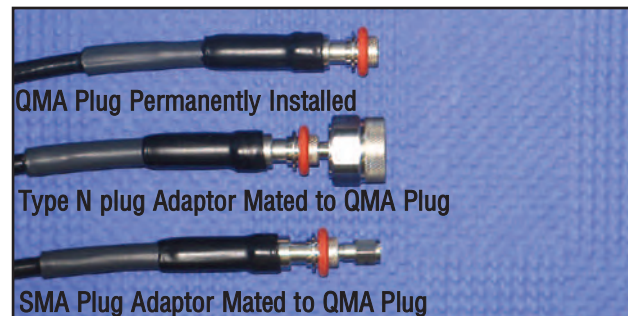


# SilverLine™ Specifications:

## SilverLine™-QMA Changeable Interface System



**Specifications:**

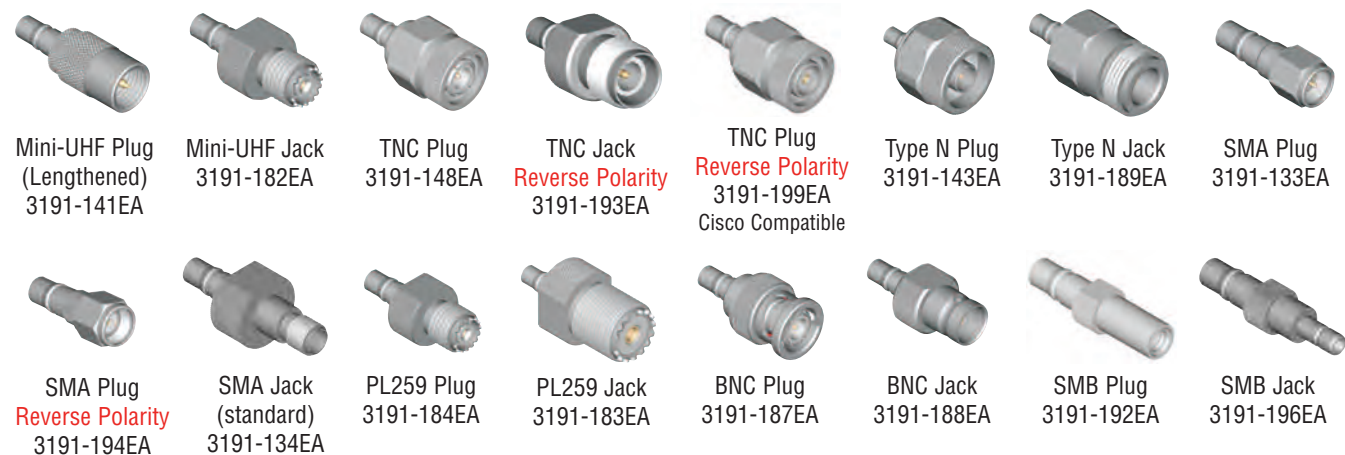
- Frequency Response: DC-18.0 GHz(QMA, SMA, Type N, TNC)
- VSWR: 1:35:1 Maximum, 1:25:1 Typical (Cable Assembly with Mated Adaptor)

**Features & Benefits:**

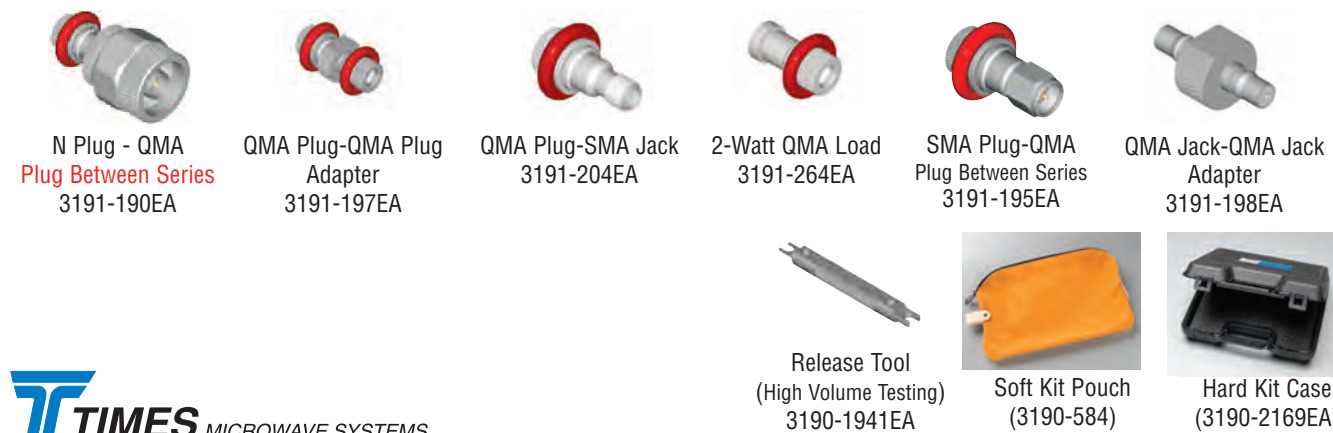
- High Frequency Operation
- 5000 Mate Life
- SureGrip™ Coupling Nut
- Smooth, Fast Retraction for Quick Changes
- Large Interface Selection
- Between Series & Reverse Polarity Interfaces



### Adaptors From QMA Jack To:



### Between & Within Series Adaptors and Termination



World Headquarters: 358 Hall Avenue, Wallingford, CT 06492 • Tel: 203-949-8400, 1-800-867-2629 Fax: 203-949-8423  
 International Sales: 4 School Brae, Dysart, Kirkcaldy, Fife, Scotland KY1 2XB UK • Tel: +44(0)1592655428  
 China Sales: No. 318 Yuan Shan Road, Shanghai, China 201108 Tel: 86-21-51761234 Fax: 86-21-64424098  
 www.timesmicrowave.com

# SilverLine™

ISO 9001 Certified

## Test Cables

### Coax Test Cables for:

- High Volume Production Test Stations
- Research & Development Labs
- Environmental & Temperature Test Chambers
- Replacement for OEM Test Port Cables
- Field RF Testing
- Cellular Infrastructure Site Testing



SilverLine™ Test Cables are cost effective, durable, high-performance cable assemblies designed for use in a broad range of test and interconnect applications. Fabricated from rugged, solid PTFE dielectric cable with stainless steel connectors and a proven strain relief system, these cables provide long life and excellent stability in applications where they are repeatedly flexed and mated/unmated. SilverLine™ test cables are ideal for use in production, field and laboratory test environments. They are also economical enough to be used as interconnects in test systems.

### Features & Benefits:

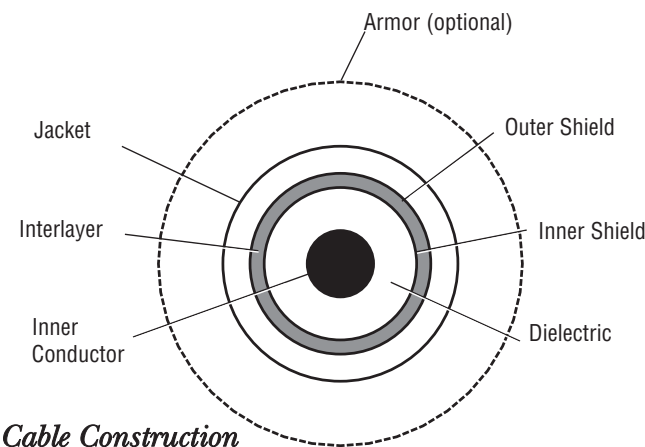
- Phase & Loss Stable
- Long Flex Life
- Triple Shielded Cable
- High Mating Cycle, Stainless Steel Connectors
- Rugged, Solder-Clamp Attachment
- Redundant, Long Life Strain Relief System
- ROHS Compliant

### Time's Silverline™ Product Guarantee

Times will repair or replace your SilverLine test cable at its option if the connector attachment fails within four months of shipment. This guarantee excludes cable or connector interface damage from misuse or abuse.



# SilverLine™ Specifications:



## Cable Construction

**Inner Conductor:** Solid Silver Plated Copper Clad Steel

**Dielectric:** Solid PTFE

**Shield:** Silver-Plated Copper Flat Ribbon Braid  
Aluminum-Polyimide Tape Interlayer  
36 GA Silver-Plated Copper Braid (90%k)

**Jacket:** Clear FEP

**Armor (Optional):**

**PVC Style:** Steel wire reinforced, thick wall, high flex life clear PVC

**Steel Style:** 100% coverage, square locked, galvanized steel hose, high angle steel braid and TPR jacket.

## Connectors

- Passivated stainless steel finish (Complete QMA right angle and QMA straight coupling nut only are nickel plated brass)
- QMA SureGrip™ coupling nut design
- Captive contact
- Thick wall interface (SMA)
- Gold plated beryllium copper center contacts
- PTFE dielectric
- Type N & SMA OneTurn™ (1 full rotation to mate)
- High temperature 7mm
- Knurl/hex coupling nut (Type N and TNC)
- Precision grade 7-16

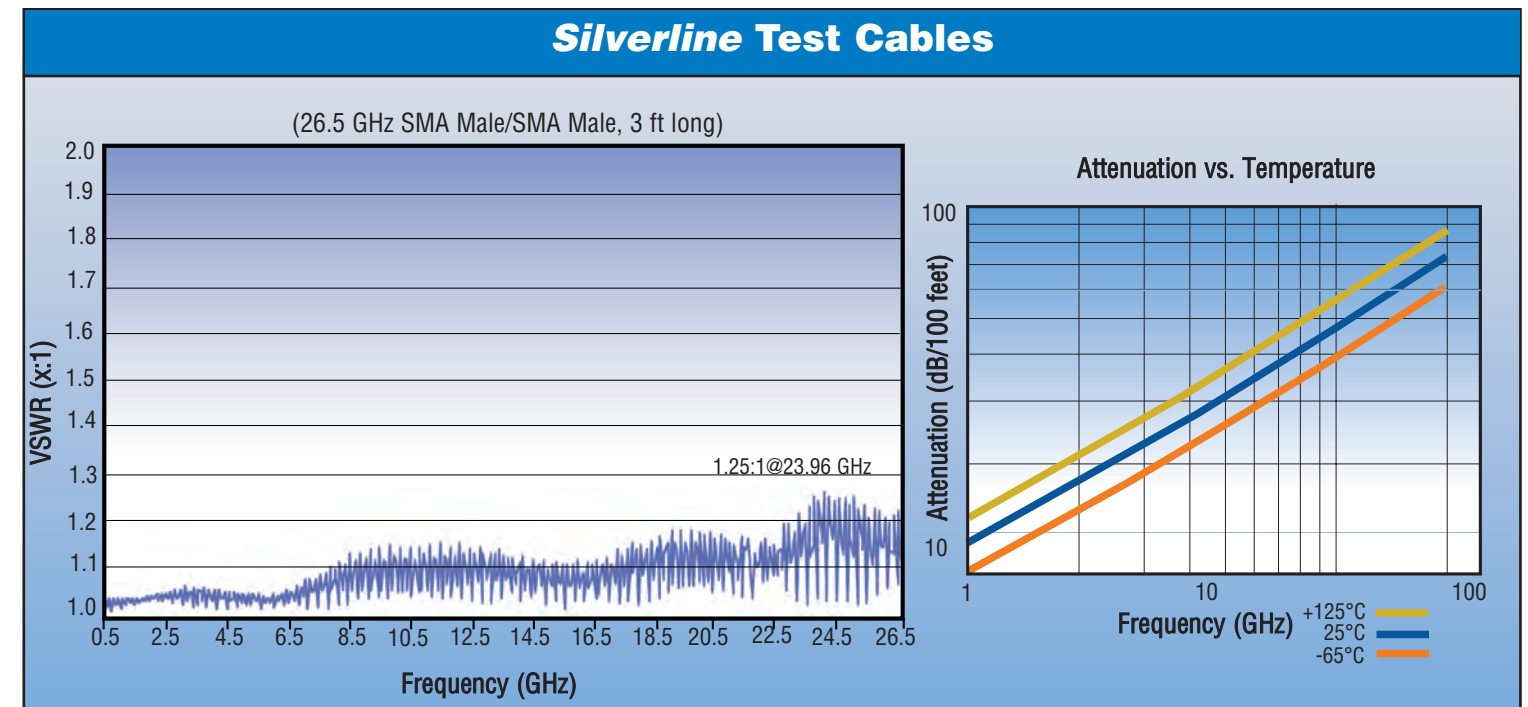
## Connector Attachment/Strain Relief

- Rugged, solder-clamp to braid. 175-300 lb pull force. Additional crimp system on armored version.
- Redundant triple layer strain relief system (Dual layer on armored version)

Physical & Mechanical Specifications		
Dimensions	in	mm
Inner Conductor	0.037	0.94
Dielectric	0.116	2.95
Inner Shield	0.126	3.20
Interlayer	0.132	3.35
Outer Shield	0.154	3.91
Jacket	0.195	4.95
Armor (optional)	0.450	11.50
Weight lbs./ft (kg/m)	Cable: 0.043 (0.064)	Armor: 0.066 (0.098)
Armor Crush Resistance	PVC: 1200 lbs. per linear inch - Steel: 1500 lbs. per linear inch	
Bend Radius: minimum	1	25
Connector Retention	Unarmored & Armored PVC > 175 lbs - Steel Armored > 300 lbs	
Mating Life Cycle	SMA, Type N: > 5000* QMA: > 2500*	
Length Tolerances	≤ 2 ft. or 0.75m, -0, +0.50" (12.7mm) > 2 ft. or 0.75m, -0, +2% of length	
Temperature Range	-67°/+221°F	-55°/+105°C

Electrical Specifications					
VSWR Max		4 GHz	6 GHz	18 GHz	26.5 GHz**
		BNC	1.20:1		
7-16 DIN, QMA			1.25:1		
	SMA, QMA 2.4mm, 3.5mm		1.20:1	1.30:1	1.35:1
	Type N, TNC			1.35:1 (R/As)	(SMA, 2.4mm, 3.5mm)
	7mm		1.25:1	1.35:1	
Impedance	50 ohms				
Velocity of Propagation	70 %				
Shielding Effectiveness	>100 dB				
Capacitance	29.4 pf/ft = 96.4 pf/meter				
Phase Stability (ten, 4" radius, 180° reverse bends)	DC to 10 GHz: +/- 1.1° 10 to 18 GHz: +/- 2.0°				
<b>Attenuation Max @ +77°F (+25°C)</b>					
Attenuation (GHz)		dB/100 ft	dB/100 m		
	1	12.2	40.0		
	2	18.0	59.0		
	6	34.2	112		
	12	52.5	172		
	18	68.4	224		
	26.5	88.7	290		
<b>Attenuation at Frequency (A=K1 √FMHz + K2 FMHz)</b>					
	K1	0.348			
	K2	0.0012			
<b>Power Handling @ +77°F (+25°C) (Sea Level) (Cable Only***)</b>					
Power Handling (GHz)		Watts (max.)			
	0.4	891			
	1	539			
	2	363			
	6	180			
	12	117			
	18	88			
	26.5	65			

\* SMA Male & Type N: Assumes use of calibrated torque wrench, proper care and cleaning of interface and mated connector is within mil spec limits. = QMA: Assumes proper use, care and cleaning.  
\*\* All 26.5 GHz cables are RF characterized on a production basis through 20.0 GHz.  
\*\*\* Connector configuration may limit cable assembly maximum power handling capability.  
Specifications subject to change without notice.



## Ordering Information

U = Unarmored (1ft (0.25m) Minimum Assembly Length)  
A = Armored (2 ft (0.5m) Minimum Assembly Length)  
S = Steel, torque and crush resistant armor 3ft (1.0m)

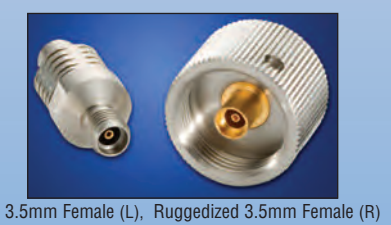
Feet: 0.50 ft Increments  
Example: -04.50F = 4.50 ft  
Meters: 0.25 m increments  
Example: -00.75M = 0.75 m

**SLXXX-XXXXXX-XX.XXX**  
F= Feet M= Meters

**Maximum Frequency**  
04 = 4.0 GHz (BNC equipped only)  
06 = 6.0 GHz  
18 = 18.0 GHz  
26 = 26.5 GHz (SMA, 2.4mm, 3.5mm only)

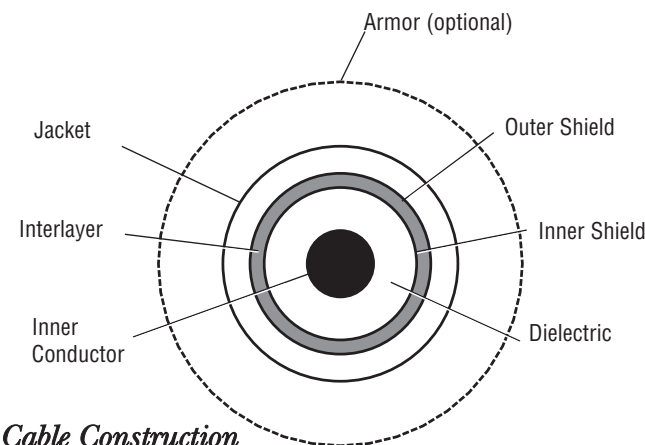
**Connector Codes (2 or 3 Characters)**  
BM = BNC Male  
SM = SMA Male  
S1T = SMA Male OneTurn™  
SF = SMA Female  
SMR = SMA Right Angle  
35M = 3.5mm Male  
35F = 3.5mm Female  
3RF = 3.5mm Ruggedized Female  
NM = Type N Male  
N1T = Type N Male OneTurn™  
NF = Type N Female  
NMR = Type N Right Angle  
70M = 7mm  
76M = (available as SilverLine TuffGrip only)  
76F = (available as SilverLine TuffGrip only)  
TM = ETNC Male (Extended range)  
TF = ETNC Female (Extended range)  
QMM = QMA Male (changeable interface see pg. 4)  
QMR = QMA Right Angle (changeable interface see pg. 4)

Labels on unarmored assemblies under 1.5 feet (0.5m) long remain loose to increase flexibility.  
Some connector combinations and/or lengths may be unavailable. Please contact Times or your Times authorized representative.



Specifications subject to change without notice.

# SilverLine™ Specifications:



## Cable Construction

**Inner Conductor:** Solid Silver Plated Copper Clad Steel

**Dielectric:** Solid PTFE

**Shield:** Silver-Plated Copper Flat Ribbon Braid  
Aluminum-Polyimide Tape Interlayer  
36 GA Silver-Plated Copper Braid (90%k)

**Jacket:** Clear FEP

**Armor (Optional):**

**PVC Style:** Steel wire reinforced, thick wall, high flex life clear PVC

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- QMA SureGrip™ coupling nut design
- Captive contact
- Thick wall interface (SMA)
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- PTFE dielectric
- Type N & SMA OneTurn™ (1 full rotation to mate)
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- Rugged, solder-clamp to braid. 175-300 lb pull force. Additional crimp system on armored version.
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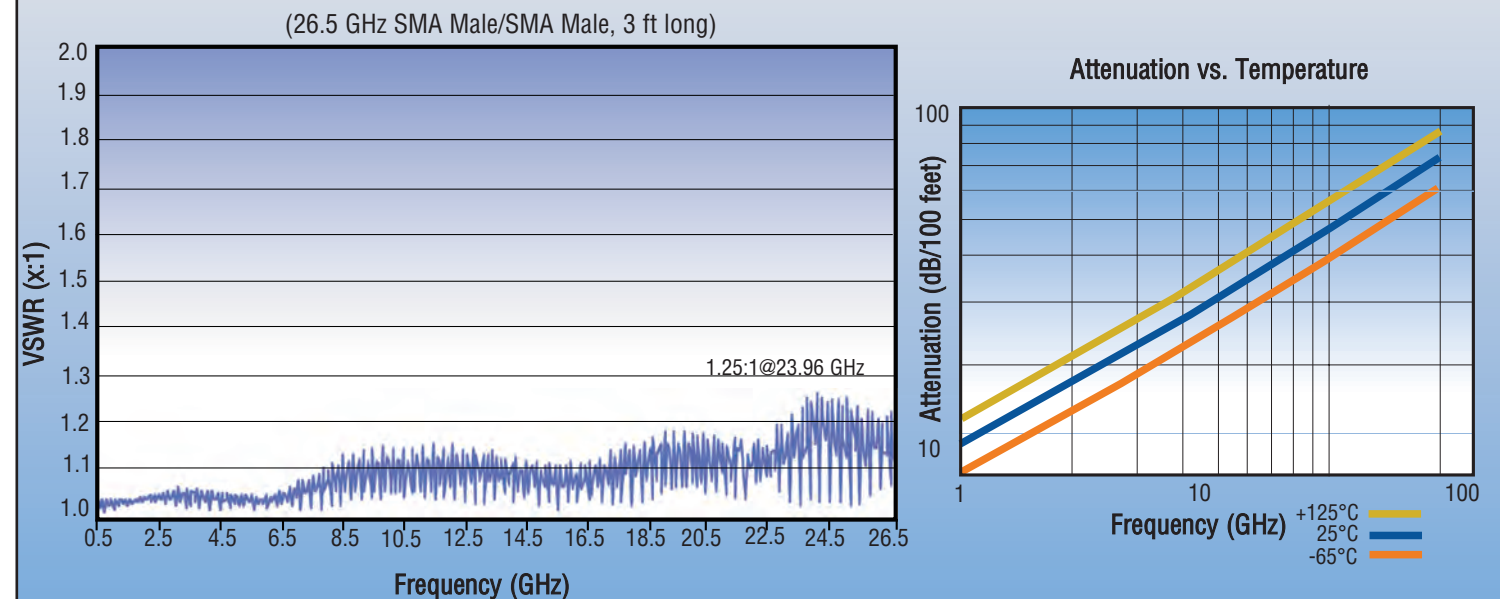
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Inner Conductor	0.037	0.94
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Armor (optional)	0.450	11.50
Weight lbs./ft (kg/m)	Cable: 0.043 (0.064)	Armor: 0.066 (0.098)
Armor Crush Resistance	PVC: 1200 lbs. per linear inch - Steel: 1500 lbs. per linear inch	
Bend Radius: minimum	1	25
Connector Retention	Unarmored & Armored PVC > 175 lbs - Steel Armored > 300 lbs	
Mating Life Cycle	SMA, Type N: > 5000* QMA: > 2500*	
Length Tolerances	≤ 2 ft. or 0.75m, -0, +0.50" (12.7mm) > 2 ft. or 0.75m, -0, +2% of length	
Temperature Range	-67°/+221°F	-55°/+105°C

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Impedance	50 ohms				
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Shielding Effectiveness	>100 dB				
Capacitance	29.4 pf/ft = 96.4 pf/meter				
Phase Stability (ten, 4" radius, 180° reverse bends)	DC to 10 GHz: +/- 1.1° 10 to 18 GHz: +/- 2.0°				
<b>Attenuation Max @ +77°F (+25°C)</b>					
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	K1	0.348			
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<b>Power Handling @ +77°F (+25°C) (Sea Level) (Cable Only***)</b>					
Power Handling (GHz)	Watts (max.)				
0.4	891				
1	539				
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18	88				
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\* SMA Male & Type N: Assumes use of calibrated torque wrench, proper care and cleaning of interface and mated connector is within mil spec limits. = QMA: Assumes proper use, care and cleaning.  
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## Silverline Test Cables



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S = Steel, torque and crush resistant armor 3ft (1.0m)

Feet: 0.50 ft Increments  
Example: -04.50F = 4.50 ft  
Meters: 0.25 m increments  
Example: -00.75M = 0.75 m

SLXXX-XXXXXX-XX.XXX F= Feet M= Meters

### Maximum Frequency

- 04 = 4.0 GHz (BNC equipped only)
- 06 = 6.0 GHz
- 18 = 18.0 GHz
- 26 = 26.5 GHz (SMA, 2.4mm, 3.5mm only)

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3.5mm Female (L), Ruggedized 3.5mm Female (R)

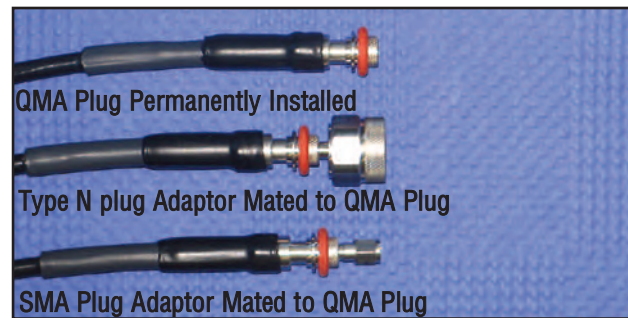
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## SilverLine™-QMA Changeable Interface System



**Specifications:**

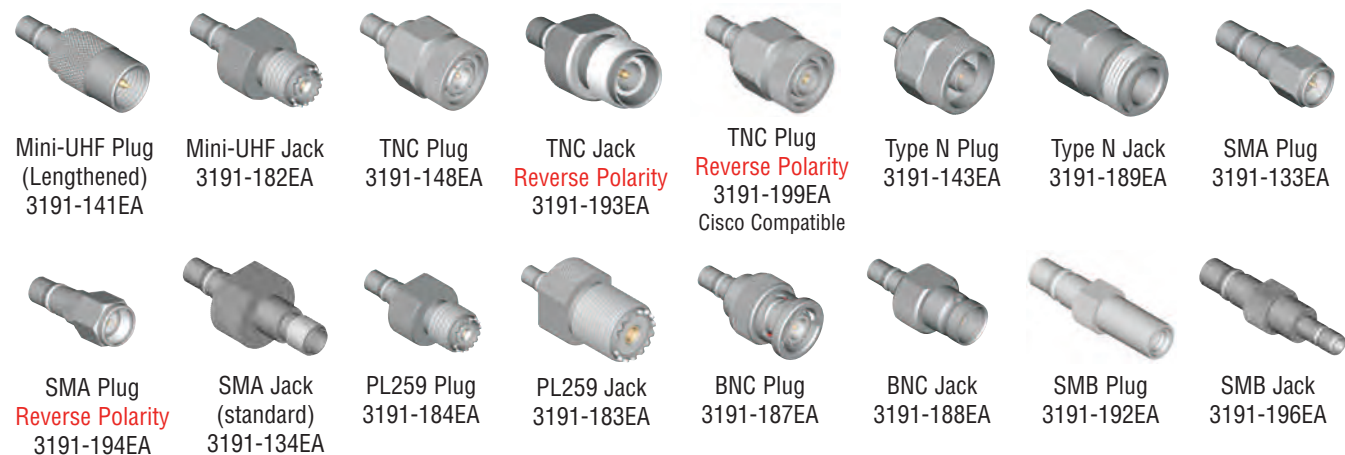
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**Features & Benefits:**

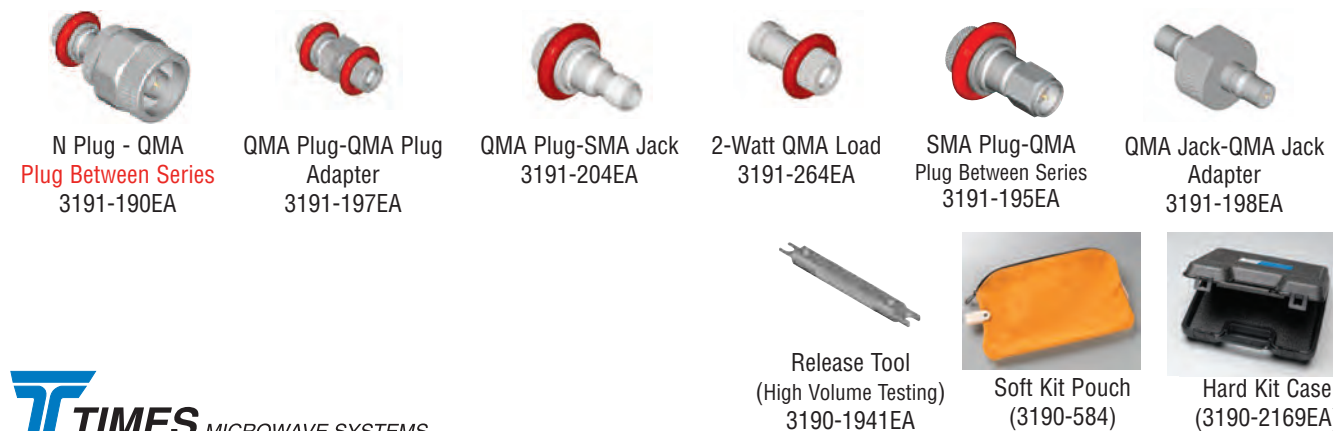
- High Frequency Operation
- 5000 Mate Life
- SureGrip™ Coupling Nut
- Smooth, Fast Retraction for Quick Changes
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### Between & Within Series Adaptors and Termination



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 www.timesmicrowave.com

# SilverLine™

ISO 9001 Certified

## Test Cables

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### Features & Benefits:

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- Redundant, Long Life Strain Relief System
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