

Engineered Products:
Bundled Cables

High quality LMR® Low Loss flexible 50 Ohm coax feeder cable, bundled under a common outer jacket for multiple run applications

- Smart antenna feeders
- IF & RF runs to tower mounted amplifiers for cellular, point to point, broadcast wireless or WiMax systems

• **LMR® Bundled Cable** is a spiral configuration of multiple LMR-400 or smaller LMR cables under a common polyethylene outer jacket. This innovative design acts as the perfect feeder cable for applications requiring multiple runs, such as on towers or building top sites. A unique, patented grounding fixture grounds the outer shields of each cable and a rugged end cap seals the bundle to prevent moisture ingress at the break-out point.

• **LMR Bundled Cable** can be supplied as a complete assembly with break outs and connectors on both ends, as a single ended assembly with pull hoist (base can be trimmed and terminated after installation on tower), or as raw cable and accessories along with easy to use tools. Pictorial instructions and videos are available to assist in the installation of the accessories.



• **Features and Benefits:**

- Less cable runs
- Fewer ground kits
- Significantly less cable clamps to install
- Reduced labor and material costs
- Rip cord for easy removal of outer jacket
- Inner cables labeled with an identifier every six inches
- Less wind load
- Greater system reliability
- Professional appearance
- Standard cables include:
 - LMR-BC240-4
 - LMR-BC240-9
 - LMR-BC240-9-LW-75
 - LMR-BC240-12
 - LMR-BC300-12
 - LMR-BC400-7
 - LMR-BC400-9
 - LMR-BC400-9-DB

Consult factory for other or custom configurations.

Frequency (MHz)	Attenuation dB/100 ft				
	150	450	900	2000	2500
LMR-BC240-4	3	5.4	7.7	11.7	13.1
LMR-BC240-9	3	5.4	7.7	11.7	13.1
LMR-BC240-9-LW-75	3	5.4	7.7	11.7	13.1
LMR-BC240-12	3	5.4	7.7	11.7	13.1
LMR-BC300-12	2.4	4.3	6.2	9.4	10.6
LMR-BC400-7	1.5	2.8	4	6.2	7
LMR-BC400-9	1.5	2.8	4	6.2	7
LMR-BC400-9-DB	1.5	2.8	4	6.2	7

Part Number (Stock Code)	LMR-BC240-4 (31845)	LMR-BC240-9 (31844)
Components	LMR-240	LMR-240
Bundle Configuration	F-4	1-8
Outer Protection	PE Jacket	PE Jacket
Overall Diameter (in)	0.688	1.06
Weight (lbs/ft)	0.195	0.375
Bend Radius (in)	7	11
Temperature Range		
Impedance		

Install Tools

The LMR bundled cable tool package contains a number of unique products designed for easy use and long life. The ST-BC-1 and ST-BC-2 make up a universal outer sheath removal tool set that can be used with any of our bundled cables. Custom sheath removal tools are available for the LMR-BC240-12, LMR-BC300-12 and the LMR-BC400-9. (See table on page 241)

The GST-240A, 300A and 400A inner cable jacket removal tools can easily accomplish the otherwise challenging task of removing the outer jacket from the internal LMR-240, 300 and 400 cables.



GST-BC Series:
Custom designed to quickly remove the outer sheath of the LMR bundled cable.



ST-BC-2:
Can be used in combination with the ST-BC-1 to remove the outer sheath of a bundled cable for grounding or fan out.



ST-BC-1:
Can be used in combination with the ST-BC-2 to remove the outer sheath of a bundled cable for grounding or fan out.



GST-240A, GST-300A, GST-400A:
Custom designed to quickly remove the outer jacket of the individual internal cables of LMR-240, 300 and 400 based cables.

Bundled Cable Specifications

LMR-BC240-9-LW-75 (31846)	LMR-BC240-12 (31842)	LMR-BC300-12 (31843)	LMR-BC400-7 (31836)	LMR-BC400-9 (31831)	LMR-BC400-9-DB (31838)
LMR-LW-240-75	LMR-240	LMR-300	LMR-400	LMR-400	LMR-400-DB
1-8	4-8	4-8	1-6	1-8	1-8
PE Jacket	PE Jacket	PE Jacket	PE Jacket	PE Jacket	PE Jacket
1.06	1.2	1.475	1.35	1.6	1.6
0.295	0.58	0.89	0.63	0.75	0.75
11	13	15	14	16	16
-40°F to + 185°F (-40° C to + 85° C)					
50 Ohms					

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Grounding Kit

All outdoor antenna feeder runs should be grounded at their lowest point just prior to entering the base station or radio enclosure. Depending on the height of the tower run, additional ground points may be required (see table below)

Tower Height (TH)	Location of Additional Grounds*	Comments
<30 meters	No additional GKs required	
30-59 meters	TH/2	1 additional GK
60-69 meters	TH/3 and (TH/3)(2)	2 additional GKs

* These locations are referenced from the base of the tower
Times Microwave Systems has developed a unique, patented grounding fixture that is both economical and easy to install. This ground fixture effectively grounds all the individual cables in the bundle, while requiring only one bonding cable per fixture to be fastened to the tower.

Grounding

1) The outer conductors of individual cables must be grounded/bonded to an adequate ground.

2) All installations regardless of tower height (TH) should be grounded just prior to entering the equipment building or shelter. The cable should also be grounded at the tower base. The ground at the tower base and just prior to building entry should be as close to the ground plane as possible.

3) For towers greater than 30 meters high, additional grounding is required.



GK-BC-400-9



End Cap Kit



Times Microwave Systems offers weather seal break out End Caps for a number of the LMR bundled cables. These kits consist of a hard ABS plastic split shell with stainless steel screws, a silicone rubber split cushion and a silicone rubber gasket. The split cushion is formed over the inner cables and the shell is then positioned over the transition so that the end of the outer jacket of the cable is roughly in the middle of the shell. (see the bundled cable End Cap pictorial instructions at www.timesmicrowave.com)



Weather Seal Kit



It is important that the ground kit be properly weather sealed. This bundled cable process provides labor savings and increased reliability. Composed of six rolls of Butyl Rubber tape and three rolls of black polyvinyl tape, the WK-U Weather Seal Kit provides everything necessary to properly seal one installed ground fixture.

Tools and Install Accessories

Type	Part Number	Description
Bundle Jacket Strip Tool	ST-BC-1 & ST-BC-2	Bundled jacket strip tool for cables not having a custom jacket removal tool
	GST-BC240-12	Bundled jacket strip tool for LMR-BC240-12
	GST-BC300-12	Bundled jacket strip tool for LMR-BC300-12
	GST-1700	Bundled jacket strip tool for LMR-BC400-9
Individual Coax Strip Tool	GST-240A	Individual coax strip tool for LMR-240 based cables
	GST-300A	Individual coax strip tool for LMR-300 based cables
	GST-400A	Individual coax strip tool for LMR-400 based cables
GK-BC-400-9B	GK-BC400-9	Bundle Ground Kit for BC-400-9
EC-BC400-4-CS	EC-BC400-4-CS	Breakout Weatherseal Boot for BC-400-4
EC-BC400-7B	EC-BC400-7B	Breakout Weatherseal Boot for BC-400-7
EC-BC400-9B	EC-BC400-9B	Breakout Weatherseal Boot for BC-400-9
EC-BC240-12B	EC-BC400-12B	Breakout Weatherseal Boot for BC-240-12
Hangers	1/2" cable hanger	Hangers for LMR-BC240-4
	7/8" cable hanger	Hangers for LMR-BC240-9
	7/8" cable hanger	Hangers for LMR-BC240-9 LW-75
	SH-U1200T	Hangers for LMR-BC240-12
	1 1/4" cable hanger	Hangers for LMR-BC300-12
	1 1/4" cable hanger	Hangers for LMR-BC400-7
	SH-U1700T	Hangers for LMR-BC400-9
	SH-U1700T	Hangers for LMR-BC400-9-DB
	Hoisting Grips	1/2" cable hoist
7/8" cable hoist		Hoisting grips for LMR-BC240-9
7/8" cable hoist		Hoisting grips for LMR-BC240-9-LW-75
HG-1200T		Hoisting grips for LMR-BC240-12
1 1/4" cable hoist		Hoisting grips for LMR-BC300-12
1 1/4" cable hoist		Hoisting grips for LMR-BC400-7
HG-1700T		Hoisting grips for LMR-BC400-9
HG-1700T		Hoisting grips for LMR-BC400-9-DB