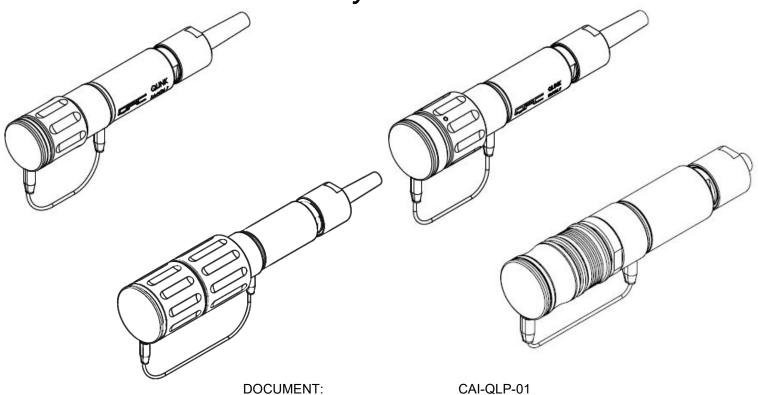


QLink Plug Connector Customer Assembly Instructions

Threaded / Hermaphroditic / Locking Hermaphroditic / Reverse Bayonet / Push Pull



DOCUMENT: REVISION: REVISION DATE: CAI-QLP-01 6 12/06/2019

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Document: CAI-QLP-01 Revision: 6

Release Date: 8/02/2018 **Revision Date:** 12/06/2019

QPC Fiber Optic, LLC 27612 El Lazo Road, Laguna Niguel, CA 92677 www.qpcfiber.com Ph: (949) 361-8855

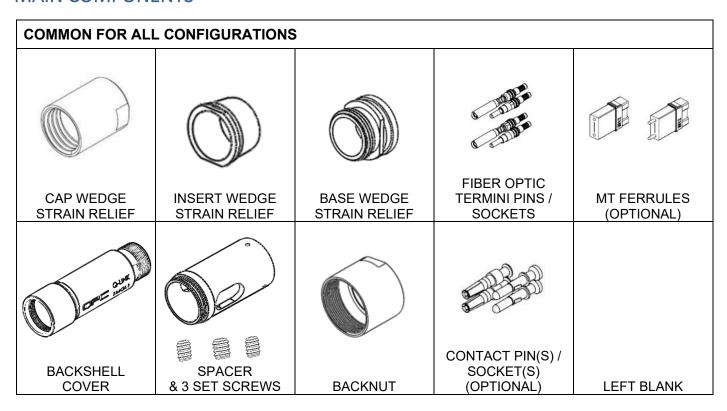


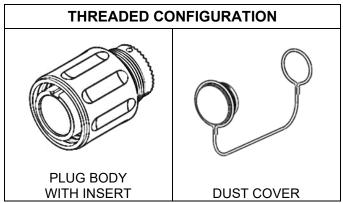


SCOPE

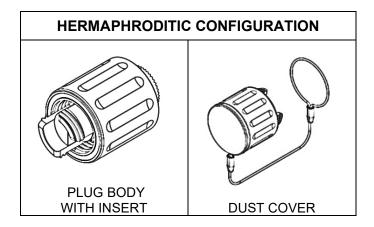
This document will describe the Assembly Instructions for the QLink Plug Connector in the Threaded, Hermaphroditic, Locking Hermaphroditic, Reverse Bayonet and Push Pull configurations.

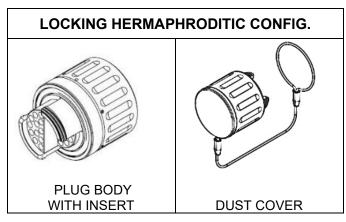
MAIN COMPONENTS

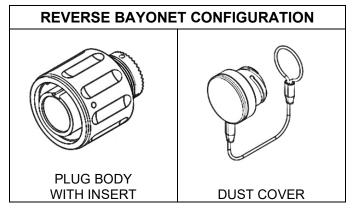


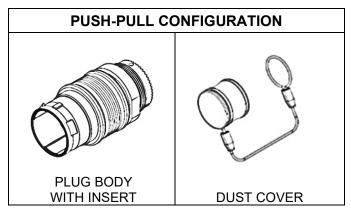




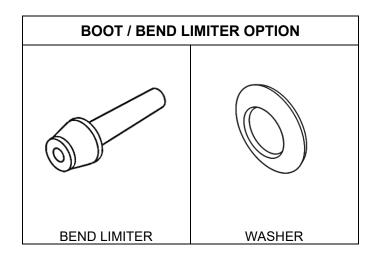


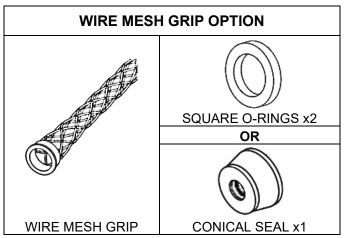






STRAIN RELIEF COMPONENTS







TOOL LIST

TK-054	TK-054 QPC QLink Tool Kit - (Equivalent tools may be used)				
PT-117	QLink Fiber Optic Termini / Size 8 & Size 12 Contact Insertion Tool				
PT-596	QLink Size 16 Contact Insertion Tool				
PT-446	QLink Fiber Optic Termini Removal Tool				
PT-445	QLink Size 16 Contact Removal Tool				
PT-449	QLink Size 12 Contact Removal Tool				
PT-443	QLink Size 8 Contact Removal Tool				
PT-480	MT Fiber Optic Termini Insertion / Removal Tool				
PT-005	Fiber Optic Termini Crimp Tool, 2mm, 3mm (Hex Sizes .100 / .147)				
PT-560	Standard Adjustable Indent Crimp Tool M22520/1-01, Size 16 Contact				
PT-562	Turret Head, Size 16, Pin and Socket, 26-14 AWG (Use with PT-560)				
PT-561	Adjustable Hand Crimp Tool, Size 8 & Size 12 Contact				
PT-563	Single Position Head, Size 12, Pin and Socket, 14-12 AWG (Use with PT-561)				
PT-564	Single Position Head, Size 8, Pin and Socket, 12-8 AWG (Use with PT-561)				
PT-589	Socket Fiber Optic Termini Sleeve Retainer Torque Tool				

TK-060 Q	TK-060 QPC Cable and Connector Prep Tool Kit – (Equivalent tools may be used)				
PT-062	Miller Kevlar Scissors (Carbon Molybdenum & Vanadium Steel Blade)				
PT-500	Precise-Control .050" Screwdriver (1.27mm) Hex				
PT-501	Precise-Control Screwdriver, 1/16" Hex				
PT-503	Precise-Control Screwdriver, 5/64" (2mm) Hex				
PT-502	Precise-Control Screwdriver, 3/32" Hex				
PT-504	Precise-Control Screwdriver, 2.5mm Hex				
PT-505	Screwdriver, Number 1 Phillips, 6-3/4" Overall Length				
PT-506	Dial Torque-Measuring Wrench, 3/8" Square Drive, 0 to 150inlbs. and 0 to 18NM Torque				
PT-536	Crow's Foot Wrench Adjustable 3/8" Square Drive 0.0-1.125"(0-28.57mm) (For Shell Sizes 13 – 19)				
PT-545	Crow's Foot Wrench Adjustable 1/2" Square Drive .236-1.771" (6-45mm) (For Shell Sizes 21 – 31)				
PT-546	3/8" Female x 1/2" Male Square Drive Adapter, Chrome				
PT-532	Long-Nose Pliers with Flat Jaws, Cushion Grip, 6-3/4" Overall, Manual Jaws with Wire Cutter				
PT-599	Hex Bit Set, 5 pcs (.050", 1/16", 5/64", 3/32", 2.5mm) 1/4" Shank, Overall Length 2"				
PT-590	Torque-Measuring Screwdriver, Hex Drive, 2.5 to 11.5 inlbs. Adjustable Torque				
PT-591	4" Drill Press Vise with 2 x Machined Plastic Jaws with Groove				



TOOL LIST – Torque Fixtures

QLink Tor	que Fixtures (Sizes 13, 15, 17, 19, 21)
PT-601	Torque Fixture, Plate Size 13, 15, 17, 19, 21
PT-600-13-T	Torque Fixture, QLink, Size 13, Threaded
PT-600-13-H	Torque Fixture, QLink, Size 13, Hermaphroditic
PT-600-13-RB	Torque Fixture, QLink, Size 13, Reverse Bayonet
PT-600-15-T	Torque Fixture, QLink, Size 15, Threaded
PT-600-15-H	Torque Fixture, QLink, Size 15, Hermaphroditic
PT-600-15-RB	Torque Fixture, QLink, Size 15, Reverse Bayonet
PT-600-17-T	Torque Fixture, QLink, Size 17, Threaded
PT-600-17-H	Torque Fixture, QLink, Size 17, Hermaphroditic
PT-600-17-RB	Torque Fixture, QLink, Size 17, Reverse Bayonet
PT-600-19-T	Torque Fixture, QLink, Size 19, Threaded
PT-600-19-H	Torque Fixture, QLink, Size 19, Hermaphroditic
PT-600-19-RB	Torque Fixture, QLink, Size 19, Reverse Bayonet
PT-600-21-T	Torque Fixture, QLink, Size 21, Threaded
PT-600-21-H	Torque Fixture, QLink, Size 21, Hermaphroditic
PT-600-21-RB	Torque Fixture, QLink, Size 21, Reverse Bayonet

QLink Torque Fixtures (Sizes 23, 25, 27, 29, 31)				
PT-602	Torque Fixture, Plate Size 23, 25, 27, 29, 31			
PT-600-23-T	Torque Fixture, QLink, Size 23, Threaded			
PT-600-23-H	Torque Fixture, QLink, Size 23, Hermaphroditic			
PT-600-23-RB	Torque Fixture, QLink, Size 23, Reverse Bayonet			
PT-600-25-T	Torque Fixture, QLink, Size 25, Threaded			
PT-600-25-H	Torque Fixture, QLink, Size 25, Hermaphroditic			
PT-600-25-RB	Torque Fixture, QLink, Size 25, Reverse Bayonet			
PT-600-27-T	Torque Fixture, QLink, Size 27, Threaded			
PT-600-27-H	Torque Fixture, QLink, Size 27, Hermaphroditic			
PT-600-27-RB	Torque Fixture, QLink, Size 27, Reverse Bayonet			
PT-600-29-T	Torque Fixture, QLink, Size 29, Threaded			
PT-600-29-H	Torque Fixture, QLink, Size 29, Hermaphroditic			
PT-600-29-RB	Torque Fixture, QLink, Size 29, Reverse Bayonet			
PT-600-31-T	Torque Fixture, QLink, Size 31, Threaded			
PT-600-31-H	Torque Fixture, QLink, Size 31, Hermaphroditic			
PT-600-31-RB	Torque Fixture, QLink, Size 31, Reverse Bayonet			

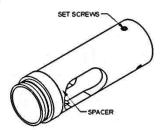
TORQUE TABLE

Component		Backshe	ell / Backnut		Strain Relief	Set Screws	Sleeve Retainer
Shell Size	13 – 15	17 – 19	21 – 23	25 – 31	All	All	All
Torque	80 – 97 in-lb	89 – 106 in-lb	106 – 124 in-lb	124 – 141 in-lb	80 – 97 in-lb	5 – 6 in-lb	2 – 3 in-lb
Values	9 – 11 N • m	10 – 12 N • m	12 – 14 N • m	14 – 16 N • m	9 – 11 N • m	.56 – .68 N • m	.23 – .34 N • m

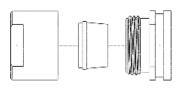


CONNECTOR PREPARATION

Unscrew Backnut from Backshell Cover. Unscrew Backshell Cover from Plug Body. Use Hex Driver PT-500 to loosen set screws from Spacer.



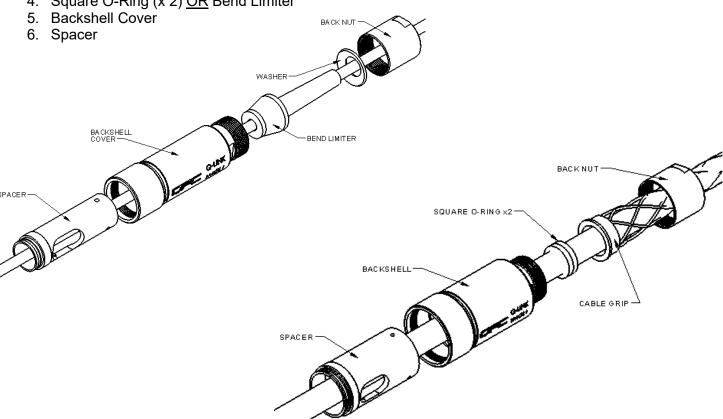
Remove Cap, Insert, and Base of Wedge Strain Relief from bag.



CABLE PREPARATION

Slide parts over cable in the following order:

- 1. Label (if applicable)
- 2. Backnut
- 3. Cable Grip OR Washer
- 4. Square O-Ring (x 2) OR Bend Limiter

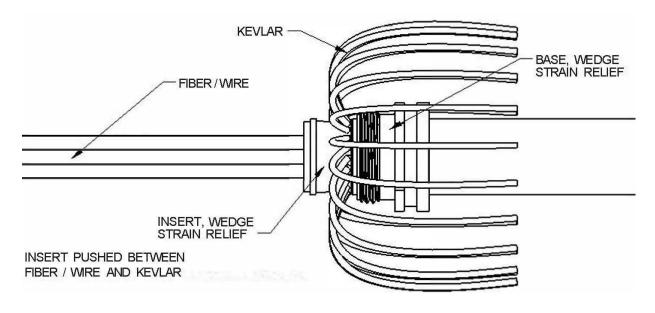




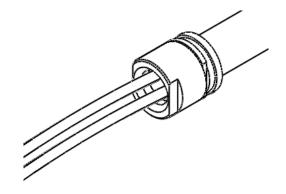


Strip cable jacket 6" from end. Separate Kevlar and remove any additional cable elements with Kevlar Scissors PT-062.

Slide base of wedge strain relief back to jacket edge. Slide Insert of wedge strain relief inside base and push between the Kevlar and the individual fibers / wires.



Cut Kevlar flush with top of wedge. Screw on Cap of Wedge Strain Relief. Torque to tighten using values from Torque Table above.

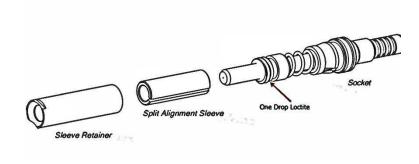




TERMINATE

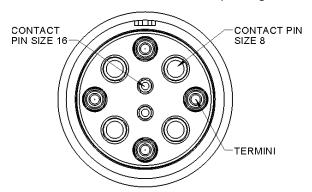
Use the Stripping Length Diagrams in the <u>Appendix</u> located in the back of this Assembly Instruction for the desired connector configuration to Terminate and polish the fiber and install the Electrical Contacts using the provided Fiber Optic Termini / Contacts. For Fiber Optic / Wire Termination and Polishing details, reference CAI-TERM-02.

Note: After Polishing Sockets, slide the Split Alignment Sleeve over the Fiber Optic Termini and then slide the Sleeve Retainer over the Split Alignment Sleeve to the base of the Fiber Optic Termini. Apply a drop of VC-3 Threadmate and screw the Sleeve Retainer onto the thread of the Fiber Optic Termini. Torque using the Sleeve Retainer Torque Tool PT-589 to the torque values in the table above.



POPULATE INSERT

Use appropriate Insertion (Tool PT-117 or PT-596) to insert Fiber Optic Termini or Contacts according to the desired pinout (varies by connector size and channel count). Image below shows a hybrid insert.



ALIGNMENT KEY

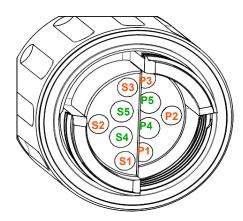
When populating using APC Fiber Optic Termini, align the key on the Fiber Optic Termini with keyway in the Insert.



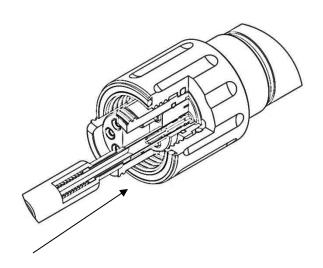


For Hermaphroditic Insert – Push in Fiber Optic Termini / Contact Pin and Sockets through back of Insert using appropriate Insertion (Tool PT-117 or PT-596). See configuration example below.

S1, S2, S3 = Sockets for Fiber
P1, P2, P3 = Pins for Fiber
S4, S5 = Sockets for Electrical Contacts
P4, P5 = Pins for Electrical Contacts



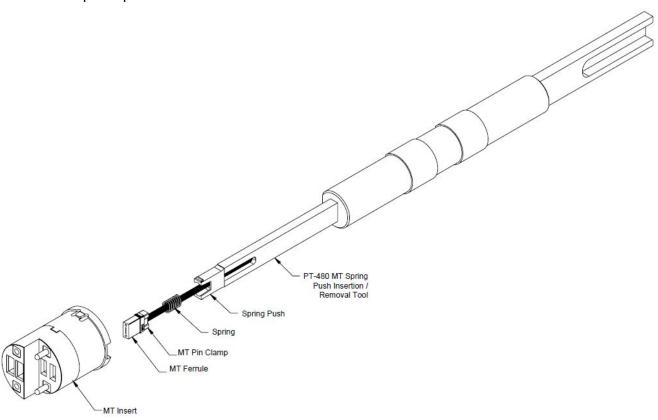
Removing Pin, Socket or Contact – To remove Fiber Optic Termini from the Insert cavities, use the Fiber Optic Termini Removal Tool PT-446. To remove Contacts from the Insert cavities, use the Contact Removal Tool (PT-443, PT-445 or PT-449) depending upon the size of the Contacts. Insert tool from the front and continue to compress the tool until the Fiber Optic Termini or contact ejects in the back from the retained position. (See Image Below)



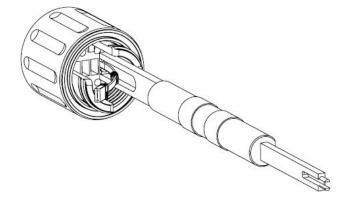




For MT Insert – Use MT Termini Insertion / Removal Tool PT-480 and slip Spring Push onto the prongs on the "insert" side of the tool and push MT Ferrule into the back cavity of the MT Insert. MT Ferrule should snap into place.



Removing MT Ferrules – To remove MT Ferrules from Insert cavities, unscrew the 4 screws from the back of the insert, remove Insert Cap, slide the MT Ferrule out of the way, and then use the "Remove" side of the same tool, PT-480, to push the Spring Push out. (See Image Below)







CONNECTOR ASSEMBLY

Slide Spacer into Body. Check the fiber length and position by looking through the holes in the Spacer to make sure the fiber is not twisted or kinked. Tighten set screws using Hex Driver PT-500. A drop of VC-3 Threadmate may be used. Then use Torque Hex Driver PT-590 with Hex Bit .050" PT-599 and Torque to the values in the above Torque Table.

Pull Strain Relief to bottom of spacer and tighten set screws using Hex Driver PT-500. A drop of VC-3 Threadmate may be used. Then use Torque Hex Driver PT-590 with Hex Bit .050" PT-599 and Torque to the values in the above Torque Table.

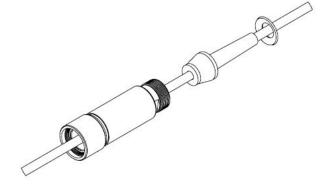
es

Perform a final visual check by looking through the holes in the Spacer to make sure that the fiber is not twisted or kinked.

STRAIN RELIEF ASSEMBLY

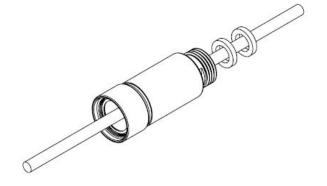
BOOT / BEND LIMITER OPTION:

Screw Backshell Cover over Spacer. Slide Bend Limiter into place, then Washer flush with Backshell Cover.



WIRE MESH GRIP OPTION:

Screw Backshell Cover onto Plug Body. Slide 2 Square O-Rings into place. All O-Rings are prelubricated. Use extra O-Ring lubricant if desired. Slide Cable Grip into place.







To Torque Backshell, place the Torque Fixture Connector Plate PT-601 or PT-602 with the appropriate mating Torque Fixture installed into the vise PT-591. Attach the Adjustable Crow's Foot Wrench PT-536 or PT-546 onto Dial Torque-Measuring Wrench PT-506. Hand-tighten QLink Plug to Torque Fixture and Torque Backshell Cover according to the values in the above Torque Table. Finally, Torque the Backnut according to the values in the above Torque Table.

Image with Bend Limiter Assembly

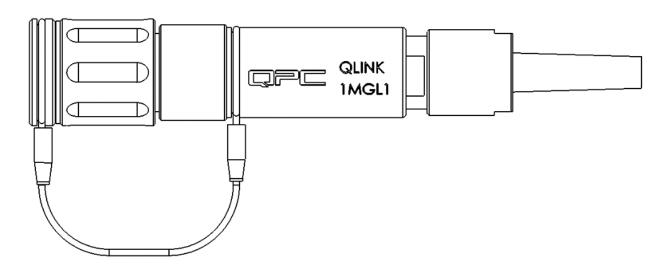
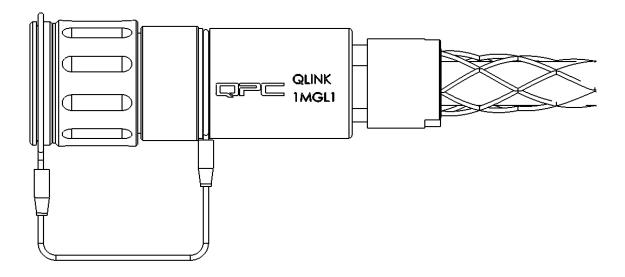


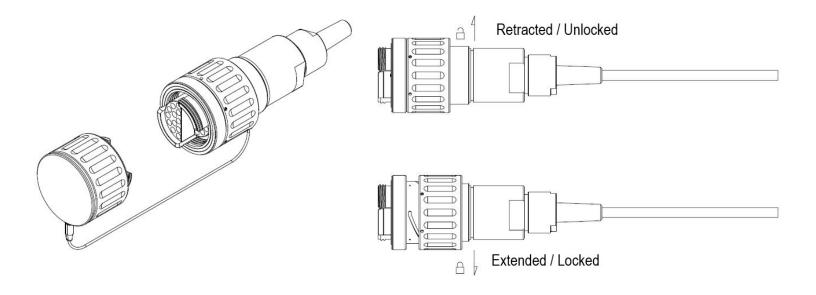
Image with Cable Grip Assembly





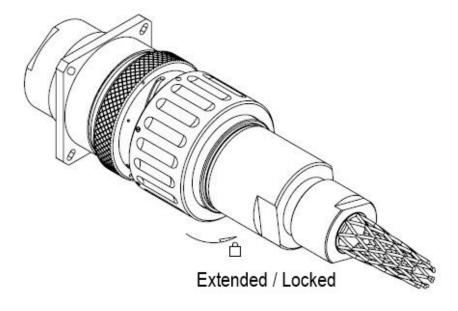
LOCKING HERMAPHRODITIC

The Locking Hermaphroditic Coupling Ring used with the QLink Locking Hermaphroditic Connector is designed to allow the connector to be de-mated with little effort.



Operation Plug to Receptacle

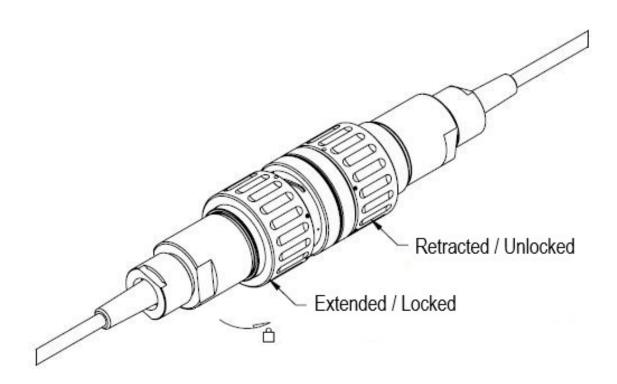
When de-mating a Plug to Receptacle Connector Pair, the Locking Hermaphroditic Coupling Ring will automatically extend when turned counterclockwise and rest on the Backshell of the connector. As it is rotated, in the extended / locked state, the threads on the Receptacle will work with the Locking Hermaphroditic Coupling Ring to separate the Pin Termini from the Socket Termini. When the Locking Hermaphroditic Coupling Ring has been fully unscrewed, the connectors will separate easily.





Operation Plug to Plug

When de-mating a Plug to Plug Connector Pair, the operation is similar to the Plug to Receptacle procedure above, except that one of the Locking Hermaphroditic Coupling Rings must be completely unscrewed and pushed back onto the anti-rotation tabs in its retracted / unlocked state. This ensures that the Locking Hermaphroditic Coupling Ring is completely free from the mating connector's threads allowing the other Locking Hermaphroditic Coupling Rings is retracted, the other Locking Hermaphroditic Coupling Rings is retracted, the other Locking Hermaphroditic Coupling Ring will automatically extend when turned counterclockwise and rest on the Backshell of the connector. As it is rotated, in the extended / locked state, the threads on the mating Plug will work with the Locking Hermaphroditic Coupling Ring to separate the pin termini from the socket termini. When the Locking Hermaphroditic Coupling Ring has been fully unscrewed, the connectors will separate easily.





Appendix

APPENDIX A: STRIPPING LENGTHS – QLink PLUG ALL SIZES AND CONFIGURATIONS

D50110 - QLink THREADED AND REVERSE BAYONET PLUG, FIBER OPTIC TERMINI

D50111 - QLink THREADED AND REVERSE BAYONET PLUG, HYBRID

D50112 - QLink THREADED AND REVERSE BAYONET PLUG, MT

D50113 - QLink HERMAPHRODITIC & LOCKING HERMAPHRODITIC PLUG, FIBER OPTIC TERMINI

D50114 - QLink HERMAPHRODITIC & LOCKING HERMAPHRODITIC PLUG, HYBRID

D50115 - QLink HERMAPHRODITIC & LOCKING HERMAPHRODITIC PLUG, MT

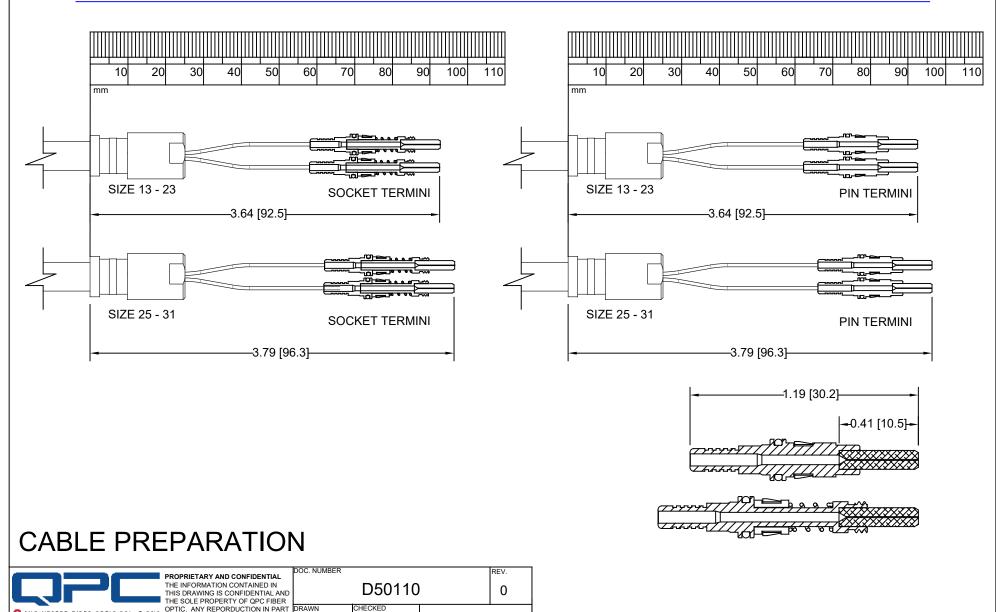
D50116 - QLink PUSH PULL PLUG, FIBER OPTIC TERMINI

D50117 - QLink PUSH PULL PLUG, HYBRID

D50118 - QLink PUSH PULL PLUG, MT

APPENDIX B: QPC FIBER OPTIC – QLink CONTACT CRIMP TOOLS / SETTINGS

QLink THREADED AND REVERSE BAYONET PLUG OR RECEPTACLE, FIBER OPTIC TERMINI



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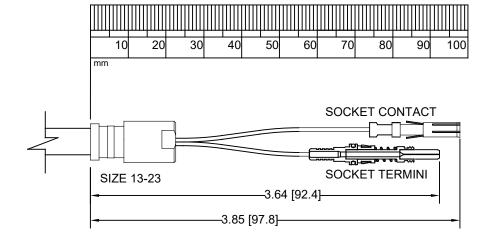
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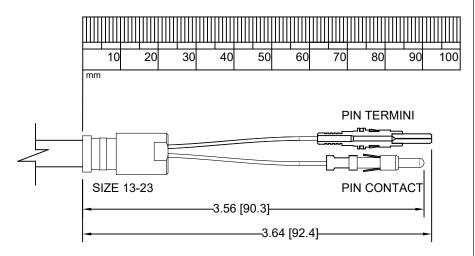
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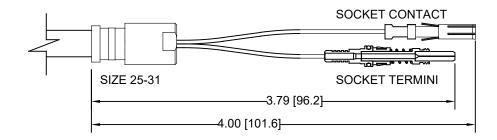
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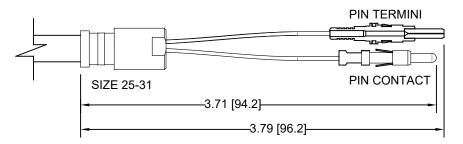
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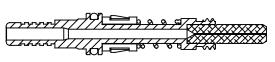


CABLE PREPARATION



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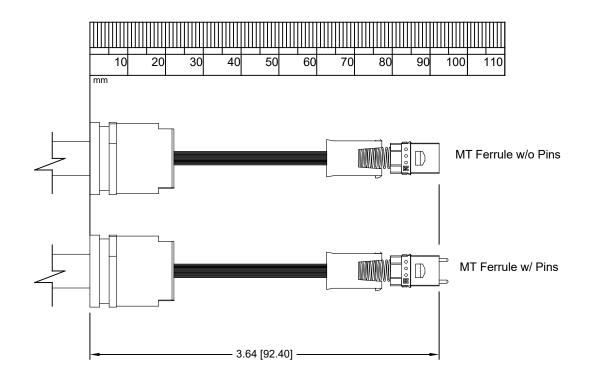


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QLink THREADED AND REVERSE BAYONET PLUG OR RECEPTACLE, MT



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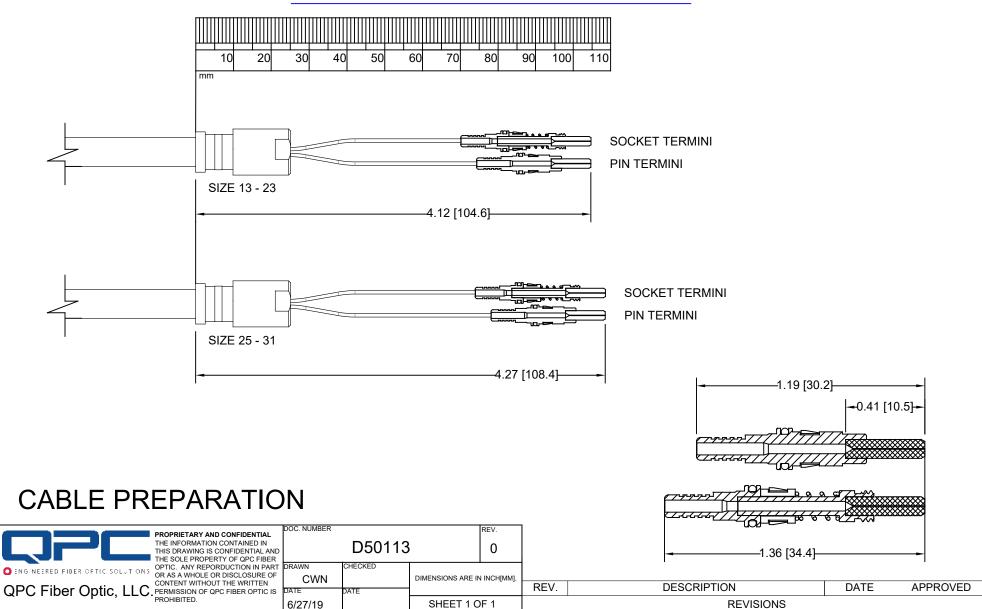


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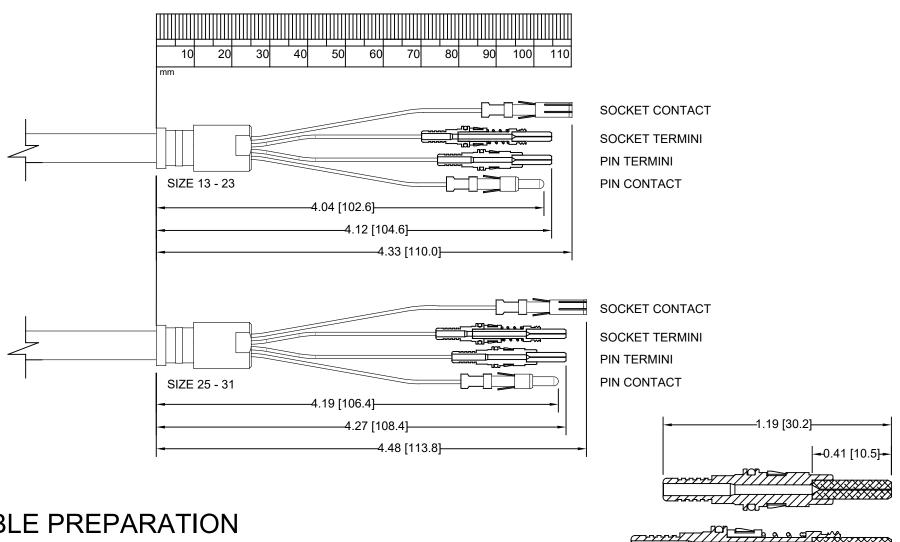
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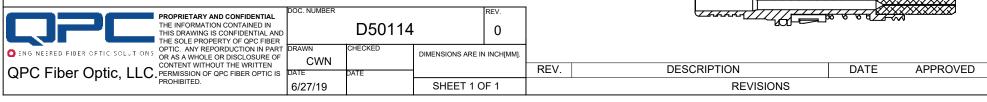
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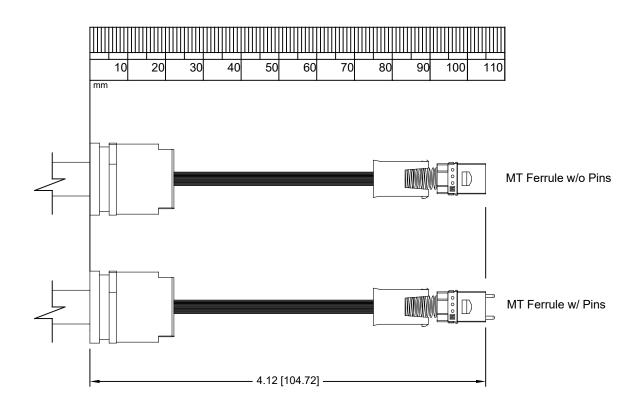
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QLink HERMAPHRODITIC AND LOCKING HERMAPHRODITIC PLUG OR RECEPTACLE, MT



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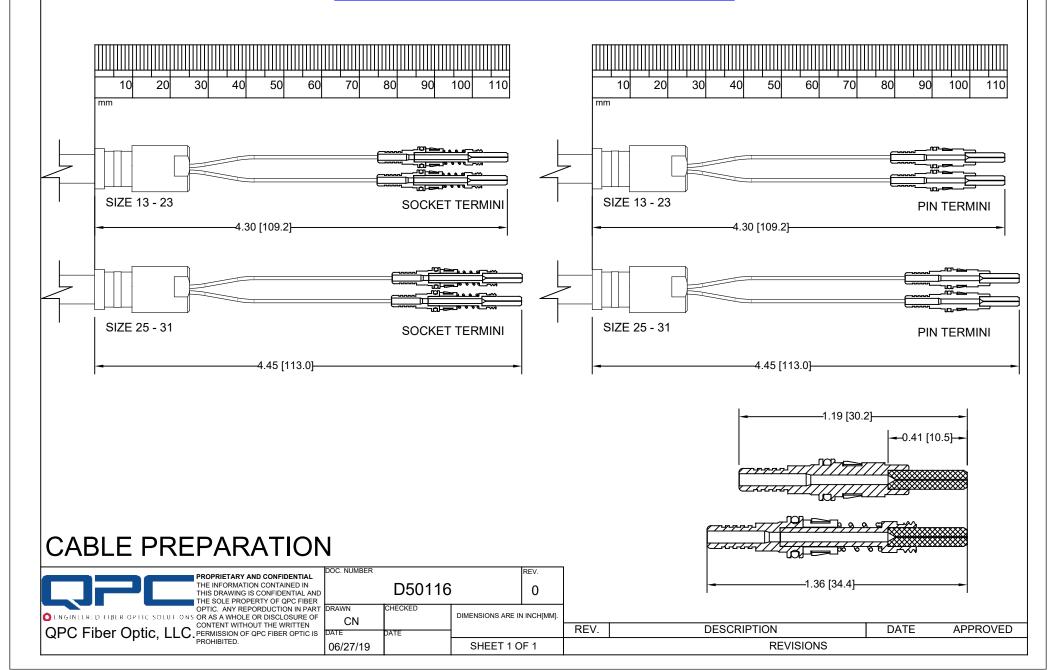


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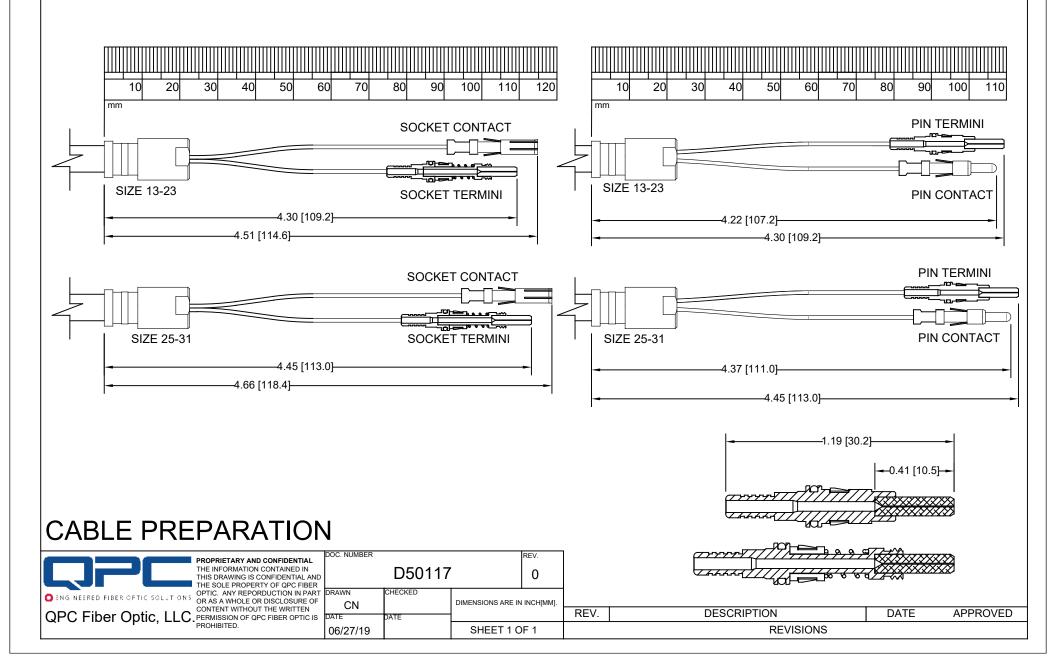
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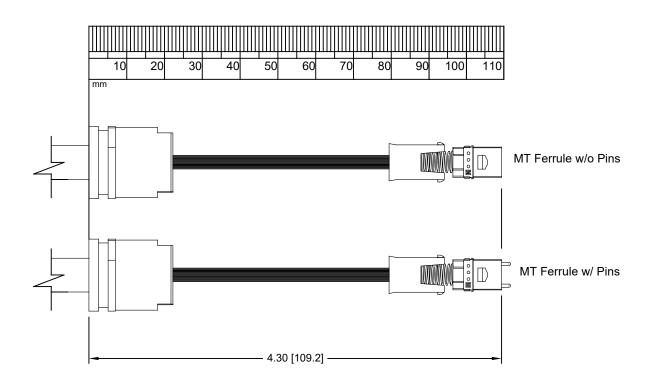
QLink PUSH PULL PLUG OR RECECEPTACLE, FIBER OPTIC TERMINI



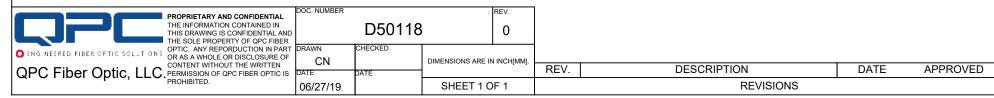
QLink PUSH PULL PLUG OR RECEPTACLE, HYBRID



QLink PUSH PULL PLUG OR RECEPTACLE, MT



CABLE PREPARATION



APPENDIX B - QPC Fiber Optic - QLink Contact Crimp Tools / Settings

QPC P/N	Contact Size	Pin / Socket	Wire Size Range (AWG)	Crimp Tool	Turret / Positioner	Wire Size (AWG)	Turret Color Setting	Crimp Selector Number
OLINIK CTC 4C24D	1.6	Di-	24.26	DT FCO	DT CC2	26	Blue	2
QLINK-CTC-1624P	16	Pin	24-26	PT-560	PT-562	24	Blue	3
QLINK-CTC-1624S	16	Socket	24-26	PT-560	PT-562	26	Green	2
QLIINK-CTC-10243	10	Socket	24-20	P1-300	P1-302	24	Green	3
QLINK-CTC-1620P	16	Pin	20-22	PT-560	PT-562	22	Blue	3
QLINK-C1C-10201	10	1 111	20-22	r 1-300	11-302	20	Blue	4
QLINK-CTC-1620S	16	Socket	20-22	PT-560	PT-562	22	Green	3
QENVICE TO 10203	10	JOCKET	20 22	11 300	11 302	20	Green	4
						20	Blue	4
QLINK-CTC-1616P	16	Pin	16-20	PT-560	PT-562	18	Blue	5
						16	Blue	5
						20	Green	4
QLINK-CTC-1616S	16	Socket	16-20	PT-560	PT-562	18	Green	5
						16	Green	5
QLINK-CTC-1614P	16	Pin	14-16	PT-560	PT-562	16	Blue	6
QZIIII OI O 101 II	10		1110	500	562	14	Blue	7
QLINK-CTC-1614S	16	Socket	14-16	PT-560	PT-562	16	Green	5
Q2.141. 616 161 16	10	Journe	1110	500	302	14	Green	6
QLINK-CTC-1214P	12	Pin	14	PT-561	PT-563	14	N/A	3
QLINK-CTC-1214S	12	Socket	14	PT-561	PT-563	14	N/A	3
QLINK-CTC-1212P	12	Pin	12	PT-561	PT-563	12	N/A	3
QLINK-CTC-1212S	12	Socket	12	PT-561	PT-563	12	N/A	3
QLINK-CTC-0812P	8	Pin	12	PT-561	PT-564	12	N/A	4
QLINK-CTC-0812S	8	Socket	12	PT-561	PT-564	12	N/A	4
QLINK-CTC-0810P	8	Pin	10	PT-561	PT-564	10	N/A	5
QLINK-CTC-0810S	8	Socket	10	PT-561	PT-564	10	N/A	5
QLINK-CTC-0808P	8	Pin	8	PT-561	PT-564	8	N/A	6
QLINK-CTC-0808S	8	Socket	8	PT-561	PT-564	8	N/A	6

Note: Wire size may differ slightly by wire type / manufacturer. Crimp Selector setting may need to be adjusted (up or down) accordingly to achieve proper retention.