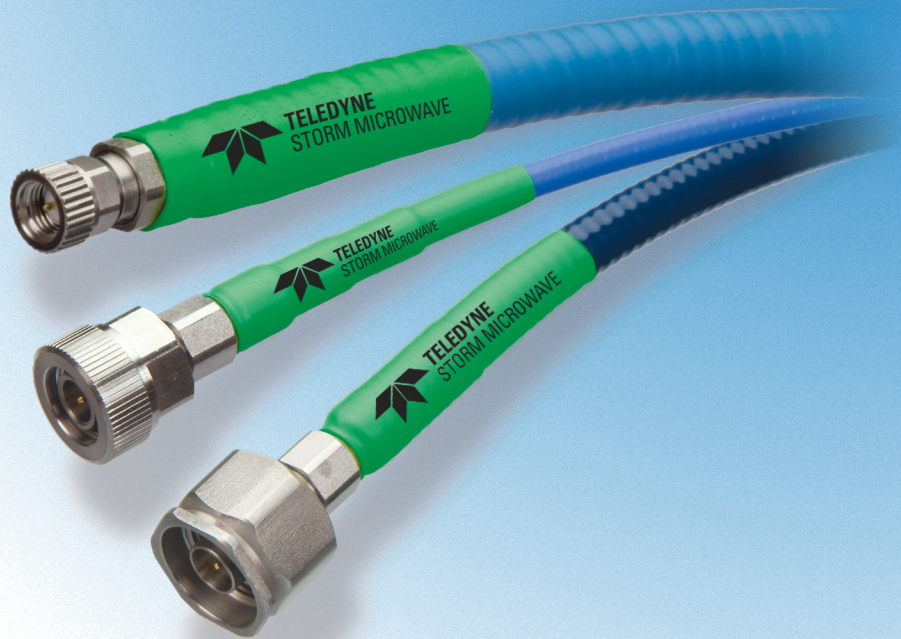


# PHASE MASTER<sup>®</sup>

## 190E SERIES

## ENHANCED



### HIGHLY SHIELDED PHASE STABLE ASSEMBLIES



**Does your application require cable assemblies offering some combination of phase stability and low loss, significant shielding effectiveness and increased durability?**

Consider **Phase Master<sup>®</sup> 190E** as your design-in option.

Compared to similar phase stable cables, the Phase Master<sup>®</sup> 190E's **enhanced, multilayer shield construction yields:**

- A high level of phase stability vs. temperature
- Reduced insertion loss & increased amplitude stability
- Increased shielding effectiveness (120 dB @ 1 GHz, min)
- Increased mechanical durability, especially torsion resistance
- Greater connector retention (>40 lbs straight pull with SMA connectors)

### FEATURES

- ~ MicroForm<sup>™</sup> construction
- ~ Multilayer laminate SPC shield construction
- ~ Robust connector attachment and captivation

### BENEFITS

- ~ Improved system performance
- ~ Less frequent calibration
- ~ More precise measurements
- ~ Reduced troubleshooting trying to find leakage sources
- ~ Increased assembly life
- ~ Maintains electrical stability over time and handling
- ~ Increased assembly life



**TELEDYNE  
STORM MICROWAVE**  
Everywhereyoulook<sup>™</sup>

High value microwave and  
electronic interconnect solutions

[www.teledynestorm.com](http://www.teledynestorm.com)

SPECIFICATIONS	PHASE MASTER® 190E		
	874	875	876
<b>Cable Designator</b>			
Diameter (in/mm)	0.204 / 5.18	0.435 / 11.04	0.349 / 8.86
Operating Frequency (Max, GHz)	26.5	26.5	26.5
Attenuation–Nom @ 2 GHz (dB/ft)	0.112	0.112	0.112
Attenuation–Nom @ 10 GHz (dB/ft)	0.261	0.261	0.261
Attenuation–Nom @ 18 GHz (dB/ft)	0.359	0.359	0.359
Attenuation–Nom @ 26.5 GHz (dB/ft)	0.446	0.446	0.446
Power Handling Average Power in Watts @ 1 GHz	700	700	700
Phase Stability vs. Temperature (ppm, nom, °C)	<500 from –55 to +85*	<500 from –55 to +85*	<500 from –55 to +85*
Shielding Effectiveness–Minimum‡ (dB @ 1 GHz)	> 110	> 110	> 110
Typical VSWR (2 straight connectors)	1.35 @ 18 GHz 1.40 @ 26.5 GHz	1.35 @ 18 GHz 1.40 @ 26.5 GHz	1.35 @ 18 GHz 1.40 @ 26.5 GHz
Min Bend Radius (in/mm)	1/25.4 static 2/50.8 dynamic	1.38 / 35.05	1 / 25.4
Connector Retention up to 18 GHz, straight pull (lbs/kg)	40/18.14	40/18.14	40/18.14
Weight (grams/ft)	21.3	64.3	39.3
Velocity of Propagation (%)	82.4	82.4	82.4
Operating Temperature Range (°C)	–55 to +125	–55 to +125	–55 to +125

\* <800 up to +125

† ± 90 degree bends around a 4" mandrel  
‡ Subject to connector choice

*Specifications subject to change without notice.*

## CABLE CONSTRUCTION

Phase Master® 190E cable features the proprietary combination of high performance, tape-wrapped PTFE dielectric and helically wrapped SPC foil shield common to all Phase Master® cables, plus a surrounding laminate of multiple SPC flat wire shields.

This enhanced Phase Master® construction yields not only a high level of phase stability vs. temperature and flexure but significantly increased shielding effectiveness and increased product durability, especially with regard to torsion and connector retention.



**A** Silver-plated (OFHC) copper center conductor

**B** Expanded PTFE dielectric

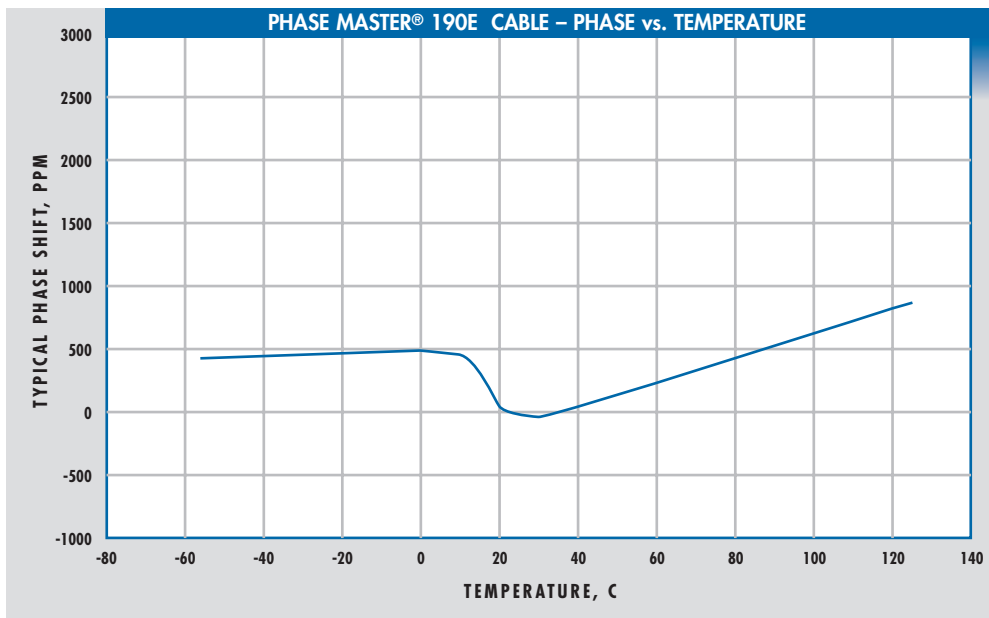
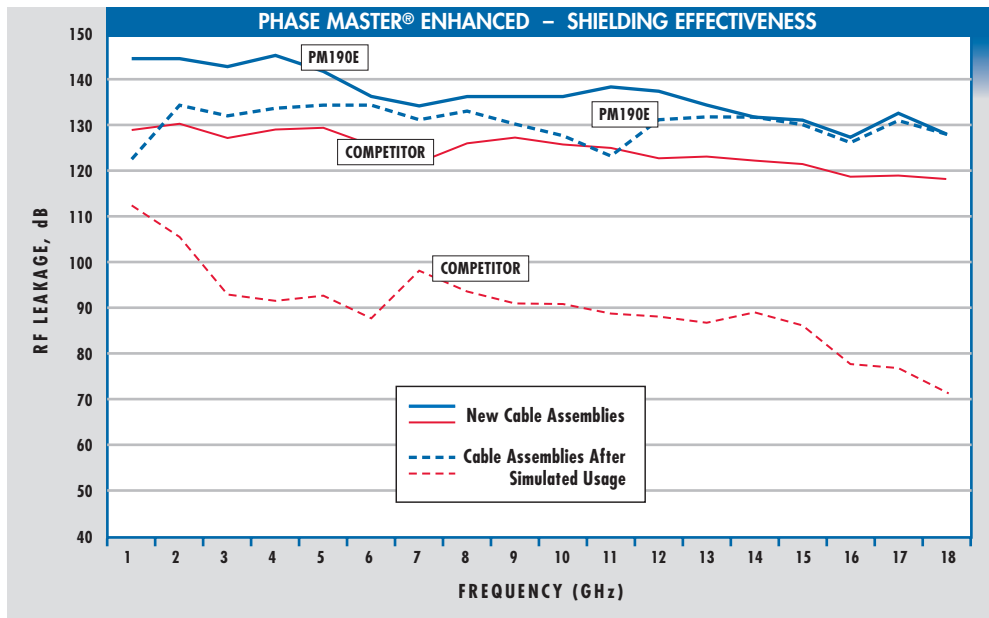
**C** Helically wrapped silver-plated copper foil

**D** Silver-plated copper braid

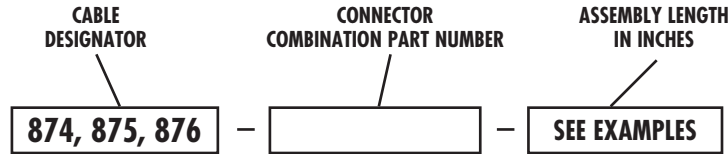
**E** Helically wrapped silver-plated copper foil

**F** Silver-plated copper braid

**G** Extruded blue FEP jacket



■ **ORDERING INFORMATION: Part Number Designation**



**874** - PM 190E (Unarmored)

**875** - PM 190EA (Hard Armored; polyolefin jacket)

**876** - PM 190ER (Ruggedized; polyurethane jacket)

**EXAMPLES:**

874-0404-048 = Unarmored Phase Master<sup>®</sup> 190E, 3.5 mm SP to 3.5 mm SP (assembly operates to 26.5 GHz), **48 inches**

876-0606-120 = Ruggedized Phase Master<sup>®</sup> 190E, SMA SJ to SMA SJ (assembly operates to 18 GHz), **120 inches**

■ **CONNECTOR COMBINATION PART NUMBERS\***

		CONNECTOR OPERATING FREQUENCY						
		26.5 GHz			18 GHz			
		3.5 mm NMD SJ	3.5 mm SP	3.5 mm SJ	SMA SP	SMA SJ	N SP	TNC SP
26.5 GHz	3.5 mm NMD SJ	0505	0405	0507	0105	0506	0305	0205
	3.5 mm SP	0405	0404	0407	0104	0406	0304	0204
	3.5 mm SJ	0507	0407	0707	0107	0607	0307	0207
18 GHz	SMA SP	0105	0104	0107	0101	0106	0103	0102
	SMA SJ	0506	0406	0607	0106	0606	0306	0206
	N SP	0305	0304	0307	0103	0306	0303	0203
	TNC SP	0205	0204	0207	0102	0206	0203	0202

CONNECTOR CODES	
SP	Straight Plug
SJ	Straight Jack
NMD	Ruggedized Test Port Connector

\* Other connector styles available, including #8 Pin and Socket 38999; consult Storm