

## LMR<sup>®</sup>-1200 Flexible Low Loss Communications Coax

### Ideal for...

- Medium Antenna Feeder runs
- Jumper Assemblies for 1-5/8" & 2-1/4" Feeders
- Building-Top Sites
- Any application (e.g. WLL, GPS, LMR, WLAN, WISP, WiMax, SCADA, Mobile Antennas) requiring an easily routed, low loss RF cable



• **LMR<sup>®</sup>-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<sup>®</sup>-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' and 'FT4' respectively. In addition, the LMR-FR series is MSHA-P rated for mining applications.

• **Flexibility** and bendability are hallmarks of the LMR-1200 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-1200. 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-1200 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-1200. 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-1200 cable types are available as pre-terminated cable assemblies. Refer to the section on FlexTech for further details.

| Part Description |                    |        |       |            |
|------------------|--------------------|--------|-------|------------|
| Part Number      | Application        | Jacket | Color | Stock Code |
| LMR-1200-DB      | Outdoor/Watertight | PE     | Black | 54095      |
| LMR-1200-FR      | Indoor -Riser CMR  | FRPE   | Black | 54034      |

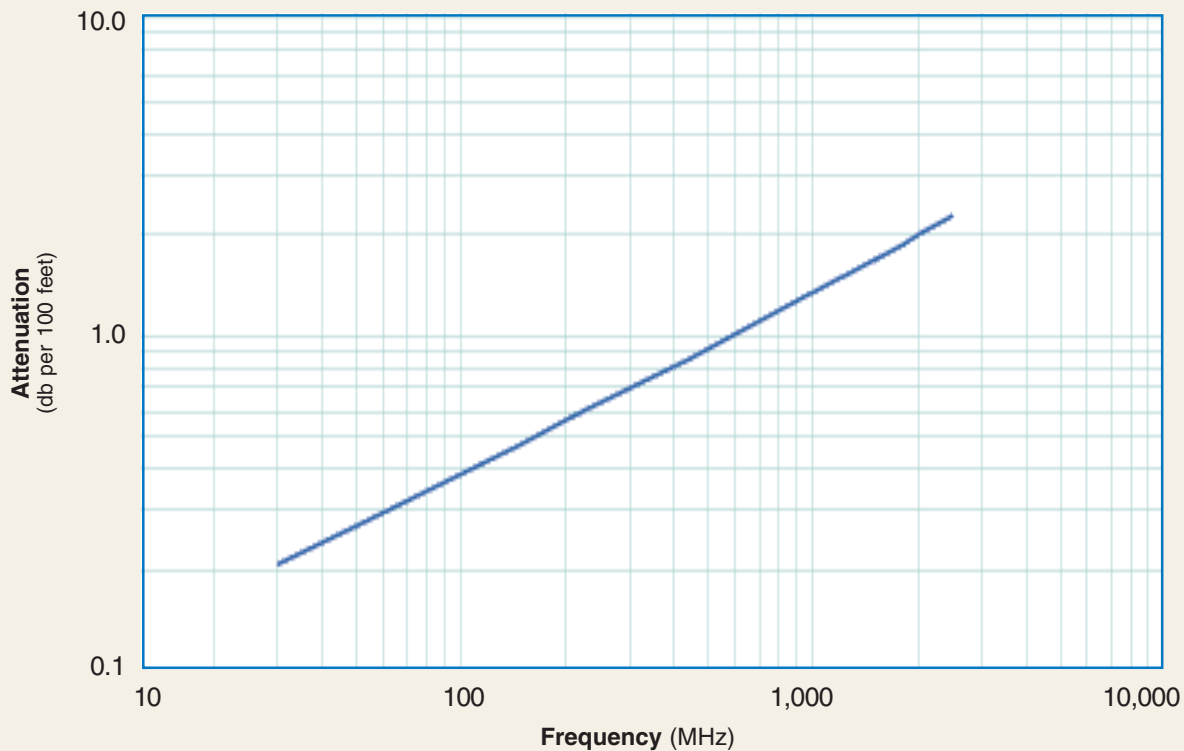
| Construction Specifications |                    |       |         |
|-----------------------------|--------------------|-------|---------|
| Description                 | Material           | In.   | (mm)    |
| Inner Conductor             | BC Tube (.309" ID) | 0.349 | (8.86)  |
| Dielectric                  | Foam PE            | 0.920 | (23.37) |
| Outer Conductor             | Aluminum Tape      | 0.926 | (23.52) |
| Overall Braid               | Tinned Copper      | 0.972 | (24.69) |
| Jacket                      | (see table above)  | 1.200 | (30.48) |

| Mechanical Specifications |                |       |          |
|---------------------------|----------------|-------|----------|
| Performance Property      | Units          | US    | (metric) |
| Bend Radius: installation | in. (mm)       | 6.50  | (165.1)  |
| Bend Radius: repeated     | in. (mm)       | 12.0  | (304.8)  |
| Bending Moment            | ft-lb (N-m)    | 15    | (20.34)  |
| Weight                    | lb/ft (kg/m)   | 0.448 | (0.67)   |
| Tensile Strength          | lb (kg)        | 1300  | (590.2)  |
| Flat Plate Crush          | lb/in. (kg/mm) | 250   | (4.47)   |

| Environmental Specifications   |          |         |
|--------------------------------|----------|---------|
| Performance Property           | °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 |                   |       |          |
|---------------------------|-------------------|-------|----------|
| Performance Property      | Units             | US    | (metric) |
| Cutoff Frequency          | GHz               |       | 5.2      |
| Velocity of Propagation   | %                 |       | 88       |
| Dielectric Constant       | NA                |       | 1.29     |
| Time Delay                | nS/ft (nS/m)      | 1.15  | (3.79)   |
| Impedance                 | ohms              |       | 50       |
| Capacitance               | pF/ft (pF/m)      | 23.1  | (75.8)   |
| Inductance                | uH/ft (uH/m)      | 0.058 | (0.19)   |
| Shielding Effectiveness   | dB                |       | >90      |
| DC Resistance             |                   |       |          |
| Inner Conductor           | ohms/1000ft (/km) | 0.32  | (1.0)    |
| Outer Conductor           | ohms/1000ft (/km) | 0.37  | (1.2)    |
| Voltage Withstand         | Volts DC          |       | 6000     |
| Jacket Spark              | Volts RMS         |       | 8000     |
| Peak Power                | kW                |       | 90       |

Attenuation vs. Frequency (typical)



| Frequency (MHz)       | 30    | 50   | 150  | 220  | 450  | 900  | 1500 | 1800 | 2000 | 2500 |
|-----------------------|-------|------|------|------|------|------|------|------|------|------|
| Attenuation dB/100 ft | 0.2   | 0.3  | 0.5  | 0.6  | 0.9  | 1.3  | 1.7  | 1.9  | 2.0  | 2.3  |
| Attenuation dB/100 m  | 0.7   | 0.9  | 1.6  | 1.9  | 2.8  | 4.2  | 5.5  | 6.1  | 6.5  | 7.4  |
| Avg. Power kW         | 12.63 | 9.72 | 5.54 | 4.49 | 3.06 | 2.09 | 1.57 | 1.41 | 1.33 | 1.16 |

Calculate Attenuation =  $(0.037370) \cdot \sqrt{\text{FMHz}} + (0.000160) \cdot \text{FMHz}$  (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**<br>Freq. (GHz) | Coupling<br>Nut | Inner<br>Contact<br>Attach | Outer<br>Contact<br>Attach | Finish*<br>Body<br>/Pin | Length<br>in (mm) | Width<br>in (mm) | Weight<br>lb (g) |
|-----------------|---------------|---------------|------------|-----------------------|-----------------|----------------------------|----------------------------|-------------------------|-------------------|------------------|------------------|
| 7-16 DIN Female | Straight Jack | EZ-1200-716FC | 3190-338   | <1.25:1 (2.5)         | NA              | Press Fit                  | Clamp                      | S/S                     | 2.0 (51)          | 1.65 (41.9)      | 0.586 (265.8)    |
| 7-16 DIN Male   | Straight Plug | EZ-1200-716MC | 3190-337   | <1.25:1 (2.5)         | Hex             | Press Fit                  | Clamp                      | S/S                     | 2.0 (51)          | 1.65 (41.9)      | 0.648 (293.9)    |
| 7/8 EIA         | Straight Plug | EZ-1200-78EIA | 3190-1458  | <1.25:1 (2.5)         | NA              | Press Fit                  | Clamp                      | S/S                     | 3.2 (80)          | 2.25 (57.2)      | 1.208 (547.0)    |
| N Female        | Straight Jack | EZ-1200-NFC   | 3190-336   | <1.25:1 (2.5)         | NA              | Press Fit                  | Clamp                      | S/S                     | 2.0 (51)          | 1.65 (41.9)      | 0.650 (294.8)    |
| N Male          | Straight Plug | EZ-1200-NMC   | 3190-335   | <1.25:1 (2.5)         | Hex             | Press Fit                  | Clamp                      | S/S                     | 2.0 (51)          | 1.65 (41.9)      | 0.659 (298.9)    |

\* Finishes: 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-1200C     | 3190-1311  | For LMR 1200 Clamp Style Connectors       |
| Midspan Strip Tool | GST-1200A    | 3190-436   | For Ground Strap Attachment               |
| Wrench             | WR-1200A     | 3190-512   | 1-9/16" Box Wrench (1 required)           |
| Wrench             | WR-1200B     | 3190-511   | 1-7/16" Box Wrench Pair (1 required)      |
| Cutting Tool       | CCT-01       | 3190-1544  | Cable end flush cut tool                  |
| Replacement Blade  | RB-01        | 3190-1609  | Replacement blade for cutting tool        |



## Hardware Accessories

| Type                             | Part Number  | Stock Code | Description                          |
|----------------------------------|--|------------|--------------------------------------|
| Ground Kit                       | GK-S1200TT   | GK-S1200TT | Standard Grounding Kit (each)        |
| Hoisting Grip                    | HG-1200T   | HG-1200T   | Split/Laced Type (each)              |
| Cold Shrink                      | CS-90120T  | CS-90120T  | LMR-900 to -1200 Junction (each)     |
| Cold Shrink                      | CS-60120T  | CS-60120T  | LMR-600 to -1200 Junction (each)     |
| Standard Entry Port Cushion      | SC-1200T   | SC-1200T   | Three Cables (each)                  |
| Standard Entry Panels            | Full Range of Port Styles/Combinations Available           |            |                                      |
| Hanger Blocks                    | CB-1200T   | CB-1200T   | Dual Cable Support Block (kit of 10) |
| Hanger Block Supporting Hardware | Complete Range of Supporting Hardware & Adapters Available |            |                                      |
| Snap-In Hangers                  | SH-U1200T  | SH-U1200T  | Snap-In Hangers (Kit of 10)          |