Amphenol LTW®
Unrivaled InterConnects for Harsh Environments

FLOS & FLOS+

Product Catalogue

(V011123)

Amphenol
INDUSTRIAL PRODUCTS GROUP

Break Away

Push Pull

Intermateable With Specific Series

Of Fischer, Lemo, ODU, Souriau

IP50 / 66 / 67 / 68

Data Transmission

Harsh Environment

Quick Installation

Fully Shielded

Corrosion Resistant

RoHS Compliant

UL 94V-0

Contents

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	20-24	2,000			500h
X-LOK Series																	
Mini / LED			•				B	2-33	•		30-630V	0.5A-16A	32-14	1,000	•	•	1000h
Standard			•				P	2-8	•		300-600V	5A-10A 10A+5A	26-16	1,000			1000h
Middle			•				P	2-12	•	•	300-600V	5A-20A 10A+5A	26-12	1,000			1000h
Large			•				B	2-100	•	•	60V (0.5A) 300-600V	0.5A-20A 20A+5A 50A 50A+5A	32-6	1,000			1000h
Macro			•				P	4-31	•	•	300-600V	5A 50A+5A 80A+5A	22-2	1,000			1000h
M Series																	
M5					•		M	3-6	•		60V	1A	28-26	1,000			48h
Guided M8 / LED					•	Snap-in	B	2-6	•		30-60V	2A-4A 3A+1.5A	24-22	1,000			48h
M8 / LED					•	Snap-in	B	3-13	•		30-60V	0.5A-4A	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 / LED				•	•		B	3-4	•		630V	12A	16	1,000			48h
M12 T / LED				•	•		B	2-4	•		63V	12A	16	1,000			48h
M12 X				•	•		M	8	•		30-60V	0.5A	26	1,000		•	48h
M12 Y				•	•		B	8	•		60V	0.5A / 6A	20, 26	1,000			48h
M23					•		M	6	•		600V	28A	14-12	1,000			48h

Remarks:
Materials: **P** (Plastic), **M** (Metal), **B** (Both)

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
Ceres Series																					
Mini	•			•			•	•					•	•	•	(2)	•	•			
Standard	•			•	•		•	•	•				•	•	•	(2)	•	•		UL1977	◦ **R0**: -40°C - 105°C, IP67 (Unmated)
Middle	•			•			•	•	•				•	•	•	(2)		•		UL1977	◦ **RW**: -20°C - 85°C, IP67 (Unmated)
Large	•			•				•	•	•			•	•	•	(2)	•	•		UL1977	◦ **OC**: -20°C - 85°C, IP67 (Mated)
Macro	•			•									•	•	•	(2)		•		UL1977	◦ **FI**: -40°C - 105°C, IP67 (Mated)
PLD	•							•						•	•	(2)		•			
MAB													•	•	•	(2)		•			
GBD													•	•	•	(2)		•			
X-LOK Series																					
Mini / LED	•			•	•			•	•	•	•		•	•	•	(2)	•	•			
Standard	•			•				•	•	•	•		•	•	•	(2)	•	•			
Middle	•			•				•	•	•	•		•	•	•	(2)		•		CSA, UL1977, UL2238, UL50e	◦ **R0** & **RW**: -40°C - 105°C, IP68 (Unmated)
Large	•			•				•	•	•	•		•	•	•	(2)	•	•			◦ **OC** & **FI**: -40°C ~ 105°C, IP68 (Mated)
Macro	•	•		•					•	•			•	•	•	(2)		•			
M Series																					
M5	•			•	•	•							•	•	•	(1)		•	IEC 61076-2-105		
Guided M8 / LED	•		•	•	•	•		•	•	•		•	•	•	•	(1)	•	•			
M8 / LED	•		•	•	•	•		•	•	•		•	•	•	•	(1)	•	•	IEC 61076-2-104	UL1977, UL2238	
M10.5	•					•							•	•	94-HB	(1)		•			
M12 A / LED	•		•	•	•	•		•	•	•	•	•	•	•	•	(1)	•	•	IEC 61076-2-101	UL1977, UL2238, UL1863	◦ **R0**: -40°C ~ 105°C, IP67 (Mated / Unmated), IP68 (Unmated), IP69K (Mated)
M12 B / LED	•		•	•	•	•		•	•	•	•	•	•	•	•	(1)	•	•	IEC 61076-2-101	UL1977, UL2238	
M12 D / LED	•		•	•	•	•		•	•	•	•	•	•	•	•	(1)	•	•	IEC 61076-2-101	UL1977, UL2238, UL1863	◦ **RW**: -20°C ~ 85°C, IP67 (Mated / Unmated), IP68 (Unmated), IP69K (Mated)
M12 I	•			•				•					•	•	94-HB	(1)		•			
M12 K / LED	•		•	•	•	•		•	•	•			•	•	•	(1)		•	IEC 61076-2-111	UL1977, UL2237	
M12 L / LED	•		•	•	•	•		•	•	•			•	•	•	(1)		•	IEC 61076-2-111	UL1977, UL2238	◦ **OC**: -20°C ~ 85°C, IP67 / IP68 (Mated)
M12 M / LED	•		•	•	•	•		•	•	•			•	•	•	(1)	•	•	IEC 61076-2-111		
M12 S / LED	•		•	•	•	•		•	•	•			•	•	•	(1)		•	IEC 61076-2-111	UL1977, UL2237	◦ **FI**: -40°C ~ 105°C, IP67 / IP68 (Mated)
M12 T / LED	•		•	•	•	•		•	•	•			•	•	•	(1)		•	IEC 61076-2-111	UL1977, UL2238	
M12 X			•	•	•	•		•	•			•	•	•	•	(1)	•	•	IEC 61076-2-109	UL1863	
M12 Y				•	•	•		•					•	•	•	(1)	•	•	IEC 61076-2-109	UL1863	
M23		•							•				•	•	•	(1)	•	•			

Remarks:
Assemble Style: **R0** (Receptacle), **RW** (Receptacle With Wires), **RC** (Receptacle With Overmolded Cable), **OC** (Overmolded With Cables), **FI** (Field Installable)
Vibration: **(1)** 10-500 Hz @Amplitude 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

Circular (FLOS, Power, RBL)

	Mating Style						Materials	No. of Contacs	Contacts		Operating Voltage (AC/DC)	Nominal Current	Applicable Wires (AWG)	Mating Cycles (Pin Contact)	Salt Spray (Connector, Mated)	(R0) Receptacle		
	2 Points Lock	3 Points Lock	Push Lock	Push Pull	Screw Thread	Others			Gold Plated	Silver Plated						Solder	Crimp	Screw In
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			

Remarks:
Materials: **P** (Plastic), **M** (Metal)
Assemble Style: **R0** (Receptacle)

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
	PCB 180	PCB 90		Solder	Crimp	Screw In									
FLOS Series															
B	•	•		•	•		•		•	(2)	•	•		IP50 (Mated)	
K	•	•		•	•		•		•	(2)	•	•		IP68 (Mated)	
K (FLOS+)	•	•		•	•		•		•	(2)	•	•		**R0:** IP68 (Unmated) **OC:** IP68 (Mated) **FI:** IP68 (Mated)	◦ **R0**: -40°C - 125°C
C	•	•		•	•		•		•	(2)	•	•		IP68 (Mated)	◦ **OC**: -20°C - 85°C
S	•	•		•	•		•		•	(2)	•	•		IP50 (Mated)	◦ **FI**: -40°C - 125°C
Y	•	•		•	•		•		•	(2)	•	•		IP68 (Mated)	
P	•	•		•	•		•	•	•	(2)		•		IP50 / IP66 (Mated)	
N	•	•		•	•		•		•	(2)	•	•		IP68 (Mated)	
Power Series															
PWE				•			•		94-HB	(2)		•	UL1977	IP67 / IP68	
PWF				•			•		94-HB	(2)		•	UL1977, TUV	IP67 / IP68	
PWG						•	•		•	(2)		•	UL1977	IP67 / IP68	
PWC				•		•	•	•	•	(2)		•	UL1977, TUV/UL2238	IP67 / IP68	
PWCU				•			•	•	•	(2)		•	UL1977, TUV	IP67 / IP68	
PWH					•	•	•	•	•	(2)		•	UL1977, UL6703A, TUV	IP67 / IP68	
PWL				•		•		•	•	(2)		•	UL2238/UL1977	IP67 / IP68	
PWM						•		•	•	(2)		•	UL1977	IP67 (Mated)	
PWMU						•		•	•	(2)		•	UL1977	IP67 (Mated)	◦ **R0**: -40°C - 105°C
PWN						•	•	•	•	(2)		•	UL1977	IP67 (Mated)	◦ **OC**: -20°C ~ 80°C
PWNU						•	•	•	•	(2)		•	UL1977	IP67 (Mated)	◦ **FI**: -40°C ~ 105°C
PWP					•			•	•	(2)		•	UL1977	IP67 (Mated)	
PWPD					•			•	•	(2)		•	UL1977	IP67 (Mated)	
PWX					•			•	•			•	UL1977	IP69K (Mated)	
RBL Series															
Middle			•		•		•	•	•	(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
Large			•		•		•	•	•	(2)		•			

Remarks:
Assemble Style: **R0** (Receptacle), **RW** (Receptacle With Wires), **OC** (Overmolded With Cables), **FI** (Field Installable)
Vibration: **(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

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

	Mating Style		Materials	No. of Contacs	Contacts Gold Plated	Operating Voltage (AC/DC)	Nominal Current	Applicable Wires (AWG)	Mating Cycles (Pin Contact)	Salt Spray (Connector, Mated)	(R0) Receptacle			RW
	Push Pull	Screw Thread									Solder	PCB 180	PCB 90	
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: **M** (Metal), **B** (Both)
Assemble Style: **R0** (Receptacle), **RW** (Receptacle With Wires)

Product Selection Guide

	(FI) Field Installable				OC	UV Resistant	UL 94V-0	Vibration	EMI Option	ROHS 2.0 & REACH	Certifications	IP Rating	Operating Temperature
	Solder	Crimp	Screw In	Push In									
HS-Lok Series													
Q8	•				•	•	•	(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
NMEA 2000													
Lite (Micro)			•	•	•		•	(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
Heavy (Mini)			•	•	•		94-HB	(1)	•	•	NMEA 2000		
7/8" Mini													
7/8" Mini	•	•	•		•		•	(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
Heavy Duty Shielded													
Heavy Duty Shielded	•				•	•	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

Remarks:
Assemble Style: **OC** (Overmolded With Cables), **FI** (Field Installable)
Vibration: **(1)** 10-500 Hz @Amplitude 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

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	USB 2.0
RJ45 Series															
Middle		•		•		B	8		44-57V (DC)	Max. 1.5A	Cat. 6A: 26 / Cat. 5e: 24	750	•	•	
Large / I-Adaptor	•	•		•		P	8		44-57V (DC)	Max. 1.5A	24	750	•		
ODVA	•					B	8		44-57V (DC)	Max. 1.5A	Cat. 6A: 26 / Cat. 5e: 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 3.2 Gen1: 1A	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	•	Wire: 250V Flat Cable: 300V	5A	22-18	Wire: 30 Flat Cable: 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)

Product Selection Guide

	High Speed USB 3.2 Gen1	High Speed USB 3.2 Gen2	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
RJ45 Series															
Middle			48h	PCB 90 & 180, Jack 90 & 180		•	•	•	•	•	(2)	•	•	TIA/EIA-568, IEC 60603-7	◦ **R0:** -40°C - 105°C, IP67 (Unmated & Mated) ◦ **RP:** -20°C - 85°C, IP67 (Unmated & Mated) ◦ **OC:** -20°C - 85°C, IP67 (Mated) ◦ **FI:** -40°C - 105°C, IP67 (Mated)
Large / I-Adaptor			48h	PCB180, Jack 90 & 180		•	•	•	•	•	(2)	•	•	TIA/EIA-568, IEC 60603-7	
ODVA			48h	Jack 180		•	•	•	•	•	(2)	•	•	TIA/EIA-568, IEC 60603-7	
Self-Closing Cover			48h	•					•	•	(2)	•	•	TIA/EIA-568, IEC 60603-7	-40°C - 105°C, IP67 (Unmated)
USB Series															
Mini USB Type B			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)
Type A	•		48h	Type 1 & 2, Jack, PCB 180	•		•	Solder		•	(2)	•	•		
Type B	•		48h	Type 1 & 2, Jack, PCB 180	•		•	Solder		•	(2)	•	•		
Micro USB Swift			48h	•						•	(2)	•	•		-30°C - 80°C, IP67/IP68 (Unmated)
Micro USB Swift-MU			48h				•			•	(2)	•	•		-40°C - 80°C, IP67 (Mated)
Type C Swift-LP		•	48h	•						•	(2)	•	•		-40°C - 85°C, IP67 (Unmated)
Type C Swift-LA	•		48h	•			•			•	(2)	•	•		◦ **R0:** -40°C - 85°C, IP68 (Unmated) ◦ **OC:** -20°C - 85°C, IP67 (Mated)
Type C Swift-GG	•	•	48h	•			•			•	(2)	•	•		◦ **R0:** -40°C - 85°C, IP67 (Unmated) ◦ **OC:** -20°C - 85°C, IP67 (Mated)
Type C Swift-XL	•		48h				•			•	(2)	•	•		◦ **OC:** -20°C - 85°C, IP68 (Mated)
D-SUB Series															
Standard			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)
High Density			8h	Solder, PCB 90& 180			•	Solder, Crimp			(2)	•	•		
SSL Series															
SSL1.1				•			•			•	(2)		•	CSA C22.2, UL1977	-40°C - 105°C, Non-IP
SSL1.2				•			•	•	•	•	(2)		•	CSA C22.2, UL1977, cUL UL2238+UL50e	-40°C - 105°C, IP68 (Mated)
HDMI Series															
Circular			48h	•			•			94V-HB	(2)	•	•		◦ **R0:** -20°C - 85°C, IP67 (Unmated) ◦ **OC:** -20°C - 85°C, IP67P (Mated)
Rectangular			48h	•			•			94V-1	(2)	•	•		
Mini-HDMI			48h	•			•			•	(2)	•	•		
DVI Series															
DDD			8h	•			•				(2)		•		◦ **R0:** -40°C - 105°C, IP68 (Unmated) ◦ **OC:** -20°C - 85°C, IP67P (Mated)
DDS			8h	•			•				(2)		•		
DID			8h	•			•				(2)		•		
DIS			8h	•			•				(2)		•		

Remarks:
Assemble Style: **R0** (Receptacle), **RW** (Receptacle With Wires), **RP** (Receptacle With Pigtail), **OC** (Overmolded With Cables), **FI** (Field Installable)
Vibration: **(2)** 10-55Hz @Amplitude 1.52mm
Operation Temperature & IP Rating: **R0** (Receptacle), **RW** (Receptacle With Wires), **RP** (Receptacle With Pigtail), **OC** (Overmolded With Cables), **FI** (Field Installable)

Product Selection Guide

Other IO (Fiber, RF)

	Mating Style		Materials	No. of Contacs	Gold Plated	Operating Voltage (AC/DC)	Applicable Wires (AWG)	Mating Cycles (Pin Contact)	Salt Spray (Connector, Mated)	R0
	3 Points Lock	Screw Thread								
Fiber Optic Series										
LC	•								48h	•
SC	•								48h	•
RF Series										
SMA Type		•	M	1	•	335 Volts RMS At Sea Level	1.13mm, 1.32mm, 1.37mm, RG178	500	48h	•
N Type		•	M	1	•	1,000 Volts RMS At Sea Level	1.13mm, 1.32mm, 1.37mm, RG142, RG178, G58 A/U	500	48h	•

Other (ZConnect, Cable Joiner, Cable Gland, Pressure Relief Vent, LED)

	Mating Style			Materials	No. of Contacs	Contacts				Operating Voltage (AC/DC)	Nominal Current	Applicable Wires (AWG)	Salt Spray (Connector, Mated)
	Push Lock With Latch	Screw Thread	Others			Gold Plated	Nickel Plated	Thermo plastic	SUS316L				
ZConnect Series													
FPC / FFC / WTB			Quick Plug	B	46, 36, 20, 18, 12	•				120V	1A		48h
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)	16A-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									
Pressure Relief 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)

Product Selection Guide

	FI	UV Resistant	UL 94V-0	EMI Option	ROHS 2.0 & REACH	Standard / Compliant / Certifications	Operating Temperature & IP Rating
Fiber Optic Series							
LC	•	•	•		•		-40°C - 105°C, IP67 (Mated)
SC	•	•	•		•		-40°C - 105°C, IP67 (Mated)
RF Series							
SMA Type				•	•	MIL-C-39012	-40°C - 105°C, IP68 (Unmated)
N Type				•	•	MIL-C-39012	-40°C - 105°C, IP68 (Unmated)

	Receptacle	Field Installable	UV Resistant	UL 94V-0	Vibration	ROHS 2.0 & REACH	Certifications	IP Rating	Operating Temperature
ZConnect Series									
FPC / FFC / WTB				•		•			-40°C - 110°C, Non-IP
Cable Joiner Series									
M20		•	•	94V-2		•		IP67	-40°C - 105°C
M32		•	•	•		•	UL6703A	IP67	-40°C - 105°C
FICX I Tube (11)		•	•	•		•	CSA, UL2238	IP68 (Mated)	-40°C - 105°C
FICX I Tube (12)		•	•	•		•	CSA, UL2238	IP68 (Mated)	-40°C - 105°C
FICX XI Tube (13)		•	•	•		•	CSA, UL2238	IP68 (Mated)	-40°C - 105°C
FICX T Tube (T2)		•	•	•		•	CSA, UL2238	IP68 (Mated)	-40°C - 105°C
Cable Gland Series									
Cable Gland	•	•		94V-0 94V-2	(2)	•		IP67 (Mated) IP68 (Mated)	◦ **R0:** -20°C - 105°C ◦ **FI:** -20°C - 105°C
Pressure Relief Vent									
M6 Plastic	•		•	•		•		IP66, IP68	-40°C - 125°C
M12 Snap-in	•		•	•		•		IP68, IP69K	-40°C - 125°C
M12 Stainless	•		•	•		•		IP68, IP69K	-40°C - 125°C
M12 Plastic	•		•	•		•		IP68, IP69K	-40°C - 125°C
M12 Metal	•		•	•		•		IP68, IP69K	-40°C - 125°C
LED Light Guide									
Ø3mm	•							IP67	◦ **Red & Green:** -30°C - 80°C ◦ **Others:** -40°C - 80°C
Ø5mm	•							IP67	◦ **Red & Green:** -30°C - 80°C ◦ **Others:** -40°C - 80°C

Remarks:
Assemble Style: **FI** (Field Installable)
Vibration: **(2)** 10-55Hz @Amplitude 1.52mm
Operation Temperature & IP Rating: **R0** (Receptacle), **FI** (Field Installable)

Served Markets & Applications

Applications	Ceres	X-Lok	M series	FLOS & FLOS+	Power	RBL	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	•	•	•				•	•	•	•	•	•		•	•		•				•		•
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														•			•						

Served Markets & Applications

Applications	Ceres	X-Lok	M series	FLOS & FLOS+	Power	RBL	HS-Lok	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 Goggles			•	•			•				•					•						
Miniature Camera											•					•	•					
Rugged Tablet											•		•	•		•	•					
Communication Devices				•						•	•		•	•		•	•				•	•

Served Markets & Applications

Applications	Ceres	X-Lok	M series	FLOS & FLOS+	Power	RBL	HS-Lok	7/8" Mini	Heavy Duty Shielded	RJ45	USB	SSL	HDMI	DVI	Zconnect	RF	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	HS-Lok	7/8" Mini	Heavy Duty Shielded	RJ45	USB	SSL	HDMI	DVI	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																					
Tank				•																	
Aircraft				•																	
Warship				•																	
Dismounted Soldier				•																	
Software Defined Radios				•																	
Commercial Military				•											•						

We Are Amphenol LTW

Founded in 1993, Amphenol LTW is a leader in rugged and harsh environment interconnects with the largest array of I/O and products ranging from IP65 to IP69K. The company continually provides innovative interconnect solutions for ever-demanding environments and is proactively committed to contributing to a safer and greener environment. Amphenol LTW features interconnects for technologically advanced products with environmentally friendly results.

Amphenol LTW Technology & CNC Plant

- Headquarters: Taipei, Taiwan
- 150 Employees

Kunshan Amphenol Zhengri Electronics

- Kunshan, China
- 400 Employees

110+
Amphenol Divisions

75+
Distribution Channels

30+
Market Applications

80,000+
Products

Visit our website for more information

Scan here

Our Capabilities

Both factories located in Taiwan and China are ISO9001:2015, ISO14001:2015, and UL certified. Our Test Laboratory is certified by TAF and is a member of UL WTDP reliable partner. Wherever required, most of our products are TUV/VDE, UL/CSA certified. Thanks to our strict standards, we are able to contribute to your projects and design exactly what you need. From standard to customized products, Amphenol LTW has the right solutions for your applications.

Test Laboratory Accreditations **Quality Assurance** **International Certifications**

Automated Production Line

Capability: Contacts, Parts, and Shells

Number of Automatic Machines: 11
Production Capacity : 125,000 pins per day (24 hours)

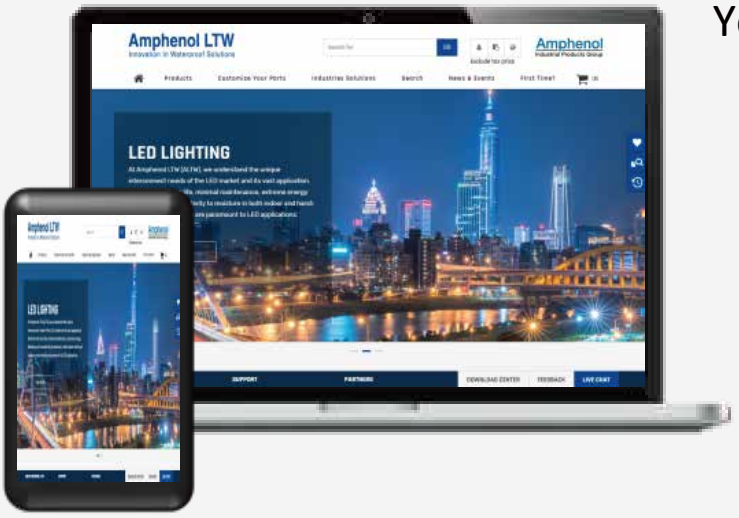
Number of CNC Machines: 33
Production Capacity : 125,000 pins per day (24 hours)

Kunshan Factory – Horizontal Injection Workshop

Molding Machines
Number of Machines: 17

Production Capacity : 3,400pcs/hr

Online Resources



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Catalogs by Series

All Market Applications

Market Flyer

Product Guidance

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Fast

Efficient

Configure To Order (CTO)

Configure your own connector/cable assembly directly on our website by choosing the components and parts that you need.

Benefits

- ✓ Worldwide access 24/7
- ✓ Easy & quick customization
- ✓ Real time order tracking
- ✓ Online assistance (Live Chat)
- ✓ Instant drawing release
- ✓ Instant quote
- ✓ Order online

Scan the QR Code to our CTO platform

Scan here

Just A Few Simple Steps

1 Sign In → 2 Configure → 3 Confirm → 4 Quote → 5 Order

NEW

3^3 Single Pair Ethernet

Freedom of Choices and Budgets

3 Mechanical interfaces IP67 and above for industrial and ruggedized applications

3dom of choices for your needs and requirements

3 Budgets, pay for what you need

Features

» ALTW's proprietary SPE interface integrated in **M8 (G8) / M12 / FLOS+ / X-Lok**

» Providing low power & simply networking on end-point sensors

» Cost-effective, smaller & lighter than standard 4 pairs ethernet cable

» Compatible 10/100/1000 base-T1 data rates as existing technologies **

» Receptacle IP67 ***UNMATED*** waterproof, also available in double ended and field installable

» Vibration resistance 20g (10 ~ 2,000 Hz)

» Supports PoDL (Power Over Data Lines)

** 24~26 AWG Standard Length 15m

Part Number

X-Lok

A Size	AD-02BFFM-QL8P⑩ (Cable)
	AD-02BMMM-QL8P⑩ (Cable)
	AD-02PMMP-QC8001 (Receptacle)
	AD-02PMMS-QC8001 (Receptacle)

FLOS+

K Series	SLKC-S02FMMM-GCP-C⑩ (Cable)
	SLKC-S02EEFP-GCP-001 (Receptacle)

M Series

M8	M8-02BFFM-SL7C⑩* (Cable)	M12	M12A-02BFFM-SL8C⑩ (Cable)
	M8-02BMMM-SL7C⑩* (Cable)		M12A-02BMMM-SL8C⑩ (Cable)
	M8-02PFFP-SF7001* (Receptacle)		M12A-02PFFP-SF8001(Receptacle)
	M8-02PMMP-SF7001* (Receptacle)		M12A-02PMMP-SF8001(Receptacle)
	M8-02PFFS-SF7001* (Receptacle)		
	M8-02PMMS-SF7001* (Receptacle)		
G8	8A-02BFFM-SL7C⑩* (Cable)		
	8A-02BMMM-SL7C⑩* (Cable)		
	8A-02PFFP-SF7001* (Receptacle)		
	8A-02PFFS-SF7001* (Receptacle)		
	8A-02MMP-SF7001 (Receptacle)		
	8A-02PMMS-SF7001 (Receptacle)		

SPE

*** Upon Request**

⑩Cable Length: (**01**) 1M ~ (**15**) 15M.

Technical Support

Assistance

AIPG WeChat (ID: AIPG2020)
安费诺工业展品集团
微信公众号: AIPG2020

88677416888

Information

FAQ

Find answers to frequently asked questions at
https://www.amphenolltw.com/

Feedback

Any comments about the catalog?
Help us improve the catalog user experience by sharing your suggestions.
Email us at
sales@ltw-tech.com

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Key Features

- Intermateable With Specific Series Of Fischer, Lemo, ODU, Souriau
- Easy Auto-latching Plug, Fast & Secure
- Reliable Connection For Power / Data / Signal Transmission
- Metal Shell For 360° EMI Shielding
- Flexibility & Capability Of Customization
- Push-Pull locking and Break-Away Function

Cross Reference

	B Series	K Series	FLOS+ K Series	C Series*	S Series*	Y Series	P Series*
Fischer's Series	/	/	/	Core Series	/	/	Core Series P***
Lemo's Series	B Series	K Series	K Series	/	S Series	/	REDEL P
ODU's Series	L Series***	K Series***	/	F Series***	/	AMC Y Series	MEDI SNAP P
Souriau Series	JBX***	JKX***	JKX***	/	JAX***	/	JMX***

* Coming Soon *** NOT Intermateable

Locking Principle

ALTW Push-pull locking system allows connectors to be mated quickly and securely.

Once mated, the connection is fully locked against pulling cable or back nut accidentally.

By pulling the sleeve, the locking latches will be released easily to unlock.

FLOS & FLOS+ Markets / Applications

Renewable Energy

- Communication System
- PDC (Power Distribution Control)
- Tidal Power Generation System
- Wind Turbine

Automated Meter Reading

- Electricity Meter
- Gas Meter
- Sewage
- Telemetry
- Water Meter
- Alarm System

- Military Drone
- Vehicle Tracking

Remote Video Response Center

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

Medical

- Medical Displays
- Non-invasive Devices

FLOS & FLOS+ Markets / Applications

Test Equipment

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

Industrial Automation

- Industrial PC & Displays
- Industrial Robots
- Machine Tools
- Packaging
- Power
- Communication System
- Conveyors
- Industrial Control
- Industrial Forklifts
- Industrial Network
- AVI (Automatic visual inspection)
- Robotic Arm

Railway Mass Transit

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

Heavy Equipment

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

Hybrid Electric Vehicles

- Electric Scooter
- Electric Wheelchair
- Motor Module
- Throttle Controller
- Electrical and Electronic Brake System
- Electrical and Electronic Speed Control
- Hoverboard
- Controller Unit

UAV

- Commercial Drone
- Consumer Drone
- Military Drone

Transportation

- Vehicle Camera
- Fleet Management
- Bus GPS
- Displayer
- Outdoor Speaker
- Digital Video Surveillance System

Lifts & Materials Handling

- Forklift
- Industrial Lift
- Materials Handling

Mobile Devices

- Altimeter
- Barcode Reader
- DRC (Drone Remote Controller)

LED

- Outdoor LED Displays

Automotive Diagnostics

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

Rugged IT

- Communication Devices
- Night Vision Goggles
- Rugged & Military VR and AR
- Rugged Notebook
- Telemetry

Commercial Military

- Tank
- Aircraft
- Warship
- Military
- Dismounted Soldier
- Software Defined Radios

Autonomous

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

Product Range Overview

Sub-Series Name	B	K	K (FLOS+)
Mating Style	Push Pull	Push Pull	Push Pull
Plastic Version	-	-	-
Metal Version	✓	✓	✓
No. of Contacts	2 ~ 32	2 ~ 32	2 ~ 32
Plating of Contacts	Gold Plated	Gold Plated	Gold Plated
Operating Voltage (AC/DC)	160V ~ 700V	160V ~ 700V	160V ~ 700V
Nominal Current	1.5A ~ 25A	1.5A ~ 25A	1.5A ~ 25A
Operating Temperature	• Receptacle: -40°C ~ 125°C • Overmolded with Cable: -20°C ~ 85°C • Field Serviceable/Installable: -40°C ~ 125°C		
Fasten Style of Nut	Front & Rear	Front & Rear	Front & Rear
Receptacle	✓	✓	✓
Overmolded With Cable	✓	✓	✓
Field Serviceable/Installable	✓	✓	✓
Accessories	✓	✓	✓
Applicable Wire Gauge	16AWG ~ 28AWG (1.50 ~ 0.08mm^2)	16AWG ~ 28AWG (1.50 ~ 0.08mm^2)	16AWG ~ 28AWG (1.50 ~ 0.08mm^2)
Mating Cycles (Pin Contact)	5,000 Cycles	5,000 Cycles	5,000 Cycles
IP Rating	IP50 (Mated)	• Receptacle & Overmolded With Cable : IP68 (Mated, 1.5M / 24h) • Field Serviceable/Installable : IP68 (Mated By Applying O-ring & Potting Material, 1.5M / 24h)	• Receptacle : IP68 (Unmated, 1.5M / 24h) • Overmolded With Cable : IP68 (Mated, 1.5M / 24h) • Field Serviceable/Installable : IP68 (Mated, 1.5M / 24h)
Salt Spray (Connector, Mated)	144h	144h	1,000h
UV Resistant	-	-	-
Flammability Rating	UL94V-0	UL94V-0	UL94V-0
Vibration	Frequency Range 10 ~ 2000Hz / Amplitude 1.5mm		
EMI Option	✓	✓	✓
RoHS 2.0 Compliant	✓	✓	✓
REACH Compliant	✓	✓	✓

Product Range Overview

Sub-Series Name	C	S	Y	P	N
Mating Style	Push Pull	Push Pull	Push Pull / Break Away	Push Pull	Push Pull
Plastic Version	-	-	-	✓	-
Metal Version	✓	✓	✓	-	✓
No. of Contacts	2 ~19	1	2~26	2 ~ 14	2 ~19
Plating of Contacts	Gold Plated	Gold Plated	Gold Plated	Gold Plated	Gold Plated
Operating Voltage	160V ~ 700V	260V ~ 1,000V	260V ~ 1,000V	200V ~ 400V	200V ~ 800V
Nominal Current	1.5A ~ 20A	15A	5A~14A	2A ~ 10A	5A ~ 22A
Operating Temperature	• Receptacle : -40°C ~ 125°C • Overmolded with Cable : -20°C ~ 85°C • Field Serviceable / Installable : -40°C ~ 125°C				
Fasten Style of Nut	Front & Rear	Front	Front	Front & Rear	Front & Rear
Receptacle	✓	✓	✓	✓	✓
Overmolded With Cable	✓	✓	✓	✓	✓
Field Serviceable/Installable	✓	✓	✓	✓	✓
Accessories	✓	✓	✓	✓	✓
Applicable Wire Gauge	16AWG ~ 28AWG (1.50 ~ 0.08mm^2)	16AWG ~ 28AWG (1.50 ~ 0.08mm^2)	16AWG ~ 28AWG (1.50 ~ 0.08mm^2)	16AWG ~ 28AWG (1.50 ~ 0.08mm^2)	16AWG ~ 28AWG (1.50 ~ 0.08mm^2)
Mating Cycles (Pin Contact)	3,000 Cycles	3,000 Cycles	5,000 Cycles	2,000 Cycles	3,000 Cycles
IP Rating	IP68 (Mated, 1.5M / 24h)	IP50 (Mated)	IP68 (Mated, 1.5M / 24h)	IP50 / IP66 (Mated)	IP68 (Mated, 1.5M / 24h)
Salt Spray (Connector, Mated)	144h	144h	96h	-	144h
UV Resistant	-	-	-	✓	-
Flammability Rating	UL94V-0	UL94V-0	UL94V-0	UL94V-0	UL94V-0
Vibration	Frequency Range 10~55Hz / Amplitude 1.52mm				
EMI Option	✓	✓	✓	✓	✓
RoHS 2.0 Compliant	✓	✓	✓	✓	✓
REACH Compliant	✓	✓	✓	✓	✓

Ordering Information FLOS B Series

Example

FLB	B -	02	EG	F	S -	G	C	P -	001
XXX	X -	XX	XX	X	X -	X	X	X -	XXX
1	2	3	4	5	6	7	8	9	10

Series / Sub-Series
(FLB) FLOS B Series

Size (See Table For Explanation At The Bottom)
(A) 00
(B) 0
(C) 1
(D) 2

Number Of Contacts
2 ~ 19 Contacts
e.g. **(02)** = 2 Contacts

Connector Style
> For Receptacle
(EG) 180° Female Panel With Hexagonal Nut (Rear Fasten)
(EC) 180° Female Panel With Hexagonal Nut & Slotted Nut (Both SIde Fasten)
(EE) 180° Female Panel With Slotted Nut (Front Fasten)
(EN) 180° Female Panel With Earthing Tag & Hexagonal Nut (Rear Fasten)*
(EX) 90° Female Panel for PCB Board with Hexagonal Nut and Slotted Nut*
(EH) 180° Female Panel with Hexagonal Nut (Rear Fasten)*
> For Overmolded with Cable
(FM) 180° Male Overmolded
(RM) 90° Male Overmolded
(PM) 180° Female Overmolded
> For Field Serviceable/Installable
(FG) 180° Male Field Serviceable/Installable
(FH) 90° Male Field Serviceable/Installable
(PH) 180° Female Field Serviceable/Installable
*Upon Request

Connector & Contact Gender
(F) Female Connector, Female Contact
(M) Male Connector, Male Contact
(C) Hybrid Style*
*Upon Request

Assembly Style
> For Receptacle & Overmolded With Cable & Field Serviceable/Installable
(S) Solder Type **(M)** Overmolded With Cable
(P) 180° PCB Type
(R) 90° PCB Type
(C) Crimp Type*

Keying
(G) 1 KEY 0° **(J)** 2 KEY 80°
(A) 2 KEY 30°
(B) 2 KEY 60° / 45°
(C) 2 KEY 90° / 60°
*Upon Request

Housing Material & Surface Plating
(C) Copper Alloy / Chrome
(S) Copper Alloy / Black Chrome*
(K) Copper Alloy / Black Chrome (Gray)*
(R) Aluminum Alloy / Chrome*
*Upon Request

Insulation Material
(P) PPS
(K) PEEK*
*Upon Request

More Information
> For Receptacle
(001), (002).....
For Different Versions

> For Overmolded With Cable
(□) + (■) Cable Type + Cable Length
e.g. **(A01)** = UL2464, PVC + 1M

(□) Cable Type
(A) PVC
(B) PU
(E) Cat. 5e

(■) Cable Length
From 1M ~ 99M
e.g. **(01)** = 1M

> For Field Serviceable/Installable
(□) + (■) Back Nut + Cable O.D.
e.g. **(201)** = Back Nut For Bend Relief + Cable O.D 2.2 ~ 3.2mm

(□) Back Nut
(1) Standard Back Nut
(2) Back Nut For Bend Relief

(■) Cable O.D.
e.g. **(01)** = 2.2 ~ 3.2mm
(See Table For Explanation At The Bottom)

B Series (Unit:mm)		
Size	Panel Cut-out	Thread Size
(A) 00	6.3	M7*0.5
(B) 0	8.2	M9*0.6
(C) 1	10.5	M12*1.0
(D) 2	13.5	M15*1.0

B Series Cable O.D. Range (Unit:mm)							
Code	**(A)** 00	Code	**(B)** 0	Code	**(C)** 1	Code	**(D)** 2
(20)	1.4 ~ 2.2	**(01)**	2.2 ~ 3.2	**(02)**	2.7 ~ 3.2	**(11)**	5.3 ~ 6.2
(21)	2.3 ~ 2.7	**(04)**	3.3 ~ 4.2	**(04)**	3.3 ~ 4.2	**(14)**	6.3 ~ 7.2
(22)	2.8 ~ 3.5	**(07)**	4.3 ~ 5.2	**(07)**	4.3 ~ 5.2	**(16)**	7.3 ~ 8.2
				(11)	5.3 ~ 6.2	**(19)**	8.3 ~ 9.2
				(14)	6.3 ~ 7.2		

Ordering Information FLOS B Series Double Ended

Example	FLB	B	02	-	G	C	P	FM	-	FM	A001
	XXX	X	XX	-	X	X	X	XX	-	X	XXXX
	1	2	3		4	5	6	7		8	9

Series / Sub-Series
(FLB) FLOS B Series

Size
(A) 00
(B) 0
(C) 1
(D) 2

Number Of Contacts
2 ~ 19 Contacts
e.g. **(02)** = 2 Contacts

Keying
(G) 1 KEY 0°
(A) 2 KEY 30°
(B) 2 KEY 60° / 45°
(C) 2 KEY 90° / 60°

Housing Material & Surface Plating
(C) Copper Alloy / Chrome
(S) Copper Alloy / Black Chrome*
(K) Copper Alloy / Black Chrome (Gray) *
(R) Aluminum Alloy / Chrome * *Upon Request

Insulation Material
(P) PPS
(K) PEEK * *Upon Request

Connector Style For Connector 1
> FLO Series
(FM) 180° Male Overmolded
(RM) 90° Male Overmolded
(PM) 180° Female Overmolded

Connector Style For Connector 2
> FLO Series
(FM) 180° Male Overmolded
(RM) 90° Male Overmolded
(PM) 180° Female Overmolded

More Information

> For Overmolded With Cable
(□) + (■) Cable Type + Cable Length
e.g. **(A001)** = UL2464, PVC + 1M

(□) Cable Type
(A) PVC
(B) PU
(E) Cat. 5e

(■) Cable Length
From 0.5M ~ 99M
e.g. **(A05)** = 0.5M, **(001)** = 1M...**(099)** = 99M

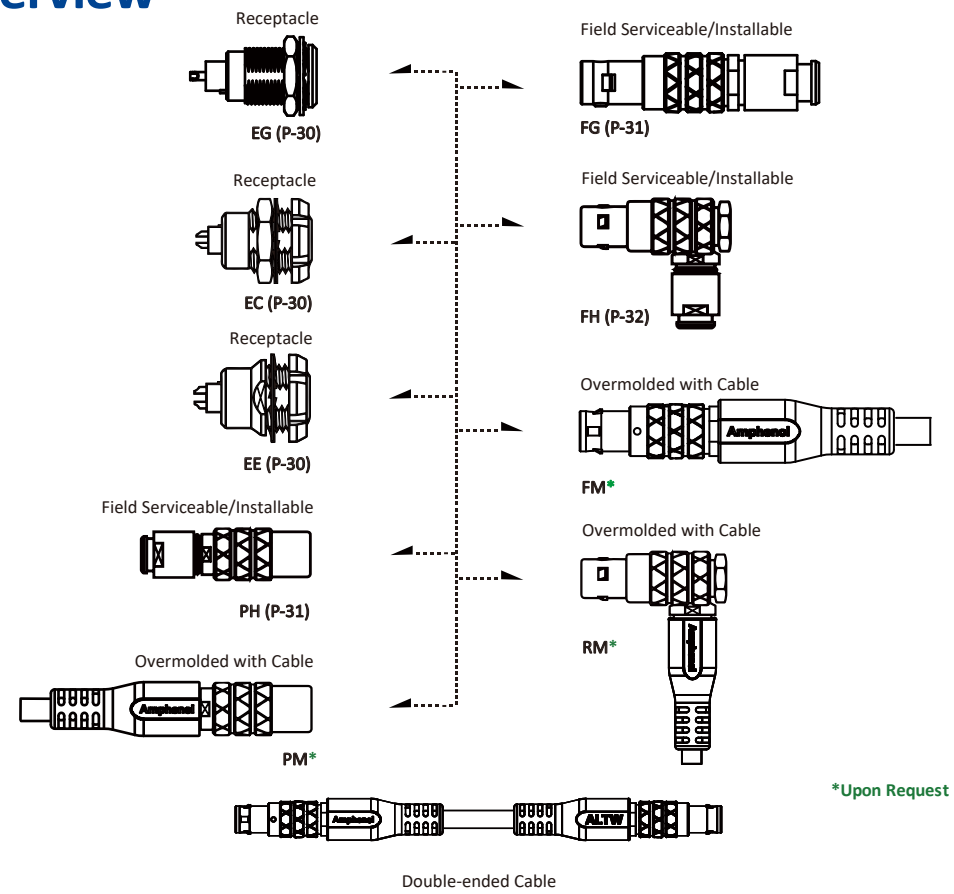
Contact Configuration FLOS B Series

Size	00 **(A)**						0 **(B)**					
Connector Type	Receptacle			Field Serviceable/Installable Overmolded With Cable			Receptacle			Field Serviceable/Installable Overmolded With Cable		
Contact	Female			Male		Female	Female			Male		Female
	EG	EC	EE	FG	FH	PH	EG	EC	EE	FG	FH	PH
2 Pin												
	3.5A / 300V			3.5A / 300V			10A / 400V			10A / 400V		
3 Pin												
	3A / 250V			3A / 250V			8A / 400V			8A / 400V		
4 Pin												
	2A / 200V			2A / 200V			7A / 250V			7A / 250V		
5 Pin												
							6.5A / 250V			6.5A / 250V		
6 Pin												
							2.5A / 250V			2.5A / 250V		
7 Pin												
							2.5A / 250V			2.5A / 250V		
8 Pin												
9 Pin												
							2A / 150V			2A / 150V		
10 Pin												
12 Pin												
14 Pin												
16 Pin												
18 Pin												
19 Pin												
26 Pin												
32 Pin												

Contact Configuration FLOS B Series

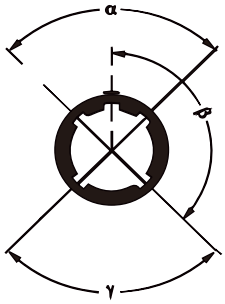
Size	1 **(C)**						2 **(D)**					
Connector Type	Receptacle			Field Serviceable/Installable Overmolded With Cable			Receptacle			Field Serviceable/Installable/ Overmolded With Cable		
Contact	Female			Male		Female	Female			Male		Female
	EG	EC	EE	FG	FH	PH	EG	EC	EE	FG	FH	PH
2 Pin												
	15A / 500V			15A / 500V			25A / 700V			25A / 700V		
3 Pin												
	12A / 400V			12A / 400V			17A / 650V			17A / 650V		
4 Pin												
	10A / 400V			10A / 400V			15A / 600V			15A / 600V		
5 Pin												
	9A / 400V			9A / 400V			14A / 550V			14A / 550V		
6 Pin												
	7A / 300V			7A / 300V			12A / 450V			12A / 450V		
7 Pin												
	7A / 300V			7A / 300V			11A / 450V			11A / 450V		
8 Pin												
	5A / 250V			5A / 250V			10A / 400V			10A / 400V		
9 Pin												
10 Pin												
	2.5A / 250V			2.5A / 250V			8A / 400V			8A / 400V		
12 Pin												
							7A / 400V			7A / 400V		
14 Pin												
	2A / 200V			2A / 200V			6.5A / 350V			6.5A / 350V		
16 Pin												
	1.5A / 200V			1.5A / 200V			6A / 300V			6A / 300V		
18 Pin												
							5.5A / 250V			5.5A / 250V		
19 Pin												
							5A / 250V			5A / 250V		
26 Pin												
							2A / 200V			2A / 200V		
32 Pin												
							1.5A / 200V			1.5A / 200V		

Range Overview



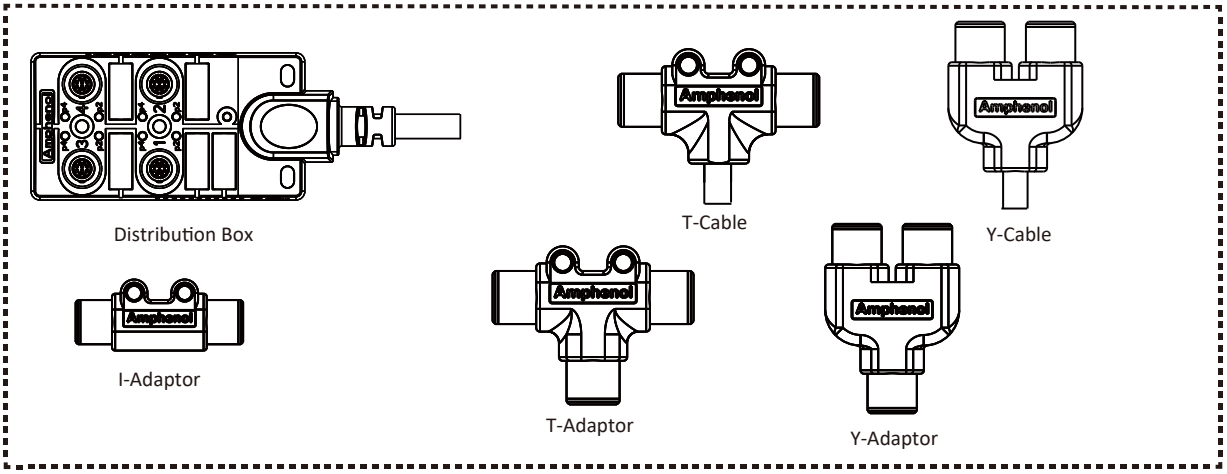
Alignment Keying

Front View of Receptacle

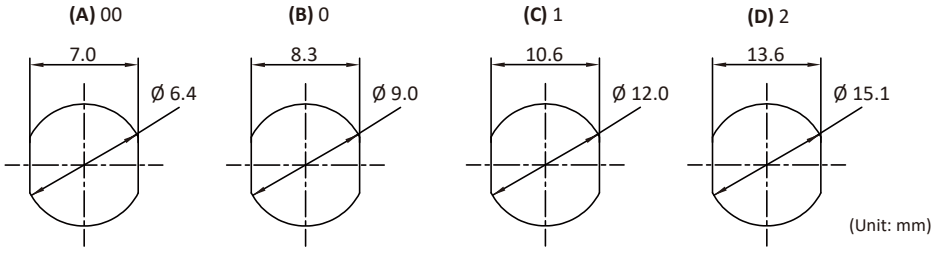


Code	Number of Keys	Angles	Series			Code	Number of Keys	Angles	Series	
			00	0B	1B				2B	3B
G	1	-	0°	0°	0°	G	1	-	0°	0°
A	2	α	30°	30°	30°	A	2	α	30°	30°
B	2		60°	60°	60°	B	2		45°	45°
C	2		-	90°	90°	C	2		60°	60°
D	2	β	-	135°	135°	D	2	β	95°	95°
E	2		-	145°	145°	E	2		120°	120°
F	2		-	155°	155°	F	2		145°	145°
J	2	γ	45°	45°	45°	J	2	γ	37.5°	37.5°

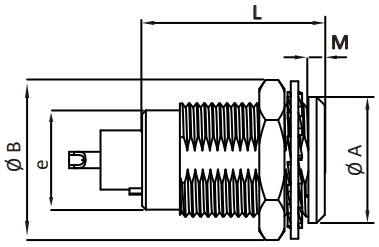
Customization - Upon Request



Panel Cut Out



EG Straight Female Panel with Hexagonal Nut (Rear Fasten)

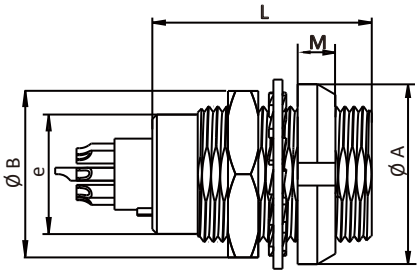


Mated With:
FG (P-31), FH (P-32), FM*, RM*

- Part Number: FLB2-3EGFS-789-001
- Operating Temperature: -40˚C ~ 125˚C
- Nut Torque Value: 6 ~ 8 kgf.cm
- 8 Housing Material & Surface Plating: C, S, K, R (P-25)
- 9 Insulation Material: (P) PPS / (K) PEEK
- Gender: Female
- Assembly Style: Solder
- 7 Keying: G, A, B, C

2 Size	Dimension (Unit: mm)					3 Contact	Recommended Panel Thickness
	A	B	e	L	M		
(A) 00	8.0	10.2	M7*0.5	12.1	1.0	2 ~ 4	6.0mm
(B) 0	10.0	12.4	M9*0.6	14.5	1.2	2 ~ 9	6.0mm
(C) 1	14.0	15.8	M12*1.0	16.5	1.5	2 ~ 16	7.0mm
(D) 2	18.0	19.2	M15*1.0	18.5	1.8	2 ~ 19	7.0mm

EC Straight Female Panel with Hexagonal Nut & Slotted Nut (Both Side Fasten)

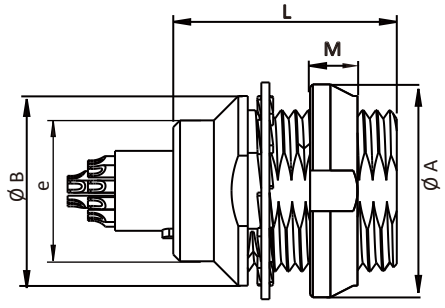


Mated With:
FG (P-31), FH (P-32), FM*, RM*

- Part Number: FLB2-3ECFS-789-001
- Operating Temperature: -40˚C ~ 125˚C
- Nut Torque Value: 6 ~ 8 kgf.cm
- 8 Housing Material & Surface Plating: C, S, K, R (P-25)
- 9 Insulation Material: (P) PPS / (K) PEEK
- Gender: Female
- Assembly Style: Solder
- 7 Keying: G, A, B, C

2 Size	Dimension (Unit: mm)					3 Contact	Recommended Panel Thickness
	A	B	e	L	M		
(A) 00	10.0	10.2	M7*0.5	12.1	2.5	2 ~ 4	4.0mm
(B) 0	12.0	12.4	M9*0.6	14.5	2.5	2 ~ 9	5.0mm
(C) 1	16.0	15.8	M12*1.0	16.5	3.5	2 ~ 16	6.0mm
(D) 2	20.0	19.2	M15*1.0	18.5	3.5	2 ~ 19	4.5mm

EE Straight Female Panel with Slotted Nut (Front Fasten)



Mated With:
FG (P-31), FH (P-32), FM*, RM*

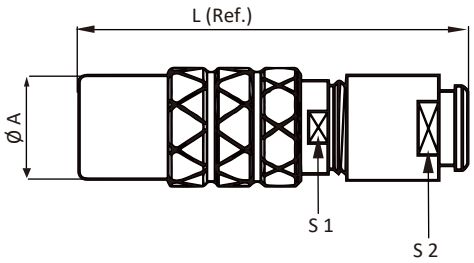
- Part Number: FLB2-3EEFS-789CP-001
- Operating Temperature: -40˚C ~ 125˚C
- Nut Torque Value: 6 ~ 8 kgf.cm
- 8 Housing Material & Surface Plating: C, S, K, R (P-25)
- 9 Insulation Material: (P) PPS / (K) PEEK
- Gender: Female
- Assembly Style: Solder
- 7 Keying: G, A, B, C, J

2 Size	Dimension (Unit: mm)					3 Contact	Recommended Panel Thickness
	A	B	e	L	M		
(A) 00	10.0	9.5	M7*0.5	12.1	2.5	2 ~ 4	2.0mm
(B) 0	12.0	12.5	M9*0.6	14.5	2.5	2 ~ 9	2.5mm
(C) 1	16.0	16.0	M12*1.0	16.5	3.5	2 ~ 16	6.0mm
(D) 2	20.0	20.0	M15*1.0	18.5	3.5	2 ~ 19	4.0mm

Recommended Wire AWG **(Solder)**							
③ Contact	**(A)** 00	③ Contact	**(B)** 0	③ Contact	**(C)** 1	③ Contact	**(D)** 2
2 ~ 4	28AWG (0.09mm²)	2 ~ 5	22AWG (0.34mm²)	2 ~ 3	20AWG (0.5mm²)	2	16AWG (1.5mm²)
				4 ~ 8	22AWG (0.34mm²)	3	18AWG (1.0mm²)
		6 ~ 9	28AWG (0.09mm²)	9 ~ 16	28AWG (0.09mm²)	4 ~ 7	22AWG (0.34mm²)
						8 ~ 19	28AWG (0.09mm²)

Recommended Cable O.D. (Unit: mm) **(For Field Serviceable/Installable)**							
⑩	**(A)** 00	⑩	**(B)** 0	⑩	**(C)** 1	⑩	**(D)** 2
(20)	1.4 ~ 2.2	**(01)**	2.2 ~ 3.2	**(02)**	2.7 ~ 3.2	**(11)**	5.3 ~ 6.2
(21)	2.3 ~ 2.7	**(04)**	3.3 ~ 4.2	**(04)**	3.3 ~ 4.2	**(14)**	6.3 ~ 7.2
(22)	2.8 ~ 3.5	**(07)**	4.3 ~ 5.2	**(07)**	4.3 ~ 5.2	**(16)**	7.3 ~ 8.2
				(11)	5.3 ~ 6.2	**(19)**	8.3 ~ 9.2
				(14)	6.3 ~ 7.2		

PH Straight Female Field Serviceable/Installable, **PM** Overmolded With Cable



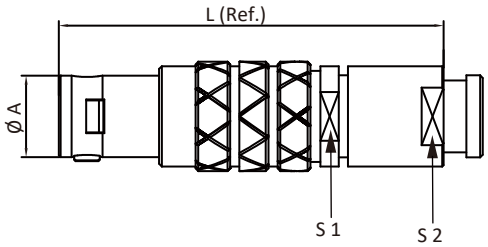
Mated With:
FG (P-31), FH (P-32), FM*, RM*

② Size	Dimension (Unit: mm)				③ Contact
	A	L (Ref.)	S1	S2	
(A) 00	6.8	36.1	5.5	6.0	2 ~ 4
(B) 0	9.5	37.0	8.0	8.0	2 ~ 9
(C) 1	12.5	44.8	10.0	9.0	2 ~ 16
(D) 2	16.5	47.0	13.0	12.0	2 ~ 19

- Part Number:
  Field Serviceable/Installable: FLB②-③PHFS-⑦⑧⑨-2⑩
  Overmolded: FLB②-③PMFM-⑦⑧⑨-A⑩
- Gender: Female
- Assembly Style: Solder
- ⑦ Keying: G, A, B, C
- ⑧ Housing Material & Surface Plating: C, S, K, R (P-25)
- ⑨ Insulation Material: (P) PPS / (K) PEEK
- Operating Temperature:
  Field Serviceable/Installable: -40˚C ~ 125˚C
  Overmolded: -20˚C ~ 85˚C
- Cable Type: PVC, Black

⑩ Cable Length: From 1M ~ 99M
e.g. **(01)** = 1M, **(99)** = 99M

FG Straight Male Field Serviceable/Installable, **FM** Overmolded With Cable



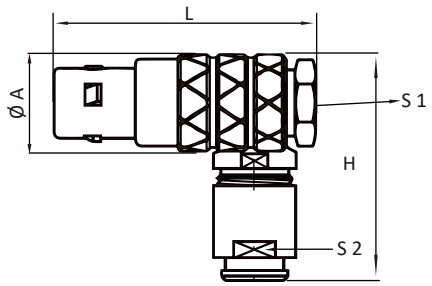
Mated With:
FG (P-31), EC (P-30), PH (P-31), PM*

② Size	Dimension (Unit: mm)				③ Contact
	A	L (Ref.)	S1	S2	
(A) 00	6.8	36.1	5.5	6.0	2 ~ 4
(B) 0	9.5	37.0	8.0	8.0	2 ~ 9
(C) 1	12.5	44.8	10.0	9.0	2 ~ 16
(D) 2	16.5	47.0	13.0	12.0	2 ~ 19

- Part Number:
  Field Serviceable/Installable: FLB②-③FGMS-⑦⑧⑨-2⑩
  Overmolded: FLB②-③FMMM-⑦⑧⑨-A⑩
- Gender: Female
- Assembly Style: Solder
- ⑦ Keying: G, A, B, C
- ⑧ Housing Material & Surface Plating: C, S, K, R (P-25)
- ⑨ Insulation Material: (P) PPS / (K) PEEK
- Operating Temperature:
  Field Installable: -40˚C ~ 125˚C
  Overmolded: -20˚C ~ 85˚C
- Cable Type: PVC, Black

⑩ Cable Length: From 1M ~ 99M
e.g. **(01)** = 1M, **(99)** = 99M

FH Right Angle Male Field Serviceable/Installable, RM Overmolded With Cable

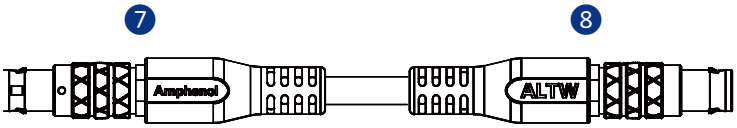


Mated With:
FG (P-31), EC (P-30), EE (P-30), PH (P-31), PM*

② Size	Dimension (Unit: mm)					③ Contact
	A	L (Ref.)	H (Ref.)	S1	S2	
(A) 00	10.9	26.5	23.5	10.0	7.0	2 ~ 4
(B) 0	11.0	30.1	26.7	11.0	9.0	2 ~ 9
(C) 1	13.5	36.1	31.5	14.0	12.0	2 ~ 16
(D) 2	16.5	41.7	35.0	17.0	14.0	2 ~ 19

- Part Number:
  Field Serviceable/Installable: FLB②-③FHMS-⑦⑧⑨-2⑩
  Overmolded: FLB②-③RMMM-⑦⑧⑨-A⑩
- Gender: Female
- Assembly Style: Solder
- ⑦ Keying: G, A, B, C
- ⑧ Housing Material & Surface Plating: C, S, K, R (P-25)
- ⑨ Insulation Material: (P) PPS / (K) PEEK
- Operating Temperature:
  Field Serviceable/Installable: -40˚C ~ 125˚C
  Overmolded: -20˚C ~ 85˚C
- Cable Type: PVC, Black
  ⑩ Cable Length: From 1M ~ 99M
  e.g. **(01)** = 1M, **(99)** = 99M

Double End Cable



Conn. 1 Conn. 2

- Part Number: FLB②-③④⑤⑥-⑦-⑧-A⑨
- Assembly Style: Solder
- ④ Keying: G, A, B, C
- ⑤ Housing Material & Surface Plating: C, S, K, R (P-26)
- ⑥ Insulation Material: (P) PPS / (K) PEEK
- Operating Temperature: -20˚C ~ 85˚C
- Cable Type: PVC, Black
  ⑨ Cable Length: From 0.5M ~ 99M
  e.g. **(A05)** = 0.5M, **(001)** = 1M

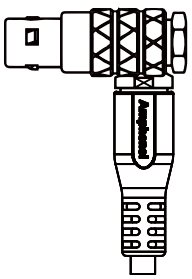
PM ⑦ & ⑧

Dimension (Unit: mm)		
② Size	A	L (Ref.)
(A) 00	6.8	36.1
(B) 0	9.5	37.0
(C) 1	12.5	44.8
(D) 2	16.5	47.0

FM ⑦ & ⑧

Dimension (Unit: mm)		
② Size	A	L (Ref.)
(A) 00	6.8	36.1
(B) 0	9.5	37.0
(C) 1	12.5	44.8
(D) 2	16.5	47.0

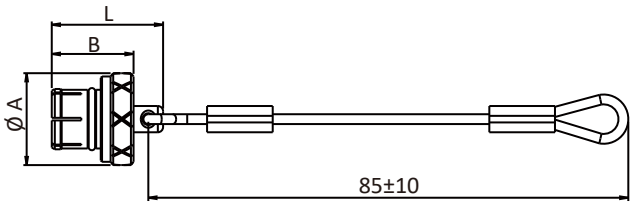
RM ⑦ & ⑧



Dimension (Unit: mm)				③ Contact
② Size	A	L (Ref.)	H (Ref.)	
(A) 00	10.9	26.5	23.5	2 ~ 4
(B) 0	11.0	30.1	26.7	2 ~ 9
(C) 1	13.5	36.1	31.5	2 ~ 16
(D) 2	16.5	41.7	35.0	2 ~ 19

Cap

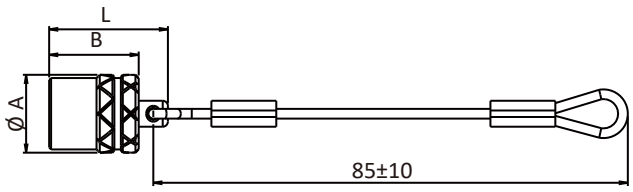
With Steel Line



(Unit: mm)

Size	Dimension (Unit: mm) A	B	L	Mating Pair (Gender)	Part Number	IP Rating
(B) 0	10.0	10.5	15.0	Female	CAP-DLBFQME2	IP50
(C) 1	14.0	12.5	17.0	Female	CAP-DLBFQME3	
(D) 2	18.0	14.0	20.0	Female	CAP-DLBFQME4	

With Steel Line



(Unit: mm)

Size	Dimension (Unit: mm) A	B	L	Mating Pair (Gender)	Part Number	IP Rating
(B) 0	10.6	12.5	16.5	Male	CAP-DLBMQCE2	IP50
(C) 1	12.0	13.8	18.3	Male	CAP-DLBMQCE3	
(D) 2	15.0	15.0	20.0	Male	CAP-DLBMQCE4	

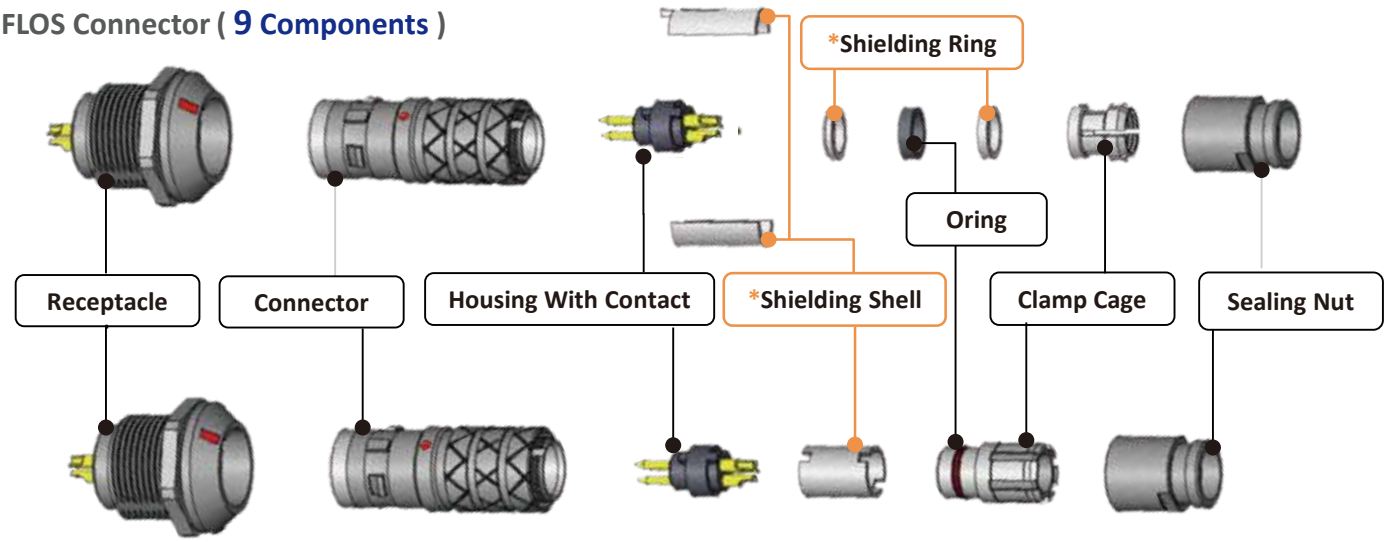
Key Features FLOS & FLOS+ K Series NEW

- Increase Over 50% of Cable Assembly Outputs In Over 50% Less Time
- Eliminate Epoxy and Glue Production Process and Fallouts To Achieve IP68
- Fewer Parts To Manage And Stock
- Higher Productivity And Less Manpower

IP68 Protection | Harsh Environment | Quick Installation | Fully Shielded | Corrosion Resistant | RoHS Compliant | UL 94V-0

Comparison

FLOS Connector (9 Components)



FLOS+ Connector (6 Components)

* Shielding Shell: Combine into 1 component
* Shielding Ring: Removed

Characteristics	FLOS+ Connector	FLOS Connector
Waterproof (Field Serviceable/Installable)	No Glue Required For IP68	IP68 With Potting Materials (3 Times)
Waterproof (Receptacle)	Unmated IP68	Mated IP68
Assembly Efficiency	6 Components	9 Components

Ordering Information FLOS & FLOS+ K Series

Example

FLK	B	-	02	EG	F	S	-	G	C	P	-	001
XXX	X	-	XX	XX	X	X	-	X	X	X	-	XXX
1	2		3	4	5	6		7	8	9		10

Series / Sub-Series
(FLK) FLOS K Series **(SLK)** FLOS+ K Series

Size (See Table For Explanation At The Bottom)
(B) 0
(C) 1
(D) 2

Number Of Contacts
2 ~ 19 Contacts
e.g. **(02)** = 2 Contacts

Connector Style
> For Receptacle
(EG) 180° Female Panel With Hexagonal Nut (Rear Fasten)
(EC) 180° Female Panel With Hexagonal Nut & Slotted Nut (Both SIde Fasten)
(EE) 180° Female Panel With Slotted Nut (Front Fasten)
(EN) 180° Female Panel With Earthing Tag & Hexagonal Nut (Rear Fasten)*
(EX) 90° Female Panel for PCB Board with Hexagonal Nut and Slotted Nut *
(EH) 180° Female Panel with Hexagonal Nut (Rear Fasten)*

> For Overmolded with Cable
(FM) 180° Male Overmolded
(RM) 90° Male Overmolded
(PM) 180° Female Overmolded

> For Field Serviceable/Installable
(FG) 180° Male Field Serviceable/Installable
(FH) 90° Male Field Serviceable/Installable
(PH) 180° Female Field Serviceable/Installable

*Upon Request

Connector & Contact Gender
(F) Female Connector, Female Contact
(M) Male Connector, Male Contact
(C) Hybrid Style *

*Upon Request

Assembly Style
> For Receptacle & Overmolded With Cable & Field Serviceable/Installable
(S) Solder Type **(R)** 90° PCB Type * **(M)** Overmolded With Cable
(P) 180° PCB Type * **(C)** Crimp Type *

*Upon Request

Keying
(G) 1 KEY 0° **(B)** 2 KEY 45°
(A) 2 KEY 30° **(C)** 2 KEY 60°

Housing Material & Surface Plating
(C) Copper Alloy / Chrome **(K)** Copper Alloy / Black Chrome (Gray)
(S) Copper Alloy / Black Chrome **(R)** Aluminum Alloy / Chrome *

*Upon Request

Insulation Material
(P) PPS
(K) PEEK *

*Upon Request

More Information

> For Receptacle
(001), (002).....
For Different Versions

> For Overmolded With Cable
(□) + (■) Cable Type + Cable Length
e.g. **(A01)** = UL2464, PVC + 1M

(□) Cable Type
(A) PVC
(B) PU
(E) Cat. 5e

(■) Cable Length
From 1M ~ 99M
e.g. **(01)** = 1M

> For Field Serviceable/Installable
(□) + (■) Back Nut + Cable O.D.
e.g. **(201)** = Back Nut For Bend Relief + Cable O.D 2.2 ~ 3.2mm

(□) Back Nut
(1) Standard Back Nut
(2) Back Nut For Bend Relief

(■) Cable O.D.
e.g. **(03)** = 2.8 ~ 3.0mm
(See Table For Explanation At The Bottom)

Dimension (Unit:mm)					
3 Size	A	B	e	L	M
(B) 0	10.0	12.4	M9*0.6	14.5	1.2
(C) 1	14.0	15.8	M12*1.0	16.5	1.5
(D) 2	18.0	19.2	M15*1.0	18.5	1.8

Recommended Cable O.D. (Unit:mm)					
10	(B) 0	10	(C) 1	10	(D) 2
(03) FLKB	2.8~3.0	(06) FLKC	3.8~4.0	(15) FLKD	6.5~6.7
(205) FLKB	3.4~3.6	(08) FLKC	4.4~4.6	(17) FLKD	7.5~7.7
(06) FLKB	3.8~4.0	(10) FLKC	4.8~5.1	(18) FLKD	8.5~8.7
(09) FLKB	4.5~4.7	(12) FLKC	5.3~5.5	(26) SLKD	6.5~7.6
(22) SLKB	2.8~3.5	(13) FLKC	5.8~6.1	(27) SLKD	7.7~8.7
(23) SLKB	3.6~4.7	(23) SLKC	3.6~4.7		
		(24) SLKC	4.8~5.7		
		(25) SLKC	5.8~6.1		

Ordering Information FLOS & FLOS+ K Series Double ended

Example	FLK	B	- 02	G	C	P	-	FM	-FM	- A001
	XXX	X	- XX	X	X	X	-	XX	- XX	- XXXX
	1	2	3	4	5	6		7	8	9

Series / Sub-Series
(FLK) FLOS K Series **(SLK)** FLOS+ K Series

Size
(A) 00
(B) 0
(C) 1
(D) 2

Number Of Contacts
2 ~ 19 Contacts
e.g. **(02)** = 2 Contacts

Keying
(G) 1 KEY 0°
(A) 2 KEY 30°
(B) 2 KEY 60° / 45°
(C) 2 KEY 90° / 60°

Housing Material & Surface Plating
(C) Copper Alloy / Chrome
(S) Copper Alloy / Black Chrome
(K) Copper Alloy / Black Chrome (Gray)
(R) Aluminum Alloy / Chrome * *Upon Request

Insulation Material
(P) PPS
(K) PEEK* *Upon Request

Connector Style For Connector 1
> FLOS Series
(FM) 180° Male Overmolded
(RM) 90° Male Overmolded
(PM) 180° Female Overmolded

Connector Style For Connector 2
> FLOS Series
(FM) 180° Male Overmolded
(RM) 90° Male Overmolded
(PM) 180° Female Overmolded

More Information

> For Overmolded With Cable
(□) + (■) Cable Type + Cable Length
e.g. **(A001)** = UL2464, PVC + 1M

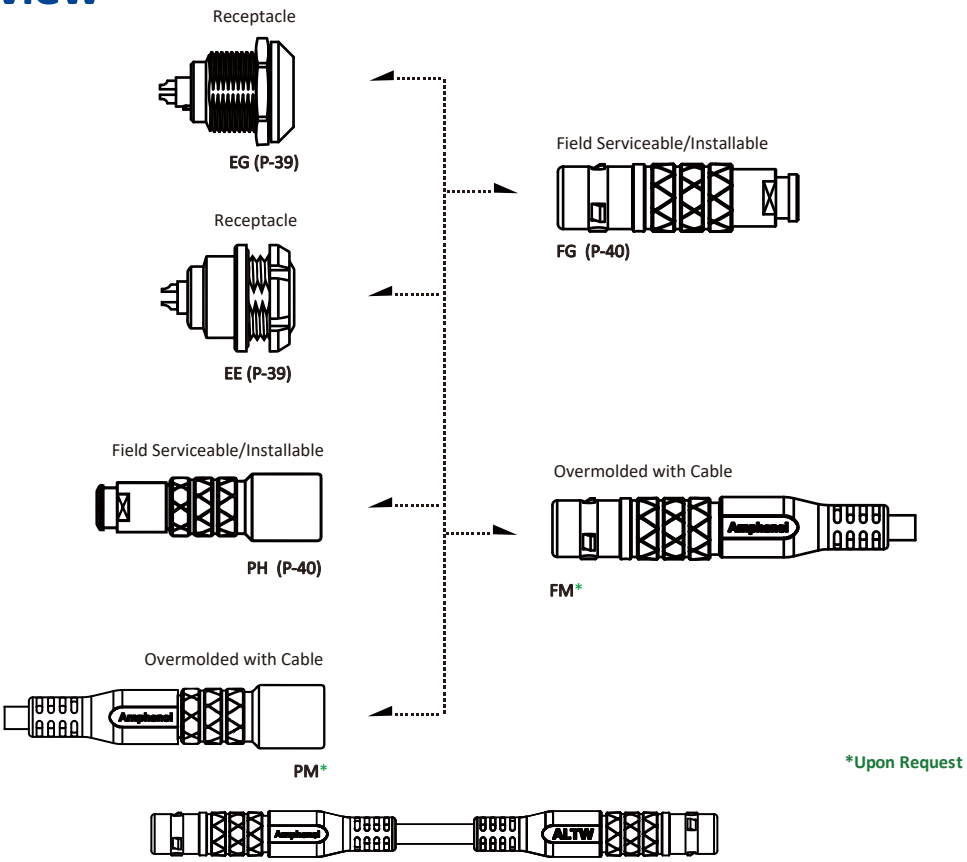
(□) Cable Type
(A) PVC
(B) PU
(E) Cat. 5e

(■) Cable Length
From 0.5M ~ 99M
e.g. **(A05)** = 0.5M, **(001)** = 1M...**(099)** = 99M

Contact Configuration FLOS & FLOS+ K Series

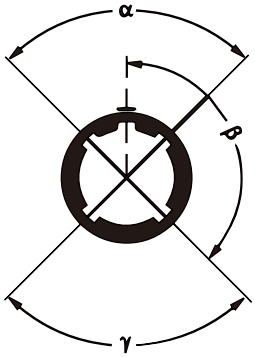
Size	0 (B)				1 (C)				2 (D)			
Connector Type	Receptacle		Field Serviceable/Installable Overmolded With Cable		Receptacle		Field Serviceable/Installable Overmolded With Cable		Receptacle		Field Serviceable/Installable Overmolded With Cable	
Contact	Female		Male	Female	Female		Male	Female	Female		Male	Female
	EG	EE	FG	PH	EG	EE	FG	PH	EG	EE	FG	PH
2 Pin												
	10A / 400V		10A / 400V		15A / 500V		15A / 500V		25A / 700V		25A / 700V	
3 Pin												
	8A / 400V		8A / 400V		12A / 400V		12A / 400V		17A / 650V		17A / 650V	
4 Pin												
	7A / 250V		7A / 250V		10A / 400V		10A / 400V		15A / 600V		15A / 600V	
5 Pin												
	6.5A / 250V		6.5A / 250V		9A / 400V		9A / 400V		14A / 550V		14A / 550V	
6 Pin												
	2.5A / 250V		2.5A / 250V		7A / 300V		7A / 300V		12A / 450V		12A / 450V	
7 Pin												
	2.5A / 250V		2.5A / 250V		7A / 300V		7A / 300V		11A / 450V		11A / 450V	
8 Pin												
					5A / 250V		5A / 250V		10A / 450V		10A / 450V	
9 Pin												
	2A / 150V		2A / 150V									
10 Pin												
					2.5A / 250V		2.5A / 250V		8A / 400V		8A / 400V	
12 Pin												
									7A / 400V		7A / 400V	
14 Pin												
					2A / 200V		2A / 200V		6.5A / 350V		6.5A / 350V	
16 Pin												
					1.5A / 200V		1.5A / 200V		6A / 300V		6A / 300V	
18 Pin												
									5.5A / 250V		5.5A / 250V	
19 Pin												
									5A / 250V		5A / 250V	
26 Pin												
									2A / 200V		2A / 200V	
32 Pin												
									1.5A / 200V		1.5A / 200V	

Range Overview



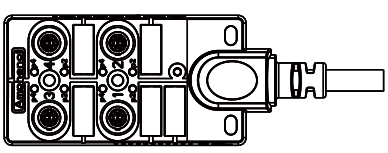
Alignment Keying

Front View of Receptacle

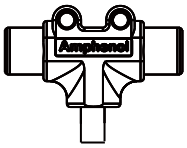


Code	Number of Keys	Angles	Series			
			0K	1K	2K	3K
G	1	-	0°	0°	0°	0°
A	2	α	30°	30°	30°	30°
B	2		45°	45°	45°	45°
C	2		60°	60°	60°	60°
D	2	γ	95°	95°	95°	95°
E	2	β	120°	120°	120°	120°
F	2		145°	145°	145°	145°

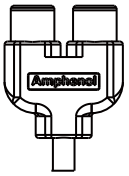
Customization - Upon Request



Distribution Box

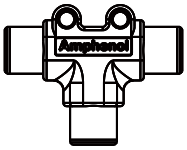


T-Cable

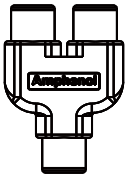


Y-Cable

I-Adaptor

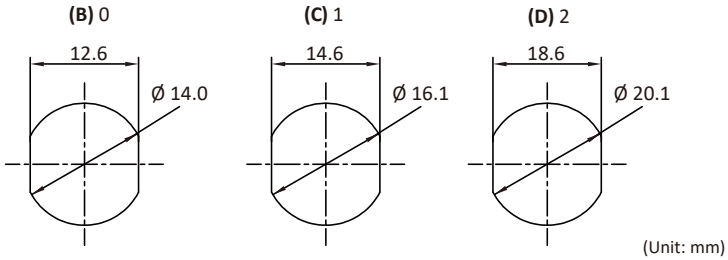


T-Adaptor



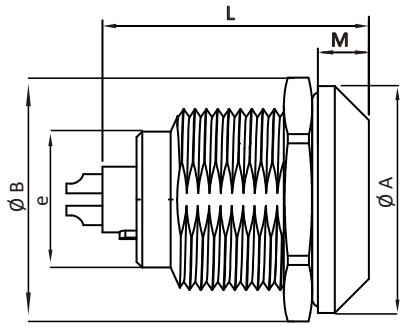
Y-Adaptor

Panel Cut Out



(Unit: mm)

EG Straight Female Panel with Hexagonal Nut (Rear Fasten)

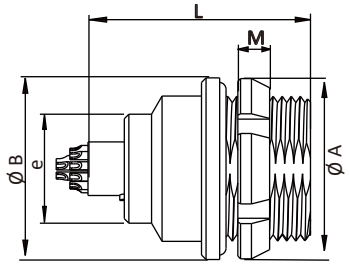


Mated With:
FG (P-40), FM*

- Part Number: ① ② - ③ EGFS- ⑦ ⑧ ⑨ -001
  ① FLK (FLOS), SLK (FLOS+)
- Operating Temperature: -40˚C ~ 125˚C
- Nut Torque Value: 6 ~ 8 kgf.cm
- ⑧ Housing Material & Surface Plating: C, S, K, R (P-35)
- ⑨ Insulation Material: (P) PPS / (K) PEEK
- Gender: Female
- Assembly Style: Solder
- ⑦ Keying: G, A, B, C

② Size	Dimension (Unit: mm) A	B	e	L	M	③ Contact	Recommended Panel Thickness
(B) 0	18.0	19.2	M14*1.0	21.9	4.0	2 ~ 9	6.0mm
(C) 1	20.0	21.5	M16*1.0	27.2	4.5	2 ~ 16	10.0mm
(D) 2	24.9	27.0	M20*1.0	28.9	5.0	2 ~ 19	8.0mm

EE Straight Female Panel with Slotted Nut (Front Fasten)



Mated With:
FG (P-40), FM*

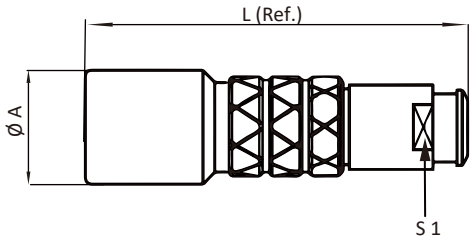
- Part Number: ① ② - ③ EEFS- ⑦ ⑧ ⑨ -001
  ① FLK (FLOS), SLK (FLOS+)
- Operating Temperature: -40˚C ~ 125˚C
- Nut Torque Value: 6 ~ 8 kgf.cm
- ⑧ Housing Material & Surface Plating: C, S, K, R (P-35)
- ⑨ Insulation Material: (P) PPS / (K) PEEK
- Gender: Female
- Assembly Style: Solder
- ⑦ Keying: G, A, B, C

② Size	Dimension (Unit: mm) A	B	e	L	M	③ Contact	Recommended Panel Thickness
(B) 0	18.0	18.0	M14*1.0	20.1	3.5	2 ~ 9	2.5mm
(C) 1	20.0	20.0	M16*1.0	25.1	3.5	2 ~ 16	6.0mm
(D) 2	25.0	25.0	M20*1.0	28.6	3.5	2 ~ 19	4.0mm

Recommended Wire AWG **(Solder)**					
③ Contact	**(B)** 0	③ Contact	**(C)** 1	③ Contact	**(D)** 2
2 ~ 5	22AWG (0.34mm²)	2 ~ 3	20AWG (0.5mm²)	2	16AWG (1.5mm²)
		4 ~ 8	22AWG (0.34mm²)	3	18AWG (1.0mm²)
6 ~ 9	28AWG (0.09mm²)	9 ~ 16	28AWG (0.09mm²)	4 ~ 7	22AWG (0.34mm²)
				8 ~ 19	28AWG (0.09mm²)

Recommended Cable O.D. (Unit:mm)					
⑩	(B) 0	⑩	(C) 1	⑩	(D) 2
(03) FLKB	2.8~3.0	(06) FLKC	3.8~4.0	(15) FLKD	6.5~6.7
(205) FLKB	3.4~3.6	(08) FLKC	4.4~4.6	(17) FLKD	7.5~7.7
(06) FLKB	3.8~4.0	(10) FLKC	4.8~5.1	(18) FLKD	8.5~8.7
(09) FLKB	4.5~4.7	(12) FLKC	5.3~5.5	(26) SLKD	6.5~7.6
(22) SLKB	2.8~3.5	(13) FLKC	5.8~6.1	(27) SLKD	7.7~8.7
(23) SLKB	3.6~4.7	(23) SLKC	3.6~4.7		
		(24) SLKC	4.8~5.7		
		(25) SLKC	5.8~6.1		

PH Straight Female Field Serviceable/Installable, **PM** Overmolded With Cable

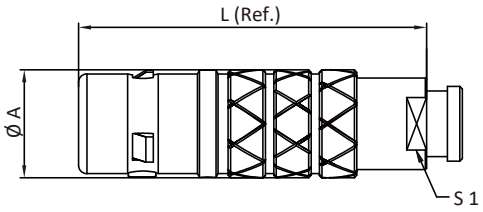


Mated With:
FG (P-40), FM*

② Size	Dimension (Unit: mm) A	L (Ref.)	S1	③ Contact
(B) 0	13.0	36.5	8.0	2 ~ 9
(C) 1	14.9	46.3	9.0	2 ~ 16
(D) 2	19.0	55.8	12.0	2 ~ 19

- Part Number:
  Field Serviceable/Installable: ①②-③PHFS-⑦⑧⑨-2⑩
  Overmolded: ①②-③PMFM-⑦⑧⑨-A⑩
  ① FLK (FLOS), SLK (FLOS+)
- Gender: Female
- Assembly Style: Solder
- ⑦ Keying: G, A, B, C
- ⑧ Housing Material & Surface Plating: C, S, K, R (P-35)
- ⑨ Insulation Material: (P) PPS / (K) PEEK
- Operating Temperature:
  Field Serviceable/Installable: -40˚C ~ 125˚C
  Overmolded: -20˚C ~ 85˚C
- Cable Type: PVC, Black
  ⑩ Cable Length: From 1M ~ 99M
  e.g. **(01)** = 1M, **(99)** = 99M

FG Straight Male Field Serviceable/Installable, **FM** Overmolded With Cable

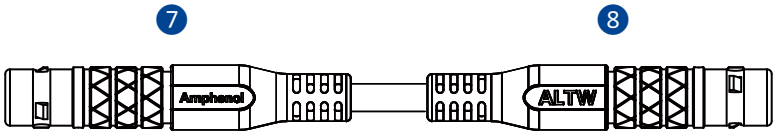


Mated With:
EG (P-39), PH (P-40), PM*

② Size	Dimension (Unit: mm) A	L (Ref.)	S1	③ Contact
(B) 0	10.9	34.6	8.0	2 ~ 9
(C) 1	13.0	42.9	9.0	2 ~ 16
(D) 2	16.0	52.0	12.0	2 ~ 19

- Part Number:
  Field Serviceable/Installable: ①②-③FGMS-⑦⑧⑨-2⑩
  Overmolded: ①②-③FMMM-⑦⑧⑨-A⑩
  ① FLK (FLOS), SLK (FLOS+)
- Gender: Female
- Assembly Style: Solder
- ⑦ Keying: G, A, B, C
- ⑧ Housing Material & Surface Plating: C, S, K, R (P-35)
- ⑨ Insulation Material: (P) PPS / (K) PEEK
- Operating Temperature
  Field Serviceable/Installable: -40˚C ~ 125˚C
  Overmolded: -20˚C ~ 85˚C
- Cable Type: PVC, Black
  ⑩ Cable Length: From 1M ~ 99M
  e.g. **(01)** = 1M, **(99)** = 99M

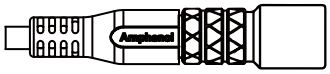
Double End Cable



Conn. 1 Conn. 2

- Part Number: 1 2-3 4 5 6-7-8-A 9
  1 FLK (FLOS), SLK (FLOS+)
- Assembly Style: Solder
- 4 Keying: G, A, B, C
- 5 Housing Material & Surface Plating: C, S, K, R (P-36)
- 6 Insulation Material: (P) PPS / (K) PEEK
- Operating Temperature: -20˚C ~ 85˚C
- Cable Type: PVC, Black
- 9 Cable Length: From 0.5M ~ 99M
  e.g. **(A05)** = 0.5M, **(001)** = 1M

PM 7 & 8



FM 7 & 8

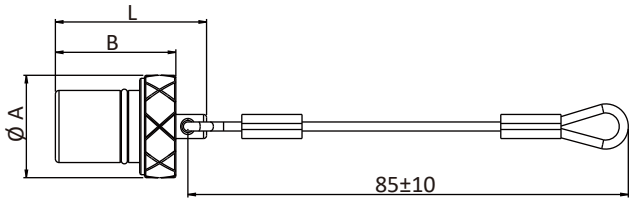
2 Size	Dimension (Unit: mm) A	L (Ref.)
(B) 0	13.0	36.5
(C) 1	14.9	46.3
(D) 2	19.0	55.8

2 Size	Dimension (Unit: mm) A	L (Ref.)	3 Contact
(B) 0	10.9	34.6	2 ~ 9
(C) 1	13.0	42.9	2 ~ 16
(D) 2	16.0	52.0	2 ~ 19

Accessories

Cap

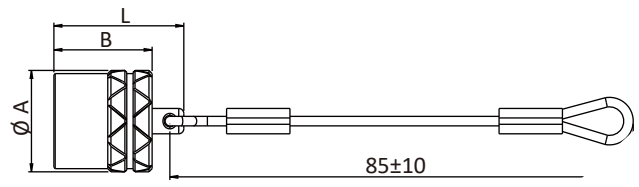
With Steel Line



(Unit: mm)

Size	Dimension (Unit: mm) A	B	L	Mating Pair (Gender)	Part Number	IP Rating
(B) 0	15.0	15.0	20.0	Female	CAP-WLKFQME2	IP68
(C) 1	17.0	20.0	25.1	Female	CAP-WLKFQME3	
(D) 2	20.5	24.0	30.1	Female	CAP-WLKFQME4	

With Steel Line



(Unit: mm)

Size	Dimension (Unit: mm) A	B	L	Mating Pair (Gender)	Part Number	IP Rating
(B) 0	14.0	12.5	18.5	Male	CAP-WLKMQCE2	IP68
(C) 1	16.0	15.5	20.5	Male	CAP-WLKMQCE3	
(D) 2	19.5	17.5	22.5	Male	CAP-WLKMQCE4	

Key Features FLOS Y Series NEW

- Push-Pull locking or Break-Away function
- Easy handling and blind mateable
- Lightweight, small and easy handling
- Definite and secure locking condition

IP68 Protection | Harsh Environment | Quick Installation | Fully Shielded | Corrosion Resistant | RoHS Compliant | UL 94V-0

Markets / Applications

Aircraft

Military Equipment

Warship

Tank

Software Defined Radios

Dismounted Soldier

Ordering Information FLOS Y Series NEW

Example	FDY	B	-	02	EP	F	S	-	N	U	P	-	001
	XXX	X	-	XX	XX	X	X	-	X	X	X	-	XXX
	1	2		3	4	5	6		7	8	9		10

Series / Sub-Series
(FDY) FLO Y Series

Size
(B) 0
(C) 1
(D) 2

Number Of Contacts
2 ~ 26 Contacts
e.g. **(03)** = 3 Contacts

Connector Style
> For Receptacle
(EP) 180° Male Panel With Slotted Nut (Front Fasten)*
(EE) 180° Female Panel With Slotted Nut (Front Fasten)
> For Field Serviceable/Installable
(FG) 180° Male Field Serviceable/Installable*
(PH) 180° Female Field Serviceable/Installable*
(A1) 180° Male Field Serviceable/Installable Break Away
> For Overmolded With Cable
(FM) 180° Male Overmolded Push Pull*
(PM) 180° Female Overmolded Push Pull*
(AM) 180° Male Overmolded Break Away*

*Upon Request

Connector & Contact Gender
(F) Female Connector, Female Contact
(M) Male Connector, Male Contact
(C) Hybrid Style*

*Upon Request

Assembly Style
> For Receptacle & Overmolded With Cable & Field Serviceable/Installable
(S) Solder Type **(M)** Overmolded With Cable
(P) 180° PCB Type
(C) Crimp Type*

*Upon Request

Keying
(N) 5 KEY / Green
(P) 5 KEY / Red*
(Q) 5 KEY / Blue
(R) 5 KEY / Brown

*Upon Request

Housing Material & Surface Plating
(U) Aluminium Alloy / Ruthenium
(D) Aluminium Alloy / Black Chrome

Insulation Material
(P) PPS *
(K) PEEK

*Upon Request

More Information
> For Receptacle
(000) Fl None
(001), (002).....
For Different Versions

> For Overmolded Woth Cable
(□)+(■) Cable Type + Cable Length
e.g. **(A01)** = UL2464, PVC + 1M
(□) Cable Type
(A) PVC
(B) PU
(E) Cat. 5e

(■) Cable Length
From 1M ~ 99M
e.g. **(01)** = 1M

Ordering Information FLOS Y Series Double Ended NEW

Example	FDY	B	-	09	R	D	K	-	FM	-	FM	-A001
	XXX	X	-	XX	X	X	X	-	XX	-	XX	- XXXX
	1	2		3	4	5	6		7		8	9

Series / Sub-Series
(FDY) FLO Y Series

Size
(B) 0
(C) 1
(D) 2

Number Of Contacts
2 ~ 26 Contacts
e.g. **(03)** = 3 Contacts

Keying
(N) 5KEY / Green
(P) 5KEY / Red*
(Q) 5KEY / Blue
(R) 5KEY / Brown
*Upon Request

Housing Material & Surface Plating
(U) Aluminium Alloy / Ruthenium
(D) Aluminium Alloy / Black Chrome

Insulation Material
(P) PPS*
(K) PEEK
*Upon Request

Connector Style For Connector 1
> FLO Series
(FM) 180° Male Overmolded Push-Pull*
(AM) 180° Male Overmolded Break-Away*
(PM) 180° Female Overmolded*
*Upon Request

Connector Style For Connector 2
> FLO Series
(FM) 180° Male Overmolded Push-Pull*
(AM) 180° Male Overmolded Break-Away*
(PM) 180° Female Overmolded*
*Upon Request

More Information

> For Overmolded With Cable
(□) + (■) Cable Type + Cable Length
e.g. **(A001)** = UL2464, PVC + 1M

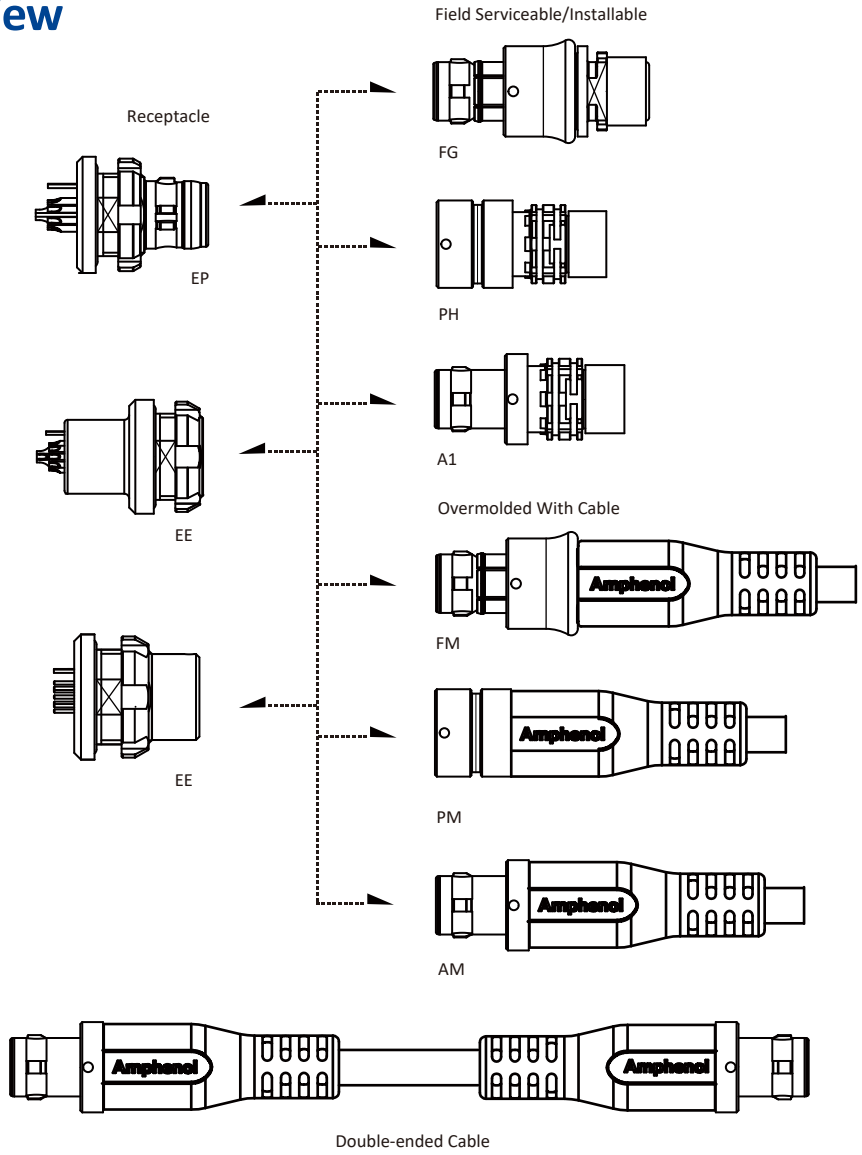
(□) Cable Type
(A) PVC
(B) PU
(E) Cat. 5e

(■) Cable Length
From 0.5M ~ 99M
e.g. **(A05)** = 0.5M, **(001)** = 1M...**(099)** = 99M

Contact Configuration FLOS Y Series NEW

Size	0 **(B)**				1 **(C)**			2 **(D)**		
Connector Type	Receptacle		Field Serviceable/Installable Overmolded With Cable		Receptacle	Field Serviceable/Installable Overmolded With Cable		Receptacle	Field Serviceable/Installable Overmolded With Cable	
Contact	Male	Female	Male	Female	Female	Male	Female	Female	Male	Female
	EP	EE	FG / A1	PH	EE	FG / A1	PH	EE	FG / A1	PH
2 Pin										
	10A / 400V		10A / 400V							
3 Pin										
	10A / 400V		10A / 400V							
4 Pin										
	7A / 300V		7A / 300V		10A / 500V	10A / 500V		14A / 650V	14A / 650V	
5 Pin										
					10A / 450V	10A / 450V				
6 Pin										
								14A / 500V	14A / 500V	
7 Pin										
	5A / 300V		5A / 300V							
8 Pin										
					7A / 333V	7A / 333V				
9 Pin										
	5A / 200V		5A / 200V							
10 Pin										
	5A / 200V		5A / 200V							
14 Pin										
					5A / 200V	5A / 200V				
16 Pin										
					5A / 200V	5A / 200V				
19 Pin										
								7A / 333V	7A / 333V	
26 Pin										
								5A / 300V	5A / 300V	

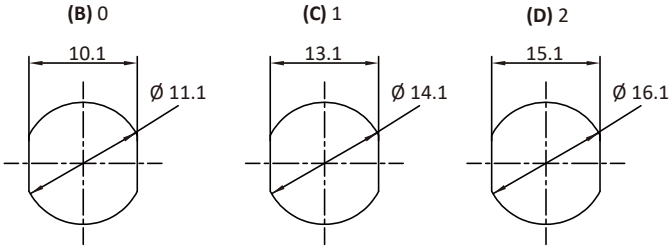
Range Overview



Alignment Keying NEW

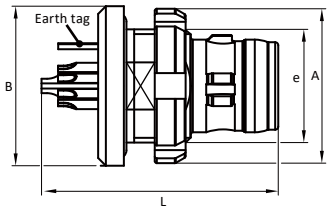
Code	Number of Keys	Color	Front View of Receptacle
N	5	Green	
P	5	Red	
Q	5	Blue	
R	5	Brown	

Panel Cut Out



(Unit: mm)

EP 180° Male Panel With Slotted Nut (Front Fasten)

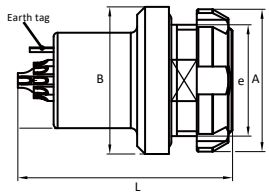


② Size	Dimension (Unit: mm) A	B	e	L	③ Contact	Recommended Panel Thickness
(B) 0	12.8	13.2	M10*0.5	21.4	3 ~ 10	3mm

- Part Number: FDY ② - ③ EPMS- ⑦ ⑧ ⑨ -001
- Operating Temperature: -40˚C ~ 125˚C
- Nut Torque Value: 1.0 Nm
- Gender: Female
- Assembly Style: PCB
- ⑦ Keying: N, P, Q, R
- ⑧ Housing Material & Surface Plating:
  (U) Aluminium Alloy / Ruthenium
  (D) Aluminium Alloy / Black Chrome
- ⑨ Insulation Material: **(P)**PPS / **(K)** PEEK

Mated With:
Break-Away : PH (3-28)

EE 180° Female Panel With Slotted Nut (Front Fasten)

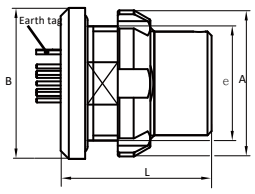


② Size	Dimension (Unit: mm) A	B	e	L	③ Contact	Recommended Panel Thickness
(B) 0	15.0	15.5	M11*0.75	22.0	3 ~ 10	3mm
(C) 1	17.9	18.5	M14*1	27.0	4 ~ 16	3.5mm
(D) 2	21.9	20.8	M16*1	29.5	4 ~ 26	3mm

- Part Number: FDY ② - ③ EEFP- ⑦ ⑧ ⑨ -001
- Operating Temperature: -40˚C ~ 125˚C
- Nut Torque Value: 1.0 Nm
- Gender: Female
- Assembly Style: PCB
- ⑦ Keying: N, P, Q, R
- ⑧ Housing Material & Surface Plating:
  (U) Aluminium Alloy / Ruthenium
  (D) Aluminium Alloy / Black Chrome
- ⑨ Insulation Material: (P) PPS / (K) PEEK

Mated With:
Push-Pull : FG (3-28), Break-Away : A1 (3-28)

EE 180° Female Panel With Slotted Nut (Front Fasten)

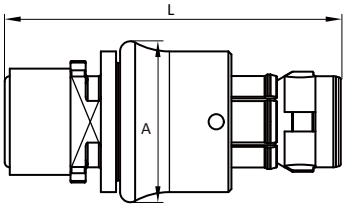


② Size	Dimension (Unit: mm) A	B	e	L	③ Contact	Recommended Panel Thickness
(B) 0	15.0	15.5	M11*0.75	15.5	3 ~ 10	5mm
(C) 1	17.9	18.5	M14*1	18.5	4 ~ 16	4mm
(D) 2	21.9	20.8	M16*1	20.5	4 ~ 26	4mm

- Part Number: FDY ② - ③ EEFP- ⑦ ⑧ ⑨ -002
- Operating Temperature: -40˚C ~ 125˚C
- Nut Torque Value: 1.0 Nm
- Gender: Female
- Assembly Style: PCB
- ⑦ Keying: N, P, Q, R
- ⑧ Housing Material & Surface Plating:
  (U) Aluminium Alloy / Ruthenium
  (D) Aluminium Alloy / Black Chrome
- ⑨ Insulation Material: (P) PPS / (K) PEEK

Mated With:
Push-Pull : FG (3-28), Break-Away : A1 (3-28)

FG 180° Male Field Serviceable/Installable, FM Overmolded With Cable

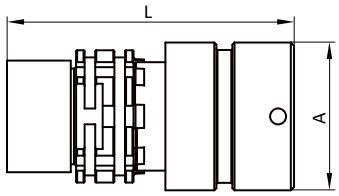


② Size	Dimension (Unit: mm) A	L	③ Contact
(B) 0	14.0	31.4	3 ~ 10
(C) 1	12.9	33.2	4 ~ 16
(D) 2	19.6	35.2	4 ~ 26

Mated With:
EP (3-27), EE (3-27)

- Part Number
  Field Serviceable/Installable: FDY②-③FGMS-⑦⑧⑨-000
  Overmolded: FDY②-③FMMM-⑦⑧⑨-⑩
- Operating Temperature:
  Field Serviceable/Installable: -40˚C ~ 125˚C
  Overmolded: -20˚C ~ 85˚C
- Gender: Male
- Assembly Style: Solder
- ⑦ Keying: N, P, Q, R
- ⑧ Housing Material & Surface Plating:
  (U) Aluminium Alloy / Ruthenium
  (D) Aluminium Alloy / Black Chrome
- ⑨ Insulation Material: **(P)** PPS / **(K)** PEEK
- Cable Type: PVC, Black
  ⑩ Cable Length: From 1M ~ 99M
  e.g. **(01)** = 1M, **(99)** = 99M

PH 180˚ Female Field Serviceable/Installable, PM Overmolded With Cable

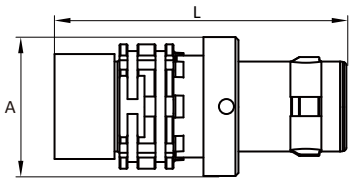


② Size	Dimension (Unit: mm) A	L	③ Contact
(B) 0	11.9	25.0	3 ~ 10
(C) 1	13.9	27.0	4 ~ 16
(D) 2	17.6	30.0	4 ~ 26

Mated With:
EP (3-27)

- Part Number
  Field Serviceable/Installable: FDY②-③PHMS-⑦⑧⑨-000
  Overmolded: FDY②-③PMMM-⑦⑧⑨-⑩
- Operating Temperature:
  Field Serviceable/Installable: -40˚C ~ 125˚C
  Overmolded: -20˚C ~ 85˚C
- Gender: Male
- Assembly Style: Solder
- ⑦ Keying: N, P, Q, R
- ⑧ Housing Material & Surface Plating:
  (U) Aluminium Alloy / Ruthenium
  (D) Aluminium Alloy / Black Chrome
- ⑨ Insulation Material: **(P)** PPS / **(K)** PEEK
- Cable Type: PVC, Black
  ⑩ Cable Length: From 1M ~ 99M
  e.g. **(01)** = 1M, **(99)** = 99M

A1 180° Male Field Serviceable/Installable Break Away, AM Overmolded With Cable

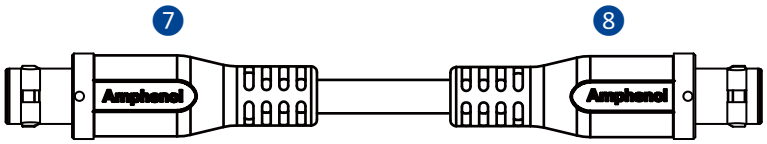


② Size	Dimension (Unit: mm) A	L	③ Contact
(B) 0	11.9	25.0	3 ~ 10
(C) 1	13.9	29.2	4 ~ 16
(D) 2	17.6	31.0	4 ~ 26

Mated With:
EE (3-27)

- Part Number:
  Field Serviceable/Installable: FDY②-③A1MS-⑦⑧⑨-000
  Overmolded: FDY②-③AMMM-⑦⑧⑨-⑩
- Operating Temperature::
  Field Serviceable/Installable: -40˚C ~ 125˚C
  Overmolded: -20˚C ~ 85˚C
- Gender: Male
- Assembly Style: Solder
- ⑦ Keying: N, P, Q, R
- ⑧ Housing Material & Surface Plating:
  (U) Aluminium Alloy / Ruthenium
  (D) Aluminium Alloy / Black Chrome
- ⑨ Insulation Material: **(P)** PPS / **(K)** PEEK
- Cable Type: PVC, Black
  ⑩ Cable Length: From 1M ~ 99M
  e.g. **(01)** = 1M, **(99)** = 99M

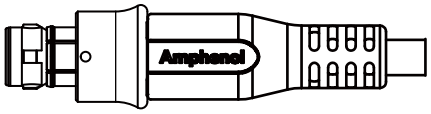
Double End Cable



Conn. 1 Conn. 2

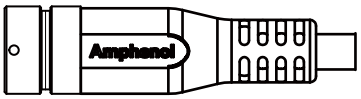
- Part Number: FDY2-34DK-7-8-A9
- Assembly Style: Solder
- 4 Keying: N, P, Q, R
- Operating Temperature: -20˚C ~ 85˚C
- Cable Type: PVC, Black
- 9 Cable Length: From 0.5M ~ 99M
  e.g. **(A05)** = 0.5M, **(001)** = 1M

FM 7 & 8



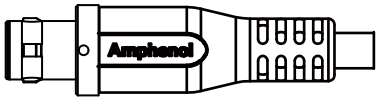
2 Size	Dimension (Unit: mm) A	L	3 Contact
(B) 0	14.0	31.4	3 ~ 10
(C) 1	12.9	33.2	4 ~ 16
(D) 2	19.6	35.2	4 ~ 26

PM 7 & 8



2 Size	Dimension (Unit: mm) A	L	3 Contact
(B) 0	11.9	25.0	3 ~ 10
(C) 1	13.9	27.0	4 ~ 16
(D) 2	17.6	30.0	4 ~ 26

AM 7 & 8

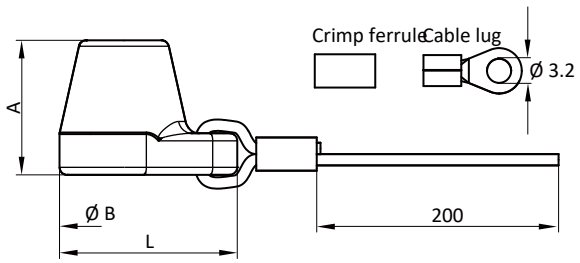


2 Size	Dimension (Unit: mm) A	L	3 Contact
(B) 0	11.9	25.0	3 ~ 10
(C) 1	13.9	29.2	4 ~ 16
(D) 2	17.6	31.0	4 ~ 26

Accessories

Cap

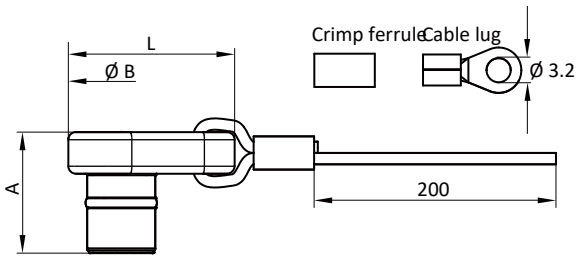
With Steel Line



(Unit: mm)

Size	Dimension (Unit: mm) A	B	L	Mating Pair (Gender)	Part Number	IP Rating
(B) 0	15.5	12.0	20.0	Female	CAP-WDYMQME0	IP67
(C) 1	16.0	14.0	22.0	Female	CAP-WDYMQME1	
(D) 2	17.5	17.0	25.0	Female	CAP-WDYMQME2	

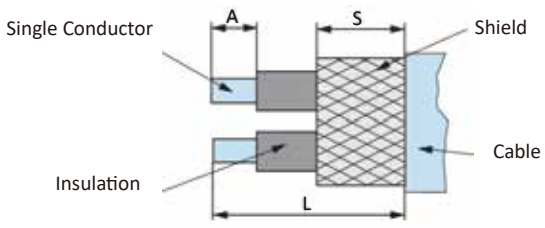
With Steel Line



(Unit: mm)

Size	Dimension (Unit: mm) A	B	L	Mating Pair (Gender)	Part Number	IP Rating
(B) 0	16.5	15.0	21.5	Male	CAP-WDYFQME0	IP67
(C) 1	17.8	17.0	23.5	Male	CAP-WDYFQME1	
(D) 2	19.5	21.0	28.0	Male	CAP-WDYFQME2	

Cable Preparation – straight cable exit / right angle cable exit



A = Stripping length single conductor
L = Stripping length cable jacket
S = Stripping length braided shield

Cable OD Max.

Size	max. cable Ø mm
0	5.5
1	6.5
2	10.0

Size	Contact Ø	Straight Cable Assembly			Right Angle Cable Assembly		
		L	A	S	L	A	S
0	0.5	9	3.5	8	14	3.5	14
	0.6	9	3.5	8	14	3.5	14
	0.7	9	3.7	8	14	3.7	14
	0.9	9	3.7	8	14	3.7	14
1	0.5	11	3.5	8	15	3.5	15
	0.6	11	3.5	8	15	3.5	15
	0.7	11	3.7	8	15	3.7	15
	0.9	11	3.7	8	15	3.7	15
1.5(A)	0.5	11	3.5	8	15	3.5	15
	0.6	11	3.5	8	15	3.5	15
	0.7	11	3.7	8	15	3.7	15
2	0.5	11	3.5	8	15	3.5	15
	0.7	11	3.7	8	15	3.7	15
	1.3	11	4.1	8	15	4.1	15
3	0.5	13	13	8	30	3.5	25
	0.7	13	13	8	30	3.7	25
	0.9	13	13	8	30	3.7	25
	2.0	13	13	8	30	5.4	25

All dimensions in mm
Tolerance: +10 %

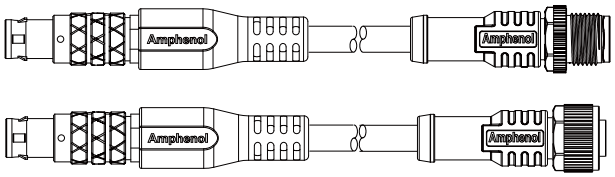
Exceptions are noted on special instructions.
Right-angle plugs have special instructions.

Notes for data-rate-connectors

Before soldering, twist the strands back slightly in the original direction. If a shield is available for the separately pairs of wires (e.g. STP-Cables), wrap it around the pairs so as far as possible.

Cable Assembly Customization

↘ FLOS / FLOS+ to M12



	3 Pin	4 Pin	5 Pin	8 Pin	10 Pin	12 Pin	17 Pin
A Code **(MSAS)**	✓	✓	✓	✓	✓	✓	✓
B Code **(MSBS)**		✓	✓				
D Code **(MSDS)**		✓					
S Code **(M12S)**		✓					
T Code **(M12T)**		✓					
X Code **(MSXS)**				✓			

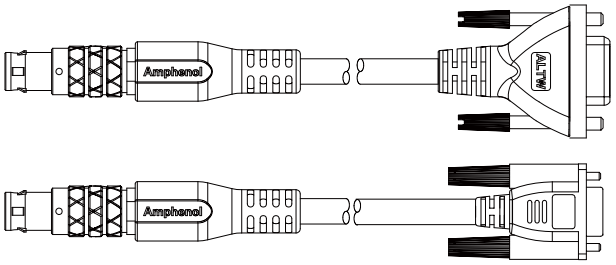
1 Conn. 1: **(FLB)** **(FLK)** **(SLK)**

4 Conn. 2

• Code (Example): FLB B 02 - MSAS 02 - 01

1	Size	Contact		4	Contact		Cable Length (M)
FLB	00 **(A)**	02 ~ 19	-	MSAS	02 ~ 17	-	01 ~ 99
FLK	0 **(B)**			MSBS			
SLK	0 **(C)**			MSDS			
	0 **(D)**			M12S			
				M12T			
				MSXS			

↘ FLOS / FLOS+ to D-Sub



	9 Pin	15 Pin	26 Pin
Standard D-Sub **(SDB)**	✓	✓	
High Density D-Sub **(HDB)**		✓	✓

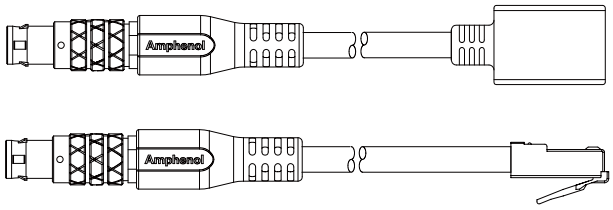
1 Conn. 1: **(FLB)** **(FLK)** **(SLK)**

4 Conn. 2

• Code (Example): FLB B 02 - SDB 02 - 01

1	Size	Contact		4	Contact		Cable Length (M)
FLB	00 **(A)**	02 ~ 19	-	SDB	09 ~ 26	-	01 ~ 99
FLK	0 **(B)**			HDB			
SLK	0 **(C)**						
	0 **(D)**						

↘ FLOS / FLOS+ to RJ45



	Cat. 5e	Cat. 6A
RJ45 Jack **(JACK)**	✓	✓
RJ45 Plug **(PLUG)**	✓	✓

1 Conn. 1: **(FLB)** **(FLK)** **(SLK)**

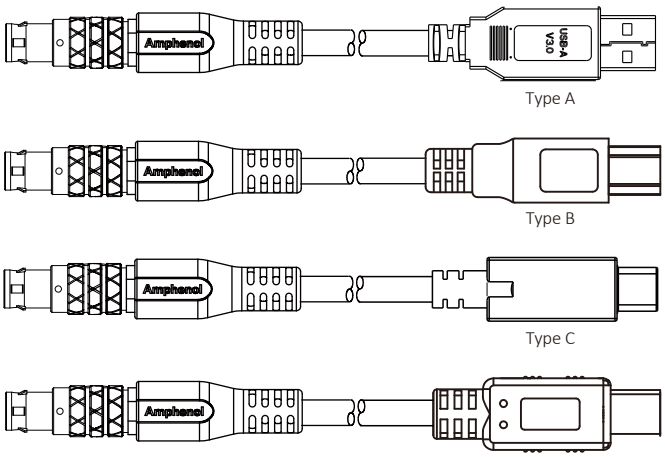
4 Conn. 2

• Code (Example): FLB B 02 - PLUG 08 - 01

1	Size	Contact		4	Contact		Cable Length (M)
FLB	00 **(A)**	02 ~ 19	-	JACK	08	-	01 ~ 99
FLK	0 **(B)**			PLUG			
SLK	0 **(C)**						
	0 **(D)**						

Cable Assembly Customization

↘ FLOS / FLOS+ to USB



	2.0	3.2 Gen 1	3.2 Gen 2
USB Type A Plug **(UA)**	✓	✓	
USB Type B Plug **(UB)**	✓		
Usb Type C Plug **(UC)**	✓	✓	✓
Mini Type B Plug **(NUB)**	✓		

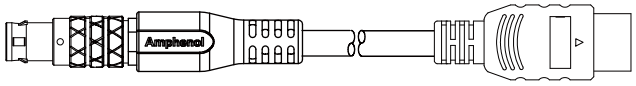
1 Conn. 1: **(FLB)** **(FLK)** **(SLK)**

4 Conn. 2

• Code (Example):

FLB	B	02	-	UA	20	-	01
1	Size	Contact		4	Speed		Cable Length (M)
FLB	00 **(A)**	02 ~ 19	-	UA	2.0 **(20)**	-	01 ~ 99
FLK	0 **(B)**			UB	3.2 **(G1)**		
SLK	0 **(C)**			UC	3.2 **(G2)**		
	0 **(D)**			NUB			

↘ FLOS / FLOS+ to HDMI



HDMI Type A Plug **(HDMIA)**

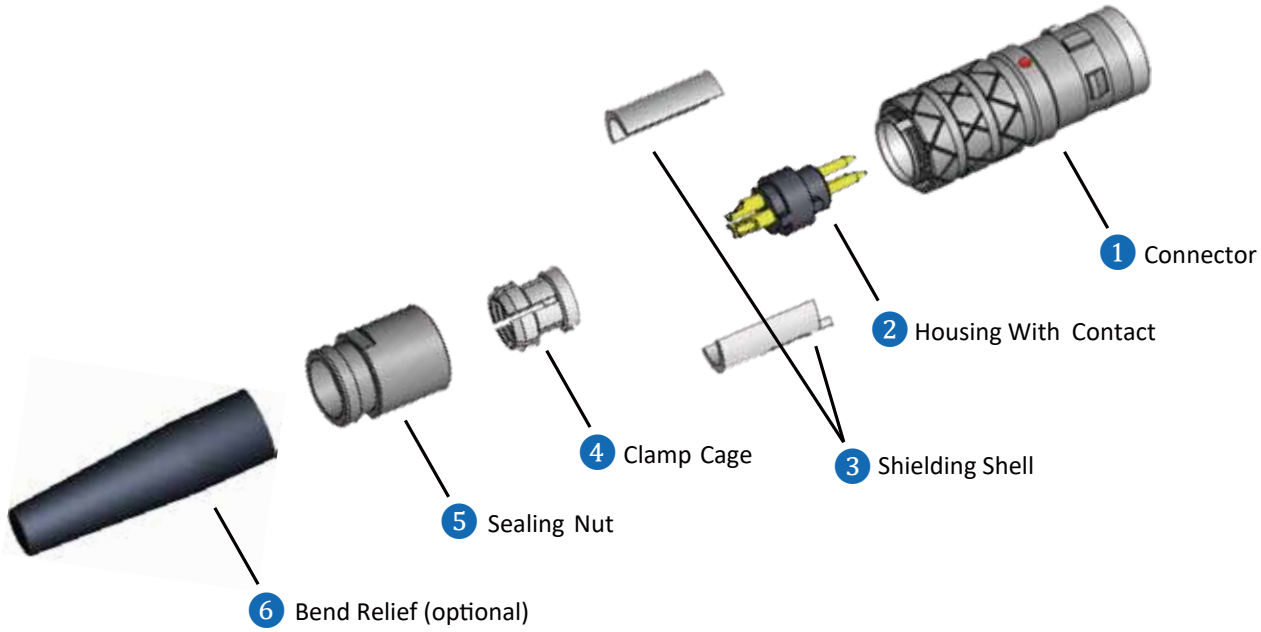
1 Conn. 1: **(FLB)** **(FLK)** **(SLK)**

4 Conn. 2

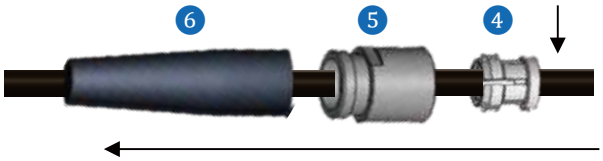
• Code (Example):

FLB	B	02	-	HDMI	A	-	01
1	Size	Contact		4	Type		Cable Length (M)
FLB	00 **(A)**	02 ~ 19	-	HDMI	A	-	01 ~ 99
FLK	0 **(B)**						
SLK	0 **(C)**						
	0 **(D)**						

Assembly Instruction Solder Type (FLOS B)

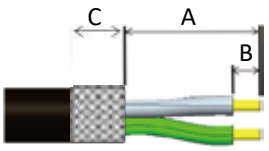


1



Follow the order from 6 to 4 *(6 is optional)* and put components through cable accordingly, no need to assemble here.

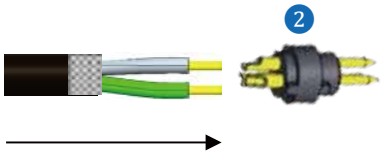
2



	Unit: mm
(A) Jacket	9.0 ~ 11.0
(B) Insulation	3.0 ~ 4.0
(C) Fold Braid	3.0 ~ 4.0

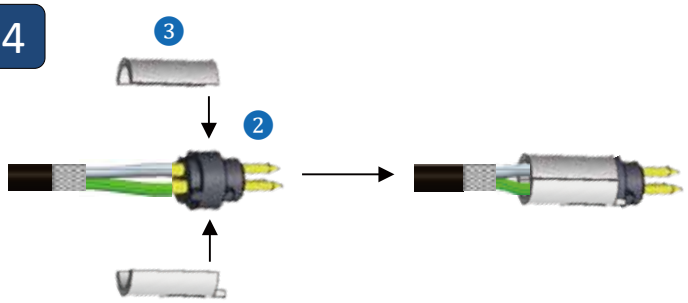
Follow suggested stripping length of **(A)** Jacket, **(B)** Insulation, **(C)** Fold Braid.

3



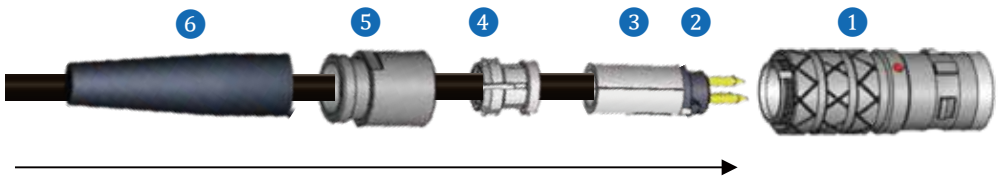
Solder wires onto contacts.

4



Assemble 3 onto 2 by matching the keying on 3 and 2.

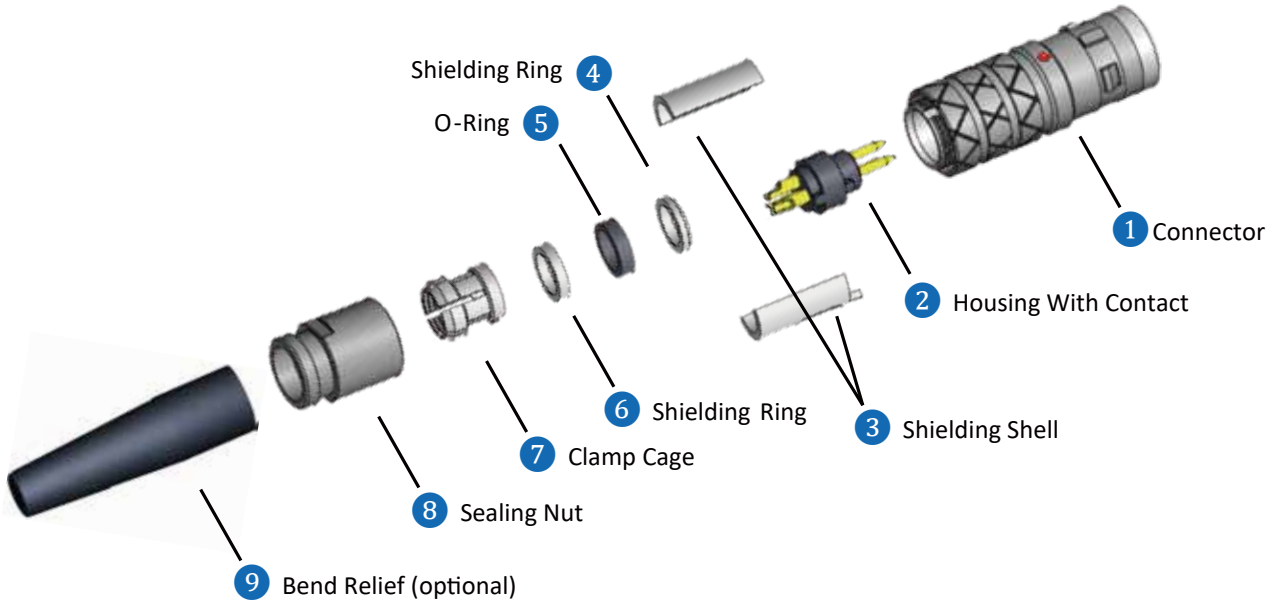
5



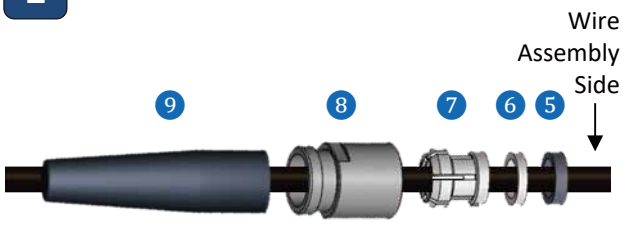
- Assemble 2 、3 、4 → 1, and make sure the keying on 4 & 1 are matched.
- Assemble components in the order 5 → 1 with suggested torque force.
- Assemble 6 → 5

	1 & 5
Torque Force (Unit: kgf-cm)	3.0 ~ 4.0

Assembly Instruction Solder Type (FLOS K)

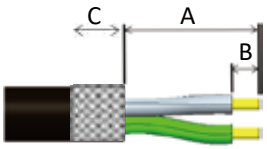


1



Follow the order from 9 to 5 *(9 is optional)* and put components through cable accordingly, no need to assemble here.

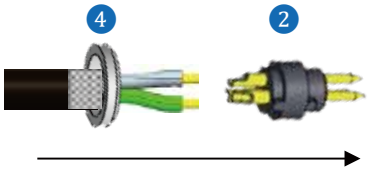
2



	Unit: mm
(A) Jacket	9.0 ~ 11.0
(B) Insulation	3.0 ~ 4.0
(C) Fold Braid	3.0 ~ 4.0

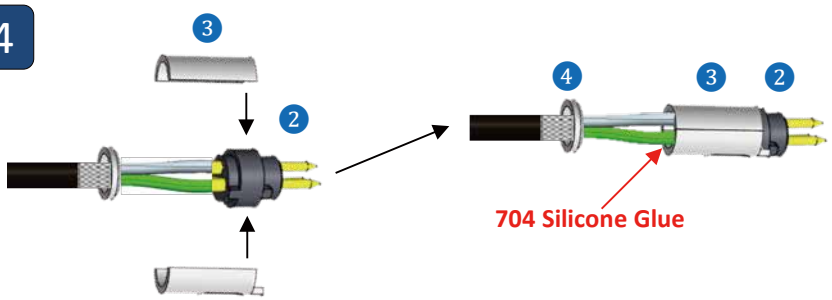
Follow suggested stripping length of **(A)** Jacket, **(B)** Insulation, **(C)** Fold Braid.

3



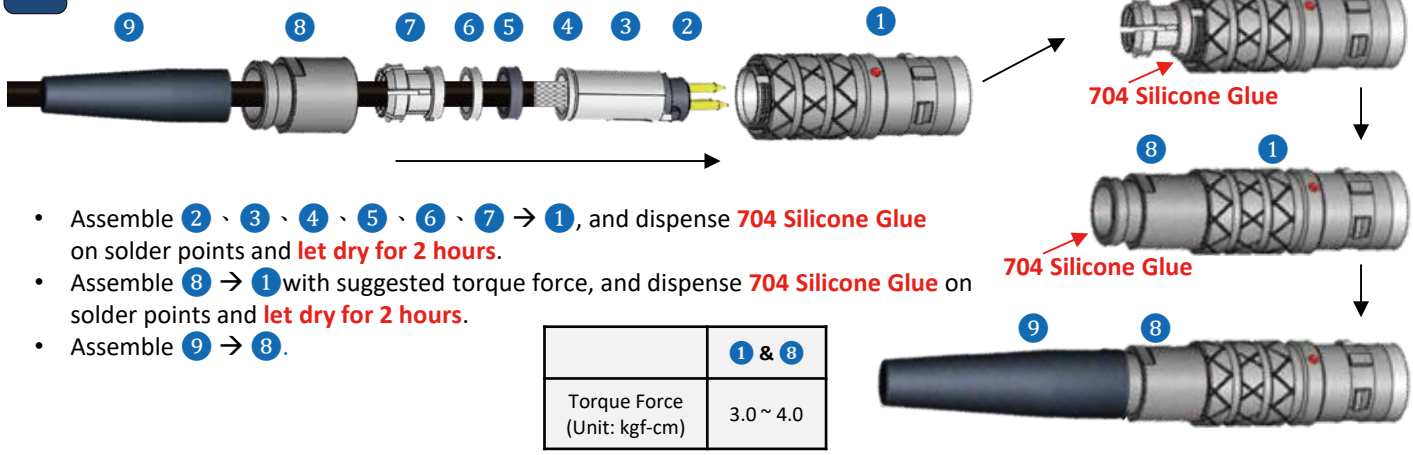
Put wires through 4, and it should be blocked before braid. Then solder wires onto contacts.

4



Assemble 3 onto 2 by matching the keying on 3 and 2. Then dispense **704 Silicone Glue** on solder points and **let dry for 2 hours**.

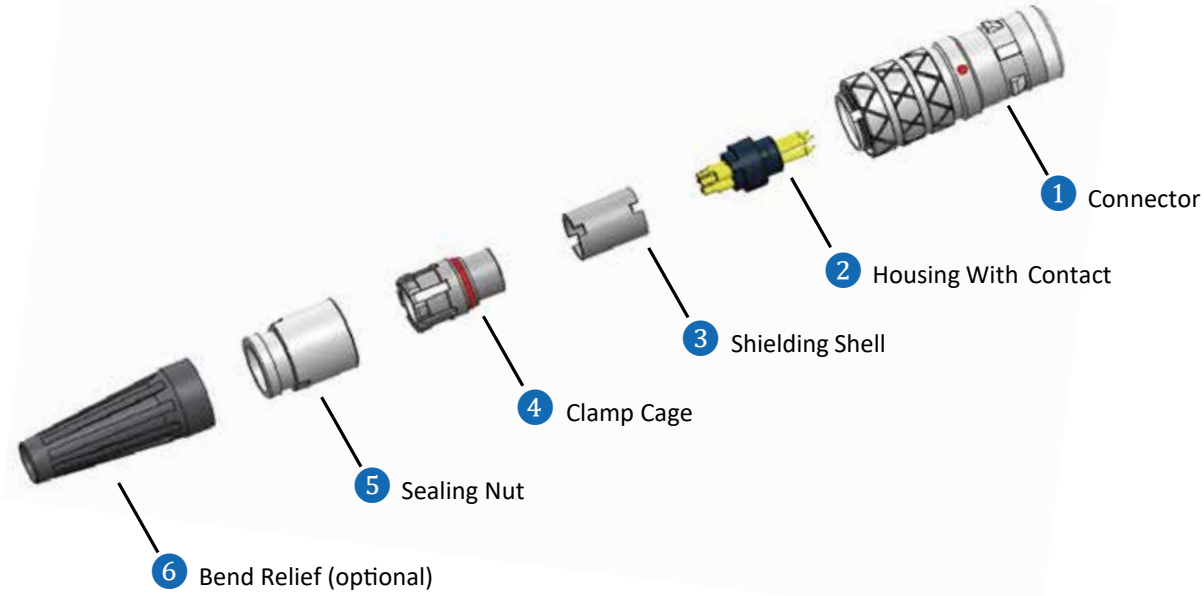
5



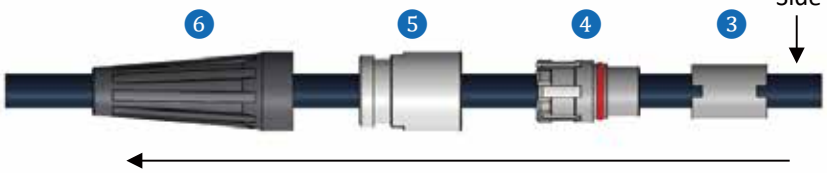
- Assemble 2 、3 、4 、5 、6 、7 → 1, and dispense **704 Silicone Glue** on solder points and **let dry for 2 hours**.
- Assemble 8 → 1 with suggested torque force, and dispense **704 Silicone Glue** on solder points and **let dry for 2 hours**.
- Assemble 9 → 8.

	1 & 8
Torque Force (Unit: kgf-cm)	3.0 ~ 4.0

Assembly Instruction Solder Type (FLOS+ K)

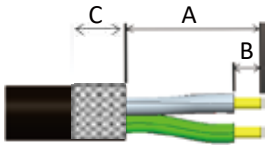


1



Follow the order from 6 to 3 *(6 is optional)* and put components through cable accordingly, no need to assemble here.

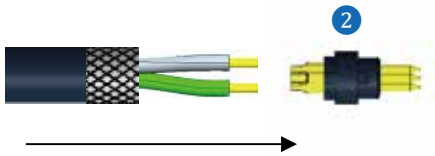
2



	Unit: mm
(A) Jacket	9.0 ~ 11.0
(B) Insulation	3.0 ~ 4.0
(C) Fold Braid	3.0 ~ 4.0

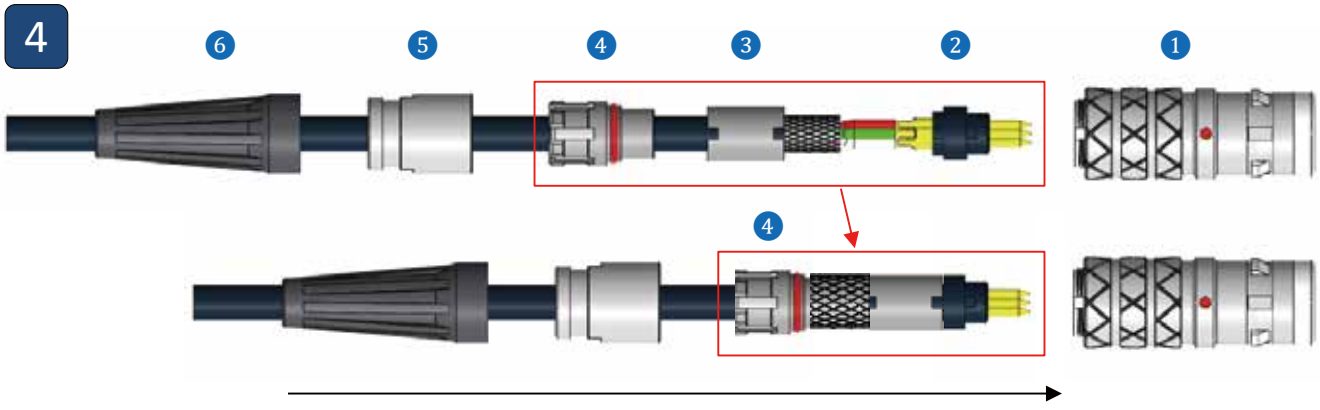
Follow suggested stripping length of **(A)** Jacket, **(B)** Insulation, **(C)** Fold Braid.

3



Solder wires onto contacts.

4



- Assemble 2 、3 、4 → 1, make sure the front part of 4 is covered by **Braid**. Then rotate 4 in order to match all the keying on 4 、3 、2.
- Assemble 5 → 1 with suggested torque force.
- Assemble 6 → 5.

	1 & 5
Torque Force (Unit: kgf-cm)	3.0 ~ 4.0

Cable List

Item No.	Jacket	Color	UL No.	Cable Specification	Cable OD	Copper Index (kg/km)	Weight (kg/km)
WCA00011181	PVC	Black	SJTW	12AWG*2C+Filler	10.70	60.80	163.10
WCA00011226	PVC	Black	SJTW	12AWG*3C	11.20	89.60	222.90
WCA00011182	PVC	Black	SJTW	12AWG*3C+Filler	11.70	89.85	207.67
WCA00011243	PVC	Black	UL2464	12AWG*3C+Filler	10.00	90.00	164.40
WCA00011242	PVC	Black	UL2464	12AWG*4C+Filler	11.00	120.40	228.70
WCA00012002	PVC	Black	SJTW	12AWG*4C+Filler	12.30	122.00	293.00
WCA00011183	PVC	Black	SJTW	12AWG*5C+Filler	13.60	149.50	328.90
WCA00010846	PVC	Black	UL1277,UL1581&UL83	14AWG*3C	9.70	53.80	134.20
WCA0485XX01	PVC	Black	UL2464	14AWG*3C+Talcum	7.00	55.80	100.10
WCA00011884	PU	Black	UL20234	14AWG*5C+Filler+Paper	10.00	115.70	180.00
WCA00012012	PU	Black	UL20234	14AWG*5C+Filler+Paper	10.00	115.70	180.00
WCA00011201	PVC	Black	UL21388	16AWG*2C+AL/Mylar	8.20	23.80	60.20
WCA00011206	PVC	Black	SJTW	16AWG*2C+Filler	8.20	24.25	85.10
WCA0264UV01	PVC	Black	UL2464	16AWG*2C+Talcum	5.80	23.80	57.70
WCA00010942	PVC	Black	UL2464	16AWG*2C+Talcum	7.80	24.20	95.00
WCA00010625	PVC	Black	UL2464	16AWG*3C+AL.Mylar+Drain	7.50	46.80	96.60
WCA00011202	PVC	Black	UL21388	16AWG*3C+AL/Mylar	8.60	35.70	71.50
WCA0579UV01	PVC	Black	UL2464	16AWG*3C+Drain+AL.Mylar	7.50	46.70	97.90
WCA00011207	PVC	Black	SJTW	16AWG*3C+Filler	8.60	36.02	105.21
WCA0285UV01	PVC	Black	UL2464	16AWG*4C+AL.Mylar	7.50	47.60	99.90
WCA00011203	PVC	Black	UL21388	16AWG*4C+AL/Mylar	9.30	47.60	88.40
WCA00011208	PVC	Black	SJTW	16AWG*4C+Filler	9.30	49.00	131.50
WCA00011204	PVC	Black	UL21388	16AWG*5C+AL/Mylar	10.70	59.40	99.80
WCA0263UV01	PVC	Black	UL2464	16AWG*5C+Talcum	7.80	59.50	108.80
WCA00011205	PVC	Black	UL21388	16AWG*6C+AL/PET	11.70	71.30	123.30
WCA0582UV01	PVC	Black	UL2464	16AWG*6C+Filler+Drain+AL.Mylar	9.50	82.10	153.60
WCA0583UV01	PVC	Black	UL2464	16AWG*7C+Drain+AL.Mylar	9.50	93.60	175.70
WCA00011299	PVC	Black	UL2464	18AWG*10C	9.00	77.00	145.00
WCE00010070-43	PVC	Black	UL21996	18AWG*2C+Talcum	3.4*5.3	14.82	36.97
WCE00010074-43	PVC	White	UL21996	18AWG*2C+Talcum	3.4*5.3	14.82	36.97
WCA00010897	PVC	Black	UL1277, UL15, 81&UL83	18AWG*3C	8.50	21.30	81.93
WCA00011209	PVC	Black	SJTW	18AWG*3C+Filler	8.00	21.30	81.93
WCA00010898	PVC	Black	UL1277, UL15, 81&UL83	18AWG*4C	9.20	35.00	125.00
WCE00010071-43	PVC	Black	UL21996	18AWG*4C+Talcum	3.4*9.2	29.64	68.14
WCE00010075-43	PVC	White	UL21996	18AWG*4C+Talcum	3.4*9.2	29.64	68.14
WCA00011240	PVC	Black	UL2464	20AWG*10C+AL.Mylar+Filler	9.00	48.00	116.40
WCA00011192	PVC	Black	UL21388	20AWG*10C+AL/Mylar	8.50	48.00	109.70
WCA00011436	PVC	Black	UL2464	20AWG*12C+AL.Mylar+Filler	9.00	57.60	125.10
WCA00011193	PVC	Black	UL21388	20AWG*12C+AL/Mylar	8.50	57.60	121.70
WCA00011200	PVC	Black	UL21388	20AWG*14C+AL/Mylar	8.50	67.20	130.60
WCA0470XX01	PVC	Black	UL2464	20AWG*14C+Braid	9.50	87.90	161.30
WCA0153XX01	PVC	Black	UL2464	20AWG*18C+AL.Mylar	9.50	86.40	154.20
WCA00011581-43	PVC	Black	UL 21996	20AWG*2C	5.20	9.40	34.02
WCA00011194	PVC	Black	UL21388	20AWG*18C+AL/Mylar	10.00	86.40	174.70
WCA00010781	PVC	Black	UL2464	20AWG*2C+AL.Mylar+Braid	5.50	17.70	41.60
WCA00011184	PVC	Black	UL21388	20AWG*2C+AL/Mylar	5.50	9.60	27.40
WCA0124UV01	PVC	Black	UL2464	20AWG*2C+Drain+AL.Mylar	5.80	14.40	48.40
WCE00010072-43	PVC	Black	UL21996	20AWG*2C+Talcum	3.2*5.0	14.10	41.45
WCE00010076-43	PVC	White	UL21996	20AWG*2C+Talcum	3.2*5.0	14.10	41.45
WCA00011580-43	PVC	Black	UL 21996	20AWG*3C	5.50	14.10	41.45
WCA0489UV01	PVC	Black	UL2464	20AWG*3C+AL.Mylar	5.00	14.40	39.30
WCA00010602	PVC	Black	UL2464	20AWG*3C+AL.Mylar+Braid+Drain	5.50	29.20	61.90
WCA00011185	PVC	Black	UL21388	20AWG*3C+AL/Mylar	5.50	14.40	43.70
WCA00011548-43	PVC	Black	UL 21996	20AWG*4C	6.00	18.80	48.46
WCA00011186	PVC	Black	UL21388	20AWG*4C+AL/Mylar	6.00	19.20	51.40
WCA0575UV01	PVC	Black	UL2464	20AWG*4C+Drain+AL.Mylar	5.50	24.00	52.10
WCE00010073-43	PVC	Black	UL21996	20AWG*4C+Talcum	3.2*8.5	18.80	53.34
WCE00010077-43	PVC	White	UL21996	20AWG*4C+Talcum	3.2*8.5	18.80	53.34
WCA00011187	PVC	Black	UL21388	20AWG*5C+AL/Mylar	6.20	24.00	59.20
WCA0576UV01	PVC	Black	UL2464	20AWG*5C+Drain+AL.Mylar	6.00	28.80	62.70
WCA00011188	PVC	Black	UL21388	20AWG*6C+AL/Mylar	6.80	28.80	71.80
WCA0577UV01	PVC	Black	UL2464	20AWG*6C+Drain+AL.Mylar	6.50	33.60	76.80
WCA00011189	PVC	Black	UL21388	20AWG*7C+AL/Mylar	6.80	33.60	75.80
WCA00010049	PVC	Black	UL2464	20AWG*7C+Drain+AL.Mylar	6.50	38.40	74.80
WCA00010550	PVC	Black	UL2464	20AWG*8C+AL.Mylar+Drain+Filler	6.80	43.00	86.00

Cable List

Item No.	Jacket	Color	UL No.	Cable Specification	Cable OD	Copper Index (kg/km)	Weight (kg/km)
WCA00011190	PVC	Black	UL21388	20AWG*8C+AL/Mylar	7.20	38.40	87.00
WCA00011489-28	PVC	Black	UL2464	20AWG*9C+AL.Mylar+Drain	7.40	48.50	101.80
WCA00011191	PVC	Black	UL21388	20AWG*9C+AL/Mylar	7.60	43.20	97.30
WCA00010868	PVC	Black	UL2464	22AWG*2C+Talcum	4.20	6.20	24.60
WCA00011339	PVC	Yellow	UL2517	22AWG*3C	4.50	9.00	31.50
WCA00011343	PU	Black	UL20549	22AWG*3C	3.80	9.00	26.00
WCA00011459-28	PVC	Black	UL2517	22AWG*3C	4.50	9.30	31.00
WCA00010063	PU	Black	NONUL	22AWG*3C+Talcum	4.50	9.00	26.40
WCA0570UV01	PVC	Black	UL2464	22AWG*3C+Talcum	5.00	9.30	35.20
WCA00011340	PVC	Yellow	UL2517	22AWG*4C	4.80	11.70	40.00
WCA00011344	PU	Black	UL20549	22AWG*4C	4.00	12.00	31.80
WCA00011460-28	PVC	Black	UL2517	22AWG*4C	4.80	12.00	38.00
WCA00011813-01	PVC	Black	UL2517	22AWG*4C+AL.Mylar+Braid	5.30	22.00	46.00
WCA00011872	PU	Black	UL20549	22AWG*4C+AL.Mylar+Braid+Paper	5.30	22.00	48.00
WCA00010062	PU	Black	NONUL	22AWG*4C+Insulation	4.80	12.00	29.40
WCA0571UV01	PVC	Black	UL2464	22AWG*4C+Talcum	5.00	12.40	38.60
WCA00011341	PVC	Yellow	UL2517	22AWG*5C	5.10	15.50	43.80
WCA00011687-01	PVC	Black	UL2517	22AWG*5C+AL.Mylar+Filler+Braid	5.70	26.00	58.00
WCA00011345	PU	Black	UL20549	22AWG*5C+Filler	4.40	15.00	43.50
WCA00011461-28	PVC	Black	UL2517	22AWG*5C+Filler	5.10	15.00	43.00
WCA00011870	PU	Black	UL20549	22AWG*5C+Filler+AL.Mylar+Braid+Paper	5.70	26.00	51.00
WCA00012245	PU	Black	UL20549	22AWG*5C+Filler+Paper	5.60	19.00	51.00
WCA00010061	PU	Black	NONUL	22AWG*5C+Filler+Talcum+Paper	5.00	15.50	38.50
WCA0352XX02	PU	Black	NONUL	22AWG*5C+Talcum	5.00	15.50	47.50
WCA0521UV01	PVC	Black	UL2464	22AWG*5C+Talcum	5.50	15.50	47.50
WCA0556UV01	PVC	Black	UL2464	24AWG*10C+Drain+AL.Mylar	6.50	22.00	63.80
WCA0557UV01	PVC	Black	UL2464	24AWG*12C+Drain+AL.Mylar	7.00	26.00	72.30
WCA0558UV01	PVC	Black	UL2464	24AWG*14C+Drain+AL.Mylar	7.00	30.00	77.10
WCA0465UV01	PVC	Black	UL2464	24AWG*15C+Drain+AL.Mylar	7.00	32.00	77.60
WCA0560UV01	PVC	Black	UL2464	24AWG*18C+Drain+AL.Mylar	8.00	38.00	100.70
WCA0284UV01	PVC	Black	UL2464	24AWG*25C+Drain+AL.Mylar	9.00	51.90	130.90
WCA0072UV01	PVC	Black	UL2464	24AWG*2C+Drain+AL.Mylar	4.20	6.00	24.00
WCA0027UV01	PVC	Black	UL2464	24AWG*2C+Talcum	4.20	4.00	22.70
WCA00010114	PVC	Black	UL2464	24AWG*37C+Drain+AL/Mylar	9.50	74.00	153.20
WCA00011746-03	PVC	Black	UL2517	24AWG*3C+AL.Mylar+Braid	4.60	13.10	31.30
WCA0549UV01	PVC	Black	UL2464	24AWG*3C+Drain+AL.Mylar	4.50	8.00	29.00
WCA0006UV01	PVC	Black	UL2464	24AWG*3C+Talcum	4.50	6.00	27.70
WCA00011726-03	PVC	Black	UL2517	24AWG*4C+AL.Mylar+Braid	5.00	16.40	38.50
WCA0219UV01	PVC	Black	UL2464	24AWG*4C+Drain+AL.Mylar	5.80	10.00	45.60
WCA0036UV01	PVC	Black	UL2464	24AWG*4C+Talcum	5.00	8.00	32.40
WCA00011584-43	PVC	Black	UL 21996	24AWG*5C	5.50	9.88	41.20
WCA0551UV01	PVC	Black	UL2464	24AWG*5C+Drain+AL.Mylar	5.00	12.00	37.00
WCA0229UV01	PVC	Black	UL2464	24AWG*5C+Talcum	5.00	10.00	34.40
WCA00011583-43	PVC	Black	UL 21996	24AWG*6C	5.80	11.86	45.21
WCA00011214	PVC	Black	UL2464	24AWG*6C+AL.Mylar	5.00	12.00	39.40
WCA0217UV01	PVC	Black	UL2464	24AWG*6C+Drain+AL.Mylar	5.80	14.00	45.00
WCA00011479-28	PVC	Black	UL2517	24AWG*6C+Filler	5.00	12.00	40.00
WCA00012067	PVC	Black	UL21388	24AWG*6C+Filler+AL.Mylar	5.20	11.40	35.40
WCA00011421	PVC	Yellow	UL2517	24AWG*6C+Filler+Talcum	5.00	17.60	49.20
WCA00011422	PU	Black	UL20549	24AWG*6C+Filler+Talcum	5.00	13.00	34.00
WCA0087UV01	PVC	Black	UL2464	24AWG*7C+Drain+AL/Mylar	5.80	16.00	51.00
WCA00011342	PVC	Yellow	UL2517	24AWG*8C	5.50	15.50	48.00
WCA00011346	PU	Black	UL20549	24AWG*8C	4.80	15.50	35.00
WCA00011462-28	PVC	Black	UL2517	24AWG*8C	5.50	15.50	48.00
WCA00011698-01	PVC	Black	UL2517	24AWG*8C+AL.Mylar+Filler+Braid	5.80	27.00	60.00
WCA0003UV01	PVC	Black	UL2464	24AWG*8C+Drain+AL/Mylar	5.50	18.00	45.70
WCA00012066	PVC	Black	UL21388	24AWG*8C+Filler+AL.Mylar	5.60	15.20	43.40
WCA00011814-01	PU	Black	UL20549	24AWG*8C+Filler+AL.Mylar+Braid+Paper	5.80	26.00	51.00
WCA00012341	PU	Black	UL20549	24AWG*8C+Filler+Paper	6.70	19.00	65.00
WCA0203UV01	PVC	Black	UL2464	24AWG*8C+Talcum	5.50	16.00	45.30
WCA0528UV01	PVC	Black	UL2464	24AWG*9C+Drain+AL.Mylar	6.00	20.00	54.80
WCA0540UV01	PVC	Black	UL2464	26AWG*6C+Drain+AL.Mylar	5.00	9.80	33.70
WCA0543UV01	PVC	Black	UL2464	26AWG*10C+Drain+AL.Mylar	6.00	15.00	50.30
WCA00011400	PU	Black	UL20549	26AWG*10C+Filler	6.00	14.00	48.00
WCA00011401	PVC	Yellow	UL2517	26AWG*10C+Filler	6.00	14.00	52.00

Cable List

Item No.	Jacket	Color	UL No.	Cable Specification	Cable OD	Copper Index (kg/km)	Weight (kg/km)
WCA00011463-01	PVC	Black	UL2517	26AWG*10C+Filler	6.00	14.00	52.00
WCA00011380	PU	Black	UL20549	26AWG*12C	6.00	16.00	47.00
WCA00011402	PVC	Yellow	UL2517	26AWG*12C	6.00	17.00	54.00
WCA00011464-01	PVC	Black	UL2517	26AWG*12C	6.00	17.00	55.00
WCA00011782-01	PVC	Black	UL2517	26AWG*12C+AL.Mylar+Braid	6.40	25.00	63.00
WCA00011871	PU	Black	UL20549	26AWG*12C+AL.Mylar+Braid+Paper	6.40	28.00	60.00
WCA0544UV01	PVC	Black	UL2464	26AWG*12C+Drain+AL.Mylar	6.00	17.60	53.10
WCA0545UV01	PVC	Black	UL2464	26AWG*15C+Drain+AL.Mylar	6.50	21.50	58.70
WCA00012148	PU	Black	UL20549	26AWG*17C+Filler	7.00	23.00	63.00
WCA00012173	PVC	Yellow	UL2517	26AWG*17C+Filler	7.00	24.00	73.00
WCA00012149	PVC	Black	UL2517	26AWG*17C+Filler	7.00	24.00	68.00
WCA00012151	PVC	Black	UL2517	26AWG*17C+Filler+AL.Mylar+Braid	7.50	40.00	91.00
WCA00012150	PU	Black	UL20549	26AWG*17C+Filler+AL.Mylar+Braid+Paper	7.50	39.00	80.00
WCA00010045	PVC	Black	UL2464	26AWG*22C+Drain+AL.Mylar	7.50	29.90	78.10
WCA0546UV01	PVC	Black	UL2464	26AWG*26C+Drain+AL.Mylar	8.00	35.80	91.30
WCA0449UV01	PVC	Black	UL2464	26AWG*31C+Drain+AL.Mylar	9.00	42.30	117.40
WCA0481UV01	PVC	Black	UL2464	26AWG*3C+Drain+AL.Mylar	4.00	5.20	22.40
WCA0547UV01	PVC	Black	UL2464	26AWG*44C+Drain+AL.Mylar	10.50	59.20	157.10
WCA0487UV01	PVC	Black	UL2464	26AWG*4C+Drain+AL.Mylar	4.80	7.20	30.80
WCA0486UV01	PVC	Black	UL2464	26AWG*5C+Drain+AL.Mylar	4.80	8.50	33.00
WCA00011480-01	PU	Black	-	CAT.5E 22AWG*2P+Drain+Filler+AL.Mylar	6.20	14.00	44.00
WCA00011527-17	LSZH	Green	-	CAT.6A S/FTP 26AWG*4P+AL/Polyester+Braid	6.60	17.99	47.08
WCA00010840	PVC	Black	-	CAT5E FTP 24AWG*4P+Mylar+D+AL.Mylar	6.50	17.97	47.34
WCA0373XX01	PVC	Beige	-	CAT5E FTP 24AWG*4P+Mylar+D+AL.Mylar	6.00	18.00	41.80
WCA0664UV01	PVC	Black	-	CAT5E FTP 24AWG*4P+Mylar+D+AL/Mylar	6.50	18.00	52.30
WCA0459XX01	PVC	Beige	-	CAT5E S-FTP 24AWG*4P+Mylar+AL.Mylar+D+B	6.10	30.97	55.00
WCA0663UV01	PVC	Black	-	CAT5E UTP 24AWG*4P	6.00	16.00	49.40
WCA00011688-03	PVC	Yellow	-	CL2 22AWG*2C+AL.Mylar+Drain+Braid	5.80	16.70	49.80
WCA0611XX01	PVC	Black	-	SJTW 14AWG*3C	9.50	56.70	154.50
WCA00010369	PVC	Black	-	STOOW 16AWG*4C	10.60	49.00	181.00
WCA00010899	PVC	Black	UL1277,UL1581,UL83	14AWG*3C+16AWG*1C	10.30	68.48	172.00
WCA00011252	PU	Black	UL20549	18AWG*2C+22AWG*4C+Filler+Paper	6.00	27.50	63.00
WCA00011253	PU	Black	UL20549	18AWG*2C+22AWG*6C+Filler+Paper	7.40	33.60	83.00
WCA00011254	PU	Black	UL20549	18AWG*2C+22AWG*8C+Filler+Paper	8.20	40.00	98.00
WCA00011582-43	PVC	Black	UL 21996	20AWG*2C+20AWG*3C	6.00	15.33	50.21
WCA0585UV01	PVC	Black	UL2464	24AWG*4C+20AWG*2C+Drain+AL.Mylar	6.00	22.40	57.40
WCA0042UV01	PVC	Black	UL2464	24AWG*6C+20AWG*2C+Drain+AL.Mylar	6.00	26.20	58.50
WCA0584UV01	PVC	Black	UL2464	26AWG*6C+24AWG*2C+Drain+AL.Mylar	5.50	13.70	42.80
WCA0365UV01	PVC	Black	-	28AWG*1P+24AWG*2C+AL.Mylar+Drain+Braid (USB2.0)	5.00	11.90	35.10
WCA00012165	PVC	Black	UL2725	28AWG*1P+28AWG*2C+AL.Mylar+Drain+Braid	3.80	10.00	21.00
WCA0691XX01	PVC	Black	UL2725	28AWG*1P+28AWG*3C+AL.Mylar+Drain+Braid	3.80	10.40	23.20
WCA00010259	PVC	Black	UL20276	[(18AWG*1P+AL)+(16AWG*1P+AL)]+Drain+AL+Braid	10.00	73.00	152.00
WCA00011922	PVC	Black	UL21996	(20AWG*1P+Drain+AL.Mylar)+16AWG*3C+Filler+AL.Mylar	8.50	50.61	115.27
WCA00010258	PVC	Black	-	[(22AWG+1P+AL)+(18AWG+1P+AL)]+Drain+AL.Mylar+Braid	7.00	42.00	80.00
WCA00010876	PVC	Black	UL2586	(24AWG*1P+A)*2C+16AWG*3C+EA	10.00	47.00	128.00
WCA00010257	PVC	Black	-	[(24AWG+1P+AL)+(22AWG+1P+AL)]+Drain+AL.Mylar+Braid	6.00	27.00	58.00
WCA00011350	PVC	Black	-	[(24AWG+1P+AL)+(22AWG+1P+AL)]+Drain+AL.Mylar+Braid	6.70	29.70	65.80
WCA00010437	PVC	Gray	-	[(24AWG+1P+AL)+(22AWG+1P+AL)]+Drain+Braid+Mylar	7.10	14.80	69.80
WCA00010080	PVC	Black	UL2464	(24AWG*25C+Mylar)+24AWG*25C+Drain+Al.Mylar	12.00	110.00	285.00
WCA00010710	PVC	Black	UL2464	(24AWG*2P+Drain+AL)+16AWG*3C+Filler+Paper	12.00	45.70	179.10
WCA00011923	PVC	Black	UL21996	(24AWG*2P+Drain+AL.Mylar)+12AWG*3C+Filler+AL.Mylar	11.50	99.97	187.20
WCA00010635	PVC	Black	UL2464	(24AWG*4P+Drain+AL)+16AWG*3C+Filler+Paper	11.00	41.70	149.70
WCA00010264	PVC	Black	UL20276	(26AWG*1P+Drain+AL.Mylar)*4C+26AWG*1P+26AWG*5C+AL.Mylar+Braid	8.50	45.50	94.30
WCA00011530-43	PVC	Black	UL21996	(26AWG*2P+AL.Mylar)+16AWG*2C+Filler+AL.Mylar	9.30	28.54	106.26
WCA00011531-43	PVC	Black	UL21996	(26AWG*2P+Drain+AL.Mylar)+16AWG*3C+Filler+AL.Mylar	11.00	41.58	146.60
WCA00011532-43	PVC	Black	UL21996	(26AWG*4P+Drain+AL.Mylar)+12AWG*3C+Filler+AL.Mylar	13.50	101.34	269.21
WCA00012137	PVC	Black	UL2725	(28AWG*1P+DAM)*2+28AWG*1P+28AWG*2C+Filler+AL.Mylar+Drain+Braid	6.00	21.80	48.20
WCA00010095	PVC	Black	UL20276	(28AWG*1P+Drain+AL+Mylar)*4C+(1P+3C)*28AWG+AL+Braid	7.30	33.90	73.70
WCA00010097	PVC	Black	UL20276	(28AWG*1P+Drain+AL+Mylar)*7C+28AWG*1P+28AWG*3C+AL+Braid	8.50	41.40	90.90
WCA00010081	PVC	Black	UL2464	[(28AWG*28C+Mylar)+28AWG*22C+Mylar]+28AWG*28C+Drain+AL	13.00	63.70	238.40
WCA00010096	PVC	Black	UL20276	[3COAX+(28AWG*1P+Drain+AL.Mylar+Mylar)*4+28AWG*1P+28AWG*6C]+AL.Mylar+Braid	8.50	53.50	93.10
WCA00010098	PVC	Black	UL20276	[3COAX+(28AWG*1P+Drain+AL+Mylar)*7+28AWG*1P+28AWG*6C]+AL+Braid	10.00	71.00	145.50
WCA00011960	PU	Black	UL20233	5C*2.5mm²+Filler+Paper	10.20	116.00	191.00
WCA00011175	PU	Black	UL20549	8C*0.34mm²+3C*1.0mm²+Filler	8.60	54.00	116.00
WCA00011176	PU	Black	UL20549	16C*0.34mm²+3C*1.0mm²+Filler	9.70	79.00	161.00

Power-limited Circuit Cable

Specifications

- Rated Voltage: 300V
- Temperature Range: FEP: 70˚C
  PVC: 60˚C, 75˚C
- Test Voltage: 900V AC at 2 seconds
- Conductor Range: 28AWG ~ 10AWG
- Conductor Material Available: Standard Bare Copper
- Insulator Material Available: FEP/PVC
- Jacket Material: FEP/PVC
- O.D. Tolerance: > Ø17.8 mm

(UL) E489959-N CLXX XX AWG XX°C 300V

CLXX: UL13 Cable Type
- Plenum Rated: (2P), (3P)
- Riser Rated: (2R), (3R)
- General Rated: (2), (3)
- Residential Rated: (2X), (3X)

XX°C: Temperature Rating
- FEP: (70)
- PVC: (60), (75)

Features & Applications:

Type	Fire Resistance Level	UL Standard	CSA	Application
CL3P CL2P	Plenum Rated (Highest)	UL 910, CMP	FT6	• Ducts or plenums air handling space
CL3R CL2R	Riser Rated	UL 1666, CMR	-	• Vertical shafts in non-plenum areas • Cable runs through more than one floor
CL3 CL2	General Purpose Rated	UL 1685, CMG/CM	FT4	• Power-limited circuit cable in non-plenum areas • Cable runs within one floor
CL3X CL2X	Residential Rated (Lowest)	VW-1, CMX	-	• Enclosed in non-plenum raceway or noncombustible tubing • Cable runs within one floor

Notes: UL File Number E489959; round or flat cable available

Find Our Standard Products

Part Number		WCA00011262	WCA00011263	WCA00011435	WCA00011282	WCA00011283*	WCA00011272	WCA00011324
Cable Type		CL3P	CL3P	CL3P	CL3P	CL3P	CL3P	CL3P
Conductor	AWG	10	16	16	16	16	18	22
	No.	2	2	2	8	16	2	2
	Dia.	2.6	1.3	1.3	1.3	1.3	1.02	0.64
Insulation	Nom. Thick.	0.25mm	0.27mm	0.27mm	0.27mm	0.27mm	0.27mm	0.25mm
	Nom. Dia.	3.5±0.1mm	2.00±0.1mm	2.00±0.1mm	2.00±0.1mm	2.00±0.1mm	1.62±0.10mm	1.12±0.05mm
Jacket	Nom. Thick.	0.8mm	0.58mm	0.58mm	0.69mm	0.56mm	0.42mm	0.46mm
	Nom. Dia.	8.8±0.3mm	5.2±0.3mm	5.2±0.3mm	8.0±0.3mm	11.0±0.5mm	4.4±0.15mm	3.4±0.15mm
Conductor Resistance at 20˚C (Max.)		3.41Ω/km	13.7Ω/km	13.7Ω/km	13.7Ω/km	13.7Ω/km	21.9Ω/km	55.4Ω/km

* Upon Request

Other cable types and customization are available upon request.

UL 21996 Multiple-Conductor Cable Using Non-Integral Jacket

Specifications

- Rated Voltage: 300V
- Temperature Range: -40˚C ~ 105˚C
- Test Voltage: 2000V AC at 1 minute
- Wet Temperature Rating: 60˚C (Max.)
- Conductor Range: 30AWG ~ 10AWG
- Conductor Material Available: Tinned Copper
- Insulator Material Available: FEP/PVC
- Shielding Material Available: AL/Mylar: Coverage 100%, Overlap 25% (Min.)
  Braid: Tinned Copper, Overlap 65% (Min.)
  Spiral: Tinned Copper, Overlap 90% (Min.)
- Jacket Material: PVC
- O.D. Tolerance: > Ø17.8 mm
- Impedance: 100Ω ~ 120Ω ±15Ω

E489039-D AWM 21996 XX AWG -40℃ 105℃ 300V VW-1. AWM I/II A/B -40℃ 105℃ 300V FT1 Sun Res Wet 60℃ Cable

Application

Internal wiring and external interconnection of electronic equipment. Suitable for outdoor use.

Features

- Reference standard: UL Subject 758, UL 1581 & CSA C22.2 No.210.2
- Lead free PVC jacket
- Wide temperature range
- Sunlight resistant
- Passes UL VW-1(horizontal) & CSA FT1 (vertical) flammability tests
- Round or flat cable available
- Mixture, individual or paired conductors available
- UL File Number: E489039

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Single Insulated Conductor Cable

Part Number		WCA00011581-43	WCA00011580-43	WCA00011548-43	WCA00011584-43	WCA00011583-43
Conductor	AWG	20	20	20	24	24
	No.	2	3	4	5	6
	Dia.	0.942mm	0.942mm	0.942mm	0.609mm	0.609mm
Insulation	Nom. Thick.	0.38mm	0.38mm	0.38mm	0.35mm	0.35mm
	Nom. Dia.	1.70±0.10mm	1.70±0.10mm	1.70±0.10mm	1.30±0.07mm	1.30±0.07mm
Shield	Style	-	-	-	-	Paper
	Overlap	-	-	-	-	25%
Conductor Resistance at 20˚C (Max.)		34.6 / km	34.6 / km	34.6 / km	93.0 / km	93.0 / km
Jacket	Nom. Thick.	0.98mm	0.92mm	0.95mm	0.92mm	0.95mm
	Nom. Dia.	5.2±0.15mm	5.5±0.20mm	6.0±0.20mm	5.5±0.20mm	5.8±0.20mm

UL 21996 Multiple-Conductor Cable Using Non-Integral Jacket

Multi-conductor Cable

Part Number		WCA00011532-43		WCA00011530-43		WCA00011531-43		WCA00011582-43	
Component		A	B	A	B	A	B	A	B
Conductor	AWG	12	26	16	26	16	26	20	24
	No.	3	4	2	2	2	2	2	3
	Dia.	2.365mm	0.480mm	1.490mm	0.480mm	1.490mm	0.480mm	0.942mm	0.609mm
Insulation	Nom. Thick.	0.46mm	0.46mm	0.40mm	0.46mm	0.40mm	0.46mm	0.38mm	0.35mm
	Nom. Dia.	3.30±0.15mm	1.40±0.10mm	2.30±0.10mm	1.40±0.10mm	2.30±0.10mm	1.40±0.10mm	1.70±0.10mm	1.30±0.07mm
Shield	Style	-	Al. Mylar	-	Al. Mylar	-	Al. Mylar	-	Paper
	Overlap	-	25%	-	25%	-	25%	-	25%
Drain	AWG	-	26	-	-	-	26	-	-
	Dia.	-	0.480mm	-	-	-	0.480mm	-	-
Conductor Resistance at 20˚C (Max.)		5.54 / km	148.0 / km	13.7 / km	148.0 / km	13.7 / km	148.0 / km	34.6 / km	93.0 / km
Jacket	Nom. Thick.	1.65mm		1.65mm		1.65mm		0.9mm	
	Nom. Dia.	13.5±0.40mm		9.3±0.25mm		11.0±0.30mm		6.0±0.20mm	
Impedance		120±15		120±15		120±15		-	

Customization is available upon request.

UL 21388 Jacket Cable

Specifications

- Rated Voltage: 300V
- Temperature Range: ~ 80˚C
- Test Voltage: 2000V AC at 1 minute
- Conductor Range: 30AWG ~ 10AWG
- Conductor Material Available: Tinned Copper
- Insulator Material Available: FEP/PVC/PE
- Shielding Material Available: AL/Mylar: Coverage 100%, Overlap 25% (Min.)
  Braid: Tinned Copper, Overlap 65% (Min.)
  Spiral: Tinned Copper, Overlap 90% (Min.)
- Jacket Material: PVC
- O.D. Tolerance: > Ø17.8 mm
- Impedance: 100Ω ~ 120Ω ±15Ω

E489039-D AWM 21388 XX AWG 80°C 300V VW-1 AWM I/II A/B 80°C 300V FT1 Sun Res Cable

Application

Internal wiring and external interconnection of electronic equipment. Suitable for outdoor use.

Features

- Reference standard: UL Subject 758, UL1581 & CSA C22.2 No.210.2
- Lead free PVC jacket
- Wide temperature range
- Sunlight resistant
- Passes UL VW-1(horizontal) & CSA FT1 (vertical) flammability tests
- Round or flat cable available
- Mixture, individual or paired conductors available
- UL File Number: E489039

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Part Number		WCA00011201	WCA00011202	WCA00011203	WCA00011204	WCA00011205	WCA00011184
Conductor	AWG	16	16	16	16	16	20
	No.	2	3	4	5	6	2
	Dia.	1.496mm	1.496mm	1.496mm	1.496mm	1.496mm	0.953mm
Insulation	Nom. Thick.	0.23mm	0.23mm	0.23mm	0.23mm	0.23mm	0.23mm
	Nom. Dia.	2.10±0.10mm	2.10±0.10mm	2.10±0.10mm	2.10±0.10mm	2.10±0.10mm	1.50±0.10mm
Shield	Style	Al. Mylar	Al. Mylar	Al. Mylar	Al. Mylar	Al. Mylar	Al. Mylar
	Overlap	25%	25%	25%	25%	25%	25%
Jacket	Nom. Thick.	0.76mm	0.76mm	0.76mm	0.76mm	0.76mm	0.76mm
	Nom. Dia.	6.00±0.20mm	6.50±0.20mm	6.80±0.20mm	7.60±0.20mm	8.40±0.20mm	5.50±0.20mm
Conductor Resistance at 20˚C (Max.)		14.7 / km	14.7 / km	14.7 / km	14.7 / km	14.7 / km	36.7 / km

UL 21388 Jacket Cable

Find Our Standard Products

Part Number		WCA00011185	WCA00011186	WCA00011187	WCA00011188	WCA00011189	WCA00011190
Conductor	AWG	20	20	20	20	20	20
	No.	3	4	5	6	7	8
	Dia.	0.953mm	0.953mm	0.953mm	0.953mm	0.953mm	0.953mm
Insulation	Nom. Thick.	0.23mm	0.23mm	0.23mm	0.23mm	0.23mm	0.23mm
	Nom. Dia.	1.50±0.10mm	1.50±0.10mm	1.50±0.10mm	1.50±0.10mm	1.50±0.10mm	1.50±0.10mm
Shield	Style	Al. Mylar	Al. Mylar	Al. Mylar	Al. Mylar	Al. Mylar	Al. Mylar
	Overlap	25%	25%	25%	25%	25%	25%
Jacket	Nom. Thick.	0.76mm	0.76mm	0.76mm	0.76mm	0.76mm	0.76mm
	Nom. Dia.	5.50±0.20mm	6.00±0.20mm	6.20±0.20mm	6.80±0.20mm	6.80±0.20mm	7.20±0.20mm
Conductor Resistance at 20°C (Max.)		36.7 / km	36.7 / km	36.7 / km	36.7 / km	36.7 / km	36.7 / km

Part Number		WCA00011191	WCA00011192	WCA00011193	WCA00011200	WCA00011194
Conductor	AWG	20	20	20	20	20
	No.	9	10	12	14	18
	Dia.	0.953mm	0.953mm	0.953mm	0.953mm	0.953mm
Insulation	Nom. Thick.	0.23mm	0.23mm	0.23mm	0.23mm	0.23mm
	Nom. Dia.	1.50±0.10mm	1.50±0.10mm	1.50±0.10mm	1.50±0.10mm	1.50±0.10mm
Shield	Style	Al. Mylar	Al. Mylar	Al. Mylar	Al. Mylar	Al. Mylar
	Overlap	25%	25%	25%	25%	25%
Jacket	Nom. Thick.	0.76mm	0.76mm	0.76mm	0.76mm	0.76mm
	Nom. Dia.	7.60±0.20mm	8.50±0.25mm	8.50±0.25mm	8.50±0.20mm	10.0±0.30mm
Conductor Resistance at 20°C (Max.)		36.7 / km	36.7 / km	36.7 / km	36.7 / km	36.7 / km

Customization is available upon request.

UL 2464 Multiple-Conductor Cable Using Non-Integral Jacket

Specifications

- Rated Voltage: 300V
- Temperature Range: ~ 80˚C
- Test Voltage: 2000V AC at 1 minute
- Conductor Range: 30AWG ~ 10AWG
- Conductor Material Available: Tinned Copper
- Insulator Material Available: FEP/PVC/PE
- Shielding Material Available: AL/Mylar: Coverage 100%, Overlap 25% (Min.)
  Braid: Tinned Copper, Overlap 65% (Min.)
  Spiral: Tinned Copper, Overlap 90% (Min.)
- Jacket Material: PVC
- O.D. Tolerance: > Ø17.8 mm
- Impedance: 100Ω ~ 120Ω ±15Ω

E489039-D AWM 2464 XX AWG 80°C 300V VW-1 c AWM I/II A/B 80°C 300V FT1 Cable

Application

Internal wiring and external interconnection of electronic equipment. Suitable for outdoor use.

Features

- Reference standard: UL Subject 758, UL1581 & CSA C22.2 No.210.2
- Lead free PVC jacket
- Wide temperature range
- Sunlight resistant
- Passes UL VW-1(horizontal) & CSA FT1 (vertical) flammability tests
- Round or flat cable available
- Mixture, individual or paired conductors available
- UL File Number: E489039

FAQ

Question

Our most popular FAQs will help you to easily find the answers you need.

Q: What connectors can be used for power and signal distribution?

A: Ceres, SENSOR, X-Lok, RBL and HS-Lok connectors. For more detailed information and guide, please refer to our "Product Summary Table".

Q: Can ALTW connectors be used in direct burial?

A: No, they are not designed for this type of application. They should be routed inside a conduit or other means of reinforcement if deployed underground.

Q: Can ALTW connectors be used in continuous water immersion?

A: No, there is a limitation for their immersion to water as defined on each IP rating.
Only "Deeptronica" series can be used in permanent immersion.

Q: Why are ALTW connectors called waterproof if they can only be immersed for a certain period? Shouldn't they be called water resistant?

A: As long as the immersion period does not surpass the conditions specified on the IP rating, they can be refered to as waterproof.

Q: What is the Ingress Protection (IP) of ALTW connectors?

A: It ranges from IP65 to IP69K.

Q: Can ALTW connectors be connected/disconnected under load?

A: By default, only connectors for data (RJ45, DVI, HDMI, and USB) can be used in hot-plugging.
Power connectors need to be customized to achieve this.

FAQ

Q: Do ALTW connectors comply with MIL STD?

A: No, ALTW connectors are only evaluated under EIA, IEC and UL standards.

Q: What connectors can be used in high-speed base band data transmission?

A: Ceres, X-Lok, M12 D & X-coded, RJ45, DVI, HDMI, USB and FLOS connectors.

Q: Can ALTW connectors be customized to meet certain requirements?

A: Yes, connectors can be customized to meet customer requirements. If a certification is required, it will be applied. If not, ALTW can provide in-house test reports as a confirmation that the pre-defined specifications have been met.

Q: Do ALTW connectors have ATEX certification?

A: No, ALTW connectors are not yet certified by ATEX.

Q: What is the difference between Oleophobic and Hydrophobic protective vents? What is the main function of the vent?

A: These properties refer to the fluid resistance of the membrane in the vent. Hydrophobic means that the membrane is water repelling, while Oleophobic means the membrane is oil repelling.
They are used in applications that require the balancing of internal and external pressures such as electrical cabinets, wireless access points, control hubs and junction boxes. The trapped air inside the enclosures expands or contracts relative to the heat emitted by the components it encloses and the external ambient temperatures.

If your question is not answered here, please contact
Amphenol LTW Customer Service or browse our website for more information.
www.amphenolltw.com

Scan here to contact us or e-mail us at sales@ltw-tech.com

Lexicon

UV Resistant

Being resistant to ultraviolet light (UV), or sunlight, means being able to withstand or resist the degradation caused by ultraviolet light. UV light causes non-resistant materials and surfaces to fade or discolor.

Flammability

The ability of a chemical to burn or ignite, causing fire or combustion. The degree of difficulty required to cause the combustion of a chemical is quantified through fire testing.
Flammability can be classified as low (least flame-retarded) to high (most flame-retarded). From lowest to highest it is classified as follows:

- HB - horizontal slow burning: Burning rate under 76mm/min for a thickness below 3mm or the burning stops before 100mm
- V-2: Burning stops within 30 seconds on a vertical specimen and drips of flaming particles are allowed
- V-1: Burning stops within 30 seconds on a vertical specimen and drips of particles are allowed as long as they are not inflamed
- V-0: Burning stops within 10 seconds on a vertical specimen and drips of particles are allowed as long as they are not inflamed

IEC

The International Electrotechnical Commission (IEC) is the world's leading organization for the preparation and publication of international standards for all electrical, electronic and related technologies. These are known collectively as “electrotechnology”.

The IEC provides a platform for companies, industries and governments to meet, discuss and develop the international standards they require. All IEC standards are consensus-based and represent the needs of the key stakeholders of every nation participating. Every member country has a vote on what is included into an IEC international standard.

UL 50e

This standard applies to enclosures for electrical equipment intended to be installed and used in non-hazardous locations. It covers additional environmental construction and performance requirements for enclosures.

UL 1863

This standard applies to Safety Communication - circuit Accessories. It covers telecommunications-circuit accessories, such as jack and plug assemblies, quick-connect terminal assemblies, telephone wall plates, telephone extension cords, cross-connect terminal-block assemblies, maintenance terminal modules, terminal enclosures, cable-splice enclosures, network-interface devices, wire-guide assemblies, and connector boxes.

Lexicon

UL 1977

These requirements cover single and multipole connectors intended for factory assembly to copper or copper alloy conductors or printed wiring boards for use in data, signal, control and power applications within and between electrical equipment.

UL 2237

This standard covers multi-point interconnection power cable assemblies. They may consist of power cable assemblies, male or female power cable fittings, panel-mounted power cable/conductor fittings and feeder-tap power cable fittings, referred to as the device in this standard, used with industrial machinery in accordance with the National Fire Protection Association Electrical Standard for Industrial Machinery, NFPA 79 that have system voltages up to and including 1,000 V.

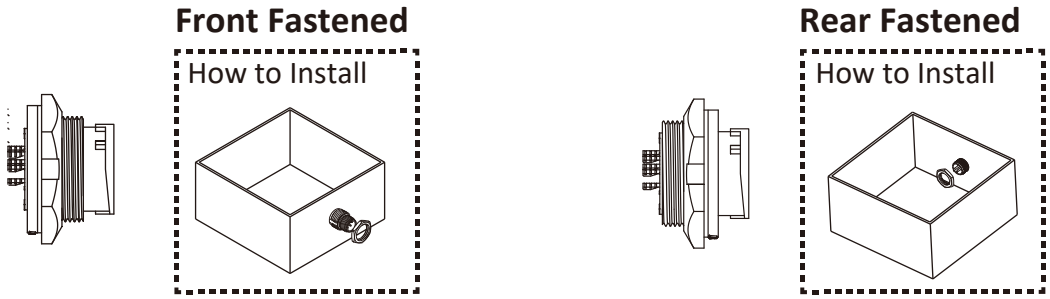
UL 2238

These requirements cover devices intended for inter-connection of equipment, sensors, and actuators in remote-control, signaling, and power-limited circuits. Included are cable assemblies and fittings, feeder-tap cable systems, feed-through connectors, multi-outlet fittings, panel-mount fittings, and splitters. These devices are rated at no more than 60 A and no more than 600 V. These devices are not intended for disconnect means.

LV214

This automotive standard was developed by German car manufacturers Audi, BMW, Daimler, Porsche and Volkswagen. It addresses the ability of terminals to be effectively evaluated by crimp force monitors. The terminals must exhibit certain crimp force to be used in an automotive wire harness.

Fasten Style of Nut



Lexicon

Mating Style

Screw Thread

- Ceres
- RJ45
- Cable Joiner & FICX
- Power
- USB
- M Series
- HDMI
- Cable Gland
- NMEA
- RF
- LED Light Guide
- D-Sub
- DVI
- Vent

2 Points Lock Bayonet

- Ceres
- Power
- USB

3 Points Lock Bayonet

- Ceres
- Power
- RJ45
- Fiber

Push Pull

- M Series
- FLOS & FLOS+
- HS-Lok
- USB

Push Lock With Latches

- RBL
- D-Sub
- SSL

Push Lock

- X-Lok
- USB

Termination Style

PCB 180° | PCB 90° | Solder | Screw In | Crimp | IDC | Push In | SMT

ODVA

ODVA is a global association whose members comprise of world's leading automation companies. ODVA's mission is to advance open, interoperable information and communication technologies in industrial automation. The association recognizes its media independent network protocol, the Common Industrial Protocol or "CIP" – and the network adaptations of CIP – EtherNet/IP, DeviceNet, CompoNet and ControlNet – as its core technology and the primary common interest of its membership.

ODVA's vision is to contribute to the sustainability and prosperity of the global community by transforming the model for information and communication technology in the industrial ecosystem.

NMEA 2000

NMEA 2000 is a protocol used to create a network of electronic devices – mainly marine instruments – on a boat. Various instruments that meet the NMEA 2000 standard are connected to one central cable, known as a backbone. The backbone powers each instrument and relays data among all the instruments on the network. This allows one display unit to show many different types of information and allows the instruments to work together. NMEA 2000 is meant to be "plug and play" to allow devices made by different manufacturers to talk and listen to each other.

Lexicon

Amphenol LTW's IPCS (Intelligent Pre-cabling Systems)

Amphenol LTW Intelligent Pre-Cabling System (IPCS) is your solution for the LED Lighting incorporation in indoor and outdoor applications. With a simplified design and wide flexibility, IPCS solves all your needs for electrical wiring and cabling infrastructure. It also provides large savings in on-site installation time and costs. The concept of IPCS is suitable for ALTW's various connector series, ideal for a large variety of customization.

Amphenol LTW's Power / Data / Hybrid Solutions

We are dedicated to developing interconnect solution to fulfill customer requirements of power or data applications, and as devices increasingly carry more functions in reduced spaces, Hybrid solutions are the answer to space limitation and multi-function. Below is the product series for Power, Data, and Hybrid applications.

0.5A ~ 2A

- Ceres
- X-Lok
- M Series
- D-Sub
- DVI
- HDMI
- USB
- HS-Lok
- FLOS & FLOS+

3A ~ 5A

- Ceres
- X-Lok
- M Series
- D-Sub
- SSL
- RBL
- HS-Lok
- FLOS & FLOS+
- NMEA 2000
- USB

6A ~ 10A

- Ceres
- X-Lok
- M Series
- Power
- Mini
- RBL
- FLOS & FLOS+
- NMEA 2000
- USB
- Cable Joiner & FICX

11A ~ 20A

- Ceres
- X-Lok
- M Series
- Power
- Mini
- RBL
- FLOS & FLOS+
- Cable Joiner & FICX

25A ~ 30A

- M Series
- FLOS & FLOS+
- Power

50A

- X-Lok
- Power

80A

- X-Lok
- Power

120A ~ 150A

- Power

Cross Section Conversion From AWG To mm²

26 AWG	0.14 mm²	16 AWG	1.50 mm²	4 AWG	25.00 mm²
24 AWG	0.25 mm²	14 AWG	2.50 mm²	2 AWG	35.00 mm²
22 AWG	0.34 mm²	12 AWG	4.00 mm²	1 AWG	50.00 mm²
20 AWG	0.50 mm²	10 AWG	6.00 mm²	2/0 AWG	70.00 mm²
18 AWG	0.75 mm²	8 AWG	10.00 mm²		
17 AWG	1.00 mm²	6 AWG	16.00 mm²		

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.

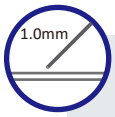
1st numeral - solid foreign objects

No protection. **0**

Protected against solid foreign objects of 50 mm Ø and greater. **1**

Protected against solid foreign objects of 12,5 mm Ø and greater. **2**

Protected against solid foreign objects of 2,5 mm Ø and greater. **3**



Protected against solid foreign objects of 1,0 mm Ø and greater. **4**

Dust-protected. **5**

Dust-tight. **6**

Example:

IP 6 5

Protected against water jets.

Dust-tight.

2nd numeral - water

No protection. **0**

Protected against vertically falling water drops. **1**

Protected against vertically falling water drops when enclosure tilted up to 15°. **2**

Protected against spraying water. **3**

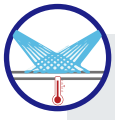
Protected against splashing water. **4**

Protected against water jets. **5**

Protected against powerful water jets. **6**

Protected against the effects of temporary immersion in water. **7**

Protected against the effects of continuous immersion in water. **8**



Protected against high pressure and temperature water jets. **9K**

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