

# OPERATIONS & TECHNICAL MANUAL

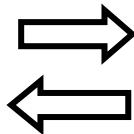
for

**BC710**

**Dual Circuit 4-wire Comms Transceiver**

**2x Analog Audio**

**2x Analog Audio**



**Optical (SFP)**

**Bluebell**   
**OPTICOM LIMITED**

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## Description

This manual is for later versions of the BC710 using SFP modules for the optical link (issue 4 pcb). For earlier versions of the card with ST / FC optical connectors, please refer to an earlier manual.

The BC710 is a 100mm x 60mm card which allows simultaneous bi-directional transport of two analogue audio channels in each direction. The two analogue audio inputs are digitised and converted to AES3 format data for transmission across a fibre optic link. Each analogue audio input channel has a differential electrical input from the 9 Way D type connectors.

The BC710 also receives an AES3 optical input and provides two differential analogue audio outputs on the 9 Way D type connectors.

The BC710 modules can be housed in any BC compatible enclosure such as the BC100 (3U) or BC160 (1U) racks: see "Related products" under "Ordering Information" below.

### Connectors

COMMS 1: (Channel A) 9 Way D type connector carrying:

- 1x analogue audio differential electrical input
- 1x analogue audio differential electrical output

COMMS 2: (Channel B) 9 Way D type connector carrying:

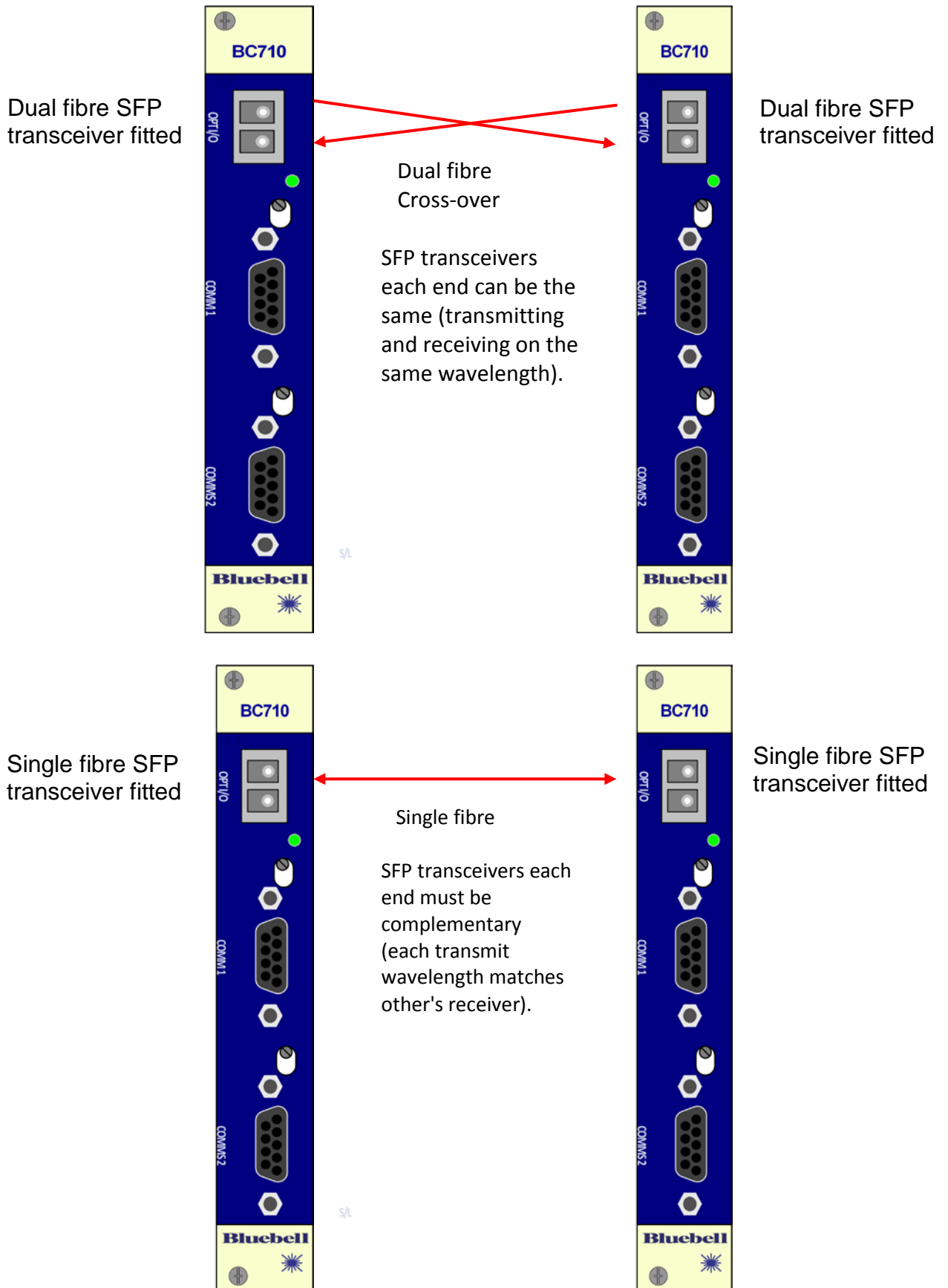
- 1x analogue audio differential electrical input
  - 1x analogue audio differential electrical output
  - 1x digital differential AES audio monitor output:
- An on-board link (LK4) allows source selection of either the fibre data input or the analogue audio input derived signal.

Power input: The card operates from an unregulated DC input voltage between +4.5V and +16V DC. Power consumption is about 2.4W so that at 6 Volts it requires 400mA.

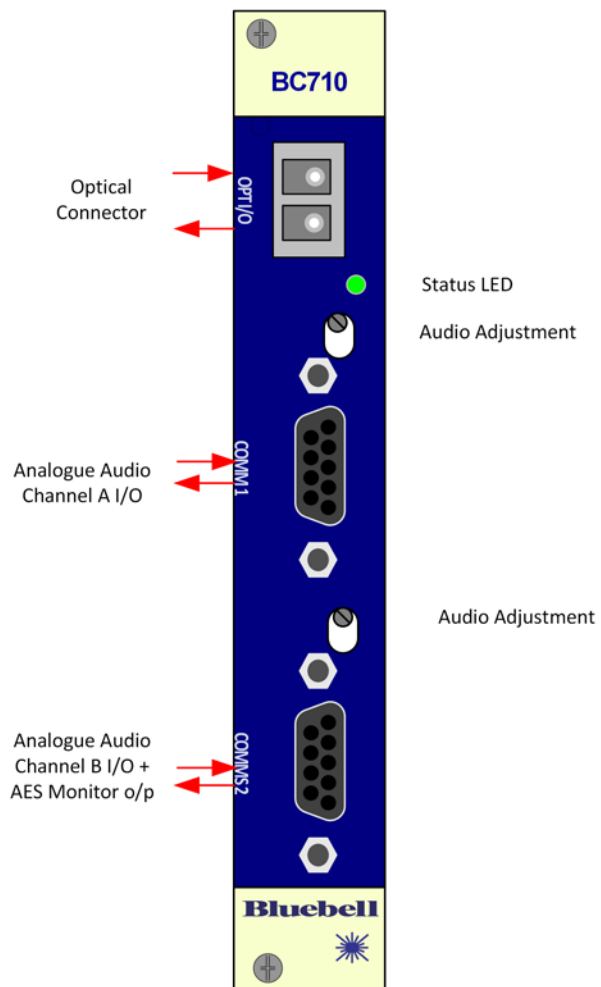
BC710 modules are available in single-mode, WDM, and CWDM variants to suit any fibre application, achieved via interchangeable SFP transceiver modules. The optical input sensitivity and output power and wavelength are dependent on the SFP module fitted. Contact sales office for details.

The optical signals are compatible with the BC700 and so, with suitable SFP modules fitted, a BC710 may interface with a BC700.

Typical applications:



**Product photos**



S/L

## Specification

### General

Depth	60mm
Width	20mm (4TE)
Height	100mm (3RU)
Weight	100g
Operating Temperature:	-30°C to +70°C
Power Supply	6V DC nominal
Power consumption	2.4W
Current consumption	400mA at 6V DC

### Electrical Input/Output

Audio connectors	9 way "D" type, female pins
Analogue audio input	2 x Balanced Line Level Analogue Audio
Analogue audio output	2 x Balanced Line Level Analogue Audio
Analogue characteristics	20 Hz to 20 kHz +/- 0.25 dB distortion
Audio levels	Factory set for:- 0dBu i/p to -18dBFS o/p (Analogue to Fibre) -18dBFS i/p to 0dBu o/p (Fibre to Analogue) On-board potentiometers allow +/-6dB adjustment for each channel
Digital AES audio output	1 x Balanced pair carrying 2 mono signals Link selectable to monitor either 2 analogue inputs or 2 signals received on fibre.

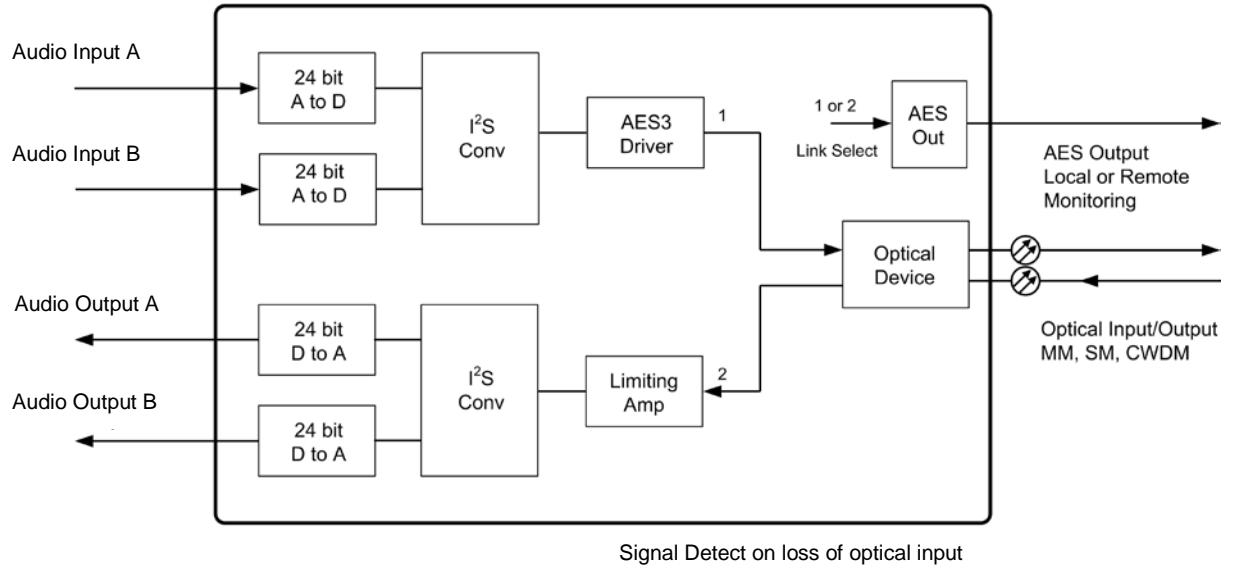
### Optical Input/Output

Optical connector	SFP Transceiver
Optical performance	Dependent on SFP module fitted
Signal indication	LED on for loss of optical input

### Conformance

EMI/RFI	Complies with 89/336/EEC
Electrical	Complies with EN 61000-6-1, EN61000-6-2
Laser Safety	Complies with Class 1 laser product 24 CFR 1040.10 & 1040.11
RoHS	Complies with Directive 2002/95/EC
Warranty	5 years

## Block Diagram

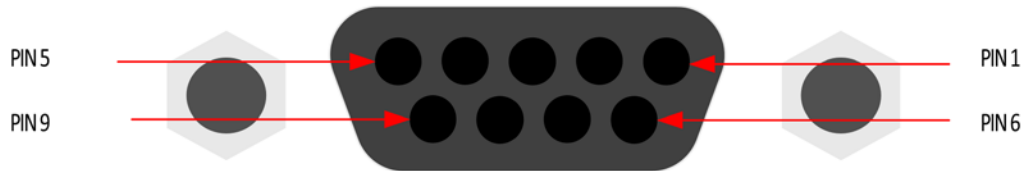




## Audio Connections

### Analogue Audio Connectors:

The 9 way D type electrical connections are as follows:-



#### COMMS 1

1	Input channel A +
2	Input channel A -
3*	Gnd
4*	Output channel A +
5	Output channel A -
6	Input channel A Gnd
7	
8	
9	Output channel A Gnd

#### COMMS 2

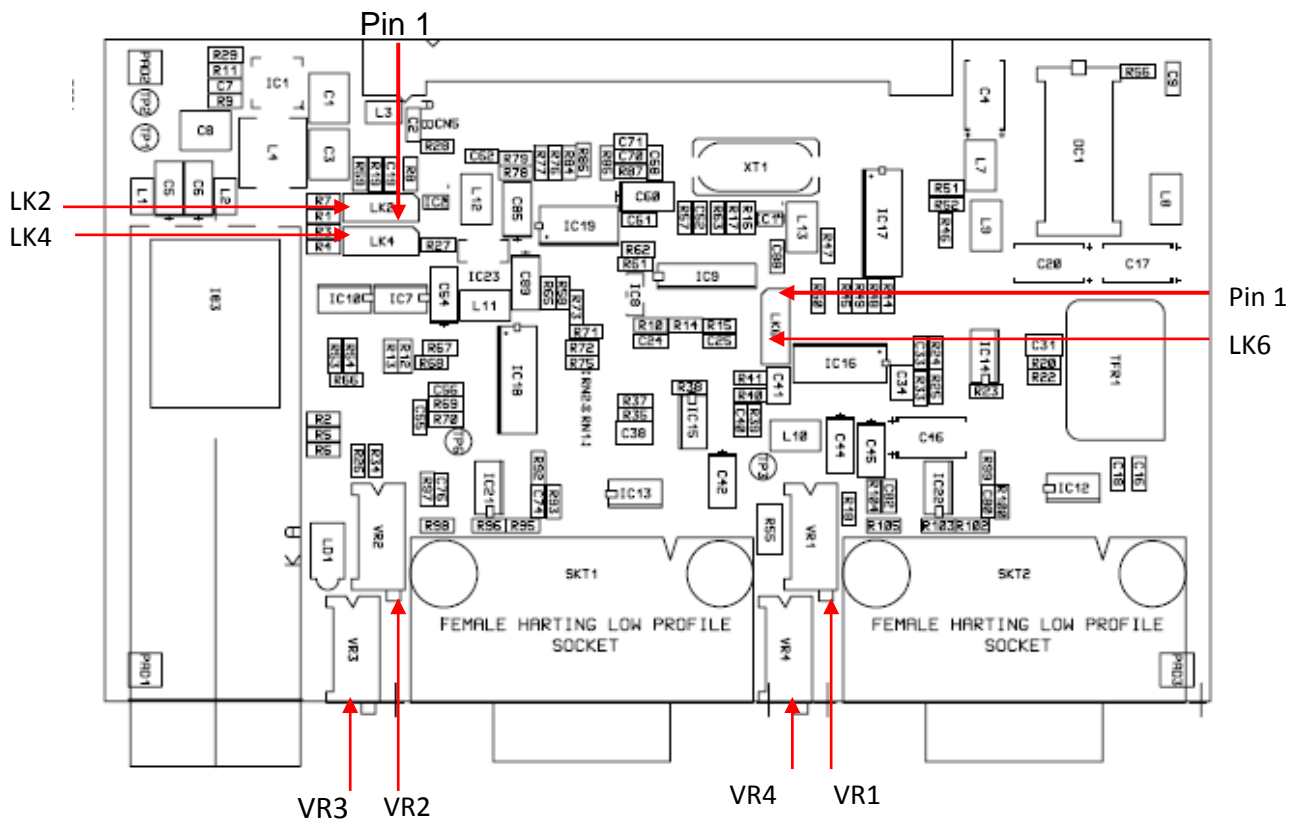
1	Input channel B +
2	Input channel B -
3*	Gnd
4*	Output channel B +
5	Output channel B -
6	Input channel B Gnd
7	Monitor AES +
8	Monitor AES -
9	Output channel B Gnd

} Source selectable by LK4  
 } (see 'Settings/Indicators')

## Settings/Indicators

### Link Settings

	Link	To Link	
LK2	Pin 1	Pin 2	Not used
	Pin 2	Pin 3	Enable error detection on low input light level (default)
LK4	Pin 1	Pin 2	Monitor AES derived from analogue inputs
	Pin 2	Pin 3	Monitor AES derived from optical input (default)
LK6	Pin 1	Pin 2	DC on analogue inputs passed through
	Pin 2	Pin 3	DC on analogue inputs blocked (default)



### Variable Resistor Settings

<b>VR3</b>	12 dB gain adjustment for analogue Input channel A
<b>VR2</b>	12 dB gain adjustment for analogue Output channel A
<b>VR4</b>	12 dB gain adjustment for analogue Input channel B
<b>VR1</b>	12 dB gain adjustment for analogue Output channel B

For all pots, the factory default setting is: 0dBu equals -18dBFS

### Indicator LEDs

Indicator	Function
LED "S/L"	Green = Input light signal present Red = Input light signal low/absent (LK2 pins 2-3 must be fitted)

## Circuit Description



## Component layout

**Parts list**

