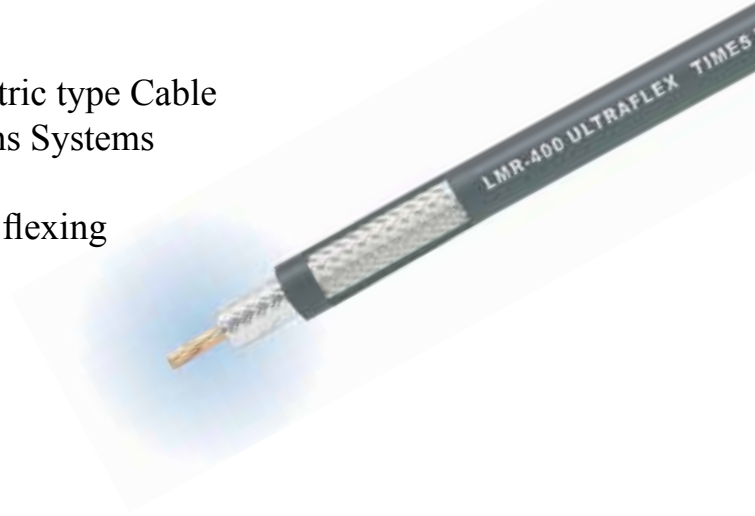


# LMR-<sup>®</sup> 400-UF UltraFlex Communications Coax

## 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 that requires periodic/repeated flexing



- **LMR<sup>®</sup> - UltraFlex** has a stranded center conductor and rubber outer jacket designed for multiple bending/flexing cycles. It is used for both indoor and outdoor applications.
- **Flexibility** and bendability are hallmarks of the LMR-400-UF 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-400-UF. 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-400-UF cables are designed for outdoor exposure and have a life expectancy in excess of 10 years.

- **Connectors:** A wide variety of connectors are available for LMR-400-UF cable, including all common interface types, reverse polarity, and solder-on center pins. Most LMR connectors employ crimp outer attachment using standard hex crimp sizes.
- **Cable Assemblies:** All LMR-400-UF 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-400-UF       | Indoor/Outdoor | TPE    | Black | 54040      |

| Construction Specifications |                               |       |         |
|-----------------------------|-------------------------------|-------|---------|
| Description                 | Material                      | In.   | (mm)    |
| Inner Conductor             | Stranded BC                   | 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)  |
| Jacket                      | Black Thermoplastic Elastomer | 0.405 | (10.29) |

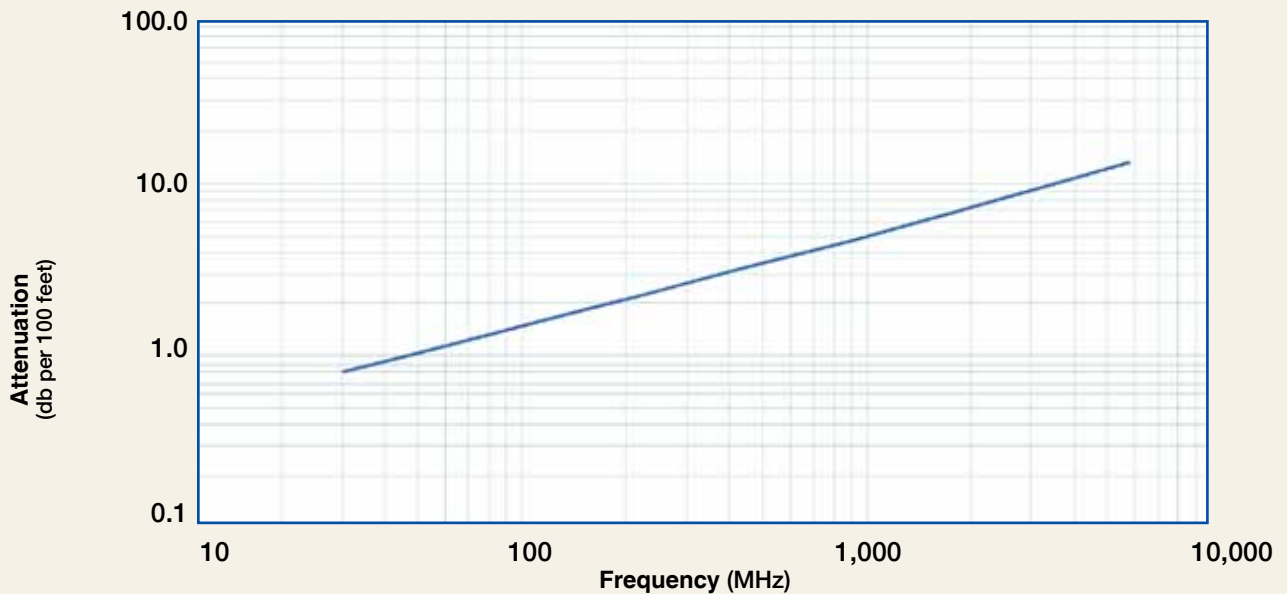
MICROWAVE

| Mechanical Specifications |                |       |          |
|---------------------------|----------------|-------|----------|
| Performance Property      | Units          | US    | (metric) |
| Bend Radius: installation | in. (mm)       | 1.0   | (25.4)   |
| Bend Radius: repeated     | in. (mm)       | 4.0   | (101.6)  |
| Bending Moment            | ft-lb (N-m)    | 0.375 | (0.51)   |
| Weight                    | lb/ft (kg/m)   | .088  | (0.131)  |
| Tensile Strength          | lb (kg)        | 160   | (72.6)   |
| Flat Plate Crush          | lb/in. (kg/mm) | 20    | (0.36)   |

| 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) |
| Velocity of Propagation   | %                 | 85    |          |
| Dielectric Constant       | NA                | 1.38  |          |
| Time Delay                | nS/ft (nS/m)      | 1.20  | (3.92)   |
| Impedance                 | ohms              | 50    |          |
| Capacitance               | pF/ft (pF/m)      | 23.9  | (78.40)  |
| Inductance                | uH/ft (uH/m)      | 0.060 | (0.21)   |
| Shielding Effectiveness   | dB                | >90   |          |
| DC Resistance             |                   |       |          |
| Inner Conductor           | ohms/1000ft (/km) | 1.07  | (3.51)   |
| Outer Conductor           | ohms/1000ft (/km) | 1.65  | (5.4)    |
| Voltage Withstand         | Volts DC          | 2500  |          |
| Jacket Spark              | Volts RMS         | 8000  |          |
| Peak Power                | kW                | 16    |          |

Attenuation vs. Frequency (typical)



| Frequency (MHz)       | 30   | 50   | 150  | 220  | 450  | 900  | 1500 | 1800 | 2000 | 2500 | 5800 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|
| Attenuation dB/100 ft | 0.8  | 1.1  | 1.8  | 2.2  | 3.3  | 4.7  | 6.2  | 6.8  | 7.2  | 8.1  | 13.0 |
| Attenuation dB/100 m  | 2.7  | 3.5  | 6.1  | 7.4  | 10.7 | 15.4 | 20.2 | 22.3 | 23.6 | 26.6 | 42.6 |
| Avg. Power kW         | 2.77 | 2.14 | 1.22 | 1.00 | 0.69 | 0.48 | 0.36 | 0.33 | 0.31 | 0.28 | 0.17 |

Calculate Attenuation =  $(0.146748) \cdot \sqrt{\text{FMHz}} + (0.000312) \cdot \text{FMHz}$  (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

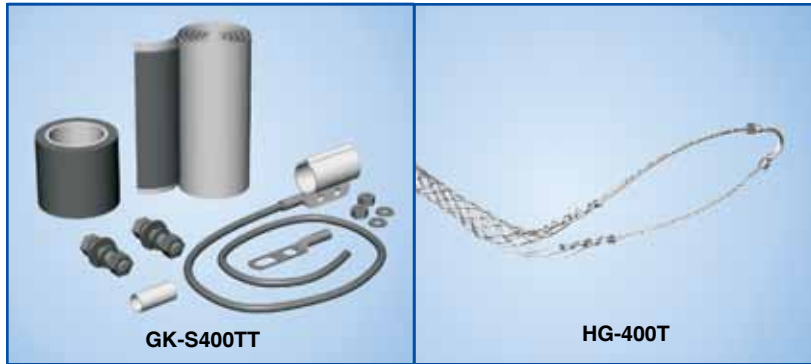
# LMR<sup>®</sup>-400-UF UltraFlex Communications Coax



## 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 | TC-400-716-FC   | 3190-376   | <1.25:1 (2.5)         | NA              | Solder                     | Clamp                      | S/S                     | 1.6 (41)          | 1.13 (28.7)      | 0.281 (127.5)    |
| 7-16 DIN Male   | Straight Plug | TC-400-716-MC   | 3190-279   | <1.25:1 (2.5)         | Hex             | Solder                     | Clamp                      | S/S                     | 1.4 (36)          | 1.40 (35.6)      | 0.268 (121.6)    |
| BNC Male        | Straight Plug | TC-400-BM       | 3190-318   | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/S                     | 1.7 (43)          | 0.56 (14.2)      | 0.063 (28.6)     |
| Mini-UHF        | Straight Plug | TC-400-MUHF     | 3190-520   | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/G                     | 1.1 (28)          | 0.50 (12.7)      | 0.020 (9.1)      |
| N Female        | Straight Jack | TC-400-NFC      | 3190-299   | <1.25:1 (2.5)         | NA              | Solder                     | Clamp                      | N/S                     | 1.6 (41)          | 0.75 (19.1)      | 0.119 (54.0)     |
| N Male          | Straight Plug | SC-400-NM       | 3190-1454  | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/G                     | 1.5 (38)          | 0.75 (19.1)      | 0.090 (40.8)     |
|                 | Straight Plug | TC-400-NM       | 3190-188   | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/G                     | 1.5 (38)          | 0.75 (19.1)      | 0.090 (40.8)     |
|                 | Straight Plug | TC-400-NMC      | 3190-277   | <1.25:1 (2.5)         | Knurl           | Solder                     | Clamp                      | N/G                     | 1.5 (38)          | 0.75 (19.1)      | 0.121 (54.9)     |
|                 | Straight Plug | TC-400-NMH-D    | 3190-552   | <1.25:1 (10)          | Hex/Knurl       | Solder                     | Crimp                      | A/G                     | 1.5 (38)          | 0.89 (22.6)      | 0.113 (51.3)     |
|                 | Right Angle   | TC-400-NMH-RA   | 3190-422'  | <1.35:1 (6)           | Hex             | Solder                     | Crimp                      | S/G                     | 1.8 (46)          | 1.25 (31.8)      | 0.130 (59.0)     |
|                 | Right Angle   | TC-400-NMH-RA-D | 3190-2293' | <1.35:1 (6)           | Hex/Knurl       | Solder                     | Crimp                      | A/G                     | 1.8 (46)          | 1.25 (31.8)      | 0.130 (59.0)     |
| SMA Male        | Straight Plug | TC-400-SM       | 3190-439   | <1.25:1 (8)           | Hex             | Solder                     | Crimp                      | N/G                     | 1.2 (29)          | 0.50 (12.7)      | 0.032 (14.5)     |
| TNC Male        | Straight Plug | TC-400-TM       | 3190-260   | <1.25:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/S                     | 1.7 (43)          | 0.59 (15.0)      | 0.074 (33.6)     |
|                 | Right Angle   | TC-400-TM-RA    | 3190-442'  | <1.35:1 (2.5)         | Knurl           | Solder                     | Crimp                      | N/G                     | 1.7 (43)          | 0.59 (15.0)      | 0.085 (38.6)     |

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



## Hardware Accessories

| Type          | Part Number | Stock Code | Description                   |
|---------------|-------------|------------|-------------------------------|
| Ground Kit    | GK-S400TT   | GK-S400TT  | Standard Grounding Kit (each) |
| Hoisting Grip | HG-400T     | HG-400T    | Laced Type (each)             |



## Install Tools

| Type              | Part Number | Stock Code | Description  |
|-------------------|-------------|------------|--|
| Crimp Tool        | HX-4        | 3190-200   | Crimp Handle   |
| Crimp Dies        | Y1719       | 3190-202   | .429" Hex Dies                                       |
| Crimp Tool        | CT-400/300  | 3190-666   | Crimp tool for LMR 400 connectors                    |
| Crimp Rings       | CR-400      | 3190-830   | Crimp rings for TC/EZ-400 connectors (package of 10) |
| Cutting Tool      | CCT-01      | 3190-1544  | Cable end flush cut tool                             |
| Replacement Blade | RB-01       | 3190-1609  | Replacement blade for cutting tool                   |