

BC SERIES MODULAR FIBRE OPTIC INTERFACE SYSTEM

The BC390T and BC390R provide a convenient method of transporting 4K UHD signals over a fibre optic link. They are part of the Bluebell Opticom BC Series of cards and are compatible with all BC Series racks and enclosures.

The cards will normally be used in pairs, the BC390T performing electrical-to-optical conversion and the BC390R optical-to-electrical conversion at the receiving end. In addition, the cards are able to perform a wide range of inter-format conversions, with multiple SDI signals being multiplexed onto a single optical wavelength (BC390T), and correspondingly demultiplexed by the BC390R.

Electrical inputs and outputs on both cards are on four BNC connectors, the optical interface being an SFP carrier fitted with a dual female LC optical connector. CWDM wavelengths in the range 1270 to 1610 nm may be specified for the BC390T; the BC390R's optical receiver is wideband.

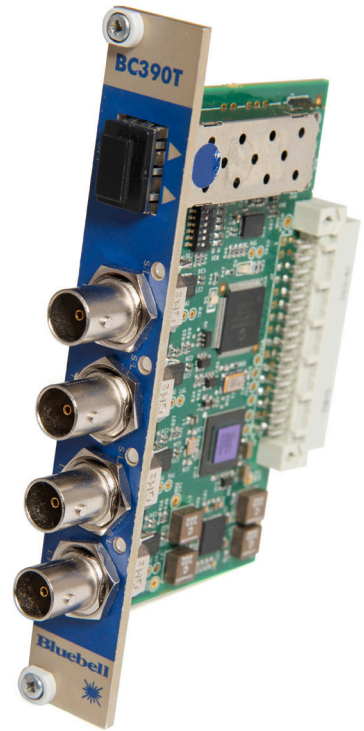
The flexibility of the BC390T/BC390R is greatly enhanced by the ability to handle SDI signals of multiple standards: HD, 3G, 6G and 12G SDI are all catered for. The BC390T has eight operating modes, each providing a different option for format conversion, as follows:

- Bypass mode
- Dual HD -> Single 3G
- 2 x Dual 3G -> 2 x Single 6G
- 2 x Dual 6G -> 2 x Single 12G
- Quad 3G -> Dual 6G
- Quad 6G -> Dual 12G
- Quad HD -> Single 6G
- Quad 3G -> Single 12G

Selection of format conversion mode is via DIP switches on the main PCB.

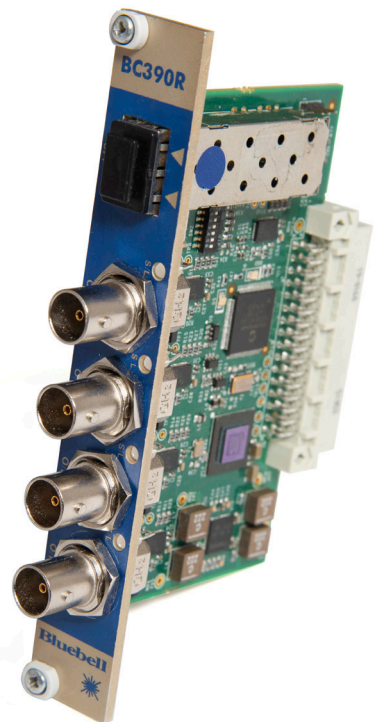
The BC390R is able to perform a "mirror-image" set of downscaling conversions, auto-selecting the correct demultiplexing operation by determining the SDI formats present at the optical inputs.

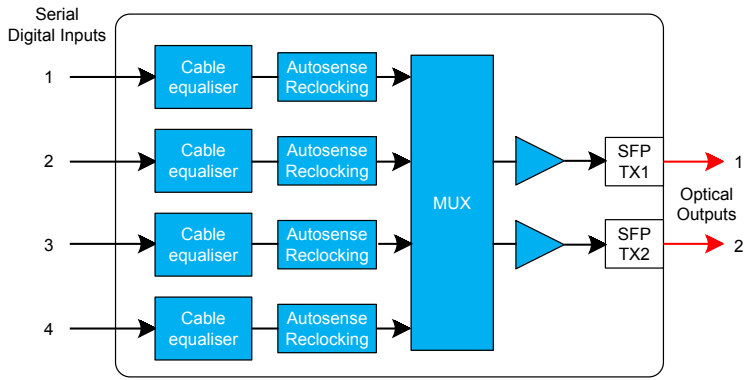
The BC390T and BC390R will report their status to the built-in monitoring system in the BC100 19" rack and enhanced reporting is available via SNMP if a BM102 network card is fitted to the rack. The rack provides all necessary DC power.



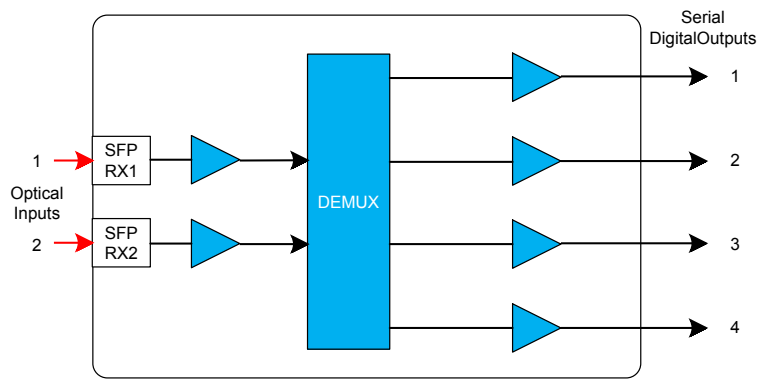
**BC390T UHD 4K SDI
Multiplexer/Transmitter**

**BC390R UHD 4K SDI
Demultiplexer/Receiver**





BC390T transmitter



BC390R receiver

Specifications

	BC390T	BC390R
Electrical Inputs and Outputs		
SDI standards – conformities	Compliant with: SMPTE ST 2082 SMPTE ST 2081 SMPTE ST 424M SMPTE 292M SMPTE 259M SMPTE 344M SMPTE 259M	
Signal standards:	SD-SDI, HD-SDI, 3G-SDI, 6G-SDI, 12G-SDI, MADI	
Equalisation (T only)	Automatic to: SD-SDI: 300 m @ 270 Mb/s HD-SDI: 240 m @ 1.485 Gb/s 3G-SDI: 180 m @ 2.97 Gb/s 6G-SDI: 95 m @ 5.94 Gb/s 12G-SDI: 70 m @ 11.88 Gb/s	
Return Loss	<15 dB, 5 Mb/s – 1.485 Gb/s <10 dB, 1.485 Gb/s – 2.97 Gb/s <7 dB, 2.974 Gb/s – 5.94 Gb/s <4 dB, 5.94 Gb/s – 11.88 Gb/s	<17 dB, 5 Mb/s – 1.485 Gb/s <12 dB, 1.485 Gb/s – 2.97 Gb/s <8 dB, 2.974 Gb/s – 5.94 Gb/s <5 dB, 5.94 Gb/s – 11.88 Gb/s
Connectors	4 x 75 ohm BNC per IEC 60169-8, Amendment 2	
Format	Re-locked	
Polarity (R only)		Non-inverting
Signal Level (R only)		800 mV +/-10%
Alignment Jitter (R only)		<0.2 UI line equalised @ 270 Mb/s, 1.485 Gb/s <0.3 UI line equalised @ 2.97 Gb/s, 5.94 Gb/s, 11.88 Gb/s
Timing Jitter (R only)		<0.2 UI line equalised @ 270 Mb/s <1 UI line equalised @ 1.485 Gb/s <2 UI line equalised @ 2.97 Gb/s <4 UI line equalised @ 5.94 Gb/s <8 UI line equalised @ 11.88 Gb/s

	BC390T	BC390R
Optical Inputs and Outputs		
	Most specs determined by SFP fitted. Typical values given below.	
Connector	Opticalcon, 2 x female LC	
Wavelength	1270 – 1610 nm	
Optical power (T only)	-15 dBm @1310 nm multimode -6 dBm @ 1310 nm singlemode -6 dBm @1310 nm (4K emSFP)	
Sensitivity (R only)		>-22 dBm @ 3 Gb/s
Monitoring		
Front panel	S/L: bi-colour LED per electrical input or output indicating a valid and locked signal	
External via BC100/BC160 rack frame	Lock status of Inputs 1 and 3	Lock status of each optical input
Conformities		
EMI/RFI	Complies with 89/336/EEC, EN55032B, EN61000-4-2	
Electrical	Complies with EN61000-4-4FTB, EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4	
Laser Safety	Complies with Class 1 laser product	
RoHS & WEEE	Complies with Directive 2002/95/EC	
General		
Input Voltage	6 – 18 V	
Power consumption	9 W	
Depth	75 mm (60 mm excluding connectors)	
Width	20 mm (4HP)	
Height	129 mm (3RU)	
Weight	100 g (excluding SFP)	
Operating Temperature	-30 to +70 °C	

Bluebell

Bluebell Opticom Limited
Unit 2 The Quadrant
Howarth Rd, Maidenhead
Berks SL6 1AP UK

Tel: +44 (0) 1628 510055, Fax: +44 (0) 1628 510057
Email: sales@bluebell.tv Website: www.bluebell.tv