

BSF 3604

BSF 3604 Dual Fibre Dual Window (1510/1550)

Key features

- High power, 36 dBm
- Optimized for low noise figure.
- Full monitoring and control though SNMP, webserver or AEM monitoring software via OMU.
- The unique combination of high output power and highly linear power amplifiers ensures large coverage with uniformly excellent signal quality
- Optimized for low noise figure.
- Second optical transceiver module for redundant fibre applications (dual wavelength for use with fibre splitter at the OMU)



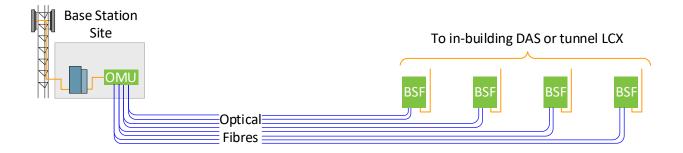
The BSF 3604 is a fibre optic fed TETRA repeater (supports other technologies within supported frequencies ranges, DMR, P25, LTE etc). The repeater is part of a system that is fed from a PBE Axell Optical Master Unit (OMU). RF signals are coupled off from a nearby base station by the OMU which modulates 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 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 PBE Axell's effective supervision tool, Active Element Manager (AEM).

Automatic optical gain setting

The system gain is adjusted for optical loss in the fibre by measuring the level of a pilot carrier sent from the OMU. The level of the received pilot carrier is continuously monitored.





Technical specification

Downlink	Electrical specifications					
395 MHz to 400 MHz			Downlink	Uplink	Bandwidth	
General frequency ranges available: 420 MHz to 425 MHz			390 MHz to 395 MHz	380 MHz to 385 MHz	5 MHz	
Cher frequency bands and duplex options available upon request within the options available upon request within the 330 MHz to 520 MHz public safety band. 425 MHz to 465 MHz 455 MHz to 460 MHz 5 MHz 465 MHz to 470 MHz 455 MHz 456 MHz 5 MHz 390 MHz to 320 MHz to 387 MHz 7 MHz 423 MHz to 420 MHz 455 MHz 466 MHz 7 MHz 423 MHz to 430 MHz 438 MHz to 386 MHz 7 MHz 423 MHz to 430 MHz 380 MHz to 386 MHz 7 MHz 423 MHz to 395 MHz 380 MHz to 386 MHz 6.5 MHz 423 MHz to 430 MHz 380 MHz to 386 MHz 6.5 MHz 423 MHz to 395 MHz 380 MHz to 386 MHz 6.5 MHz 423 MHz to 420 MHz 7 MHz 423 MHz to 420 MHz 7 MHz 423 MHz to 430 MHz 423 MHz to 420 MHz 7 MHz 423 MHz to 430 MHz 438 MHz to 396 MHz to 396 MHz 423 MHz to 486 MHz 7 MHz 423 MHz to 430 MHz 438 MHz to 396 MHz 438 MHz to 397 MHz 380 MHz to 386 MHz 6.5 MHz 430 MHz 438 MHz to 420 MHz 7 MHz 423 MHz to 430 MHz 438 MHz to 430 MHz to 386 MHz 6.5 MHz 438 MHz to 430 MHz to 386 MHz 6.5 MHz 438 MHz to 430 MHz to 386 MHz 6.5 MHz 438 MHz to 430 MHz to 386 MHz 6.5 MHz 438 MHz to 430 MHz to 386 MHz 6.5 MHz 438 MHz to 430 MHz to 386 MHz 6.5 MHz 438 MHz to 430 MHz to 386 MHz 6.5 MHz 438 MHz to 430 MHz to 386 MHz 6.5 MHz 438 MHz to 430 MHz to 386 MHz 6.5 MHz 438 MHz to 430 MHz to 386 MHz to 430 MHz to 386 MHz 6.5 MHz to 430 MHz to 386 MHz to 380 MHz to 386 MHz to 420 MHz to 430 MHz to 430 MHz to 430 MHz to 420 MHz to 420 MHz to 430 MHz to 430 MHz to 430 MHz to 420 MHz to 430 MHz to 430 MHz to 430 MHz to 420 MHz to 430 MHz to 4			395 MHz to 400 MHz	385 MHz to 390 MHz	5 MHz	
Other frequency bands and duplex options available upon request within the 330 MHz to 450 MHz to 430 MHz t			420 MHz to 425 MHz	410 MHz to 415 MHz	5 MHz	
A			425 MHz to 430 MHz	415 MHz to 420 MHz	5 MHz	
A65 MHz to 470 MHz A55 MHz to 460 MHz S MHz to 460 MHz S MHz to 470 MHz A55 MHz to 387 MHz A55 MHz to 387 MHz A23 MHz to 387 MHz A23 MHz to 397 MHz A23 MHz to 399 MHz to 396 MHz A23 MHz to 399 MHz to 396 MHz A23 MHz to 390 MHz to 396 S MHz A23 MHz to 390 MHz to 396 S MHz A23 MHz to 390 MHz to 396 S MHz A23 MHz to 390 MHz to 396 S MHz A23 MHz to 396 MHz to 396 MHz A23 MHz to 396 MHz to 396 MHz A23 MHz to 396 MHz to 3			460 MHz to 465 MHz	450 MHz to 455 MHz	5 MHz	
Mumber of frequency bands			465 MHz to 470 MHz	455 MHz to 460 MHz	5 MHz	
Number of frequency bands 1 duplexed	330 WHILE to 320 WHILE PUBL	o surecy surrai	390 MHz to 397 MHz	380 MHz to 387 MHz	7 MHz	
Number of frequency band			423 MHz to 430 MHz	413 MHz to 420 MHz	7 MHz	
Duplex distance (in one band) 10 MHz (others upon request)			390 MHz to 396.5 MHz	380 MHz to 386.5 MHz	6.5 MHz	
Impedance	Number of frequency band	ds				
1 carrier:	Duplex distance (in one ba	nd)	10 MHz	(others upon request)		
Output power/carrier (DL) per band 2 carriers: 3-4 carriers: 1-33 dBm 3-4 carriers: 1-27 dBm IP3 Typical +68 dBm Noise figure (UL) 66 dB, 5 dB typical at maximum gain 7 port 1 power 1 pow	Impedance					
P3 Scarriers: +30 dBm	•	1 carrier:				
B carriers:	Output power/carrier	2 carriers:				
P3		3-4 carriers:				
Noise figure (UL)		8 carriers:				
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 optical specification Maximum optical output power	<u> </u>		Typical +68 dBm			
Fibre optic loss compensation Implemented Spurious emissions from RF port < -36 dBm Intermodulation products < -60 dBc or < -36 dBm Optical module optical specification Maximum optical output power +3 dBm ±2 dB Maximum optical input power +2 dBm Wavelengths 1310nm DL / 1510nm & 1550nm UL Power Requirements Voltage options 120 V ac, 60Hz or 230 V ac, 50Hz, or -48 V dC Power Consumption 120 V ac, 60Hz or 230 V ac, 50Hz, or -48 V dC Power Consumption 210 V ac, 60Hz or 230 V ac, 50Hz, or -48 V dC Power Consumption 7/16 DIN female or 4.3/10 DIN female Optical Port 7/16 DIN female or 4.3/10 DIN female Optical Port SC/APC female Remote connection Via fibre link to OMU as standard Option: factory configured for Ethernet alarm reporting Mechanical and Environmental specification Dimensions (H x W x D) 540 mm x 382 mm x 198 mm Weight 28 kg Cooling Convection Mounting Aluminium (IP65) wall-mount enclosure Operating Temperature -25°C to +55°C Storage -30°C to +70°C Humidity 0 to 95% RHNC Compliance EU Directives Safety EN 62368-1, EN 60825-1, EN 50385 EMC EN 301 489-1, EN 301 489-5	Noise figure (UL)		71			
Spurious emissions from RF port C-36 dBm Intermodulation products C-60 dBc or C-36 dBm Optical module optical specification Maximum optical output power +3 dBm ±2 dB Maximum optical input power +2 dBm Wavelengths 1310nm DL / 1510nm & 1550nm UL Power Requirements Voltage options 120 V ac, 60Hz or 230 V ac, 50Hz, or -48 V dc Power Consumption C-100 W, typical External connection Local Maintenance Terminal RS232 RF Port 7/16 DIN female or 4.3/10 DIN female Optical Port SC/APC female Remote connection Via fibre link to OMU as standard Option: factory configured for Ethernet alarm reporting Mechanical and Environmental specification Dimensions (H x W x D) 540 mm x 382 mm x 198 mm Weight 28 kg Cooling Convection Mounting Aluminium (IP65) wall-mount enclosure Operating Temperature -25°C to +55°C Storage -30°C to +70°C Humidity 0 to 95% RHNC Compliance EU Directives EM 62368-1, EN 50385 EUD irectives EM 62368-1, EN 50385 EMC EN 301 489-1, EN 301 489-5 EMC EN 301 489-1, EN 301 489-5						
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Maximum optical input power	Optical module optical specification					
Wavelengths 1310nm DL / 1510nm & 1550nm UL Power Requirements Voltage options 120 V ac, 60Hz or 230 V ac, 50Hz, or -48 V dc Power Consumption <100 W, typical	· · · · · · · · · · · · · · · · · · ·		+3 dBm ±2 dB			
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Voltage options 120 V ac, 60Hz or 230 V ac, 50Hz, or -48 V dc Power Consumption < < 100 W, typical	0		1310nm DL / 1510nm & 1550nm UL			
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Complies with: RED EMC EN 301 489-1, EN 301 489-5		Safety				
	Complies with: RFD	•				
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