PRODUCT DATASHEET

HB158-U12S24-10-LI

HYBRIFLEX® Hybrid Feeder Cabling Solution 12x24, 1-5/8”, 12 pairs 6AWG, Low-Inductance Coaxial Power Wire, 24 pairs Single-Mode Fiber, DLC Connectors, 10 ft

RFS Technologies’ HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world’s most innovative solution for RRH deployments. It was developed to reduce installation complexity and costs at Cellular sites.

HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It may eliminate the need for junction boxes as well as works in conjuction with and can connect multiple RRHs with a single feeder. Standard RFS Technologies CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.



FEATURES / BENEFITS

- Aluminum corrugated armor with outstanding bending characteristics – Minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1-5/8" coaxial cable
- Outer conductor grounding – Utilizes same grounding methods as coaxial cable
- 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 pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- UL-Listed, flame-retardant jacket, UV protected assembles - Allows both indoor and outdoor applications
- **Maximum robustness – Fully armored cable includes riser trunk and top outdoor breakout**

TECHNICAL FEATURES

STRUCTURE

Cable Type		HYBRIFLEX® Low Inductance
Fire Performance		Flame Retardant
Size		1-5/8"
Length	m (ft)	3 (10)

MECHANICAL SPECIFICATIONS

Outer Diameter Nominal	mm (in)	50.19 (1.976)
Cable Weight	kg/m (lb/ft)	4.76 (3.2)
Minimum Bending Radius, Single Bend	mm (in)	254 (10)
Minimum Bending Radius, Multiple Bends	mm (in)	508 (20)
Recommended / Maximum Clamp Spacing	m (ft)	1 / 1.2 (3.25 / 4)

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ARMOR SPECIFICATIONS

Armor Type		Corrugated Aluminum
Maximum DC-Resistance of Armor	Ω/km (Ω/kft)	0.58 (0.178)
Diameter Corrugated Armor	mm (in)	46.4 (1.83)

CABLE JACKET

UV-Protection Individual and External Jacket		Yes

DC POWER CABLE SPECIFICATIONS

Number of DC Pairs		12
Maximum DC-Resistance Power Cable	Ω/km (Ω/kft)	1.4 (0.41)
Cross Section of Power Cable	mm^2 (AWG)	13.3 (6)
DC Wire Jacket Material		PVC
DC Cable Single Bending Radius	mm (in)	137 (5.4)
DC Cable Diameter	mm (in)	9.3 (0.365)
DC Cable Jacket Material		PVC
DC Standards (Meets or Exceeds)		For use in UL 2882, PVC, RoHS/REACH Compliant
Break-out Length (Top)	mm (in)	812 (32)
Break-out Length (Bottom)	mm (in)	812 (32)
Alarm Wire		8 (4 twisted pairs), 0.8 mm2 (8), 18 AWG
Alarm Wire Standards (Meets or Exceeds)		UL Standard 1063, 1581 VW-1, MTW Oil and Gasoline RES1 SUNRES (Cable meets UL requirements), RoHS/REACH Compliant

F/O CABLE SPECIFICATIONS

F/O Cable Type		G657-A1 Single Mode, Bend Tolerant
Number of F/O Pairs		24
Core/Clad	µm	9/125
Secondary Protection Nominal	µm (in)	900 (0.035)
Single Bending Radius	mm (in)	157 (6.2)
Cable Diameter		5.512 (0.217)
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
Fiber Termination End 1		DLC connector
Fiber Termination End 2		DLC connector
FO Break-out Length (Top)	mm (in)	1524 (60)
FO Break-out Length (Bottom)	mm (in)	1524 (60)

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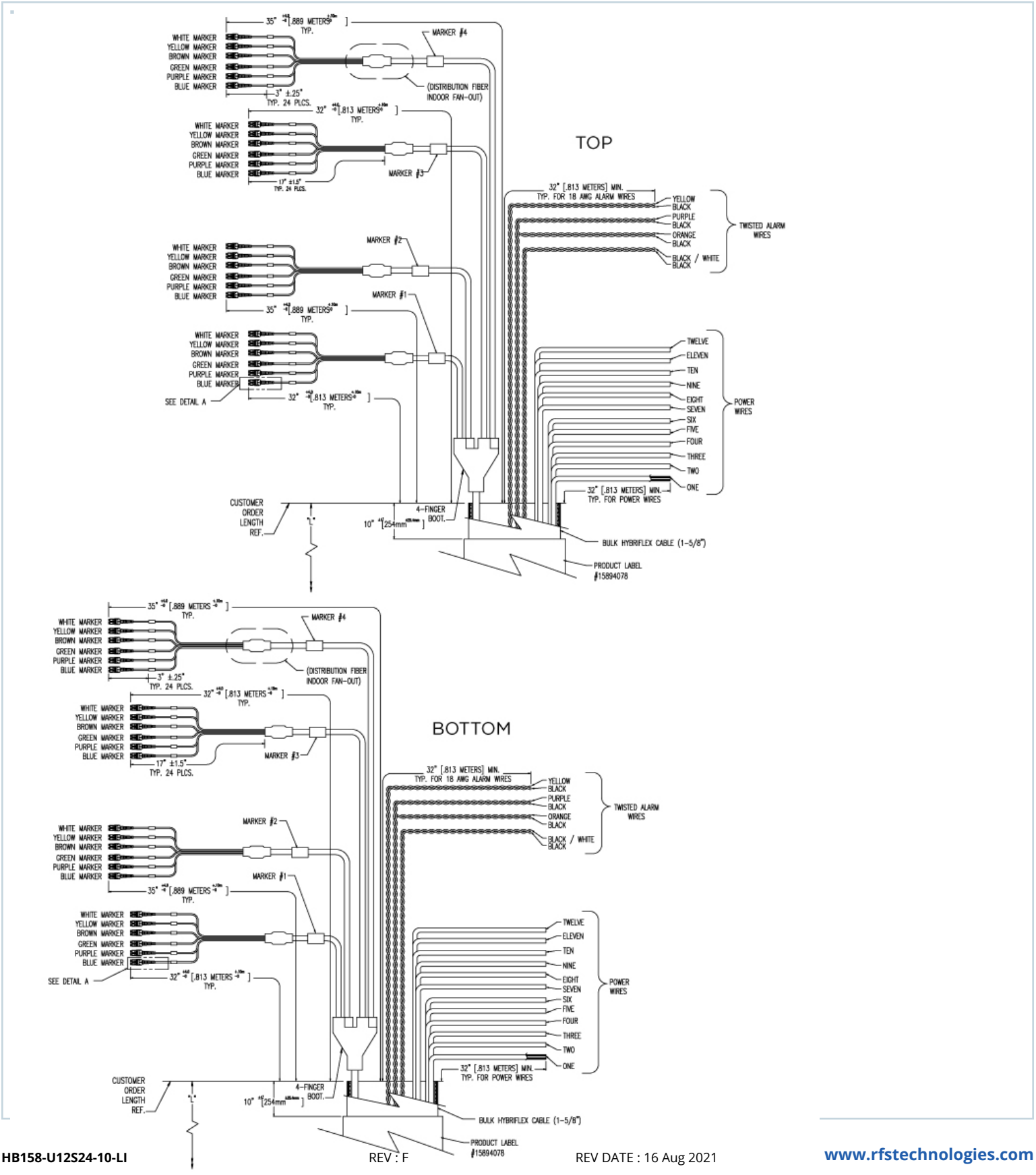
TESTING AND ENVIRONMENTAL

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		UL2882, UL Listed

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ADDITIONAL ASSEMBLY LENGTHS

Length (ft)	Model Number
10	HB158-U12S24-10-LI
20	HB158-U12S24-20-LI
30	HB158-U12S24-30-LI
40	HB158-U12S24-40-LI
50	HB158-U12S24-50-LI
60	HB158-U12S24-60-LI
70	HB158-U12S24-70-LI
80	HB158-U12S24-80-LI
90	HB158-U12S24-90-LI
100	HB158-U12S24-100LI
110	HB158-U12S24-110LI
120	HB158-U12S24-120LI
130	HB158-U12S24-130LI
140	HB158-U12S24-140LI
150	HB158-U12S24-150LI
160	HB158-U12S24-160LI
170	HB158-U12S24-170LI
180	HB158-U12S24-180LI
190	HB158-U12S24-190LI
200	HB158-U12S24-200LI
210	HB158-U12S24-210LI
220	HB158-U12S24-220LI
230	HB158-U12S24-230LI
240	HB158-U12S24-240LI
250	HB158-U12S24-250LI
260	HB158-U12S24-260LI
270	HB158-U12S24-270LI
280	HB158-U12S24-280LI
290	HB158-U12S24-290LI
300	HB158-U12S24-300LI
310	HB158-U12S24-310LI
320	HB158-U12S24-320LI
330	HB158-U12S24-330LI
340	HB158-U12S24-340LI
350	HB158-U12S24-350LI

EXTERNAL DOCUMENT LINKS

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

ADDITIONAL ASSEMBLY LENGTHS

Length (ft)	Model Number
360	HB158-U12S24-360LI
370	HB158-U12S24-370LI
380	HB158-U12S24-380LI
390	HB158-U12S24-390LI
400	HB158-U12S24-400LI
410	HB158-U12S24-410LI
420	HB158-U12S24-420LI
430	HB158-U12S24-430LI
440	HB158-U12S24-440LI
450	HB158-U12S24-450LI
460	HB158-U12S24-460LI
470	HB158-U12S24-470LI
480	HB158-U12S24-480LI
490	HB158-U12S24-490LI
500	HB158-U12S24-500LI
510	HB158-U12S24-510LI
520	HB158-U12S24-520LI
530	HB158-U12S24-530LI
540	HB158-U12S24-540LI
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600	HB158-U12S24-600LI
610	HB158-U12S24-610LI
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640	HB158-U12S24-640LI
700	HB158-U12S24-700LI
720	HB158-U12S24-720LI

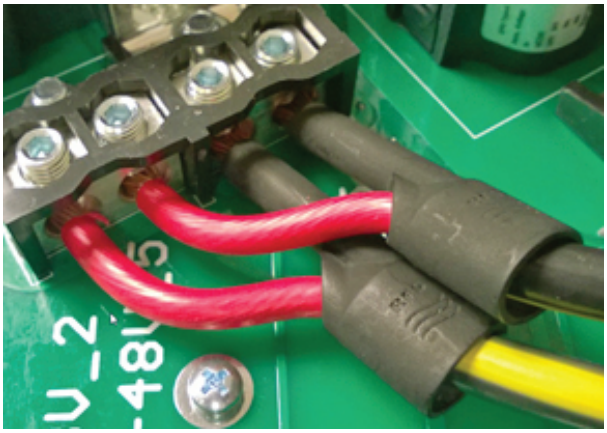
NOTES

Nominal length equals length of trunk not including top and bottom breakouts; breakout lengths add additionally to the total assembly length tip to tip.
Includes 4 pairs of wires used to carry alarm signals.
The package also includes a kit of special RFS-designed DC insulating boots, 1 per coaxial power wire, used to properly protect and insulate the

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DC wires after stripping the jacket, avoiding possible short-circuits while wiring it to the distribution boxes.

DC INSULATING BOOT



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

RFS Technologies 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	1	RFS Technologies-TRUNK-KIT	(2) 190 0620, Insert, M75, 1H, 40mm	1
HBK058	HBF058		RFS Technologies-JUMP-KIT	(1) 190 0621, Insert, M75, 3H, 22mm, Split w/ plugs	
HBK012	HBF012		RFS Technologies-JUMP-KIT-2	(1) 190 0903, Insert, M75, 2H, 15mm, Split w/ plugs	
FRK-N	FR-N		RFS Technologies-FIBER-KIT	(1) 190 0657, Insert, M75, 6H, 6.1mm, Split w/ plugs	

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