

# TIMES MICROWAVE SYSTEMS

A Smiths Group plc company

## LMR-900 Flexible Low Loss Communications Coax

### Ideal for...

- Medium Antenna Feeder runs (no jumpers required)
- Jumper Assemblies for 1-5/8" & 2-1/4" Feeders
- Any application (e.g. WLL, LMR, Paging, PCS, Cellular) requiring an easily routed, low loss RF cable



• **LMR®-DB** is identical to standard LMR plus has the advantage of being watertight. The addition of waterproofing compound in and around the foil/braid insures continuous reliable service should the jacket be inadvertently damaged during installation or in the future.

• **LMR®-FR** is a non-halogen (non-toxic), low smoke, fire retardant cable designed for in-building runs that can be routed anywhere except air handling plenums. LMR-FR has a UL/NEC & CSA rating of 'CMR/MPR' and 'FT4' respectively.

• **Flexibility** and bendability are hallmarks of the LMR-900 cable design. The flexible outer conductor enables the tightest bend radius available for any cable of similar size and performance.

• **Low Loss** is another hallmark feature of LMR-900. Size for size LMR has the lowest loss of any flexible cable and comparable loss to semirigid hard-line cables.

• **RF Shielding** is 50 dB greater than typical single shielded coax (40 dB). The multi-ply bonded foil outer conductor is rated conservatively at > 90 dB (i.e. >180 dB between two adjacent cables).

• **Weatherability:** LMR-900 cables designed for outdoor exposure incorporate the best materials for UV resistance and have life expectancy in excess of 20 years.

• **Connectors:** A selection of connectors including type-N, 7/16 DIN, and 7/8 EIA flanges are available for LMR-900. Other interfaces are available on request. Transition to interfaces smaller than type-N is best accomplished with a short jumper cable.

• **Cable Assemblies:** All LMR-900 cable types are available as pre-terminated cable assemblies. Refer to the section on FlexTech for further details.

Part Description				
Part N.	Application	Jacket	Color	Stock Code
LMR-900-DB	Outdoor/Watertight	PE	Black	54094
LMR-900-FR	Indoor -Riser CMR	FRPE	Black	54033

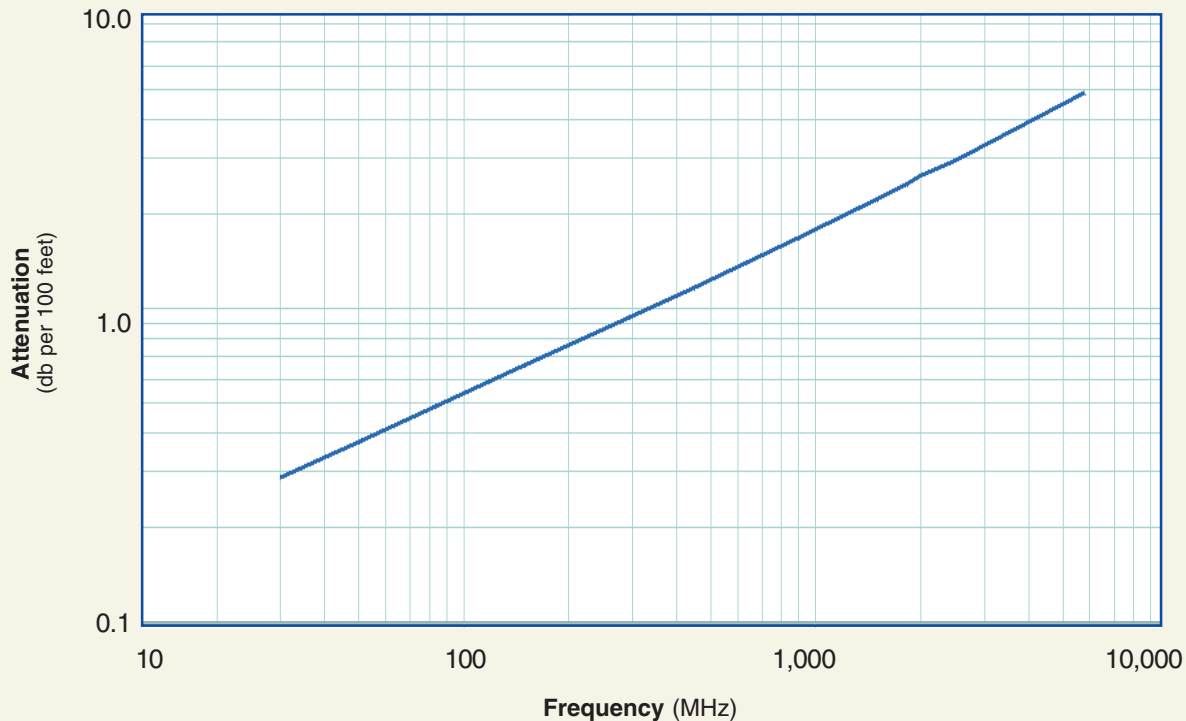
Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	BC Tube	0.262	(6.65)
Dielectric	Foam PE	0.680	(17.27)
Outer Conductor	Aluminum Tape	0.686	(17.42)
Overall Braid	Tinned Copper	0.732	(18.59)
Jacket	(see table above)	0.870	(22.10)

Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	3.00	(76.2)
Bend Radius: repeated	in. (mm)	9.0	(228.6)
Bending Moment	ft-lb (N-m)	9.0	(12.20)
Weight	lb/ft (kg/m)	0.266	(0.40)
Tensile Strength	lb (kg)	750	(340.5)
Flat Plate Crush	lb/in. (kg/mm)	100	(1.79)

Environmental Specifications		
Performance Property	°F	°C
Installation Temperature Range	-40/+185	-40/+85
Storage Temperature Range	-94/+185	-70/+185
Operating Temperature Range	-40/+185	-40/+85

Electrical Specifications			
Performance Property	Units	US	(metric)
Cutoff Frequency	GHz	6.9	
Velocity of Propagation	%	87	
Dielectric Constant	NA	1.32	
Time Delay	nS/ft (nS/m)	1.17	(3.83)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	23.4	(76.6)
Inductance	uH/ft (uH/m)	0.058	(0.19)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	0.54	(1.8)
Outer Conductor	ohms/1000ft (/km)	0.55	(1.8)
Voltage Withstand	Volts DC	5000	
Jacket Spark	Volts RMS	8000	
Peak Power	kW	62	

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
Attenuation dB/100 ft	0.3	0.4	0.7	0.8	1.2	1.7	2.2	2.5	2.6	3.0	4.9
Attenuation dB/100 m	0.9	1.2	2.2	2.6	3.8	5.6	7.4	8.2	8.6	9.8	16.0
Avg. Power kW	8.89	6.85	3.89	3.19	2.19	1.51	1.14	1.03	0.97	0.86	0.52

Calculate Attenuation =  
 $(0.051770) \cdot \sqrt{\text{FMHz}} + (0.000160) \cdot \text{FMHz}$  (interactive calculator available at <http://www.timesmicrowave/telecom>)

Attenuation:  
 VSWR=1.0; Ambient = +25°C (77°F)

Power:  
 VSWR=1.0; Ambient = +40°C; Inner Conductor = 100°C (212°F); Sea Level; dry air; atmospheric pressure; no solar loading

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## Connectors

Interface	Description	Part Number	Stock Code	VSWR** Freq. (GHz)	Coupling Nut	Inner Contact Attach	Outer Contact Attach	Finish* Body /Pin	Length in (mm)	Width in (mm)	Weight lb (g)
N Male	Straight Plug	EZ-900-NMC-2	3190-1262	<1.25:1 (6)	Hex	Press Fit	Clamp	S/S	2.0 (51)	1.38 (35.1)	0.463 (210.0)
N Female	Straight Jack	EZ-900-NFC-2	3190-1263	<1.25:1 (6)	NA	Press Fit	Clamp	SS	20 (51)	1.38 (35.1)	0.443 (200.9)
7-16 DIN Male	Straight Plug	EZ-900-716MC	3190-333	<1.25:1 (2.5)	Hex	Press Fit	Clamp	SS	20 ( 51)	1.44 (36.6)	0.485 (220.0)
7-16 DIN Male	Right Angle	EZ-900-716-MC-RA	3190-614	<1.35:1 (2.5)	Hex	Press Fit	Clamp	SS	27 (69)	2.15 (55.0)	1.150 (521.6)
7-16 DIN Female	Straight Jack	EZ-900-716FC	3190-334	<1.25:1 (2.5)	NA	Press Fit	Clamp	SS	20 (51)	1.38 (35.1)	0.379 (171.9)
7/8 EIA	Straight Plug	EZ-900-78EIA-2	3190-1282	<1.25:1 (2.5)	NA	Press Fit	Clamp	SS	30 ( 76)	2.24 (56.9)	1.013 (459.5)

\* Finish metals: N=Nickel, S=Silver, G=Gold, SS=Stainless Steel, A=Alballoy \*\*VSWR spec based on 3 foot cable with a connector pair



## Install Tools

Type	Part Number	Stock Code	Description
Strip Tool	ST-900/1200C	3190-311	For LMR 900 & 1200 Clamp Style Connectors
Strip Tool	ST-900C	3190-1310	For LMR 900 Clamp Style Connectors
Midspan Strip Tool	GST-900A	3190-435	For Ground Strap Attachment
Wrenches	WR-900	3190-510	1-1/4" Box Wrench (2 required)
Cutting Tool	CCT-01	3190-1544	Cable end flush cut tool
Replacement Blades	RB-01	3190-1609	Replacement blades for cutting tool



## Accessories

Type	Part Number	Stock Code	Description
Ground Kit	GK-S900T	GK-S900T	Standard Grounding Kit (each)
Hoisting Grip	HG-900T	HG-900T	Split/Laced Type (each)
Cold Shrink	CS-A900T	CS-A900T	Cable to Antenna Junction (each)
Cold Shrink	CS-90120T	CS-90120T	LMR-900 to -1200 Junction (each)
Cold Shrink	CS-90170T	CS-90170T	LMR-900 to -1700 Junction (each)
Stand. Entry Port Cushion	SC-900T	SC-900T	Three Cables (each)
Standard Entry Panels			Full Range of Port Styles/Combinations Available
Hanger Blocks	CB-900T	CB-900T	Dual Cable Support Block (kit of 10)
Hanger Block Supporting Hardware			Complete Range of Supporting Hardware & Adapters Available
Snap-in Hangers	SH-U900T	SH-U900T	Snap-in Hanger (Kit of 10)