TIMES
MICROWAVE SYSTEMS
AN AMPHENOL COMPANY

PhaseTrack®
LOW SMOKE

PhaseTrack® LOW SMOKE

Index

PAGE:

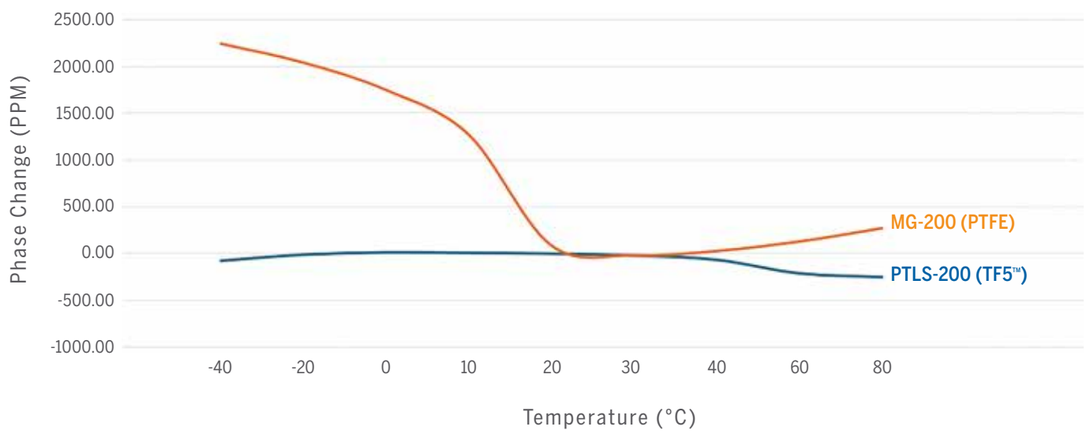
The PTLS assemblies are **highly customizable** and are available with a variety of industry standard or custom connectors

PhaseTrack® Low Smoke (PTLS) cable assemblies are low-smoke, zero-halogen, and phase-stable, featuring a proprietary foamed polyethylene dielectric TF5™. This material provides exceptional phase stability over a wide range of temperatures. PhaseTrack Low Smoke cable assemblies are ideal for shipboard and other MIL-DTL-17 applications demanding stable phase over temperature.

In confined spaces like ships and submarines, low-smoke cables are essential for safety. During a fire, these cables emit smoke that is less optically dense, improving visibility. Additionally, using halogen-free materials ensures the smoke is clearer and whiter, and it prevents the release of toxic gases.

The PhaseTrack® Low Smoke assemblies are available in four cable diameter sizes, from 0.2 to 0.6 inches, and meet HF through K band frequency requirements, including an optimized version for minimum loss in Ku band. They are supplied as a complete factory-tested assembly to assure minimal loss and optimal performance.

Phase Change VS Temperature



TIMES MICROWAVE SYSTEMS
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Applications

Shipboard and Naval

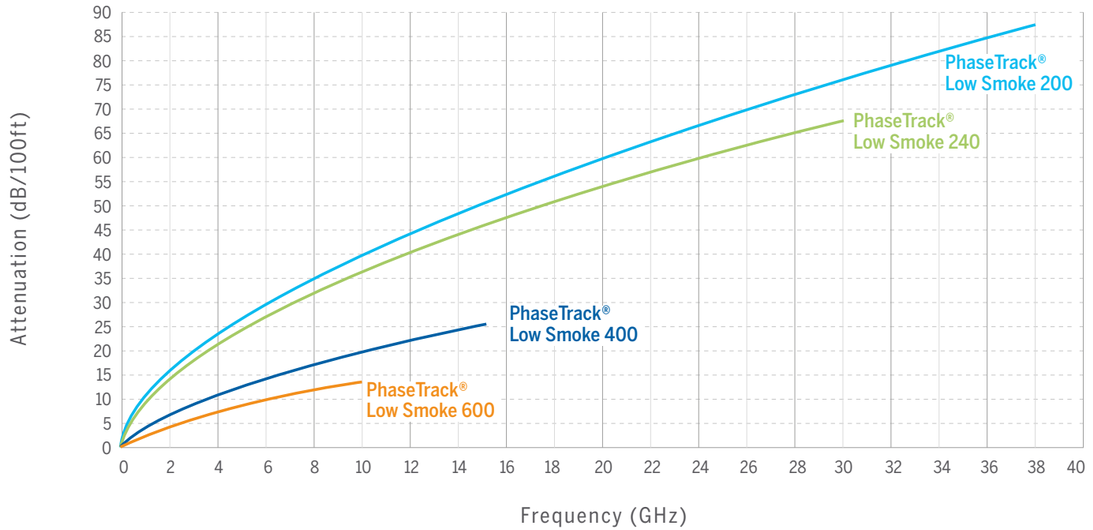
Fires are one of the most severe dangers in confined spaces such as ships and submarines. If a fire occurs, the cables powering the RF systems must not give off toxic or optically dense gases. Low-smoke, zero-halogen cable assemblies are essential, especially in areas where densely packed cables are installed near humans or sensitive electronic equipment.

Military and Defense

Military systems like radars, anti-missile defense, communications and many others rely on continuous transmission of RF Signals with accuracy and consistent speeds regardless of variations in temperature. In these systems, phase stability across temperature is key and the phase tracking characteristics of coaxial assemblies can greatly affect performance.

- **In-Building Riser Runs:** suitable for indoor installations within buildings
- **Antenna feeder runs**
- **Inter/intra cabinet jumpers**
- **Internal component equipment wiring**
- **Wireless Base Station Interconnect**

Attenuation vs Frequency



PhaseTrack® LOW SMOKE 200

TIMES MICROWAVE SYSTEMS
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Specifications

Impedance 50 Ohms

Op Temp -40 to +185°F -40 to +80°C

	Units	
Maximum Diameter	in (mm)	0.20 (5.1)
Weight	lb/ft (kg/m)	0.04 (0.05)
Max Operating Frequency	GHz	18
Minimum Bend Radius	in (mm)	1.13 (28.6)
Velocity of Propagation	%	83
Time Delay	ns/ft (ns/m)	1.22 (4.0)
Capacitance	pF/ft (pF/m)	24.8 (81.4)
Shielding Effectiveness	dB	-90

Calculation

$$IL = (K1 \times \sqrt{f} + K2 \times f) \times \text{Cable Length} + (\times 0.2\sqrt{f})$$

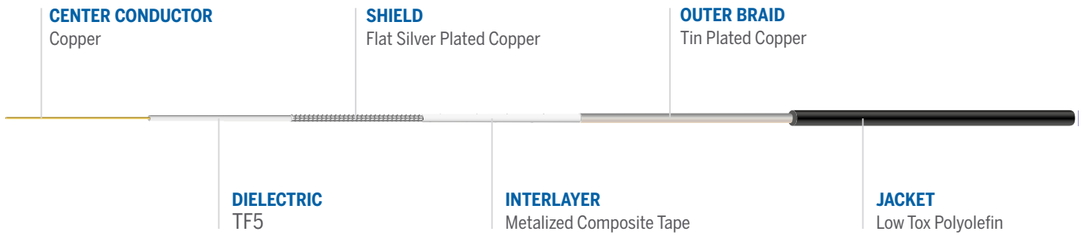
Cable Insertion Loss
f = Frequency (MHz)

Use K values with matching length unit

Connectors

K values	dB/ft	dB/m
K1	0.003492	0.011457
K2	0.000003	0.000011

Cable Details



*Refer to the Connector table on page 5 to select your desired connector

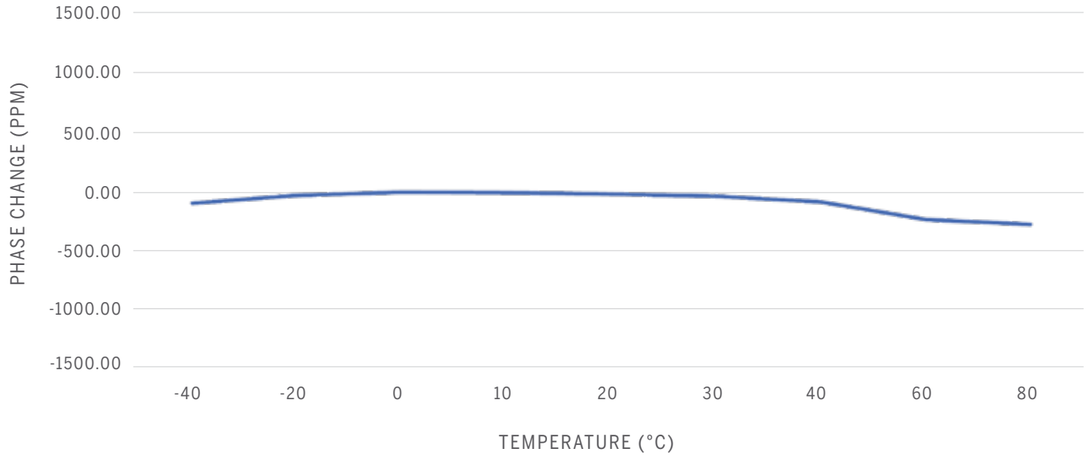
Connectors

	Gender	Description	Coupling Nut	Part Number	Stock Code	Connector Code	Max. Frequency
4.3/10	Male	Straight Plug	Hex	EZ-195-200-4310M-X	3190-8092	43M	6
		Right Angle Plug		EZ-195-200-4310M-RA-X	3190-8093	43MR	
7/16 DIN	Male	Straight Plug	Hex/Knurl	EZ-195-200-716M-X	3190-8102	DM	7.5
		Right Angle Plug		EZ-195-200-716M-RA-X	3190-8103	DMR	
BNC	Male	Straight Plug	Knurl	EZ-195-BM-X	3190-6141	BM	4
N	Female	Bulkhead Jacket	N/A	EZ-195-NF-BH-X	3190-6401	NFB	6
		Straight Jack		EZ-195-200-NF-X	3190-8091	NF	8
	Male	Straight Plug	Hex/Knurl	EZ-195-NMH-X	3190-6497	NM	6
		Right Angle Plug		TC-195-NMH-RA-D	3190-6542	NMR	
SMA	Female	Straight Jack	N/A	EZ-195-200-SF-X	3190-8002	SF	8
	Male	Straight Plug	Hex	EZ-195-SM-X	3190-6140	SM	6
		Right Angle Plug		EZ-195-SM-RA-X	3190-6431	SMR	
TNC	Female	Straight Jack	N/A	EZ-195-200-TF-BH-X	3190-8004	TFB	8
	Male	Straight Plug	Hex/Knurl	EZ-195-TM-X	3190-6496	TM	6
		Right Angle Plug	Hex	EZ-195-200-TM-RA-X	3190-8003	TMR	8

Assembly Ordering Guide

PTLS200	-XXX	XXX-	XX.X	X
Cable Code	Connector A	Connector B	Length	Units of measure: I = Inches, F = Feet, M = Meters

Phase Change VS Temperature (PPM)



PhaseTrack® LOW SMOKE 240

TIMES MICROWAVE SYSTEMS
AN AMPHENOL COMPANY

Specifications

Impedance 50 Ohms

Op Temp -40 to +185°F -40 to +80°C

	Units	
Maximum Diameter	in (mm)	0.25 (6.2)
Weight	lb/ft (kg/m)	0.05 (0.1)
Max Operating Frequency	GHz	18
Minimum Bend Radius	in (mm)	1.25 (31.8)
Velocity of Propagation	%	83
Time Delay	ns/ft (ns/m)	1.23 (4.0)
Capacitance	pF/ft (pF/m)	24.76 (81.2)
Shielding Effectiveness	dB	-90

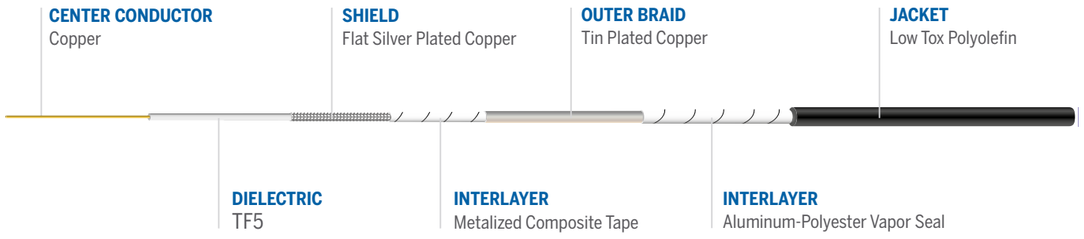
Calculation

$$IL = (K1 \times \sqrt{f} + K2 \times f) \times \text{Cable Length} + (\times 0.2\sqrt{f})$$

Cable Insertion Loss f = Frequency (MHz) | Use K values with matching length unit | Connectors

K values	dB/ft	dB/m
K1	0.002905	0.009530
K2	0.000005	0.000017

Cable Details



*Refer to the Connector table on page 7 to select your desired connector

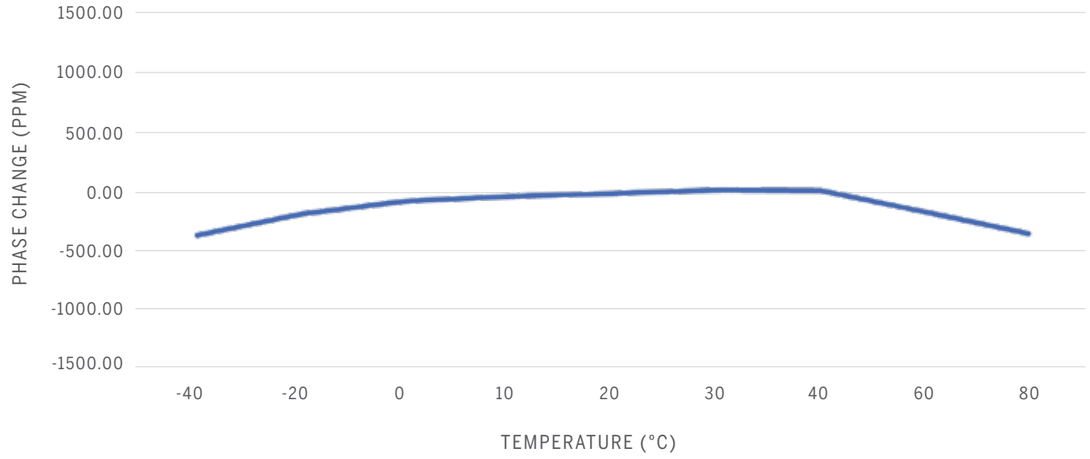
Connectors

	Gender	Description	Coupling Nut	Part Number	Stock Code	Connector Code	Max Frequency
4.3/10	Male	Straight Plug	Hex	EZ-240-4310M-X	3190-6386	43M	6
		Right Angle Plug		EZ-240-4310M-RA-X	3190-8094	43MR	
7/16 DIN	Male	Right Angle Plug	Hex/Knurl	EZ-240-716M-RA-X	3190-8104	DMR	7.5
N	Female	Straight Jack	N/A	EZ-240-NF-X	3190-2795	NF	6
		Bulkhead Jacket		EZ-240-NF-BH-X	3190-6316	NFB	
	Male	Straight Plug	Hex/Knurl	EZ-240-NMH-X	3190-6382	NM	
		Right Angle Plug		EZ-240-NMH-RA-X	3190-6143	NMR	
SMA	Female	Straight Jack	N/A	EZ-240-SF-X	3190-8008	SF	8
		Bulkhead Jacket		TC-240-SF-BH-SS-X	3190-2896	SFB	
	Male	Straight Plug	Hex	EZ-240-SM-X	3190-6319	SM	6
		Right Angle Plug		EZ-240-SM-RA-X	3190-6551	SMR	
TNC	Female	Straight Jack	N/A	EZ-240-TF-X	3190-6204	TF	6
		Bulkhead Jacket		EZ-240-TF-BH-X	3190-8009	TFB	8
	Male	Straight Plug	Hex/Knurl	EZ-240-TM-X	3190-6494	TM	6
		Right Angle Plug		EZ-240-TM-RA-X	3190-2726	TMR	

Assembly Ordering Guide

PTLS240	-XXX	XXX-	XX.X	X
Cable Code	Connector A	Connector B	Length	Units of measure: I = Inches, F = Feet, M = Meters

Phase Change VS Temperature (PPM)



PhaseTrack® LOW SMOKE 400

TIMES MICROWAVE SYSTEMS
AN AMPHENOL COMPANY

Specifications

Impedance 50 Ohms | Op Temp -40 to +185°F -40 to +80°C

	Units	
Maximum Diameter	in (mm)	0.41 (10.4)
Weight	lb/ft (kg/m)	0.10 (0.2)
Max Operating Frequency	GHz	10
Minimum Bend Radius	in (mm)	2.00 (50.8)
Velocity of Propagation	%	85
Time Delay	ns/ft (ns/m)	1.2 (3.94)
Capacitance	pF/ft (pF/m)	23.9 (78.40)
Shielding Effectiveness	dB	-90

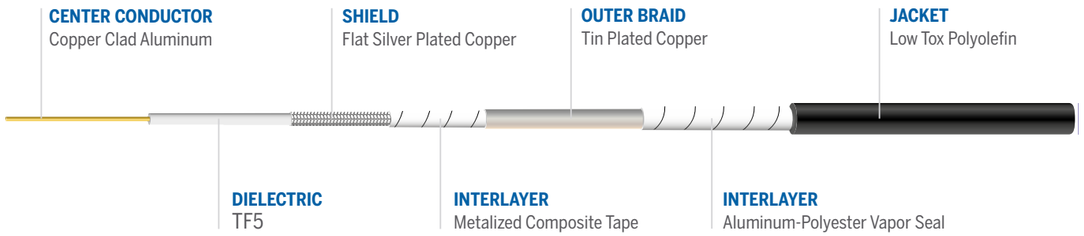
Calculation

$$IL = (K1 \times \sqrt{f} + K2 \times f) \times \text{Cable Length} + (\times 0.2\sqrt{f})$$

- (K1 x √(f) + K2 x f): Cable Insertion Loss; f = Frequency (MHz)
- Cable Length: Use K values with matching length unit
- (x0.2√f): Connectors

K values	dB/ft	dB/m
K1	0.00141872	0.00465482
K2	0.000005	0.000016

Cable Details



*Refer to the Connector table on page 9 to select your desired connector

Connectors

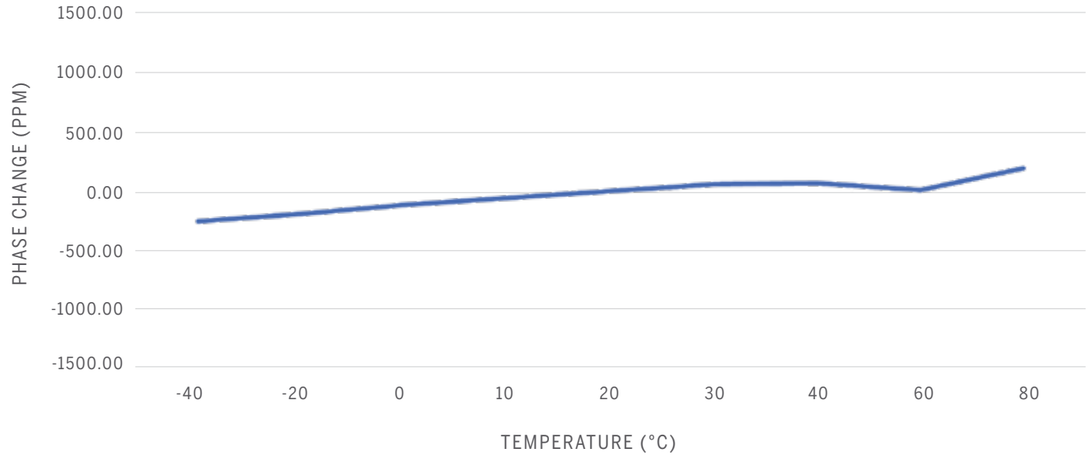
	Gender	Description	Coupling Nut	Part Number	Stock Code	Connector Code	Max. Frequency
4.3/10	Male	Straight plug	Hex	EZ-400-4310M-X	3190-8096	43M	6
		Right angle plug		EZ-400-4310M-RA-X	3190-8097	43MR	
7/16 DIN	Male	Straight plug	Hex	EZ-400-716M-X	3190-2524	DM	3
		Right angle plug		EZ-400-716M-RA-X	3190-2545	DMR	
BNC	Male	Straight plug	Knurl	EZ-400-BM-X	3190-2852	BM	4
		Right angle plug		EZ-400-BM-RA-X	3190-2847	BMR	
N	Female	Bulkhead Jacket	N/A	EZ-400-NF-BH-X	3190-6328	NFB	6
		Straight jack		EZ-400-NF-X	3190-2818	NF	
	Male	Straight plug	Hex/Knurl	EZ-400-NMH-X	3190-2590	NM	
		Right angle plug		EZ-400-NMH-RA-X	3190-6342	NMR	
SMA	Female	Straight jack	N/A	EZ-400-SF-X	3190-8023	SF	8
	Male	Straight plug	Hex	EZ-400-SM-X	3190-8021	SM	
		Right angle plug		EZ-400-SM-RA-X	3190-8022	SMR	
TNC	Female	Straight jack	N/A	EZ-400-TF-X	3190-3049	TF	6
		Bulkhead Jacket		EZ-400-TF-BH-X	3190-8024	TFB	8
	Male	Straight plug	Knurl	EZ-400-TM-X	3190-2533	TM	6
		Right angle plug	Hex/Knurl	EZ-400-TM-RA-X	3190-2800	TMR	

Assembly Ordering Guide

PTLS400 -XXX XXX- XX.X X

- PTLS400: Cable Code
- -XXX: Connector A
- XXX-: Connector B
- XX.X: Length
- X: Units of measure: I = Inches, F = Feet, M = Meters

Phase Change VS Temperature (PPM)



PhaseTrack® LOW SMOKE 600

TIMES MICROWAVE SYSTEMS
AN AMPHENOL COMPANY

Specifications

Impedance 50 Ohms

Op Temp -40 to +185°F -40 to +80°C

	Units	
Maximum Diameter	in (mm)	0.60 (15.2)
Weight	lb/ft (kg/m)	0.2 (0.27)
Max Operating Frequency	GHz	10
Minimum Bend Radius	in (mm)	3.00 (76.2)
Velocity of Propagation	%	86
Time Delay	ns/ft (ns/m)	1.18 (3.9)
Capacitance	pF/ft (pF/m)	23.9 (78.4)
Shielding Effectiveness	dB	-90

Calculation

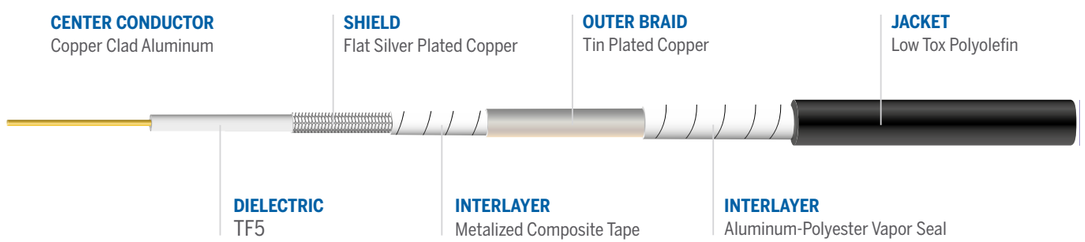
$$IL = (K1 \times \sqrt{f} + K2 \times f) \times \text{Cable Length} + (x0.2\sqrt{f})$$

Cable Insertion Loss
f = Frequency (MHz)

Use K values with matching length unit

K values	dB/ft	dB/m
K1	0.0921	0.003022
K2	0.000003	0.000008

Cable Details



*Refer to the Connector table on page 11 to select your desired connector

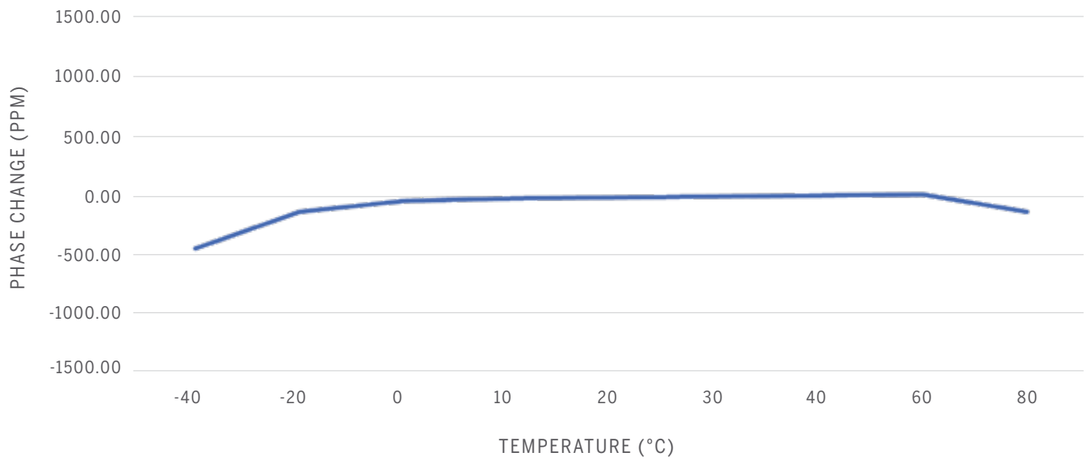
Connectors

	Gender	Description	Coupling Nut	Part Number	Stock Code	Connector Code	Max. Frequency
7/16 DIN	Female	Straight Jack	N/A	EZ-600-716F-X	3190-2447	DF	3
	Male	Straight Plug	Hex	EZ-600-716M-X	3190-2643	DM	
		Right Angle Plug		EZ-600-716M-RA-X	3190-6471	DMR	
4.3/10	Male	Straight Plug	Hex	EZ-600-4310M-X	3190-8100	43M	6
N	Female	Straight Jack	N/A	EZ-600-NF-X	3190-2817	NF	6
				EZ-600-NF-BH-X	3190-8034	NFB	8
	Male	Straight Plug	Hex/Knurl	EZ-600-NMH-X	3190-2627	NM	6
				EZ-600-NMH-RA-X	3190-6387	NMR	8
SMA	Male	Straight Plug	Hex	EZ-600-SM-X	3190-8111	SM	8
TNC	Female	Straight Jack	N/A	EZ-600-TF-X	3190-3050	TF	6
				EZ-600-TF-BH-X	3190-8035	TFB	8
	Male	Straight Plug	Hex/Knurl	EZ-600-TM-X	3190-2531	TM	6

Assembly Ordering Guide

PTLS600	-XXX	XXX-	XX.X	X
Cable Code	Connector A	Connector B	Length	Units of measure: I = Inches, F = Feet, M = Meters

Phase Change VS Temperature (PPM)



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Rev.2 - 6/2024