

BSF 4004 for EMEA/APAC

Band selective, TETRA fibre optic repeater

Key features

- High output power +40 dBm with dual MCPA
- Optimized for low noise figure
- Remote supervision and alarm handling in the BSF 4004 is realized through the fibre connection via the OMU unit's modem.
- The unique combination of high output power and highly linear power amplifiers ensures large coverage with uniformly excellent signal quality.
- The BSF 4004 can optionally be upgraded with a second optical transceiver module for redundant fibre applications.



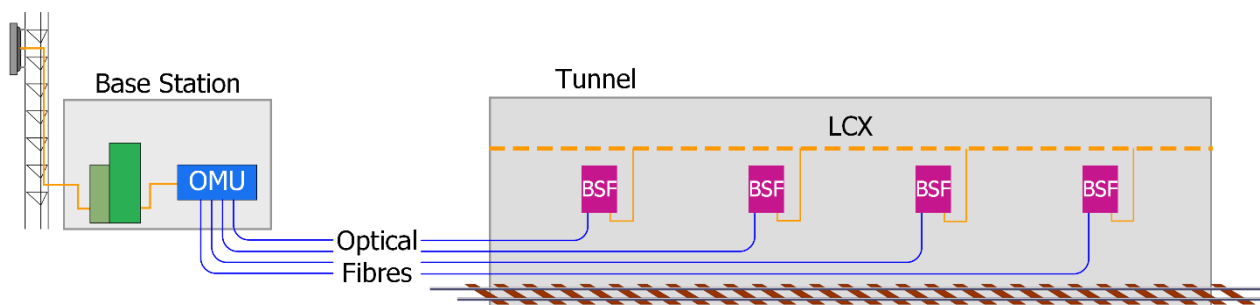
The BSF 4004 is a fibre optic fed TETRA (also supporting other technologies, DMR, NBFM, LTE within the available frequency range) repeater. The repeater is part of a system that is fed from an Axell Wireless Optical Master Unit (OMU). RF signals are coupled off from a nearby base station by the OMU which modulates the RF to optical signals which are distributed via fibre optic cables to one or several remote BSF repeaters. The maximum optical loss allowed for is 10 dB of fibre between the OMU and the most distant last remote unit that the OMU supports.

These remote BSF repeaters can be installed up to 20 km from the base station site, offering great flexibility when providing RF coverage in areas where off air reception is not a preferable or possible solution. The remote BSF repeaters demodulate the optical signal to RF and feed it to a Distributed Antenna System (DAS) or Leaky Feeder array to distribute the RF signal throughout the area to be covered. The high output power of the remote BSF repeaters results in a need to deploy fewer remote sites, which lowers the capital expenditures for the deployment.

The fibre optic system is easily remotely monitored and controlled by The Axell Wireless supervision and control software tool, Active Element Manager.

Automatic optical gain setting

The gain is adjusted in the downlink chain by measuring the level of the pilot carrier sent from the Optical Master Unit (OMU). The level of the received pilot carrier is continuously monitored.



Technical specification

RF parameters	Downlink	Uplink
Frequency ranges available	390 MHz to 395 MHz 395 MHz to 400 MHz 420 MHz to 425 MHz 425 MHz to 430 MHz 460 MHz to 465 MHz 465 MHz to 470 MHz	380 MHz to 385 MHz 385 MHz to 390 MHz 410 MHz to 415 MHz 415 MHz to 420 MHz 450 MHz to 455 MHz 455 MHz to 460 MHz
Operator bandwidth	5 MHz	
Duplex distance	10 MHz	
Impedance	50 Ω	
Downlink output power/carrier: (Dual MCPAs are used, 6dB degradation is expected in case of failure of one MCPA.)	1 carrier: +40 dBm 2 carriers: +36 dBm 3-4 carriers: +33 dBm 8 carriers: +30 dBm	
OIP3	+ 71 dBm typical	
Noise Figure (uplink)	<6 dB, 5 dB typical at maximum gain	
Group Delay	2 μ s max	
Fibre optic loss compensation	Implemented	
Spurious Emissions from RF port	< -36dBm	
Intermodulation Products	< -60dBc or < -36dBm	
Optical Module Electrical Specification		
Maximum optical output power	+3 dBm \pm 2 dB	
Maximum optical input power	+2 dBm	
Power Requirements	230 VAC 50 Hz or 115 VAC 60 Hz or -48 VDC	
Power Consumption	180 W, typical	
External connection		
Local Maintenance Terminal	RS232	
Server Port	7/16 DIN female	
Optical Port	SC/APC female	
Modem antenna connector	SMA	
Remote connection	Via OMU as standard (or alternatively can be factory configured for Ethernet alarm reporting)	
Mechanical specification		
Dimensions L x W x H	540 mm x 382 mm x 198 mm	
Enclosure	Aluminium (IP65)	
Weight	28 kg	
Cooling	Convection	
Environmental		
EMC	See RED Compliance below	
Operating Temperature	-25°C to +55°C (-13°F to +131°F)	
Storage Temperature	-30°C to +70°C (-22°F to +158°F)	
Humidity	0 to 95% RHNC	
RED Compliance	Safety	EN 60950-1, EN 60825-1, EN 50385
	EMC	EN 301 489-1, EN 301 489-5
	Radio	EN 302 561

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E&OE, specification subject to revision without notice.