

PRODUCT DATASHEET **FR-N-3SM-01-10F** HYBRIFLEX® RRH Optical Fiber Cable, 3 Pair, Ruggedized Bend-Insensitive Single-Mode Fiber, DLC Connectors, 10 ft

PRODUCT DESCRIPTION

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines any combination of optical fiber and/or DC power for RRHs in a single lightweight armored or unarmored cable, making it the world's most innovative solution for RRH deployments. Hybrid, Fiber Optic and DC riser trunk and jumper cables are available in a large variety of fiber counts, DC counts and cross sections. Both pre-connectorized and on-site options are available.

FEATURES / BENEFITS

- Ruggedized, bend-insensitive fiber design with outstanding bending characteristics
- Lightweight solution and compact design Decreases tower loading
- Robust cabling Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pair directly to the RRH Reduces CAPEX and wind load by eliminating need for interconnection
- Outdoor, black jacket Ensures long-lasting cable protection
- 100% Factory tested Online test results available

TECHNICAL FEATURES

STRUCTURE

Cable TypeImage: Cable TypeFire PerformanceImage: Cable TypeFire Performancemm (ft)MECHANICAL SPECIFICATIONSOuter Diameter Nominalmm (in)Cable Weightkg/m (lb/ft)Cable Weightkg/m (lb/ft)Cable Weightmm (in)Bending Radius, Single Bendmm (in)Minimum Bending Radius, Multiple Bendsmm (in)mm (in)33 (3.3)Recommended / Maximum Clamp Spacingmm (ft)F/O CABLE SPECIFICATIONSNumber of F/O PairsImage: Cable TypeSpace Cladμmμm(in)Gescondary Protection Nominalμm (in)Muftiple LossMu (in)Optical LossdB/KmGB Break-out Length (Top)mm (in)To Cable Typemm (in)Descondary Protection Nominalμm (in)Pior Cable Type OFNR (UL1666), RoHS CompliantCore/Cladmm (in)Distance Type OFNR (UL1666), RoHS CompliantCore Cladmm (in)Distance Type OFNR (UL1666), RoHS CompliantOptical Lossmm (in)Pior Cable Typemm (in)Core Cladmm (in)Distance Type OFNR (UL1666), RoHS CompliantOptical Lossmm (in)Pior Cable Typemm (in)Distance Type OFNR (UL1666), RoHS CompliantOptical Lossmm (in)Distance Type OFNR (UL1666), RoHS CompliantOptical Lossmm (in)Distance Type OFNR (UL1666), Polt	STRUCTURE				
Lengthm (ft)3 (10)MECHANICAL SPECIFICATIONSOuter Diameter Nominalmm (in)5.5 (0.217)Cable Weightkg/m (lb/ft)0.033 (0.022)Minimum Bending Radius, Single Bendmm (in)66 (2.6)Minimum Bending Radius, Multiple Bendsmm (in)83 (3.3)Recommended / Maximum Clamp Spacingm (ft)1 / 1.2 (3.25 / 4)F/O CABLE SPECIFICATIONSTNumber of F/O Pairs1G657-A2 Single Mode, Bend TolerantF/O Cable Type19/125Secondary Protection Nominalμm (in)900 (0.035)F/O Standards (Meets or Exceeds)MUL Listed Type OFNR (UL1666), RoHS CompliantOptical LossdB/Km0.5 @ 1310 nm 0.5 @ 1310 nm 0.5 @ 1550 nm	Cable Type		HYBRIFLEX®		
MECHANICAL SPECIFICATIONS Outer Diameter Nominal mm (in) 5.5 (0.217) Cable Weight kg/m (lb/ft) 0.033 (0.022) Minimum Bending Radius, Single Bend mm (in) 66 (2.6) Minimum Bending Radius, Multiple Bends mm (in) 83 (3.3) Recommended / Maximum Clamp Spacing m (ft) 1 / 1.2 (3.25 / 4) F/O CABLE SPECIFICATIONS mm (ft) 1 / 1.2 (3.25 / 4) F/O Cable Type	Fire Performance		Flame Retardant		
Outer Diameter Nominalmm (in)5.5 (0.217)Cable Weightkg/m (lb/ft)0.033 (0.022)Minimum Bending Radius, Single Bendmm (in)66 (2.6)Minimum Bending Radius, Multiple Bendsmm (in)83 (3.3)Recommended / Maximum Clamp Spacingmm (ft)1 / 1.2 (3.25 / 4)F/O CABLE SPECIFICATIONSYNumber of F/O PairsIG657-A2 Single Mode, Bend TolerantCore/Cladμmμm90(0.035)F/O Standards (Meets or Exceeds)μm (in)UL Listed Type OFNR (UL1666), RoHS CompliantOptical LossdB/Km0.5 @ 1310 nm 0.5 @ 1550 nm	Length	m (ft)	3 (10)		
Cable Weightkg/m (lb/f)0.033 (0.022)Minimum Bending Radius, Single Bendmm (in)66 (2.6)Minimum Bending Radius, Multiple Bendsmm (in)83 (3.3)Recommended / Maximum Clamp Spacingm (ft)1 / 1.2 (3.25 / 4)F/O CABLE SPECIFICATIONSmNumber of F/O PairsF/O Cable TypeG657-A2 Single Mode, Bend TolerantCore/CladμmμmSecondary Protection Nominalμm (in)900 (0.035)F/O Standards (Meets or Exceeds)Multiple Of Mark0.5 @ 1310 nm 0.5 @ 1550 nm	MECHANICAL SPECIFICATIONS				
Minimum Bending Radius, Single Bendmm (in)66 (2.6)Minimum Bending Radius, Multiple Bendsmm (in)83 (3.3)Recommended / Maximum Clamp Spacingm (ft)1 / 1.2 (3.25 / 4)F/O CABLE SPECIFICATIONSm (ft)1 / 1.2 (3.25 / 4)F/O CABLE SPECIFICATIONSSecondary Protection NominalμmF/O Cable TypeG657-A2 Single Mode, Bend TolerantCore/Cladμm900 (0.035)F/O Standards (Meets or Exceeds)μm (in)900 (0.035)Optical LossdB/Km0.5 @ 1310 nm 0.5 @ 1550 nm	Outer Diameter Nominal	mm (in)	5.5 (0.217)		
Bendmm (n)mm (b)Minimum Bending Radius, Multiple Bendsmm (in)Recommended/ 83 (3.3)Recommended / Maximum Clamp Spacingm (ft)1 / 1.2 (3.25 / 4)F/O CABLE SPECIFICATIONSm (ft)State 100 (100 (100 (100 (100 (100 (100 (100	Cable Weight	kg/m (lb/ft)	0.033 (0.022)		
Multiple Bendsmm (in)83 (3.3)Recommended / Maximum Clamp Spacingm (ft)1 / 1.2 (3.25 / 4)F/O CABLE SPECIFICATIONSNumber of F/O PairsIGeostrationF/O Cable TypeIGeostrationCore/Cladμm9/125Secondary Protection Nominalμm (in)900 (0.035)F/O Standards (Meets or Exceeds)IUL Listed Type OFNR (UL1666), RoHS CompliantOptical LossdB/Km0.5 @ 1310 nm 0.5 @ 1550 nm	• •	mm (in)	66 (2.6)		
Spacingm (ft)171.2 (3.2574)F/O CABLE SPECIFICATIONSNumber of F/O PairsF/O Cable TypeCore/Cladμmμm9/125Secondary Protection Nominalμm (in)F/O Standards (Meets or Exceeds)Optical LossdB/Km	•	mm (in)	83 (3.3)		
Number of F/O PairsI3F/O Cable TypeIG657-A2 Single Mode, Bend TolerantCore/Cladμm9/125Secondary Protection Nominalμm (in)900 (0.035)F/O Standards (Meets or Exceeds)IUL Listed Type OFNR (UL1666), RoHS CompliantOptical LossdB/Km0.5 @ 1310 nm 0.5 @ 1550 nm		m (ft)	1 / 1.2 (3.25 / 4)		
F/O Cable TypeImage: Construction NominalCore/CladμmG657-A2 Single Mode, Bend TolerantSecondary Protection Nominalμm (in)9/125F/O Standards (Meets or Exceeds)μm (in)UL Listed Type OFNR (UL1666), RoHS CompliantOptical LossdB/Km0.5 @ 1310 nm 0.5 @ 1550 nm	F/O CABLE SPECIFICATIONS				
Core/Cladμm9/125Secondary Protection Nominalμm (in)900 (0.035)F/O Standards (Meets or Exceeds)UL Listed Type OFNR (UL1666), RoHS CompliantOptical LossdB/Km0.5 @ 1310 nm 0.5 @ 1550 nm	Number of F/O Pairs		3		
Secondary Protection Nominal μm (in) 900 (0.035) F/O Standards (Meets or Exceeds) UL Listed Type OFNR (UL1666), RoHS Compliant Optical Loss dB/Km 0.5 @ 1310 nm 0.5 @ 1550 nm	F/O Cable Type		G657-A2 Single Mode, Bend Tolerant		
F/O Standards (Meets or Exceeds) Image: Complex of the second	Core/Clad	μm	9/125		
Optical Loss 0.5 @ 1310 nm dB/Km 0.5 @ 1550 nm	Secondary Protection Nominal	µm (in)	900 (0.035)		
Optical Loss dB/Km 0.5 @ 1550 nm	F/O Standards (Meets or Exceeds)		UL Listed Type OFNR (UL1666), RoHS Compliant		
FO Break-out Length (Top) mm (in) 279 (11)	Optical Loss	dB/Km			
	FO Break-out Length (Top)	mm (in)	279 (11)		
FO Break-out Length (Bottom) mm (in) 228 (9)	FO Break-out Length (Bottom)	mm (in)	228 (9)		
Cable Sealing Method Semi-rigid flame-retardant polyolefin, with hot melt adhesive	Cable Sealing Method		Semi-rigid flame-retardant polyolefin, with hot melt adhesive		

FR-N-3SM-01-10F

REV DATE : 26 Apr 2021

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HYBRIFLEX® RRH Optical Fiber Cable, 3 Pair, Ruggedized Bend-Insensitive Single-Mode Fiber, DLC Connectors, 10 ft

Fiber Termination End 1		DLC Connector			
Fiber Termination End 2		DLC Connector			
CABLE JACKET					
UV-Protection Individual and External Jacket		Yes			
Jacket Material		Flame Retardant, Indoor/Outdoor, PVC, Black			
TESTING AND ENVIRONMENTAL					
Storage Temperature	°C (°F)	-40 to 70 (-40 to 158)			
Operation Temperature	°C (°F)	-40 to 65 (-40 to 149)			
Installation Temperature	°C (°F)	-20 to 65 (-4 to 149)			
Jacket Specifications		UL 1666			
EXTERNAL DOCUMENT LINKS		NOTES			

Installation Guidelines: Download QuickShip 2.0 Program Information: Download On-line Factory Test Results: View



Length, ft	Model Number
6	FR-N-1SM-01-6F
10	FR-N-1SM-01-10F
15	FR-N-1SM-01-15F
20	FR-N-1SM-01-20F
30	FR-N-1SM-01-30F
40	FR-N-1SM-01-40F
50	FR-N-1SM-01-50F
60	FR-N-1SM-01-60F
79	FR-N-1SM-01-70F
80	FR-N-1SM-01-80F
90	FR-N-1SM-01-90F
100	FR-N-1SM-01-100F

ADDITIONAL ASSEMBLIES - 1 PAIR SM FIBER

ADDITIONAL ASSEMBLIES - 2 PAIR SM FIBER

Length, ft	Model Number
10	FR-N-2SM-01-10F
20	FR-N-2SM-01-20F
30	FR-N-2SM-01-30F
40	FR-N-2SM-01-40F
50	FR-N-2SM-01-50F
60	FR-N-2SM-01-60F
70	FR-N-2SM-01-70F
80	FR-N-2SM-01-80F
90	FR-N-2SM-01-90F
100	FR-N-2SM-01-100F

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HYBRIFLEX® RRH Optical Fiber Cable, 3 Pair, Ruggedized Bend-Insensitive Single-Mode Fiber, DLC Connectors, 10 ft

ADDITIONAL	ASSEMBLIES - 3 PAIR SM FIBI	ER

Length, ft	Model Number
3	FR-N-3SM-01-3F
4	FR-N-3SM-01-4F
6	FR-N-3SM-01-6F
8	FR-N-3SM-01-8F
10	FR-N-3SM-01-10F
15	FR-N-3SM-01-15F
20	FR-N-3SM-01-20F
30	FR-N-3SM-01-30F
50	FR-N-3SM-01-50F

ADDITIONAL ASSEMBLIES - 12 PAIR SM FIBER

Length, ft	Model Number
3	FR-N-12SM-01-3F
4	FR-N-12SM-01-4F
6	FR-N-12SM-01-6F
8	FR-N-12SM-01-8F
10	FR-N-12SM-01-10F
15	FR-N-12SM-01-15F
20	FR-N-12SM-01-20F
30	FR-N-12SM-01-30F

ADDITIONAL ASSEMBLIES - 1 STRAND SM FIBER

Length, ft	Model Number
10	FR-N-1SSM-01-10F
20	FR-N-1SSM-01-20F
30	FR-N-1SSM-01-30F
40	FR-N-1SSM-01-40F
50	FR-N-1SSM-01-50F
60	FR-N-1SSM-01-60F
70	FR-N-1SSM-01-70F
80	FR-N-1SSM-01-80F
90	FR-N-1SSM-01-90F
100	FR-N-1SSM-01-100F

ADDITIONAL	ASSEMBL	IES - 6 F	PAIR SM	FIBER
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Length, ft	Model Number
3	FR-N-6SM-01-3F
4	FR-N-6SM-01-4F
6	FR-N-6SM-01-6F
8	FR-N-6SM-01-8F
10	FR-N-6SM-01-10F
15	FR-N-6SM-01-15F
20	FR-N-6SM-01-20F
30	FR-N-6SM-01-30F
40	FR-N-6SM-01-40F

ADDITIONAL ASSEMBLIES - 2 STRAND SM FIBER

Length, ft	Model Number
10	FR-N-2SSM-01-10F
20	FR-N-2SSM-01-20F
30	FR-N-2SSM-01-30F
40	FR-N-2SSM-01-40F
50	FR-N-2SSM-01-50F
60	FR-N-2SSM-01-60F
70	FR-N-2SSM-01-70F
80	FR-N-2SSM-01-80F
90	FR-N-2SSM-01-90F
100	FR-N-2SSM-01-100F

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PRE-PACKED HYBRIFLEX KITS FOR EASY INTEGRATION INTO RAYCAP JUNCTION BOXES

RFS now offers Kitting options for most hybrid risers and jumpers that include both the cable assembly and the Raycap inserts. For reference, kits have a "K" as the third digit in the model number. HB158 does not require an additional gland/insert for proper installation and sealing into the Distribution Boxes.

Kit Model Prefix	Assembly Prefix	Assembly Qty	Raycap Insert Kit	Insert Kit Contents	Raycap Insert Kit Qty
HBK114	HB114		RFS-TRUNK-KIT	(2) 190 0620, Insert, M75, 1H, 40mm	
HBK058	HBF058	1	RFS-JUMP-KIT	(1) 190 0621, Insert, M75, 3H, 22mm, Split w/ plugs	1
HBK012	HBF012		RFS-JUMP-KIT-2	(1) 190 0903, Insert, M75, 2H, 15mm, Split w/ plugs	I
FRK-N	FR-N		RFS-FIBER-KIT	(1) 190 0657, Insert, M75, 6H, 6.1mm, Split w/ plugs	



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