

# L4-DMDM-12M-SGW-D

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D-CLASS LDF4-50A SureFlex® Jumper with interface types 7-16 DIN Male and 7-16 DIN Male with HELIAX® SureGuard weatherproofing, 12 m

- If there are threads along the entire device port length, the HELIAX® SureGuard weatherproofing solutions will only seal properly if the HSG-M29-ADPT adapter is installed on the device port

## Product Classification

<b>Product Type</b>	SureFlex® D-CLASS, dynamic PIM
<b>Product Series</b>	LDF4-50A

## General Specifications

<b>Body Style, Connector A</b>	Straight
<b>Body Style, Connector B</b>	Straight
<b>Interface, Connector A</b>	7-16 DIN Male
<b>Interface, Connector B</b>	7-16 DIN Male
<b>Specification Sheet Revision Level</b>	A

## Dimensions

<b>Length</b>	12 m   39.37 ft
<b>Nominal Size</b>	1/2 in

## Electrical Specifications

<b>3rd Order IMD Dynamic</b>	-116 dBm
<b>3rd Order IMD Dynamic Test Method</b>	Two +43 dBm carriers per IEC 62037
<b>DTF, Connector A</b>	-34 dB
<b>DTF, Connector B</b>	-34 dB

## Logo Image

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## VSWR/Return Loss

Frequency Band	VSWR	Return Loss (dB)
698-960 MHz	1.101	26.36
1700-2200 MHz	1.101	26.36
2200-2700 MHz	1.135	23.98

## Jumper Assembly Sample Label

Batch    Manufacturing Date (two digit year and week)

Manufacturing Plant    Product Revision

0123456789    US22    1240    /A

COMMSCOPE Andrew Solutions™

**F4-DMDM-2M-D** — Part Number

2 M (6.562 FT)  
SUREFLEX ASSEMBLY  
U.S. PATENT 5802710

Product of UNITED STATES    12US220001242 — Serial Number



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## Environmental Specifications

<b>Immersion Test Method</b>	Meets IEC 60529:2001, IP68 in mated condition
<b>Weatherproofing Method</b>	HELIAX® SureGuard weatherproofing boot

## Packaging and Weights

<b>Included</b>	Weatherproofing boot
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## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system



## Included Products

HSG-LDF4	- HELIAX® SureGuard® Boot for 1/2 in jumpers to antennas or devices
HSG-M29-ADPT	- HELIAX® SureGuard® sealing adapter for fully threaded device ports that will form a weather seal with the HELIAX® SureGuard Boots (HSG-LDF4, HSG-LDF4-DR, HSG-FSJ4 and HSG-FSJ4-DR)
HSG-M29-ADPT-L	- HELIAX® SureGuard® sealing adapter for fully threaded device ports that will form a weather seal with the HELIAX® SureGuard Boots (HSG-LDF4, HSG-LDF4-DR, HSG-FSJ4 and HSG-FSJ4-DR)
LDF4-50A	- LDF4-50A, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/2 in, black PE jacket (Halogen free jacketing non-fire-retardant)

# HSG-LDF4



## HELIAX® SureGuard® Boot for 1/2 in jumpers to antennas or devices

- If there are threads along the entire device port length, the HELIAX® SureGuard weatherproofing solutions will only seal properly if the HSG-M29-ADPT adapter is installed on the device port

## Product Classification

<b>Product Type</b>	Weatherproofing boot
<b>Product Brand</b>	HELIAX®   SureGuard®
<b>Ordering Note</b>	CommScope® non-standard product

## General Specifications

<b>Application</b>	Provides additional moisture seal for cable connections
<b>Applications per Kit</b>	One 1/2 in to antenna or device connection
<b>Color</b>	Black

## Dimensions

<b>Width</b>	55 mm   2.165 in
<b>Length</b>	99 mm   3.898 in
<b>Cable Diameter for Seal, maximum</b>	16.26 mm   0.64 in
<b>Cable Diameter for Seal, minimum</b>	15.59 mm   0.614 in
<b>Inner Diameter</b>	14.35 mm   0.565 in
<b>Nominal Size</b>	1/2 in

## Material Specifications

<b>Material Type</b>	Silicone rubber
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## Environmental Specifications

<b>Installation temperature</b>	-40 °C to +65 °C (-40 °F to +149 °F)
<b>Operating Temperature</b>	-40 °C to +85 °C (-40 °F to +185 °F)
<b>Storage Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)

# HSG-LDF4

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<b>UV Resistance Test Method</b>	ASTM G154-12a
<b>UV Resistance, minimum with no degradation</b>	≥1000 hours
<b>Weather Resistance Test Method</b>	IEC 60068-2-11   IEC 60529:2001, IP68

## Packaging and Weights

<b>Height, packed</b>	41 mm   1.614 in
<b>Width, packed</b>	120 mm   4.724 in
<b>Length, packed</b>	140 mm   5.512 in
<b>Packaging quantity</b>	1
<b>Weight, gross</b>	27 g   0.06 lb

# HSG-M29-ADPT

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HELIAX® SureGuard® sealing adapter for fully threaded device ports that will form a weather seal with the HELIAX® SureGuard Boots (HSG-LDF4, HSG-LDF4-DR, HSG-FSJ4 and HSG-FSJ4-DR)

## Product Classification

<b>Product Type</b>	Weatherproofing boot
<b>Product Brand</b>	HELIAX®   SureGuard®
<b>Ordering Note</b>	CommScope® non-standard product

## General Specifications

<b>Application</b>	Provides moisture seal for fully threaded device ports
<b>Applications per Kit</b>	Ten device connections
<b>Color</b>	Black
<b>Device Port Interface</b>	7-16 DIN Female
<b>Thread Size</b>	M29

## Dimensions

<b>Width</b>	35.5 mm   1.398 in
<b>Length</b>	12 mm   0.472 in
<b>Inner Diameter</b>	28.3 mm   1.114 in

## Material Specifications

<b>Material Type</b>	Thermoplastic elastomer (TPE)
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## Environmental Specifications

<b>Installation temperature</b>	-40 °C to +65 °C (-40 °F to +149 °F)
<b>Operating Temperature</b>	-40 °C to +85 °C (-40 °F to +185 °F)
<b>Storage Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>UV Resistance Test Method</b>	ASTM G154-12a

# HSG-M29-ADPT

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<b>UV Resistance, minimum with no degradation</b>	≥1000 hours
<b>Weather Resistance Test Method</b>	IEC 60068-2-11   IEC 60529:2001, IP68

## Packaging and Weights

<b>Height, packed</b>	25.5 mm   1.004 in
<b>Width, packed</b>	120 mm   4.724 in
<b>Length, packed</b>	140 mm   5.512 in
<b>Packaging quantity</b>	10
<b>Weight, gross</b>	37 g   0.082 lb

# HSG-M29-ADPT-L

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HELIAX® SureGuard® sealing adapter for fully threaded device ports that will form a weather seal with the HELIAX® SureGuard Boots (HSG-LDF4, HSG-LDF4-DR, HSG-FSJ4 and HSG-FSJ4-DR)

## Product Classification

<b>Product Type</b>	Weatherproofing boot
<b>Product Brand</b>	HELIAX®   SureGuard®
<b>Ordering Note</b>	CommScope® non-standard product

## General Specifications

<b>Application</b>	Provides moisture seal for fully threaded device ports
<b>Applications per Kit</b>	Ten device connections
<b>Color</b>	Black
<b>Device Port Interface</b>	7-16 DIN Female
<b>Thread Size</b>	M29

## Dimensions

<b>Width</b>	41 mm   1.614 in
<b>Length</b>	14.6 mm   0.575 in
<b>Inner Diameter</b>	28.3 mm   1.114 in

## Material Specifications

<b>Material Type</b>	Thermoplastic elastomer (TPE)
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## Environmental Specifications

<b>Installation temperature</b>	-40 °C to +65 °C (-40 °F to +149 °F)
<b>Operating Temperature</b>	-40 °C to +85 °C (-40 °F to +185 °F)
<b>Storage Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>UV Resistance Test Method</b>	ASTM G154-12a



# HSG-M29-ADPT-L

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<b>UV Resistance, minimum with no degradation</b>	≥1000 hours
<b>Weather Resistance Test Method</b>	IEC 60068-2-11   IEC 60529:2001, IP68

## Packaging and Weights

<b>Height, packed</b>	15 mm   0.591 in
<b>Width, packed</b>	120 mm   4.724 in
<b>Length, packed</b>	140 mm   5.512 in
<b>Packaging quantity</b>	10
<b>Weight, gross</b>	55 g   0.121 lb

## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
CHINA-ROHS	Below maximum concentration value
REACH-SVHC	Compliant as per SVHC revision on <a href="http://www.commscope.com/ProductCompliance">www.commscope.com/ProductCompliance</a>
ROHS	Compliant



# LDF4-50A

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LDF4-50A, HELIAX® Low Density Foam Coaxial Cable, corrugated copper, 1/2 in, black PE jacket (Halogen free jacketing non-fire-retardant)



## Product Classification

<b>Product Type</b>	Coaxial wireless cable
<b>Product Brand</b>	HELIAX®
<b>Product Series</b>	LDF4-50A
<b>Ordering Note</b>	CommScope® standard product (Global)

## General Specifications

<b>Flexibility</b>	Standard
<b>Jacket Color</b>	Black
<b>Performance Note</b>	Attenuation values typical, guaranteed within 5%

## Dimensions

<b>Diameter Over Dielectric</b>	12.954 mm   0.51 in
<b>Diameter Over Jacket</b>	15.875 mm   0.625 in
<b>Inner Conductor OD</b>	4.826 mm   0.19 in
<b>Outer Conductor OD</b>	13.97 mm   0.55 in
<b>Nominal Size</b>	1/2 in

## Electrical Specifications

<b>Cable Impedance</b>	50 ohm ±1 ohm
<b>Capacitance</b>	75.8 pF/m   23.104 pF/ft
<b>dc Resistance, Inner Conductor</b>	1.48 ohms/km   0.451 ohms/kft
<b>dc Resistance, Outer Conductor</b>	1.9 ohms/km   0.579 ohms/kft
<b>dc Test Voltage</b>	4000 V
<b>Inductance</b>	0.19 µH/m   0.058 µH/ft

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<b>Insulation Resistance</b>	100000 MOhms-km
<b>Jacket Spark Test Voltage (rms)</b>	8000 V
<b>Operating Frequency Band</b>	1 – 8800 MHz
<b>Peak Power</b>	40 kW
<b>Velocity</b>	88 %

## VSWR/Return Loss

<b>Frequency Band</b>	<b>VSWR</b>	<b>Return Loss (dB)</b>
<b>680–800 MHz</b>	1.13	24.3
<b>800–960 MHz</b>	1.13	24.3
<b>1700–2200 MHz</b>	1.13	24.3
<b>2300–2700 MHz</b>	1.13	24.3

## Attenuation

<b>Frequency (MHz)</b>	<b>Attenuation (dB/100 m)</b>	<b>Attenuation (dB/100 ft)</b>	<b>Average Power (kW)</b>
<b>1.0</b>	0.211	0.064	36.11
<b>1.5</b>	0.259	0.079	29.46
<b>2.0</b>	0.299	0.091	25.5
<b>10.0</b>	0.672	0.205	11.35
<b>20.0</b>	0.954	0.291	7.99
<b>30.0</b>	1.172	0.357	6.51
<b>50.0</b>	1.521	0.463	5.02
<b>85.0</b>	1.995	0.608	3.82
<b>88.0</b>	2.031	0.619	3.76
<b>100.0</b>	2.169	0.661	3.52
<b>108.0</b>	2.256	0.688	3.38
<b>150.0</b>	2.673	0.815	2.85
<b>174.0</b>	2.887	0.88	2.64
<b>200.0</b>	3.103	0.946	2.46
<b>204.0</b>	3.135	0.956	2.43
<b>300.0</b>	3.835	1.169	1.99
<b>400.0</b>	4.462	1.36	1.71
<b>450.0</b>	4.749	1.447	1.61
<b>460.0</b>	4.804	1.464	1.59
<b>500.0</b>	5.021	1.53	1.52

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<b>512.0</b>	5.085	1.55	1.5
<b>600.0</b>	5.533	1.686	1.38
<b>700.0</b>	6.009	1.831	1.27
<b>800.0</b>	6.456	1.968	1.18
<b>824.0</b>	6.56	1.999	1.16
<b>894.0</b>	6.855	2.089	1.11
<b>960.0</b>	7.124	2.171	1.07
<b>1000.0</b>	7.284	2.22	1.05
<b>1218.0</b>	8.11	2.472	0.94
<b>1250.0</b>	8.226	2.507	0.93
<b>1500.0</b>	9.093	2.771	0.84
<b>1700.0</b>	9.744	2.97	0.78
<b>1794.0</b>	10.039	3.06	0.76
<b>1800.0</b>	10.058	3.066	0.76
<b>2000.0</b>	10.666	3.251	0.72
<b>2100.0</b>	10.961	3.341	0.7
<b>2200.0</b>	11.251	3.429	0.68
<b>2300.0</b>	11.535	3.516	0.66
<b>2500.0</b>	12.09	3.685	0.63
<b>2700.0</b>	12.627	3.849	0.6
<b>3000.0</b>	13.407	4.086	0.57
<b>3400.0</b>	14.401	4.389	0.53
<b>3600.0</b>	14.882	4.536	0.51
<b>3700.0</b>	15.118	4.608	0.5
<b>3800.0</b>	15.353	4.679	0.5
<b>3900.0</b>	15.585	4.75	0.49
<b>4000.0</b>	15.815	4.82	0.48
<b>4100.0</b>	16.042	4.889	0.48
<b>4200.0</b>	16.268	4.958	0.47
<b>4300.0</b>	16.492	5.027	0.46
<b>4400.0</b>	16.714	5.094	0.46
<b>4500.0</b>	16.934	5.161	0.45
<b>4600.0</b>	17.153	5.228	0.44
<b>4700.0</b>	17.37	5.294	0.44
<b>4800.0</b>	17.585	5.36	0.43

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<b>4900.0</b>	17.798	5.425	0.43
<b>5000.0</b>	18.01	5.489	0.42
<b>6000.0</b>	20.055	6.113	0.38
<b>8000.0</b>	23.826	7.262	0.32
<b>8800.0</b>	25.244	7.694	0.3

## Material Specifications

<b>Dielectric Material</b>	Foam PE
<b>Jacket Material</b>	PE
<b>Inner Conductor Material</b>	Copper-clad aluminum wire
<b>Outer Conductor Material</b>	Corrugated copper

## Mechanical Specifications

<b>Minimum Bend Radius, multiple Bends</b>	127 mm   5 in
<b>Minimum Bend Radius, single Bend</b>	50.8 mm   2 in
<b>Number of Bends, minimum</b>	15
<b>Number of Bends, typical</b>	50
<b>Tensile Strength</b>	113 kg   249.122 lb
<b>Bending Moment</b>	3.8 N-m   33.633 in lb
<b>Flat Plate Crush Strength</b>	2 kg/mm   111.995 lb/in

## Environmental Specifications

<b>Installation temperature</b>	-40 °C to +60 °C (-40 °F to +140 °F)
<b>Operating Temperature</b>	-55 °C to +85 °C (-67 °F to +185 °F)
<b>Storage Temperature</b>	-70 °C to +85 °C (-94 °F to +185 °F)
<b>Attenuation, Ambient Temperature</b>	68 °F   20 °C
<b>Average Power, Ambient Temperature</b>	104 °F   40 °C
<b>Average Power, Inner Conductor Temperature</b>	212 °F   100 °C

## Packaging and Weights

<b>Cable weight</b>	0.22 kg/m   0.148 lb/ft
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## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
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# LDF4-50A

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CENELEC	EN 50575 compliant, Declaration of Performance (DoP) available
CHINA-ROHS	Below maximum concentration value
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
REACH-SVHC	Compliant as per SVHC revision on <a href="http://www.commscope.com/ProductCompliance">www.commscope.com/ProductCompliance</a>
ROHS	Compliant

