



SMA Male Right Angle Connector Crimp/Non-Solder Contact Attachment for LMR-240

RF Connectors Technical Data Sheet



EZ-240-SM-RA-X

Times Microwave Systems Connector Specification

Configuration

- SMA Male Connector
- MIL-STD-348
- 50 Ohms
- Right Angle Body Geometry
- Connector Interface Types: LMR-240
- 5/16 Inch Hex

Features

- Max. Operating Frequency 6 GHz
- Good VSWR of 1.3:1
- Gold Plated Brass/Phosphor Bronze Contact
- 50 µinch contact plating

Applications

- General Purpose Test
- Custom Cable Assemblies

Description

Times Microwave's EZ-240-SM-RA-X SMA male right angle connector offered by Pasternack with crimp/non-solder contact attachment for Times' LMR-240 is part of our full line of RF components available for same-day shipping. Times Microwave's SMA male connector operates up to a maximum frequency of 6 GHz and offers good VSWR of 1.3:1. Its right angle body geometry allows for easier connections in tight spaces.

Times Microwave's SMA male right angle connector EZ-240-SM-RA-X datasheet specifications and drawing with dimensions are shown below in this PDF. Pasternack's broad catalog of RF, microwave and millimeter wave connectors allows designers to configure and customize their signal connections however they like. Whether the need is to provide an I/O for a board design, or simply create a custom cable assembly configuration, Pasternack has the right connector for the job. Pasternack can also expertly build your custom cable assemblies for you and ship same-day.

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		6	GHz
VSWR			1.3:1	
Insertion Loss			0.25	dB
Dielectric Withstanding Voltage (AC)			1,000	Vrms
Insulation Resistance	5,000			MOhms

Mechanical Specifications

Size

Length	0.725 in [18.42 mm]
Width/Dia.	0.312 in [7.92 mm]
Height	0.88 in [22.35 mm]
Weight	0.021 lbs [9.53 g]

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SMA Male Right Angle Connector Crimp/Non-Solder Contact Attachment for LMR-240 EZ-240-SM-RA-X](#)



SMA Male Right Angle Connector Crimp/Non-Solder Contact Attachment for LMR-240

RF Connectors
Technical Data Sheet



EZ-240-SM-RA-X

Mating Cycles 500 Cycles
Mating Torque 7 to 10 in-lbs [0.79 to 1.13 Nm]

Material Specifications

Description	Material	Plating
Contact	Brass/Phosphor Bronze	Gold 50 µinch
Insulation	Teflon	
Body	Brass	Tri-Metal 80 µinch
Coupling Nut	Brass	Tri-Metal 80 µinch

Environmental Specifications

Temperature

Operating Range -40 to +125 deg C
Shock MIL-STD 202G, Meth.213, Cond I
Vibration MIL-STD 202G, Meth.204, Cond D
Thermal Shock MIL-STD 202G, Meth.107, Cond B

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SMA Male Right Angle Connector Crimp/Non-Solder Contact Attachment for LMR-240 EZ-240-SM-RA-X](#)



SMA Male Right Angle Connector Crimp/Non-Solder Contact Attachment for LMR-240

RF Connectors Technical Data Sheet



EZ-240-SM-RA-X

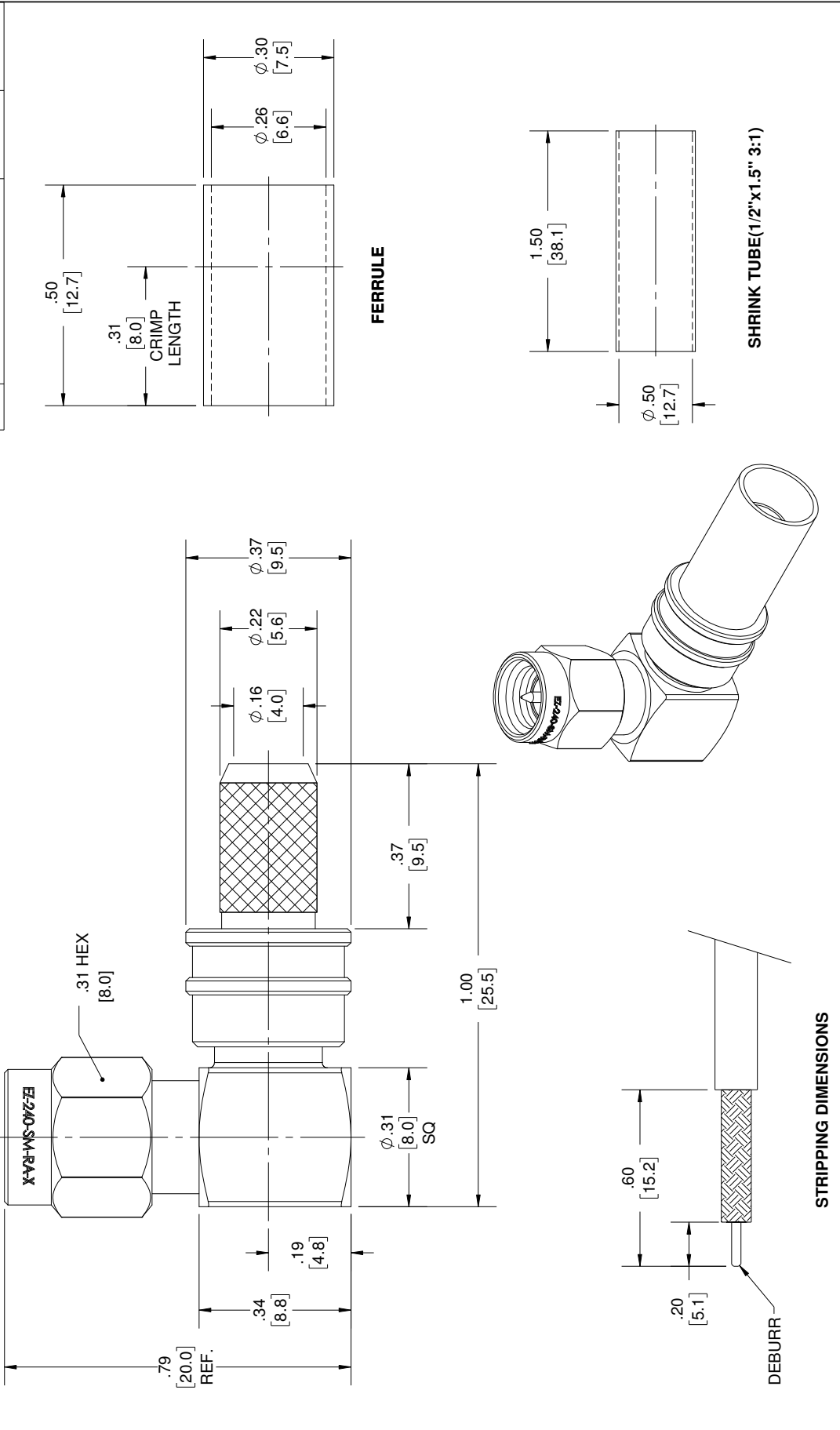
SMA Male Right Angle Connector Crimp/Non-Solder Contact Attachment for LMR-240 from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SMA Male Right Angle Connector Crimp/Non-Solder Contact Attachment for LMR-240 EZ-240-SM-RA-X](https://www.pasternack.com/sma-male-lmr-240-connector-ez-240-sm-ra-x-p.aspx)

URL: <https://www.pasternack.com/sma-male-lmr-240-connector-ez-240-sm-ra-x-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
B	PCR EZ-240-SM-RA-X 20200511	06/15/2020	SRAUTUS



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. DIMENSIONS IN [] ARE MILLIMETERS.

TOLERANCES:

X = +.2 [5.08] FRACTIONS
 XX = ±.02 [.51] ±1/32
 XXX = ±.005 [.13] ANGLES ± 1°

CABLE LENGTH (L) TOLERANCES:
 L ≤ 12 [305] = +1 [25] / -0
 12 [305] < L ≤ 60 [1524] = +2 [51] / -0
 60 [1524] < L ≤ 120 [3048] = +4 [102] / -0
 120 [3048] < L ≤ 300 [7620] = +6 [152] / -0
 300 [7620] < L = +5%L / -0

ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

PE PASTERNAK
 an INFINITO brand

Pasternack Enterprises, Inc.
 P.O. Box 16759, Irvine, CA 92623.
 Phone: 1.949.261.1920 | 1.866.727.8376
 Fax: 1.949.261.7451
 Website: www.pasternack.com
 E-mail: sales@pasternack.com

THIRD-ANGLE PROJECTION

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SHEET 1 OF 1

SCALE N/A

SIZE	CAGE CODE	DRAWN BY	PART NUMBER
A	53919	K.DANG	EZ-240-SM-RA-X

REV B

- NOTES:**
- CABLE ATTACHMENT:
 - OUTER: CRIMP.
 - INNER: NON-SOLDER.
 - CRIMP SIZE REQUIRED:
 - FERRULE: .255 [6.48] HEX. CRIMP TOOL.
- THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.



TNC Male Right Angle Connector Crimp/Solder Attachment For RG8X, PE-C240, 0.240 inch

TECHNICAL DATA SHEET

PE44635

TNC Male Right Angle Connector Crimp/Solder Attachment For RG8X, PE-C240, 0.240 inch

Configuration

Connector	TNC Male
Connector Interface Type	RG8X,PE-C240,0.240 inch
Cable Attachment Method (Shield/Contact)	Crimp/Solder
Body Style	Right Angle

Electrical Specifications

Impedance, Ohms	50
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Mechanical Specifications

Size

Length, in [mm]	1.103 [28.02]
Width/Dia., in [mm]	0.59 [15]
Height, in [mm]	1.06 [26.92]
Weight, lbs [g]	0.042 [19.05]

Connector

Type	TNC Male
Contact Material and Plating	Brass, Gold
Coupling Nut Material and Plating	Brass, Nickel
Body Material and Plating	Brass, Nickel
Dielectric Type	Teflon

Compliance Certifications (visit www.Pasternack.com for current document)

RoHS Compliant	Yes
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Plotted and Other Data

Notes: Values at 25 °C, sea level

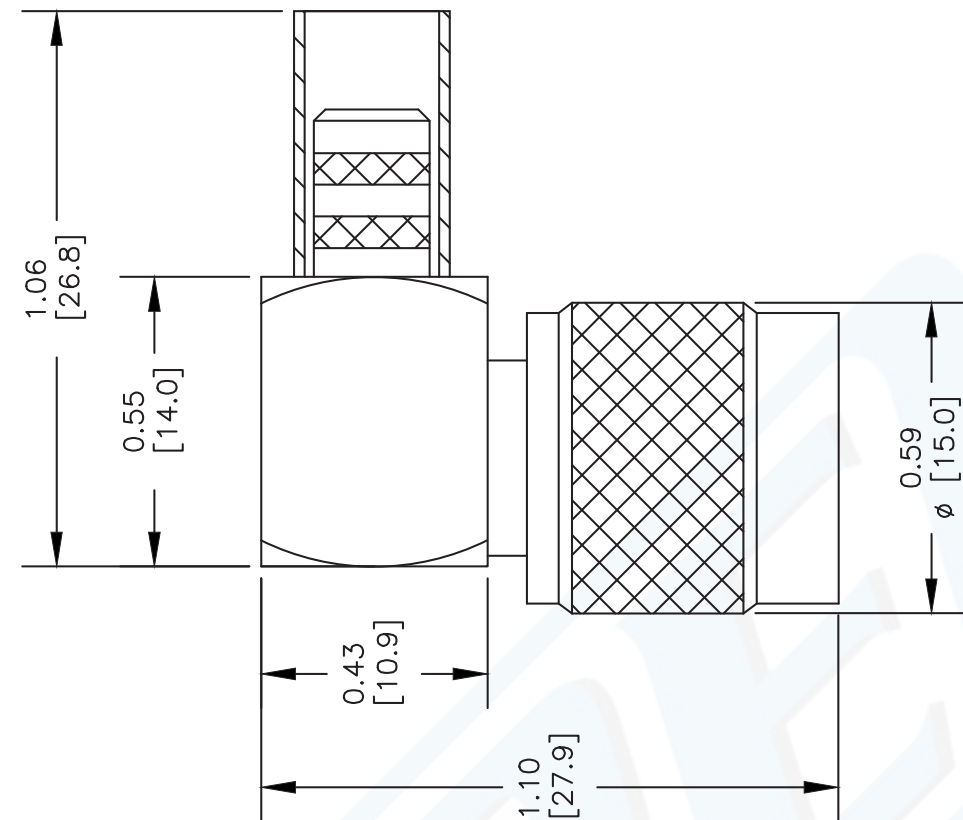
URL: <http://www.pasternack.com/tnc-male-standard-rg8x-pe-c240-0.240-connector-pe44635-p.aspx>

TNC Male Right Angle Connector Crimp/Solder Attachment For RG8X, PE-C240, 0.240 inch from Pasternack Enterprises has same day shipment for domestic and International orders. We maintain 99% availability of the industry's broadest selection of RF, microwave and fiber optic products.

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal.

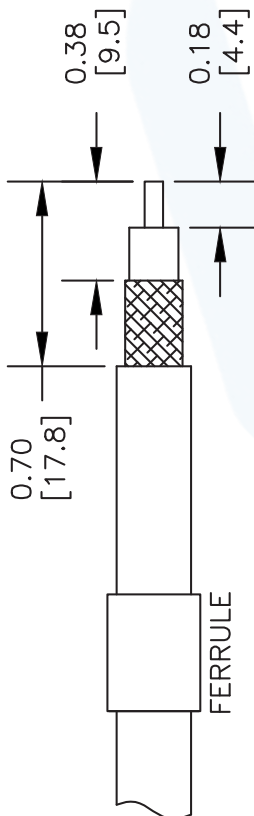
PE44635 CAD Drawing

TNC Male Right Angle Connector Crimp/Solder
Attachment For RG8X, PE-C240, 0.240 inch

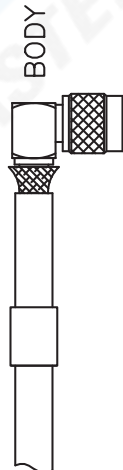


ASSEMBLY PROCEDURES

1. STRIP CABLE AS SHOWN. SLIDE FERRULE OVER CABLE.



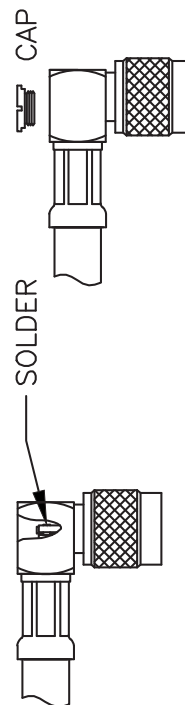
2. FLAIR BRAID AND INSERT THE STRIPPED CABLE INTO BODY AND POSITION THE CENTER CONDUCTOR IN THE SLOT OF THE CENTER PIN.



3. SLIDE FERRULE OVER BRAID UP TO THE CONNECTOR BODY AND CRIMP AS CLOSE TO THE CONNECTOR BODY AS POSSIBLE USING A .255" HEX CRIMP TOOL.



4. SOLDER THE CENTER CONDUCTOR OF THE CABLE TO THE CENTER PIN. TIGHTEN DOWN THE CAP INTO THE REAR APERTURE OF THE BO



DWG TITLE

PE44635

NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.
2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.
3. DIMENSIONS ARE IN INCHES [mm].
4. FITS MIL-C-17 AND EQUIVALENT CABLES.

REV. B

FSCM NO. 53919

CAD FILE 012012-B

SCALE N/A

SIZE A

2233



Pasternack Enterprises, Inc.

P.O. Box 16759 | Irvine | CA | 92623

Phone: (949) 261-1920 | Fax: (949) 261-7451

Website: www.pasternack.com | E-Mail: sales@pasternack.com

LMR[®]-240 Flexible Low Loss Communications Coax

Ideal for...

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



• **LMR[®]** standard is a UV Resistant Polyethylene jacketed cable designed for 20-year service outdoor use. The bending and handling characteristics are significantly better than air-dielectric and corrugated hard-line cables.

• **LMR[®]-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[®]-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 is UL/NEC & CSA rated 'CMR' and 'FT4' respectively, meets FAA FAR25 requirements and is MSHA-P for mining applications.

• **LMR[®]-FR-PVC** is a general-purpose indoor cable and has a UL/NEC & CSA rating of 'CMR' and 'FT4' respectively. It is less expensive than LMR-FR, however it emits toxic fumes (HCL) and greater smoke density when burned.

• **LMR[®]-PVC** is designed for low loss general-purpose applications and is somewhat more flexible than the standard polyethylene jacketed LMR.

• **LMR[®]-PVC-W** is a white-jacketed version of LMR-PVC for marine and other applications where color compatibility is desired.

• **LMR[®]-MA** is a flexible cable designed specifically for mobile antenna applications. It has a PVC jacket and un-bonded aluminum tape to facilitate end stripping with automated equipment.

• **Flexibility** and bendability are hallmarks of the LMR-240 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-240. 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-240 cables designed for outdoor exposure incorporate the best materials for UV resistance and have life expectancy in excess of 20 years.

• **Connectors:** A wide variety of connectors are available for LMR-240 cable, including all common interface types, reverse polarity, and a choice of solder or non-solder center pins. Most LMR connectors employ crimp outer attachment using standard hex crimp sizes.

• **Cable Assemblies:** All LMR-240 cable types are available as pre-terminated cable assemblies. Refer to the section on FlexTech for further details.

Part Description					Stock
Part Number	Application	Jacket	Color	Code	
LMR-240	Outdoor	PE	Black	54021	
LMR-240-DB	Outdoor/Watertight	PE	Black	54090	
LMR-240-FR	Indoor/Outdoor Riser	CMR FRPE	Black	54029	
LMR-240-FR-PVC	Indoor/Outdoor Riser	CMR FRPVC	Black	54214	
LMR-240-PVC	General Purpose	PVC	Black	54140	
LMR-240-PVC-W	General Purpose	PVC	White	54202	
LMR-240-MA	Indoor & Mobile Antenna	PVC	Black	54046	

Construction Specifications			
Description	Material	In.	(mm)
Inner Conductor	Solid BC	0.056	(1.42)
Dielectric	Foam PE	0.150	(3.81)
Outer Conductor	Aluminum Tape	0.155	(3.94)
Overall Braid	Tinned Copper	0.178	(4.52)
Jacket	(see table above)	0.240	(6.10)

Mechanical Specifications			
Performance Property	Units	US	(metric)
Bend Radius: installation	in. (mm)	0.75	(19.1)
Bend Radius: repeated	in. (mm)	2.5	(63.5)
Bending Moment	ft-lb (N-m)	0.25	(0.34)
Weight	lb/ft (kg/m)	0.034	(0.05)
Tensile Strength	lb (kg)	80	(36.3)
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	%	84	
Dielectric Constant	NA	1.42	
Time Delay	nS/ft (nS/m)	1.21	(3.97)
Impedance	ohms	50	
Capacitance	pF/ft (pF/m)	24.2	(79.4)
Inductance	uH/ft (uH/m)	0.060	(0.20)
Shielding Effectiveness	dB	>90	
DC Resistance			
Inner Conductor	ohms/1000ft (/km)	3.2	(10.5)
Outer Conductor	ohms/1000ft (/km)	3.89	(12.8)
Voltage Withstand	Volts DC		1500
Jacket Spark	Volts RMS		5000
Peak Power	kW		5.6

Attenuation vs. Frequency (typical)



Frequency (MHz)	30	50	150	220	450	900	1500	1800	2000	2500	5800
Attenuation dB/100 ft	1.3	1.7	3.0	3.7	5.3	7.6	9.9	10.9	11.5	12.9	20.4
Attenuation dB/100 m	4.4	5.7	9.9	12.0	17.3	24.8	32.4	35.6	37.7	42.4	66.8
Avg. Power kW	1.49	1.15	0.66	0.54	0.38	0.26	0.20	0.18	0.17	0.15	0.10

Calculate Attenuation =

$(0.242080) \cdot \sqrt{\text{FMHz}} + (0.000330) \cdot \text{FMHz}$ (interactive calculator available at 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[®]-240 Flexible Low Loss Communications Coax



Connectors

Interface	Description	Part Number	Stock Code	VSWR** Freq. (GHz)	Coupling Nut	Inner Contact Attach	Outer Contact Attach	Finish* Body /Pin	Length in (mm)	Width in (mm)	Weight lb (g)
F Male	Straight Plug	TC-240-FM	3190-924	<1.25:1 (2.5)	Knurl	Solder	Crimp	N/G	1.1 (28)	0.45 (11.4)	0.014 (6.4)
N Male	Straight Plug	EZ-240-NMH-D	3190-1127	<1.25:1 (2.5)	Hex/Knurl	Spring Finger	Crimp	A/G	1.5 (38.1)	0.78 (19.8)	0.086 (39.0)
N Male	Right Angle	TC-240-NM-RA	3190-2426	<1.35:1 (6)	Hex	Solder	Crimp	A/G	1.3 (32.4)	1.22 (31.0)	0.092 (41.7)
N Male	Right Angle	TC-240-NMH-RA-D	3190-2426	<1.35:1 (6)	Hex/Knurl	Solder	Crimp	A/G	1.2 (32.4)	1.22 (31.0)	0.091 (41.7)
N Male	Straight Plug	TC-240-NMH-D	3190-382*	<1.25:1 (2.5)	Hex/Knurl	Solder	Crimp	N/S	1.5 (38)	0.75 (19.1)	0.086 (39.0)
N Male	Straight Plug	TC-240-NMC	3190-244	<1.25:1 (2.5)	Knurl	Solder	Clamp	S/G	1.5 (38)	0.75 (19.1)	0.082 (37.2)
1.0/2.3 DIN	Straight Plug	EZ-240-1023M	3190-2512	<1.35:1 (2.5)	knurl	Spring Finger	Crimp	N/G	1.1 (28.5)	0.33 (8.5)	0.014 (6.63)
N Female	Bulkhead Jack	TC-240-NF-BH	3190-419	<1.25:1 (2.5)	NA	Solder	Crimp	A/G	1.7 (44)	0.88 (22.2)	0.115 (52.2)
N Female	Panel Mount	TC-240-NF-BHF(A)	3190-866*	<1.25:1 (2.5)	NA	Solder	Crimp	A/G	1.7 (44)	0.88 (22.2)	0.115 (52.2)
BNC Male	Straight Plug	TC-240-BMC	3190-242	<1.25:1 (2.5)	Knurl	Solder	Clamp	S/G	1.7 (43)	0.56 (14.2)	0.040 (18.1)
BNC Male	Straight Plug	TC-240-BM(A)	3190-867	<1.25:1 (2.5)	Knurl	Solder	Crimp	A/G	1.7 (43)	0.56 (14.2)	0.043 (19.5)
TNC Male	Straight Plug	EZ-240-TM	3190-1128	<1.25:1 (2.5)	Knurl	Spring Finger	Crimp	N/G	1.4 (34.3)	0.59 (15.0)	0.043 (19.5)
TNC Male	Straight Plug	TC-240-TM	3190-275	<1.25:1 (2.5)	Knurl	Solder	Crimp	N/G	1.7 (43)	0.59 (15.0)	0.043 (19.5)
TNC Male	Right Angle	TC-240-TM-RA	3190-604	<1.35:1 (2.5)	Knurl	Solder	Crimp	N/G	1.3 (33)	0.57 (14.5)	0.055 (24.9)
TNC Male	Reverse Polarity	EZ-240-TM-RP	3190-970	<1.25:1 (2.5)	Knurl	Spring Finger	Crimp	A/G	1.4 (36)	0.59 (15.0)	0.043 (19.5)
QMA Male	Straight Plug	EZ-240-QM	3190-1533	<1.25:1 (6)	Knurl	Spring Finger	Crimp	N/G	1.2 (30.0)	0.41 (10.5)	0.014 (6.35)
QMA Male	Right Angle	EZ-240-QM-RA	3190-1539	<1.25:1 (<6)	Knurl	Spring Finger	Crimp	N/G	0.8 (20.3)	0.65 (16.5)	0.019 (8.62)
SM A Male	Straight Plug	EZ-240-SM	3190-1530	<1.25:1 (6)	Hex	Spring Finger	Crimp	N/G	1.0 (25.4)	0.32 (8.1)	0.016 (7.26)
SM A Male	Straight Plug	TC-240-SM	3190-380*	<1.25:1 (10)	Hex	Solder	Crimp	SS/G	1.0 (25)	0.32 (8.1)	0.016 (7.3)
SM A Male	Right Angle	TC-240-SM-RA	3190-381*	<1.35:1 (6)	Hex	Solder	Crimp	SS/G	0.8 (20)	0.65 (16.5)	0.019 (8.6)
SM A Male	Reverse Polarity	TC-240-SM-RP	3190-326	<1.25:1 (2.5)	Hex	Solder	Crimp	SS/G	1.0 (25)	0.32 (8.1)	0.016 (7.3)
SMA Female	Bulkhead Jack	TC-240-SF-BH	3190-824*	<1.25:1 (2.5)	NA	Solder	Crimp	SS/G	1.1 (29)	0.31 (7.9)	0.019 (8.6)
Mini-UHF	Straight Plug	TC-240-MUHF	3190-445	<1.25:1 (2.5)	Knurl	Solder	Crimp	N/G	1.1 (28)	0.45 (11.4)	0.014 (6.4)

* Finish metals: N=Nickel, S=Silver, G=Gold, SS=Stainless Steel, A=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-S240TT	GK-S240TT	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
Strip Tool	CST-240	3192-070	Strip tool
Deburr Tool	DBT-U	3192-001	Removes center conductor rough edges
Cutting Tool	CCT-01	3190-1544	Cable end flush cut tool
Replacement Blade	RB-01	3190-1609	Replacement blade for cutting tool
Replacement	RB-CST	3192-086	Replacement blade kit for all CST strip tools