

# LMR<sup>®</sup>-200 Flexible Low Loss Communications Coax

## Ideal for...

- Jumper Assemblies in Wireless Communications Systems
- Short Antenna Feeder runs
- Any application (e.g. WLL, GPS, LMR, WLAN, WISP, WiMax, SCADA, Mobile Antennas) requiring an easily routed, low loss RF cable



| Part Description |                          |        |       |            |
|------------------|--------------------------|--------|-------|------------|
| Part Number      | Application              | Jacket | Color | Stock Code |
| LMR-200          | Outdoor                  | PE     | Black | 54022      |
| LMR-200-DB       | Outdoor/Watertight       | PE     | Black | 54089      |
| LMR-200-FR       | Indoor/Outdoor Riser CMR | FRPE   | Black | 54028      |
| LMR-200-FR-PVC   | Indoor/Outdoor Riser CMR | FRPVC  | Black | 54125      |
| LMR-200-PVC      | General Purpose          | PVC    | Black | 54216      |
| LMR-200-PVC-W    | General Purpose          | PVC    | White | 54201      |
| LMR-200-MA       | Mobile Antennas          | PVC    | Black | 54045      |

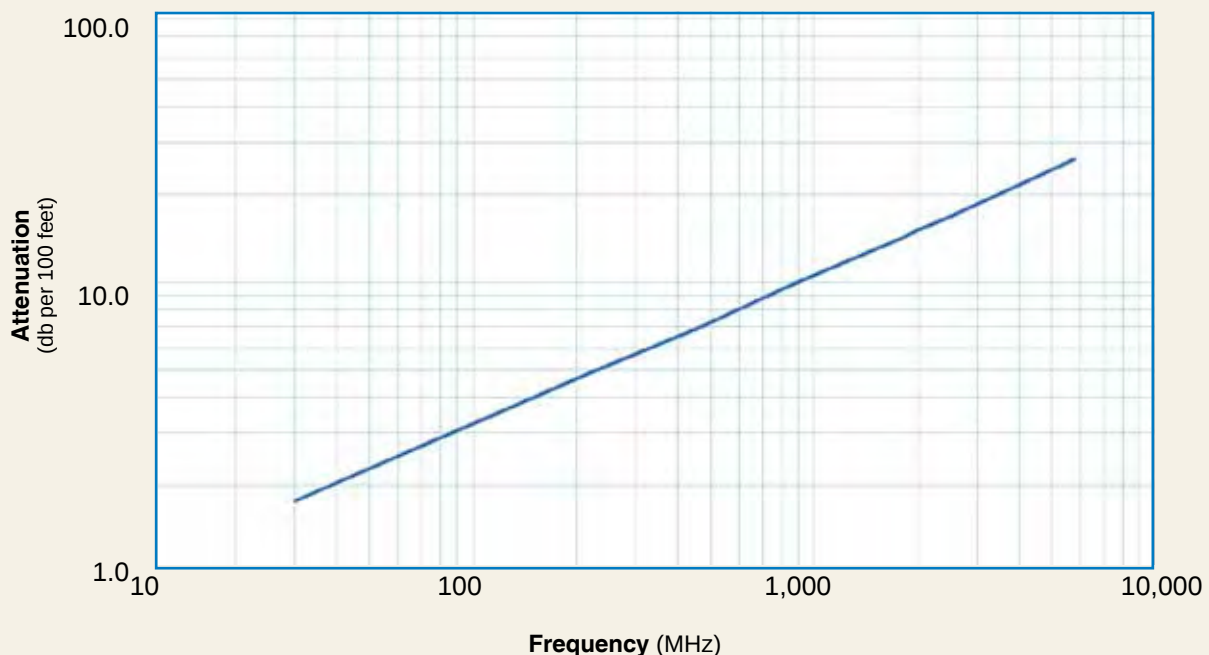
| Environmental Specifications   |          |         |  |
|--------------------------------|----------|---------|--|
| Performance Property           | °F       | °C      |  |
| Installation Temperature Range | -40/+185 | -40/+85 |  |
| Storage Temperature Range      | -94/+185 | -70/+85 |  |
| Operating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

| Mechanical Specifications |                |       |          |
|---------------------------|----------------|-------|----------|
| Performance Property      | Units          | US    | (metric) |
| Bend Radius: installation | in. (mm)       | 0.5   | (12.7)   |
| Bend Radius: repeated     | in. (mm)       | 2     | (50.8)   |
| Bending Moment            | ft-lb (N-m)    | 0.2   | (0.27)   |
| Weight                    | lb/ft (kg/m)   | 0.022 | (0.03)   |
| Tensile Strength          | lb (kg)        | 40    | (48)     |
| Flat Plate Crush          | lb/in. (kg/mm) | 15    | (0.27)   |

| Construction Specifications |               |       |        |
|-----------------------------|---------------|-------|--------|
| Description                 | Material      | In.   | (mm)   |
| Inner Conductor             | Solid BC      | 0.044 | (1.12) |
| Dielectric                  | Foam PE       | 0.116 | (2.95) |
| Outer Conductor             | Aluminum Tape | 0.121 | (3.07) |
| Overall Braid               | Tinned Copper | 0.144 | (3.66) |
| Jacket                      | (see table)   | 0.195 | (4.95) |

| Electrical Specifications |                   |       |          |
|---------------------------|-------------------|-------|----------|
| Performance Property      | Units             | US    | (metric) |
| Velocity of Propagation   | %                 | 83    |          |
| Dielectric Constant       | NA                | 1.45  |          |
| Time Delay                | nS/ft (nS/m)      | 1.22  | (4.02)   |
| Impedance                 | ohms              | 50    |          |
| Capacitance               | pF/ft (pF/m)      | 24.5  | (80.3)   |
| Inductance                | uH/ft (uH/m)      | 0.061 | (0.20)   |
| Shielding Effectiveness   | dB                | >90   |          |
| DC Resistance             |                   |       |          |
| Inner Conductor           | ohms/1000ft (/km) | 5.36  | (17.6)   |
| Outer Conductor           | ohms/1000ft (/km) | 4.9   | (16.1)   |
| Voltage Withstand         | Volts DC          | 1000  |          |
| Jacket Spark              | Volts RMS         | 3000  |          |
| Peak Power                | kW                | 2.5   |          |

**Attenuation vs. Frequency (typical)**



| Frequency (MHz)              | 30   | 50   | 150  | 220  | 450  | 900  | 1500 | 1800 | 2000 | 2500 | 5800 | 8000  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| <b>Attenuation dB/100 ft</b> | 1.8  | 2.3  | 4.0  | 4.8  | 7.0  | 9.9  | 12.9 | 14.2 | 15.0 | 16.9 | 26.4 | 31.3  |
| <b>Attenuation dB/100 m</b>  | 5.8  | 7.5  | 13.1 | 15.9 | 22.8 | 32.6 | 42.4 | 46.6 | 49.3 | 55.4 | 86.5 | 102.8 |
| <b>Avg. Power kW</b>         | 1.02 | 0.79 | 0.45 | 0.37 | 0.26 | 0.18 | 0.14 | 0.13 | 0.12 | 0.11 | 0.07 | 0.06  |

**Calculate Attenuation =**

$(0.320900) \cdot \sqrt{\text{FMHz}} + (0.000330) \cdot \text{FMHz}$  (interactive calculator available at [http://www.timesmicrowave.com/cable\\_calculators](http://www.timesmicrowave.com/cable_calculators))

**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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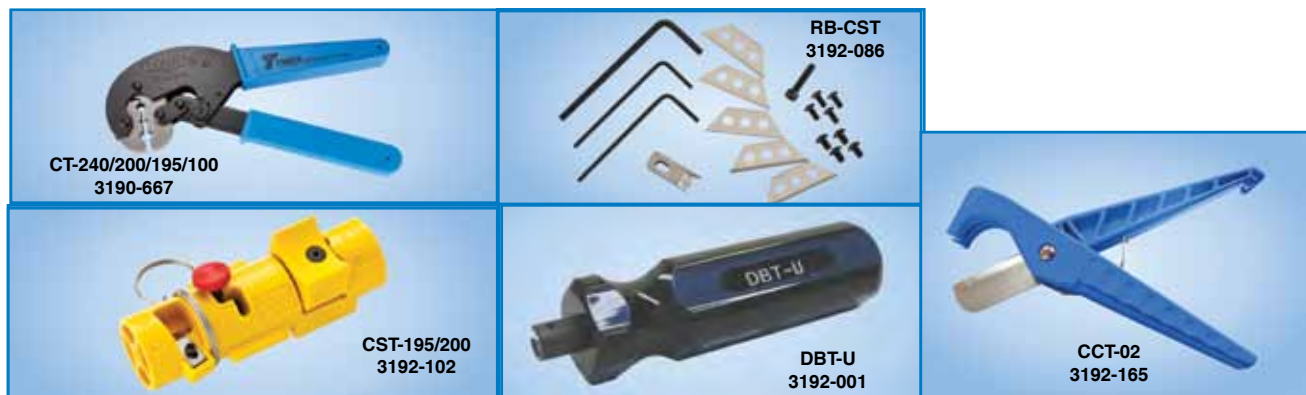
## Connectors

| 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 /Pin | Length<br>in (mm) | Width<br>in (mm) | Weight<br>lb (g) |
|----------------|------------------|-------------------|------------|-----------------------|-----------------|----------------------------|----------------------------|----------------------|-------------------|------------------|------------------|
| 1. BNC Male    | Straight Plug    | TC-200-BM-X       | 3190-2883  | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | S/G                  | 1.7 (43.2)        | 0.56 (14.2)      | 0.045 (20.4)     |
| 2. Mini-UHF    | Straight Plug    | TC-200-MUHF       | 3190-444   | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | NG                   | 1.1 (27.9)        | 0.45 (11.4)      | 0.015 (6.8)      |
| 3. N Male      | Straight Plug    | EZ-200-NMH-X      | 3190-2886  | <1.25:1 (8)           | Hex/Knurl       | Spring Finger              | Crimp                      | A/G                  | 1.5 (38.1)        | 0.75 (19.1)      | 0.073 (33.1)     |
| 4. N Male      | Straight Plug    | TC-200-NMH-X      | 3190-2882  | <1.25:1 (6)           | Hex             | Solder                     | Crimp                      | A/G                  | 1.5(38.1)         | 0.89 (22.6)      | 0.086 (39.0)     |
| 5. N Male      | Reverse Polarity | TC-200-NM-RP      | 3190-959   | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/G                  | 1.5 (38.1)        | 0.75 (19.1)      | 0.073 (33.1)     |
| 6. SMA Male    | Straight Plug    | TC-200-SM-SS-X    | 3190-2881  | <1.25:1 (2.5)         | Hex             | Solder                     | Crimp                      | SS/G                 | 1.0(38.1)         | 0.75 (19.1)      | 0.073 (33.1)     |
| 7. SMA Male    | Reverse Polarity | TC-200-SM-RP      | 3190-327   | <1.25:1 (2.5)         | Hex             | Solder                     | Crimp                      | SS/G                 | 1.0 (25.4)        | 0.32 (8.1)       | 0.015 (6.8)      |
| 8. TNC Male    | Straight Plug    | EZ-200-TM-X       | 3190-2885  | <1.25:1 (2.5)         | Knurl           | Spring Finger              | Crimp                      | S/G                  | 1.4 (35.6)        | 0.59 (15.0)      | 0.045 (20.4)     |
| 9. TNC Male    | Straight Plug    | TC-200-TMC        | 3190-240   | <1.25:1 (2.5)         | Knurl           | Solder                     | Clamp                      | S/G                  | 1.7 (43.2)        | 0.59 (15.0)      | 0.045 (20.4)     |
| 10. TNC Male   | Reverse Polarity | EZ-200-TM-RP      | 3190-792   | <1.25:1 (2.5)         | Knurl           | Spring Finger              | Crimp                      | A/G                  | 1.4 (35.6)        | 0.32 (8.1)       | 0.045 (20.4)     |
| 11. TNC Female | Straight Jack    | TC-200-TF-X       | 3190-2884  | <1.25:1 (2.5)         | NA              | Solder                     | Crimp                      | N/G                  | 1.3 (33.0)        | 0.57 (14.5)      | 0.033 (15.0)     |
| 12. TNC Female | Reverse Polarity | EZ-200-TF-RP      | 3190-793   | <1.25:1 (2.5)         | NA              | Spring Finger              | Crimp                      | A/G                  | 1.3 (33.0)        | 0.57 (14.5)      | 0.033 (15.0)     |
| 13. SMA Female | Straight Jack    | EZ-200-SF-SS-X    | 3190-6007  | <1.25:1 (6)           | NA              | Spring Finger              | Crimp                      | A/G                  | 0.9 (23.2)        | 0.40 (10.0)      | 0.019 (8.6)      |
| 14. SMA Male   | Right Angle      | EZ-200-SM-RA-SS-X | 3190-6006  | <1.30:1 (6)           | Hex             | Spring Finger              | Crimp                      | A/G                  | 1.0 (24.7)        | 0.70 (17.7)      | 0.019 (8.6)      |
| 15. TNC Male   | Right Angle      | EZ-200-TM-RA-X    | 3190-6008  | <1.25:1 (6)           | Hex             | Spring Finger              | Crimp                      | A/G                  | 1.1 (27.5)        | 1.10 (28.8)      | 0.091 (41.7)     |
| 16. FME Female | Straight Jack    | TC-200-FMEF-X     | 3190-6249  | <1.25:1 (2)           | Hex             | Solder                     | Crimp                      | A/G                  | 1.2 (29.3)        | 0.36 (9.2)       | 0.240 (6.1)      |
| 17. FME Male   | Straight Plug    | TC-200-FMEM-X     | 3190-6250  | <1.25:1 (2)           | NA              | Solder                     | Crimp                      | A/G                  | 1.1063(28.1)      | 0.4252 (10.8)    | 0.4213 (10.7)    |

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

## Hardware Accessories

| Type       | Part Number | Stock Code | Description                |
|------------|-------------|------------|----------------------------|
| Ground Kit | GK-S200TT   | GK-S200TT  | Standard Ground Kit (each) |



## Install Tools

| Type              | Part Number        | Stock Code | Description                                         |
|-------------------|--------------------|------------|-----------------------------------------------------|
| Crimp Tool        | CT-240/200/195/100 | 3190-667   | Crimp tool for LMR-100, 195, 200 and 240 connectors |
| Cutting Tool      | CCT-02             | 3192-165   | Cable end flush cut tool                            |
| Deburr Tool       | DBT-U              | 3192-001   | Removes center conductor rough edges                |
| Replacement Blade | RB-02              | 3192-166   | Replacement blade for cutting tool                  |
| Strip Tool        | CST-195/200        | 3192-102   | Combination prep tool for LMR-195 and LMR-200       |
| Replacement Blade | RB-CST             | 3192-086   | Replacement blade kit for all CST strip tools       |

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