BSF 3604-RM

Band selective, fibre optic, TETRA repeater,

Single band, 19" rack-mount for EMEA & APAC

Key features

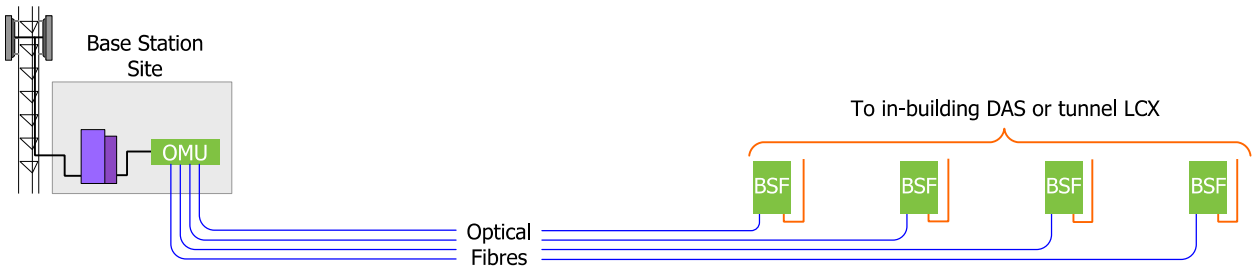
- High power +36 dBm.
- Optimized for low noise figure.
- Remote supervision and alarm handling in the BSF 3604-RM is realized through the fibre connection via the OMU or Ethernet.
- The unique combination of high output power and highly linear power amplifiers ensures large coverage with uniformly excellent signal quality.
- The BSF 3604 can optionally be upgraded with a second optical transceiver module for redundant fibre applications.
- Convenient 19” rack-mount form factor.

The BSF 3604-RM is a fibre optic fed TETRA repeater. The repeater is part of a system that is fed from a PBE Axell 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 dBo 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 PBE Axell supervision and control software tool, Active Element Manager (AEM).

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			
General frequency ranges available (others upon request up to 520 MHz, bands must be non-adjacent)	**Downlink**	**Uplink**	**Bandwidth**
	390 MHz to 395 MHz	380 MHz to 385 MHz	5 MHz
	395 MHz to 400 MHz	385 MHz to 390 MHz	5 MHz
	420 MHz to 425 MHz	410 MHz to 415 MHz	5 MHz
	425 MHz to 430 MHz	415 MHz to 420 MHz	5 MHz
	460 MHz to 465 MHz	450 MHz to 455 MHz	5 MHz
	465 MHz to 470 MHz	455 MHz to 460 MHz	5 MHz
	390 MHz to 397 MHz	380 MHz to 387 MHz	7 MHz
	423 MHz to 430 MHz	413 MHz to 420 MHz	7 MHz
	390 MHz to 396.5 MHz	380 MHz to 386.5 MHz	6.5 MHz
Number of frequency bands	1		
Duplex distance	10 MHz (others upon request)		
Impedance	50 Ω		
Downlink output power/carrier:	1 carrier: +36 dBm 2 carriers: +33 dBm 3-4 carriers: +30 dBm 8 carriers: +27 dBm		
IP3	+ 68 dBm		
Noise Figure (uplink)	<6 dB, 5 dB typical at maximum gain		
Group Delay	2 µs max		
Fibre optic loss compensation	Implemented		
Spurious Emissions from RF port	< -36 dBm		
Intermodulation Products	< -60 dBc or < -36 dBm		
Optical Module Electrical Specification			
Maximum optical output power	+3 dBm ±2 dB		
Maximum optical input power	+2 dBm		
Power Requirements			
Supply voltage	120 V ac 60Hz or 230 V ac 50Hz or -48 V dc		
Power Consumption	100 W, typical		
External connections			
Local Maintenance Terminal	RS232		
RF Port	N female		
Optical Port	SC/APC female		
Remote connection	Via OMU or (optional) GSM, GSM-R PSTN modem or Ethernet		
Mechanical and Environmental specification			
Dimensions W x H x D	19”, 4U, 450 mm		
Weight	< 20 kg		
Cooling	Convection		
Mounting	Rack mounted		
EMC	See RED Compliance below		
Operating Temperature	-25˚C to +55˚C		
Storage Temperature	-30˚C to +70˚C		
Humidity	0 to 95% RHNC		
Compliance			
Complies with RED:	Safety	EN 62368-1, EN 50385	
	EMC	EN 301 489-1, EN 301 489-5	
	Radio	EN 302 561	