

LMR-400

Flexible Communications Cable

Ideal for...

- Drop-in replacement for RG-8/9913 Air-Dielectric type Cable
- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application (e.g. WLL, GPS, LMR) requiring an easily routed, low loss RF cable



• **Flexible:** With a 1-inch minimum bend radius, LMR-400 cable can be easily routed into and through tight spaces without kinking. The LMR bonded-tape outer conductor provides superior flexibility and ease of bending compared to corrugated copper or smooth wall copper hard-line cables.

• **Low Loss:** LMR-400 has the lowest loss of any RG8/RG213 'type' cable. This is achieved through the use of a high velocity gas-injected closed cell foam dielectric and bonded aluminum tape outer conductor.

• **Weatherproof:** The UV protected black polyethylene jacket makes the cable rugged and resistant to the full range of outdoor environments. The DB version of the cable includes a water blocking material within the braid to protect the cable from moisture ingress and eliminate any potential for corrosion in harsh environments or should the jacket become damaged. Various jacket materials are available to address other indoor and outdoor requirements.

• **RF Shielding:** The bonded aluminum tape outer conductor is overlapped to provide 100% coverage, resulting in >90 dB RF shielding (>180 dB crosstalk) and excellent interference immunity (ingress and egress).

• **Phase Stability:** The intimately bonded structure and foam dielectric of LMR cables provide excellent phase stability over temperature and with bending. The high velocity dielectric results in superior phase stability as compared with solid and air-spaced dielectric cables.

• **Connectors and Assemblies:** Times Microwave provides **FlexTech™** jumper cable assemblies fabricated with LMR-400-DB watertight cable and a variety of connector interface combinations (ref: FlexTech pages). Custom assemblies with phase matching, insertion loss matching, and other special electrical or marking requirements can also be provided. A full range of connectors, including 'EZ' install (non-solder) types,

Part Description

| Part Number | Designation | Jacket | Stock Code |
|-------------------|------------------------|--------------|------------|
| LMR-400 | Standard outdoor cable | Polyethylene | 54001 |
| LMR-400-DB | Watertight cable | Polyethylene | 54091 |
| LMR-400-FR | CMR/MPP (PCC-FT4) | Non-Halogen | 54030 |
| LMR-400-PVC | Indoor cable (CATVR) | PVC | 54073 |
| LMR-400-UltraFlex | UltraFlex cable | TPE | 54040 |
| LMR-400-LLPL | CMP/MPP (PCC-FT6) | Plenum | 54070 |

NOTE: See LMR-LLPL catalog on web site for Plenum connectors.



TIMES MICROWAVE SYSTEMS

A Smiths Industries company

358 Hall Ave., Wallingford, CT, 06492-5039 U.S.A.
Phone: 203-949-8400 Fax: 203-949-8423

is available for LMR-400 cable as shown on the next page.

- **LMR-LLPL LowLoss Plenum:** Refer to LMR In-Building Communications catalog on web site for details.

Mechanical Specifications

| | | |
|---------------------|--------------|-----------|
| Minimum bend radius | 1.0 in | 25.4 mm |
| Bending moment | 0.5 ft lbs | 0.68 N-m |
| Weight | 0.068 lbs/ft | 0.10 kg/m |
| Tensile strength | 160 lbs | 72.6 kG |
| Flat plate crush | 40 lb/in | 0.71 g/mm |

Construction Specifications

| Part Designation | Material | Inches | mm |
|------------------|--------------------|--------|-------|
| Inner conductor | Solid BCCAl | 0.108 | 2.74 |
| Dielectric | Foam polyethylene | 0.285 | 7.24 |
| Outer conductor | Aluminum tape | 0.291 | 7.39 |
| Overall braid | Tinned copper | 0.320 | 8.13 |
| Standard jacket | Black polyethylene | 0.405 | 10.29 |

Environmental Specifications

| | °F | °C |
|--------------------------------|----------|---------|
| Installation temperature range | -40/+185 | -40/+85 |
| Storage temperature range | -94/+185 | -70/+85 |
| Operating temperature range | -40/+185 | -40/+85 |

Electrical Specifications

| | | |
|---|--------------|------------|
| Cutoff frequency | 16.2 GHz* | |
| Velocity of propagation | 85% | |
| Voltage withstand | 2,500 VDC | |
| Peak power | 16 kW | |
| DC resistance | | |
| Inner conductor, ohms | 1.39/1,000' | 4.56/km |
| Outer conductor, ohms | 1.65 /1,000' | 5.41/km |
| Jacket spark | 8,000 VRMS | |
| Impedance | 50 ohms | |
| Capacitance | 23.9 pF/ft | 78.40 pF/m |
| Inductance | 0.060 uH/ft | 0.20 uH/m |
| Shielding effectiveness | >90 dB | |
| Phase stability | <10 ppm/°C | |
| *Consult factory for applications over 6 GHz. | | |

| Frequency MHz | Attenuation | | Avg. Power kW |
|--|-------------|----------|------------------|
| | dB/100 ft | dB/100 m | |
| 30 MHz | 0.7 | 2.2 | 3.3 |
| 50 MHz | 0.9 | 2.9 | 2.6 |
| 150 MHz | 1.5 | 5.0 | 1.5 |
| 220 MHz | 1.9 | 6.1 | 1.2 |
| 450 MHz | 2.7 | 8.9 | 0.83 |
| 900 MHz | 3.9 | 12.8 | 0.58 |
| 1500 MHz | 5.1 | 16.8 | 0.44 |
| 1800 MHz | 5.7 | 18.6 | 0.40 |
| 2000 MHz | 6.0 | 19.6 | 0.37 |
| 2500 MHz | 6.8 | 22.2 | 0.33 |
| 5800 MHz | 10.8 | 35.5 | 0.21 |
| Add 15% to tabulated attenuation for LMR-UltraFlex | | | |
| Calculate Attenuation = (0.12229) • √FMHz + (0.00026) • FMHz (interactive calculator available at http://www.timesmicrowave.com) | | | |
| 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 | | | |