ~ 8 kgf-cm | Cable O.D.: (5A, 10A, 20A) 5.5mm ~ 12.50mm, (40A) 12.00mm ~ 18.00mm			
	Salt Spray 48h	LC20-02B**FM**A-SL8001	LN20-02B**FM**A-SL8001
	Salt Spray 500h	HC20-02B**FM**A-SL8001	HN20-02B**FM**A-SL8001
STRAIGHT, Overmolded Cable Assembly, Free Cable End, IP68 (Mated) 10 Cable Length: (01) 1M ~ (99) 99M[1]			
	Salt Spray 48h, UL20549, PU Jacket	LC20-02B**FM**M-SL8B10*	LN20-02B**FM**M-SL8B10*
	Salt Spray 48h, UL2517, PVC Jacket	LC20-02B**FM**M-SL8D10*	LN20-02B**FM**M-SL8D10*
	Salt Spray 500h, UL20549, PU Jacket	HC20-02B**FM**M-SL8B10*	HN20-02B**FM**M-SL8B10*
	Salt Spray 500h, UL2517, PVC Jacket	HC20-02B**FM**M-SL8D10*	HN20-02B**FM**M-SL8D10*
RIGHT ANGLE, Overmolded Cable Assembly, Free Cable End, IP68 (Mated) 10 Cable Length: (01) 1M ~ (99) 99M[1]			
	Salt Spray 48h, UL20549, PU Jacket	LC20-02B**FM**M-SR8B10*	LN20-02B**FM**M-SR8B10*
	Salt Spray 48h, UL2517, PVC Jacket	LC20-02B**FM**M-SR8D10*	LN20-02B**FM**M-SR8D10*
	Salt Spray 500h, UL20549, PU Jacket	HC20-02B**FM**M-SR8B10*	HN20-02B**FM**M-SR8B10*
	Salt Spray 500h, UL2517, PVC Jacket	HC20-02B**FM**M-SR8D10*	HN20-02B**FM**M-SR8D10*
FEMALE STRAIGHT-TO-**FEMALE STRAIGHT**, Overmolded Double-Ended Cable Assembly, IP68 (Mated) 10 Cable Length: (A05) 0.5M, (001) 1M ~ (099) 99M[1] | Connector / Contact Gender: **(B)** FM			
	Salt Spray 48h, UL20549, PU Jacket	LC2002**B**L-20**B**L-SB10*	LN2002**B**L-20**B**L-SB10*
	Salt Spray 48h, UL2517, PVC Jacket	LC2002**B**L-20**B**L-SD10*	LN2002**B**L-20**B**L-SD10*
	Salt Spray 500h, UL20549, PU Jacket	HC2002**B**L-20**B**L-SB10*	HN2002**B**L-20**B**L-SB10*
	Salt Spray 500h, UL2517, PVC Jacket	HC2002**B**L-20**B**L-SD10*	HN2002**B**L-20**B**L-SD10*
FEMALE RIGHT ANGLE-TO-**FEMALE RIGHT ANGLE**, Overmolded Double-Ended Cable Assembly, IP68 (Mated) 10 Cable Length: (A05) 0.5M, (001) 1M ~ (099) 99M[1] | Connector / Contact Gender: **(B)** FM			
	Salt Spray 48h, UL20549, PU Jacket	LC2002**B**R-20**B**R-SB10*	LN2002**B**R-20**B**R-SB10*
	Salt Spray 48h, UL2517, PVC Jacket	LC2002**B**R-20**B**R-SD10*	LN2002**B**R-20**B**R-SD10*
	Salt Spray 500h, UL20549, PU Jacket	HC2002**B**R-20**B**R-SB10*	HN2002**B**R-20**B**R-SB10*
	Salt Spray 500h, UL2517, PVC Jacket	HC2002**B**R-20**B**R-SD10*	HN2002**B**R-20**B**R-SD10*
FEMALE STRAIGHT-TO-**FEMALE RIGHT ANGLE**, Overmolded Double-Ended Cable Assembly, IP68 (Mated) 10 Cable Length: (A05) 0.5M, (001) 1M ~ (099) 99M[1] | Connector / Contact Gender: **(B)** FM			
	Salt Spray 48h, UL20549, PU Jacket	LC2002**B**L-20**B**R-SB10*	LN2002**B**L-20**B**R-SB10*
	Salt Spray 48h, UL2517, PVC Jacket	LC2002**B**L-20**B**R-SD10*	LN2002**B**L-20**B**R-SD10*
	Salt Spray 500h, UL20549, PU Jacket	HC2002**B**L-20**B**R-SB10*	HN2002**B**L-20**B**R-SB10*
	Salt Spray 500h, UL2517, PVC Jacket	HC2002**B**L-20**B**R-SD10*	HN2002**B**L-20**B**R-SD10*

***Upon Request**

[1] Standard Lengths: 1M, 2M, 3M, 5M and 10M. Higher MOQ Might Be Required For Non-Standard Lengths

Heavy Duty Shielded

3	4	5	7	
300V	250V	250V	250V	
20A	10A	10A	10A	
				Mating
LC20-03P**MFS**-SW8001	LB20-04P**MFS**-SW8001	LB20-05P**MFS**-SW8001	LB20-07P**MFS**-SW8001	
HC20-03P**MFS**-SW8001	HB20-04P**MFS**-SW8001	HB20-05P**MFS**-SW8001	HB20-07P**MFS**-SW8001	
LC20-03P**MFS**-SN8001	LB20-04P**MFS**-SN8001	LB20-05P**MFS**-SN8001	LB20-07P**MFS**-SN8001	
HC20-03P**MFS**-SN8001	HB20-04P**MFS**-SN8001	HB20-05P**MFS**-SN8001	HB20-07P**MFS**-SN8001	
				Pair
LC20-03B**FMA**-SL8001	LB20-04B**FMA**-SL8001	LB20-05B**FMA**-SL8001	LB20-07B**FMA**-SL8001	
HC20-03B**FMA**-SL8001	HB20-04B**FMA**-SL8001	HB20-05B**FMA**-SL8001	HB20-07B**FMA**-SL8001	
LC20-03B**FM**M-SL8B10*	LB20-04B**FM**M-SL8B10*	LB20-05B**FM**M-SL8B10*	LB20-07B**FM**M-SL8B10*	
LC20-03B**FM**M-SL8D10*	LB20-04B**FM**M-SL8D10*	LB20-05B**FM**M-SL8D10*	LB20-07B**FM**M-SL8D10*	
HC20-03B**FM**M-SL8B10*	HB20-04B**FM**M-SL8B10*	HB20-05B**FM**M-SL8B10*	HB20-07B**FM**M-SL8B10*	
HC20-03B**FM**M-SL8D10*	HB20-04B**FM**M-SL8D10*	HB20-05B**FM**M-SL8D10*	HB20-07B**FM**M-SL8D10*	
LC20-03B**FM**M-SR8B10*	LB20-04B**FM**M-SR8B10*	LB20-05B**FM**M-SR8B10*	LB20-07B**FM**M-SR8B10*	
LC20-03B**FM**M-SR8D10*	LB20-04B**FM**M-SR8D10*	LB20-05B**FM**M-SR8D10*	LB20-07B**FM**M-SR8D10*	
HC20-03B**FM**M-SR8B10*	HB20-04B**FM**M-SR8B10*	HB20-05B**FM**M-SR8B10*	HB20-07B**FM**M-SR8B10*	
HC20-03B**FM**M-SR8D10*	HB20-04B**FM**M-SR8D10*	HB20-05B**FM**M-SR8D10*	HB20-07B**FM**M-SR8D10*	
LC2003**B**L-20**B**L-SB10*	LB2004**B**L-20**B**L-SB10*	LB2005**B**L-20**B**L-SB10*	LB2007**B**L-20**B**L-SB10*	
LC2003**B**L-20**B**L-SD10*	LB2004**B**L-20**B**L-SD10*	LB2005**B**L-20**B**L-SD10*	LB2007**B**L-20**B**L-SD10*	
HC2003**B**L-20**B**L-SB10*	HB2004**B**L-20**B**L-SB10*	HB2005**B**L-20**B**L-SB10*	HB2007**B**L-20**B**L-SB10*	
HC2003**B**L-20**B**L-SD10*	HB2004**B**L-20**B**L-SD10*	HB2005**B**L-20**B**L-SD10*	HB2007**B**L-20**B**L-SD10*	
LC2003**B**R-20**B**R-SB10*	LB2004**B**R-20**B**R-SB10*	LB2005**B**R-20**B**R-SB10*	LB2007**B**R-20**B**R-SB10*	
LC2003**B**R-20**B**R-SD10*	LB2004**B**R-20**B**R-SD10*	LB2005**B**R-20**B**R-SD10*	LB2007**B**R-20**B**R-SD10*	
HC2003**B**R-20**B**R-SB10*	HB2004**B**R-20**B**R-SB10*	HB2005**B**R-20**B**R-SB10*	HB2007**B**R-20**B**R-SB10*	
HC2003**B**R-20**B**R-SD10*	HB2004**B**R-20**B**R-SD10*	HB2005**B**R-20**B**R-SD10*	HB2007**B**R-20**B**R-SD10*	
LC2003**B**L-20**B**R-SB10*	LB2004**B**L-20**B**R-SB10*	LB2005**B**L-20**B**R-SB10*	LB2007**B**L-20**B**R-SB10*	
LC2003**B**L-20**B**R-SD10*	LB2004**B**L-20**B**R-SD10*	LB2005**B**L-20**B**R-SD10*	LB2007**B**L-20**B**R-SD10*	
HC2003**B**L-20**B**R-SB10*	HB2004**B**L-20**B**R-SB10*	HB2005**B**L-20**B**R-SB10*	HB2007**B**L-20**B**R-SB10*	
HC2003**B**L-20**B**R-SD10*	HB2004**B**L-20**B**R-SD10*	HB2005**B**L-20**B**R-SD10*	HB2007**B**L-20**B**R-SD10*	

Panel Cut-Out

Front Fastened

Rear Fastened

(Unit: mm)

Heavy Duty Shielded

No of Contacts		10	12	14	
Rated Voltage (AC/DC)		250V	250V	250V	
Nominal Current		5A	5A	5A	
Pin Assignment **MF**: Male Connector Female Contact **FM**: Female Connector Male Contact					
Receptacle, Square Flange, **FRONT** Fastened Nut, Soder Contact, IP68 (Mated) Nut Torque Value: 5 ~ 8 kgf-cm | Recommend Panel Thickness: Max 9.0mm					Mating
	Salt Spray 48h	LD20-10P**MF**S-SW8001	LD20-12P**MF**S-SW8001	LD20-14P**MF**S-SW8001	
	Salt Spray 500h	HD20-10P**MF**S-SW8001	HD20-12P**MF**S-SW8001	HD20-14P**MF**S-SW8001	
Receptacle, Square Flange, **REAR** Fastened Nut, Soder Contact, IP68 (Mated) Nut Torque Value: 5 ~ 8 kgf-cm | Recommend Panel Thickness: Max 5.0mm					
	Salt Spray 48h	LD20-10P**MF**S-SN8001	LD20-12P**MF**S-SN8001	LD20-14P**MF**S-SN8001	
	Salt Spray 500h	HD20-10P**MF**S-SN8001	HD20-12P**MF**S-SN8001	HD20-14P**MF**S-SN8001	
Field Serviceable/Installable, **STRAIGHT**, Solder Contacts, IP68 (Mated) Sealing Nut Torque Value: 5 ~ 8 kgf-cm | Cable O.D.: (5A, 10A, 20A) 5.5mm ~ 12.50mm, (40A) 12.00mm ~ 18.00mm					Pair
	Salt Spray 48h	LD20-10B**FM**A-SL8001	LD20-12B**FM**A-SL8001	LD20-14B**FM**A-SL8001	
	Salt Spray 500h	HD20-10B**FM**A-SL8001	HD20-12B**FM**A-SL8001	HD20-14B**FM**A-SL8001	
STRAIGHT, Overmolded Cable Assembly, Free Cable End, IP68 (Mated) 10 Cable Length: (01) 1M ~ (99) 99M[1]					
	Salt Spray 48h, UL20549, PU Jacket	LD20-10B**FM**M-SL8B 10 *	LD20-12B**FM**M-SL8B 10 *	LD20-14B**FM**M-SL8B 10 *	
	Salt Spray 48h, UL2517, PVC Jacket	LD20-10B**FM**M-SL8D 10 *	LD20-12B**FM**M-SL8D 10 *	LD20-14B**FM**M-SL8D 10 *	
	Salt Spray 500h, UL20549, PU Jacket	HD20-10B**FM**M-SL8B 10 *	HD20-12B**FM**M-SL8B 10 *	HD20-14B**FM**M-SL8B 10 *	
	Salt Spray 500h, UL2517, PVC Jacket	HD20-10B**FM**M-SL8D 10 *	HD20-12B**FM**M-SL8D 10 *	HD20-14B**FM**M-SL8D 10 *	
RIGHT ANGLE, Overmolded Cable Assembly, Free Cable End, IP68 (Mated) 10 Cable Length: (01) 1M ~ (99) 99M[1]					
	Salt Spray 48h, UL20549, PU Jacket	LD20-10B**FM**M-SR8B 10 *	LD20-12B**FM**M-SR8B 10 *	LD20-14B**FM**M-SR8B 10 *	
	Salt Spray 48h, UL2517, PVC Jacket	LD20-10B**FM**M-SR8D 10 *	LD20-12B**FM**M-SR8D 10 *	LD20-14B**FM**M-SR8D 10 *	
	Salt Spray 500h, UL20549, PU Jacket	HD20-10B**FM**M-SR8B 10 *	HD20-12B**FM**M-SR8B 10 *	HD20-14B**FM**M-SR8B 10 *	
	Salt Spray 500h, UL2517, PVC Jacket	HD20-10B**FM**M-SR8D 10 *	HD20-12B**FM**M-SR8D 10 *	HD20-14B**FM**M-SR8D 10 *	
FEMALE STRAIGHT-TO-**FEMALE STRAIGHT**, Overmolded Double-Ended Cable Assembly, IP68 (Mated) 10 Cable Length: (A05) 0.5M, (001) 1M ~ (099) 99M[1] | Connector / Contact Gender: **(B)** FM					
	Salt Spray 48h, UL20549, PU Jacket	LD2010**B**L-20**B**L-SB 10 *	LD2012**B**L-20**B**L-SB 10 *	LD2014**B**L-20**B**L-SB 10 *	
	Salt Spray 48h, UL2517, PVC Jacket	LD2010**B**L-20**B**L-SD 10 *	LD2012**B**L-20**B**L-SD 10 *	LD2014**B**L-20**B**L-SD 10 *	
	Salt Spray 500h, UL20549, PU Jacket	HD2010**B**L-20**B**L-SB 10 *	HD2012**B**L-20**B**L-SB 10 *	HD2014**B**L-20**B**L-SB 10 *	
	Salt Spray 500h, UL2517, PVC Jacket	HD2010**B**L-20**B**L-SD 10 *	HD2012**B**L-20**B**L-SD 10 *	HD2014**B**L-20**B**L-SD 10 *	
FEMALE RIGHT ANGLE-TO-**FEMALE RIGHT ANGLE**, Overmolded Double-Ended Cable Assembly, IP68 (Mated) 10 Cable Length: (A05) 0.5M, (001) 1M ~ (099) 99M[1] | Connector / Contact Gender: **(B)** FM					
	Salt Spray 48h, UL20549, PU Jacket	LD2010**B**R-20**B**R-SB 10 *	LD2012**B**R-20**B**R-SB 10 *	LD2014**B**R-20**B**R-SB 10 *	
	Salt Spray 48h, UL2517, PVC Jacket	LD2010**B**R-20**B**R-SD 10 *	LD2012**B**R-20**B**R-SD 10 *	LD2014**B**R-20**B**R-SD 10 *	
	Salt Spray 500h, UL20549, PU Jacket	HD2010**B**R-20**B**R-SB 10 *	HD2012**B**R-20**B**R-SB 10 *	HD2014**B**R-20**B**R-SB 10 *	
	Salt Spray 500h, UL2517, PVC Jacket	HD2010**B**R-20**B**R-SD 10 *	HD2012**B**R-20**B**R-SD 10 *	HD2014**B**R-20**B**R-SD 10 *	
FEMALE STRAIGHT-TO-**FEMALE RIGHT ANGLE**, Overmolded Double-Ended Cable Assembly, IP68 (Mated) 10 Cable Length: (A05) 0.5M, (001) 1M ~ (099) 99M[1] | Connector / Contact Gender: **(B)** FM					
	Salt Spray 48h, UL20549, PU Jacket	LD2010**B**L-20**B**R-SB 10 *	LD2012**B**L-20**B**R-SB 10 *	LD2014**B**L-20**B**R-SB 10 *	
	Salt Spray 48h, UL2517, PVC Jacket	LD2010**B**L-20**B**R-SD 10 *	LD2012**B**L-20**B**R-SD 10 *	LD2014**B**L-20**B**R-SD 10 *	
	Salt Spray 500h, UL20549, PU Jacket	HD2010**B**L-20**B**R-SB 10 *	HD2012**B**L-20**B**R-SB 10 *	HD2014**B**L-20**B**R-SB 10 *	
	Salt Spray 500h, UL2517, PVC Jacket	HD2010**B**L-20**B**R-SD 10 *	HD2012**B**L-20**B**R-SD 10 *	HD2014**B**L-20**B**R-SD 10 *	

***Upon Request**

[1] Standard Lengths: 1M, 2M, 3M, 5M and 10M. Higher MOQ Might Be Required For Non-Standard Lengths

Assembly Instruction Solder Type

Nominal Current	5A	10A	20A	40A
No. of Contacts	10 ~ 14	4 ~ 7	2 ~ 3	2
Wire Range	22 ~ 20 AWG (0.34 ~ 0.50 mm²)	18 ~ 16 AWG (0.75 ~ 1.50 mm²)	14 ~ 12 AWG (2.50 ~ 4.00 mm²)	10 ~ 8 AWG (6.00 ~ 10.00 mm²)
Cable O.D. (Unit: mm)	5.5 ~ 12.5	5.5 ~ 12.5	5.5 ~ 12.5	12.0 ~ 18.0

1

Follow the order from 4 to 2 and put components through cable accordingly, no need to assemble here.

2

	Unit: mm
(A) Jacket	14.0 ~ 18.0
(B) Insulation	3.0 ~ 4.0
(C) Fold Braid (Shielded Type)	3.0 ~ 4.0

Follow suggested stripping length of **(A)** Jacket, **(B)** Insulation, **(C)** Fold Braid *(For shielding).*

3

Solder wires into contacts.

4

Torque Force: 10 ~ 12 kgf-cm

Follow the order 2 → 1, 3 → 2, 4 → 2 to assemble all components.
And tighten 1 & 2, 2 & 4 with suggested torque force.

	1 & 2	2 & 4
Torque Force (Unit: kgf-cm)	5.0 ~ 8.0	5.0 ~ 8.0

Ingress Protection (IP) Rating Guide

Waterproof Definition

Unmated Waterproof

Standalone waterproof or waterproof is assured even without its counterpart. The water will not go through the inner portion of the exposed connector as it is entirely sealed.

Mated Waterproof

Waterproof is only assured when mated and locked tightly to its counterpart.

1st Digit - SOLIDS

Degree of protection against solid objects

No Protection	0
Protected against a solid object greater than 50mm, such as a hand.	1
Protected against a solid object greater than 12.5mm, such as a finger.	2
Protected against a solid object greater than 2.5mm, such as a wire. (2.5mm)	3
Protected against a solid object greater than 1.0mm, such as a thin strap. (1.0mm)	4
Dust Protected. Prevents ingress of dust sufficient to cause harm.	5
Dust tight. No ingress of dust.	6

Example:

IP 6 5

Protected against water jets from any angle.

Dust tight.No ingress of dust.

2nd Digit - LIQUIDS

Degree of protection against water

No Protection	0
Protected against water drops.	1
Protected against water drops at a 15 degree angle.	2
Protected against water spray at a 60 degree angle.	3
Protected against water splashing from any angle.	4
Protected against water jets from any angle.	5
Protected against powerful water jets and heavy seas.	6
Protected against the effects of temporary submersion in water (30 minutes at 3 feet).	7
Protected against the effects of permanent submersion in water (up to 13 feet).	8
Protection against close range, powerful and high temperature water jets.	9K

Amphenol LTW Technology Co., Ltd.

5F-3, No.51 , Sec.4 , Zhongyang Rd., Tucheng Dist ., New Taipei City 236 Taiwan
Telephone : +886-2-7741-6888 Fax : +886-2-7741-6999
Email : sales@ltw-tech.com Web: amphenolltw.com

Kunshan Factory

No.62, DaTong Road , Development Zone , Kunshan City , JiangSu Province 215333 China
Telephone : +86-512-5761-0501 Fax : +86-512-5761-0515

For further information , please contact :

Luc Kan | Sales and Marketing
Email : luc@ltw-tech.com