FIBER OPTIC CONNECTORS & COMPONENTS

PRO BEAM® Series

Expanded Beam Field Deployable Interconnects

RADIALL
The next conneXion

The ultimate choice for field applications

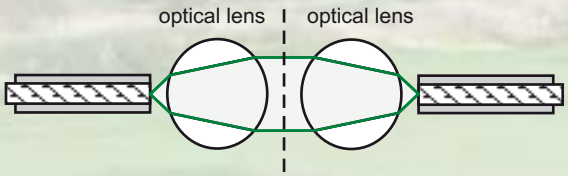
PRO BEAM® series

In addition to the broad range of Radiall fiber optic interconnect solutions, from single fiber links up to complex multichannel fiber optic harnesses including the LuxCis® Arinc 801 propriarity design. Radiall offers a new solution for field rapid deployment application in harsh environments. The PRO BEAM® series includes now the Junior and Mini design.

MAIN FEATURES AND BENEFITS

- **Dedicated for field:** indoor and outdoor applications,
- **Expanded Beam interconnect technology:** easy to clean, low sensitivity to thermal changes and pollution,
- **Robust construction with shock absorber protection:** very high mating level (3000 mating cycles), no physical contact between the optical path of each connector, high resistance to shocks and vibrations,
- **Hermaphroditic design:** direct “Plug to Plug” or “Plug to Receptacle” connection, easy and great flexibility for cable assemblies management on the field,
- **Modular fiber system up to 4 fiber optic channels**,
- **High precision alignment:** excellent performance in singlemode and multimode applications,
- **Waterproof design:** for all weather and field conditions,
- **EMI:** total immunity.

EXPANDED BEAM TECHNOLOGY



Light is expanded, collimated and transmitted across an air gap

About the expanded beam technology, each connector has an optical lens in order to increase the very small diameter of the light beam travelling inside the fiber core, the light is transmitted to the other connector across an air gap and then collimated into the receiving fiber. As there is no mechanical contact between the optical lens, the connector will handle a high number of mating cycles without any risk of damaging any optical parts. On each front face of the connector, the optical face can be cleaned easily as there is no cavity or protuberance, and the large beam is less sensitive to pollution compared to a direct light beam from the fiber itself.

Applications

Field-deployable military communication systems, avionics, naval, broadcast, oil research, railway, …

and all applications in harsh environment requiring:

Strength, durability and reliable performance in conditions of multiple interconnection operations, blind mate situation, high vibration level, extreme temperature, ...

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CABLE ASSEMBLIES PLUG TO PLUG STYLE

- Singlemode 9/125 or multimode 50 & 62.5/125 fiber,
- 2 & 4 channels,
- Plug Epdm or fluorosilicone* rubber protection,
- Cable diameter: 5.5 mm (or according to customer specification),
- Different types of reels available, depending on cable length.

*Junior PRO BEAM® type only

CABLE ASSEMBLIES WITH RECEPTACLE STYLE

- Singlemode 9/125 or multimode 50 & 62.5/125 fiber,
- 2 & 4 channels,
- D Hole flange standard receptacle for 5.5 mm cable,
- D Hole flange fan-out receptacle for 1.6 mm cable,
- Square flange standard receptacle for 5.5 mm cable,
- Square flange fan-out receptacle for 1.6 mm cable,
- Fan-out can be terminated with standard interface connectors (LC, SC, FC, LuxCis®, etc…).

MAIN CHARACTERISTICS

Optical	Insertion loss (typical against a reference plug)	
	Multimode 1300 nm	0.7 dB
	Singlemode 1310 nm or 1550 nm	0.7 dB
	Return loss (typical against a reference plug)	
	1310 nm or 1550 nm	> 34 dB
Mechanical	Vibration sinusoidal	10-500 Hz 3 directions, 0.75 mm amplitude, 10 g acceleration
	Free fall on concrete, severity 1.2 m	500 falls
	Shocks	4000 shocks, 6 directions @ 50g acceleration
	Mating endurance	3000 cycles
Environmental	Operating temperature	-40°C/+85°C
	Storage temperature	-55°C/+85°C
	Humidity (damp heat)	95% HR
	Immersion, plug and receptacle, Junior style	15 m depth

RoHS · WEEE · COMPLIANT

QSE (Quality Safety Environment) POLICY

Radiall maintains a quality management system conforming to international standards, including for environmental protection. Our customer's recognition for the quality of our products and the sustainability of our company, demonstrates the efficiency of our quality system.

CERTIFICATIONS

Certified ISO 9001 since 1994, Radiall has a pro-active policy in terms of conforming to international standards. Today, all Radiall sites are certified to ISO 9001:2000 and some dedicated activities are AS9100 or TS 16949. Our process approach gives us the tool for continuous improvement in all our activities.

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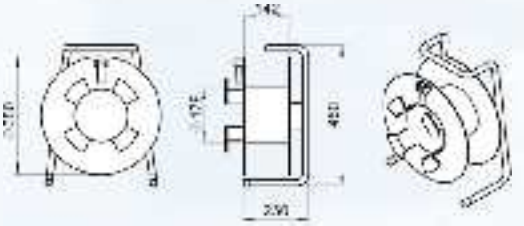
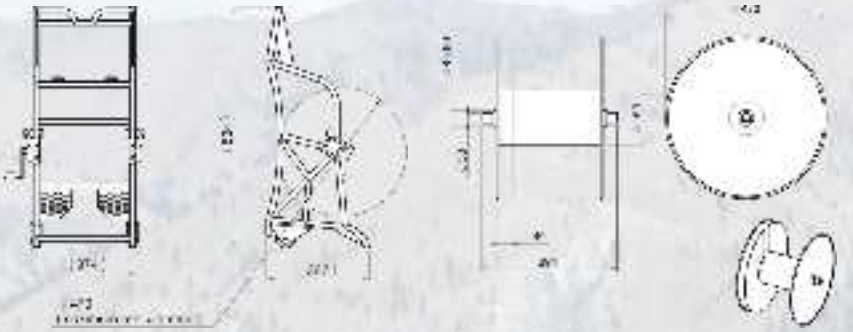
CABLE REELS SOLUTIONS (DEDICATED FOR FIBER OPTIC USE)

Steel cable drum with handle crank



Type	Size A	Size B	Size C
Weight (empty)	5.90 Kg	8.20 Kg	13.90 Kg
Capacity with 5.5 mm cable	Up to 300 m	Up to 500 m	Up to 800 m

Backpack/trolley for tactical field deployment cable: aluminum structure, anodized green color



Weight (backpack)	6.80 Kg
Weight (empty reel for backpack)	4.80 Kg
Capacity with 5.5 mm cable	Up to 900 m

Recommendation: when ordering cable assemblies on backpack reel also order the backpack harness P/N **F718 200 000**
For total weight, add 0.03 kg/meter of 5.5 mm cable + add 0.125 kg per connector

FIBER OPTIC CABLE

Multichannel optical cable, very flexible, lightweight and rugged cable for indoor and outdoor application. Composed of tight structure, from 2 to 4 channels with 50/125, 62.5/125 or 9/125 sheathed 900 µm fiber, in accordance with the terms and conditions of the UTE NF-C-93850 recommendations, making it especially suitable for application requiring good mechanical load, as well as tensile compression to meets the demands of field and industrial used. It has no metal component inside and is composed of a flame retardant jacket which meets the NF-C-32070 -C1 and CIS 332-3C standards.

CABLE CHARACTERISTICS

Outside diameter	5.5 mm
Weight	30 kg/km
Bend radius under installation	120 mm
Bend radius under long term	60 mm
Operating load	100 daN
Crush resistance	500 daN/dm
Storage temperature	-50 to +85°C
Operating temperature	-40 to +85°C

FIBER CHARACTERISTICS

Fiber type	50/125	62.5/125	9/125
NO	0.21	0.26	-
Att Max @ 850 nm	3.2 dB/km	3.5 dB/km	-
Att Max @ 1300 nm	1.2 dB/km	1.5 dB/km	-
Att max @ 1310 nm	-	-	0.4 dB/km
Att max @ 1550 nm	-	-	0.3 dB/km
Bandwidth @ 850 nm	≥ 400	≥ 160	
Bandwidth @ 1300 nm	≥ 800	≥ 500	

OPTICAL TEST SET FOR FIBER OPTIC PRO BEAM® CABLES

The equipment allows you to test your fiber optic network or your cable drum on the field.
Includes an optical source and a power meter dedicated up to the 4 fibers of the PRO BEAM® connector.
Battery powered, easy to use and rugged design (weather proof) for field application.

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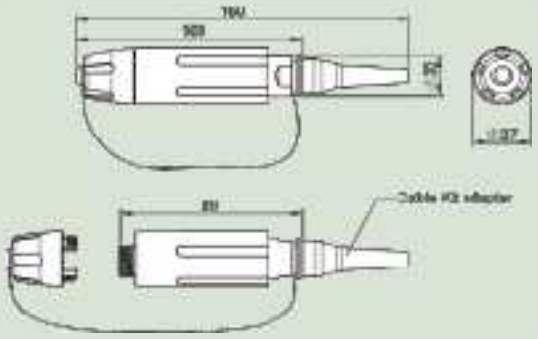
PRO BEAM® Junior cable assemblies

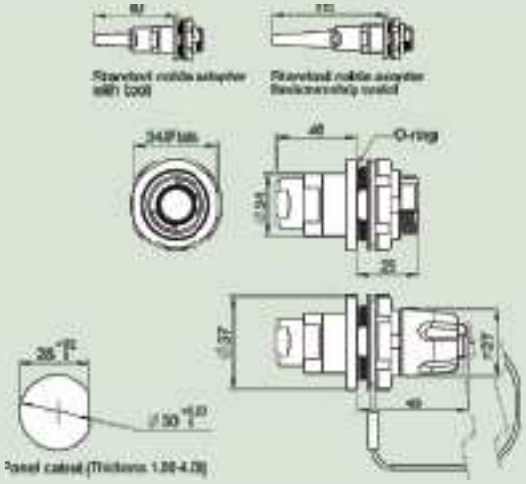
PLUGS



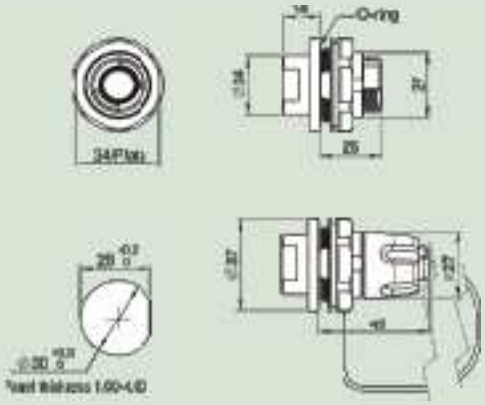
- **EPDM rubber:** high resistance to tearing and damage, the best resistance to outside weather exposure.
- **Fluorosilicone rubber:** to be used when there is a direct contact with petro chemicals.

RECEPTACLES D-HOLE STYLE

Receptacle dedicated for cable dia. 5.5 mm.

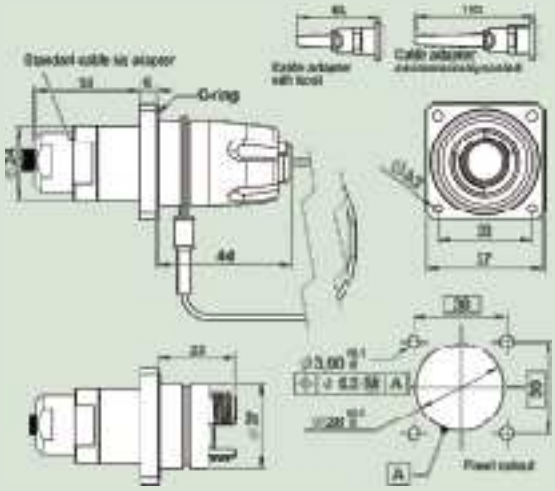


Receptacle for fan-out style with two or four simplex fiber.

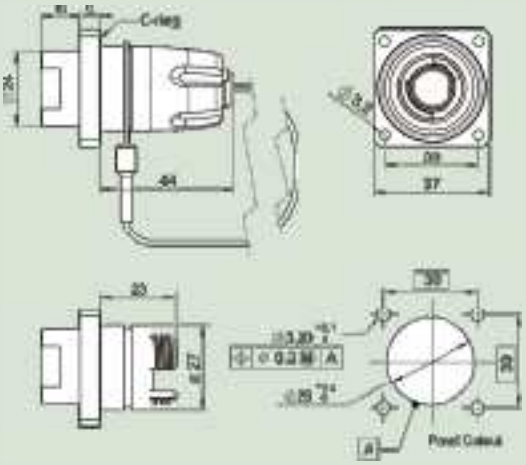


RECEPTACLES SQUARE FLANGE STYLE

Receptacle dedicated for cable dia. 5.5 mm.



Receptacle for fan-out style with two or four simplex fiber.



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HOW TO ORDER

F 739	0	0	4	2	1	1	M	250

Extremity 1

Main product type

Plug with EPDM rubber	0
Plug with fluorosilicone rubber	1
Receptacle D-Hole fan-out type for 1.6 mm cable	2
Receptacle D-Hole standard type for 5.5 mm cable	3
Receptacle D-Hole sealed type for 5.5 mm cable	4
Receptacle square flange fan-out type for 1.6 mm cable	5
Receptacle square flange standard type for 5.5 mm cable	6
Receptacle square flange sealed type for 5.5 mm cable	7

Length type

C	Centimeter
M	Meter

Reel option

0	No cable reel (up to 20 m cable lenght)
1	Reel size A (up to 300 m)
2	Reel size B (up to 500 m)
3	Reel size C (up to 800 m)
5	Reel for backpack (up to 900 m)*

Extremity 2

Other end products

Plug with EPDM rubber	0
Plug with fluorosilicone rubber	1
Free end (fan-out type)	2
LC PC connector (fan-out type)	3
LC APC connector (fan-out type)	4
ST PC connector (fan-out type)	5
SC PC connector (fan-out type)	6
SC APC connector (fan-out type)	7
FC PC connector (fan-out type)	8
LuxCis connector (fan-out type)	9

Cable type

1	Multifiber dia 5.5 mm for plug and standard receptacle
5	Simplex fiber dia 1.6 mm for fan-out receptacle only

Wavelength

2	SM Singlemode 1310 nm
3	SM Singlemode 1550 nm
5	MM Multimode 850 nm & 1300 nm with 50/125 µm fiber
6	MM Multimode 850 nm & 1300 nm with 62.5/125 µm fiber

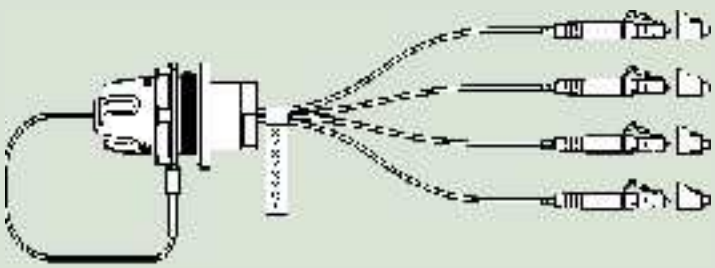
Channel number

2	Dual type
4	Quad type

* **Recommendation**: when ordering cable assemblies on backpack reel also order the backpack harness P/N **F718 200 000**

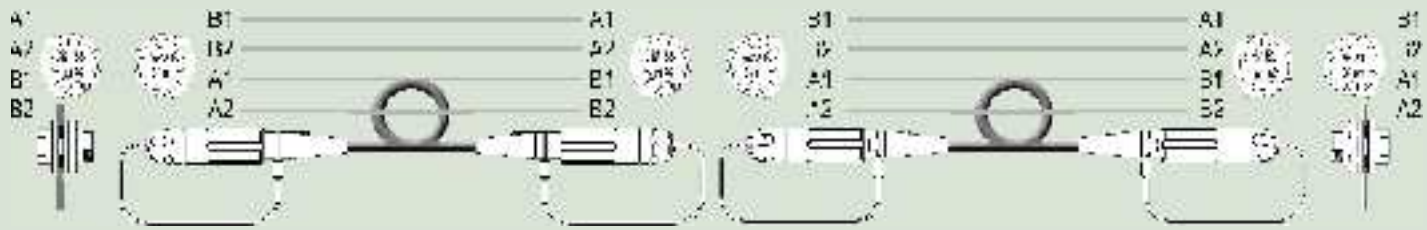
Consult us for PRO BEAM® with NiAlBz (Nickel aluminum bronze) material for naval application or other type of standard connector on fan-out end.

For long PRO BEAM® plug to plug cable assemblies you can use standard length as 50, 100, 250 and 500 meters, other lengths are possible on request.



In our standard offer, each cable assembly is identified with a wire marking sleeve (Brady material B-342).
Standard marking near PRO BEAM® plug or receptacle: RADIALL P/N, week/year of production.
For fan-out, each way has is own label with the channel information: A1, A2, B1, B2.
Other marking like specific label or specific information can be available on request.

Due to hermaphroditic design, several cable assemblies can be linked together between tranceivers and receivers without any problem to maintain the right channel.
Note: the signal from the transceiver receptacle on the A1 channel needs to reach B1 on the receiver receptacle, by respecting this rule, every cable assembly you will place between will not mix any channel.



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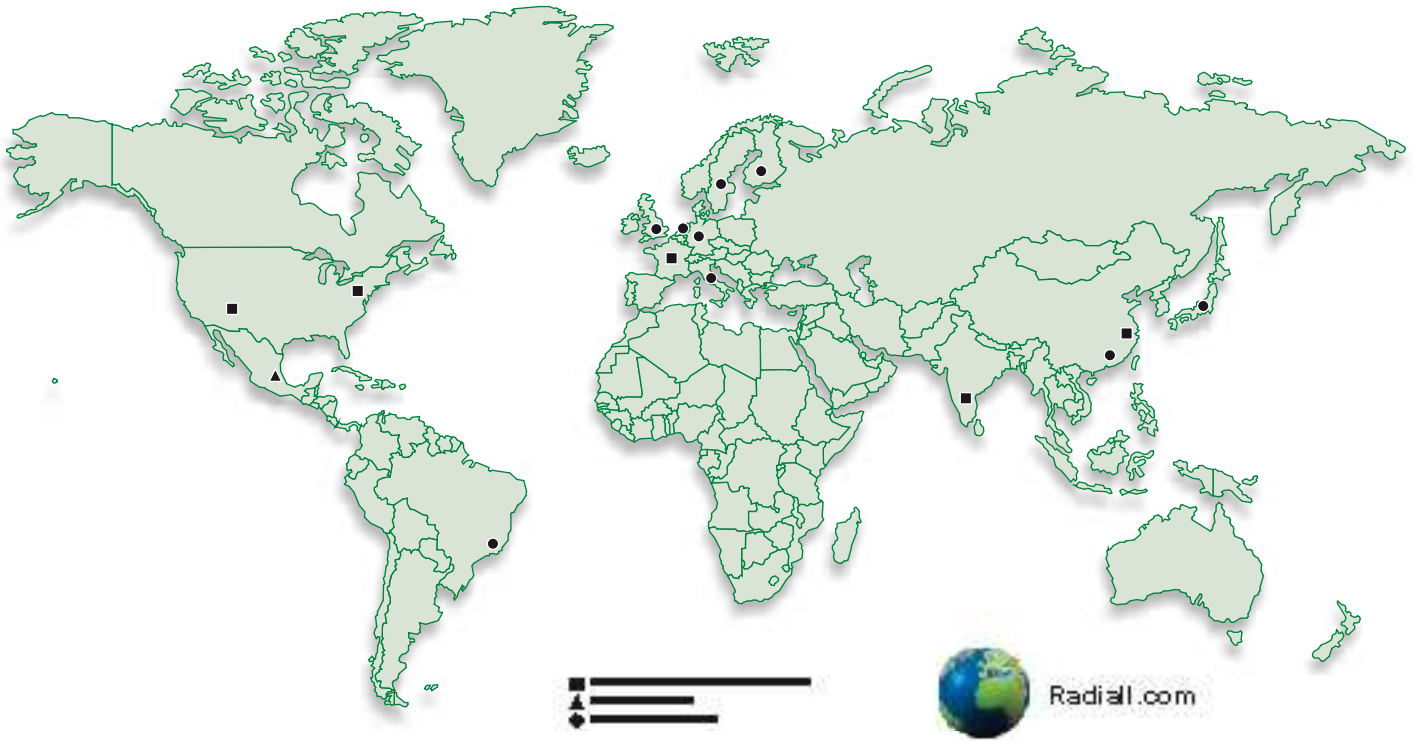

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