



**OPERATIONS
MANUAL**

For

BC550

**3G/SD/HD Fibre
With reverse Data/Audio link**

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Description**BC550T/BC550R**

The BC550T transmitter and BC550R receiver modules enable the transport of a 3G-SDI, HD-SDI, SD-SDI or DVB-ASI signal over fibre optical cable. A reverse path for an audio or control data signal is carried on a second fibre making the BC550 perfect for adding cost effective fibre I/O to compact remote camera systems. Models with an 'A' suffix carry 1 channel of analogue audio via XLR connectors; models with a 'D' suffix carry 1 channel of RS232/422 data via 9-pin D-type connectors.

Each BC550 module is housed in a compact robust enclosure with power provided via a PS12 unit. The PS12 has an IEC mains inlet allowing easy adoption into standard equipment bays. A 4 pin XLR allows the BC550 to be powered from a variety of external DC sources in the range 4.5 to 17 V.

The BC550 units are extremely compact fibre optic converters that are perfectly suited to provide interference free transmission and for extending the range of electrical signals, particularly HD-SDI and 3G-SDI signals.

In the BC550T transmitter, the incoming digital video signals is auto-sensed and then equalised and re-clocked prior to conversion and transmission down a single optical fibre. In the BC550R receiver the incoming optical signal is fed to a trans-impedance and limiting amplifier before being electrically re-clocked on the output.

The video channel can also operate in non-re-clocking mode and handle data rates from 50 Mb/s to 3 Gb/s.

The BC550T and BC550R are available in single-mode, WDM, and CWDM variants to suit any fibre application.

Ordering Information**BC550T/BC550R**

Part Num	Description
BC550AT/S	Single mode 1310nm Transmitter; Rev= Audio on XLR
BC550AR/S	Single mode 1310nm Receiver; Rev= Audio on XLR
BC550DT/S	Single mode 1310nm Transmitter; Rev= Data on 9pin D
BC550DR/S	Single mode 1310nm Receiver; Rev= Data on 9pin D
PS12	10 watts Plug top PSU for the BC313/323/550 Product Range. Fitted with 4 pin XLR.

Notes

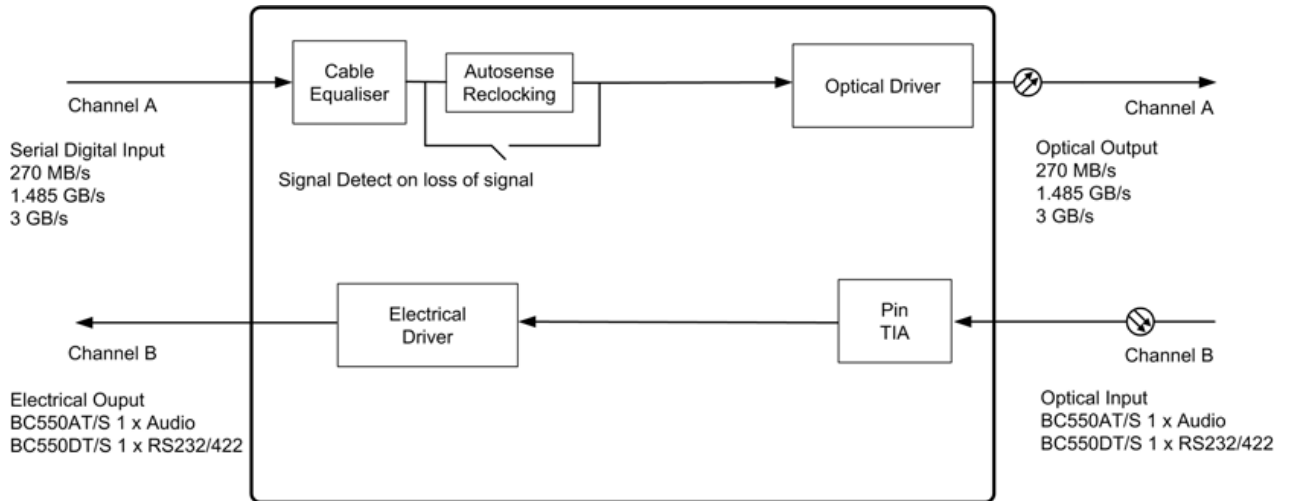
These operate with single-mode fibres and are fitted with LC connectors.

The reverse channel is on a second fibre.

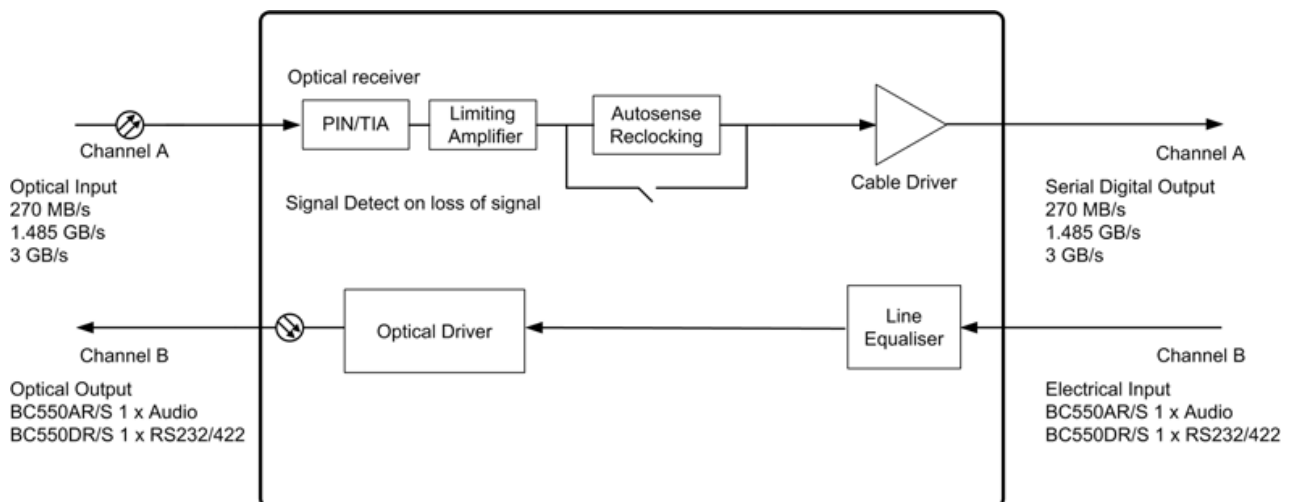
Contact sales office for multi-mode, WDM, CWDM, and other wavelength variations.

For all BC550 modules, the PS12 power supply should be ordered separately.

BC550T



BC550R



General module specifications

Length	92mm (excluding connectors)
Width	64mm
Height	30mm
Weight	100g
Operating Temperature	-30°C to +70°C
Power supply voltage	4.5 to 17V DC
Power consumption	1.8W

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: 24 CFR 1040.10 & 1040.11
RoHS	Complies with Directive 2002/95/EC
Warranty	5 years

Electrical Input

Standards	SMPTE 424M, SMPTE 292M, SMPTE 259M, SMPTE 297M, DVB-ASI Auto-Sensing for SD-SDI, ASI, HD-SDI, 3G-SDI
Equalisation	Automatic to 100 m @ 3 Gb/s Automatic to 200 m @ 1.485 Gb/s Automatic to 300 m @ 270 Mb/s
Connector	1 x 75 Ohm BNC (per IEC 60169-8 Amendment 2)
Return Loss	> 15 dB @ 1.485 Gb/s
Format	Re-clocked (bypass allows data rates down to 50 Mb/s) (Unless specified, factory default is re-clocking mode. Non-re-clocking mode is accessed via pcb link.)

Electrical Output - BC550AT

Connector	XLR
Format	1 x analogue audio

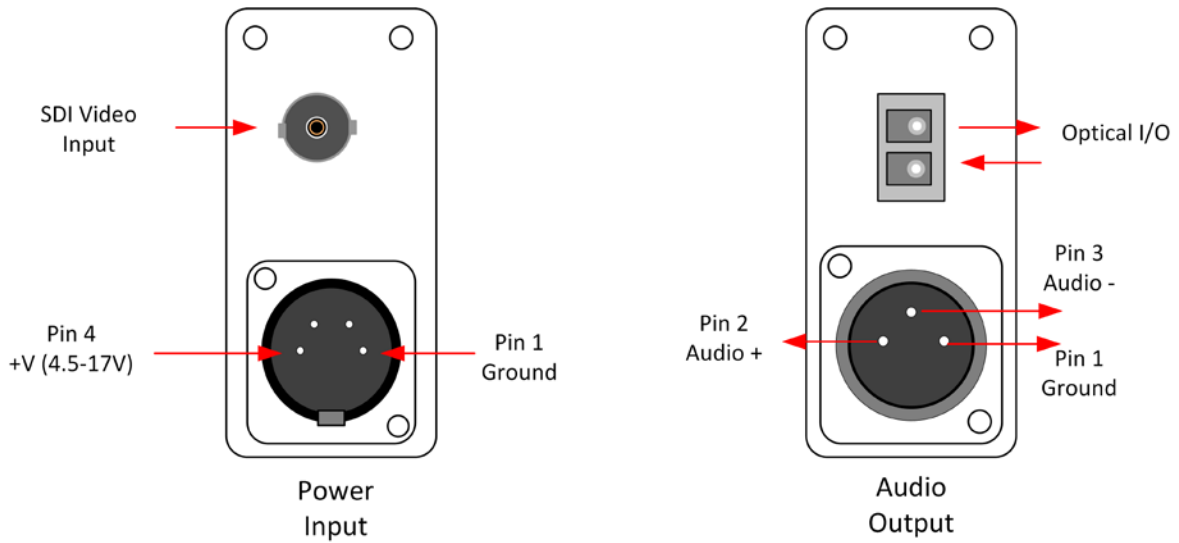
Electrical Output - BC550DT

Connector	9 pin D type
Format	1 x RS232/RS422
Max data rate	RS232: 1 Mb/s RS422: 5 Mb/s

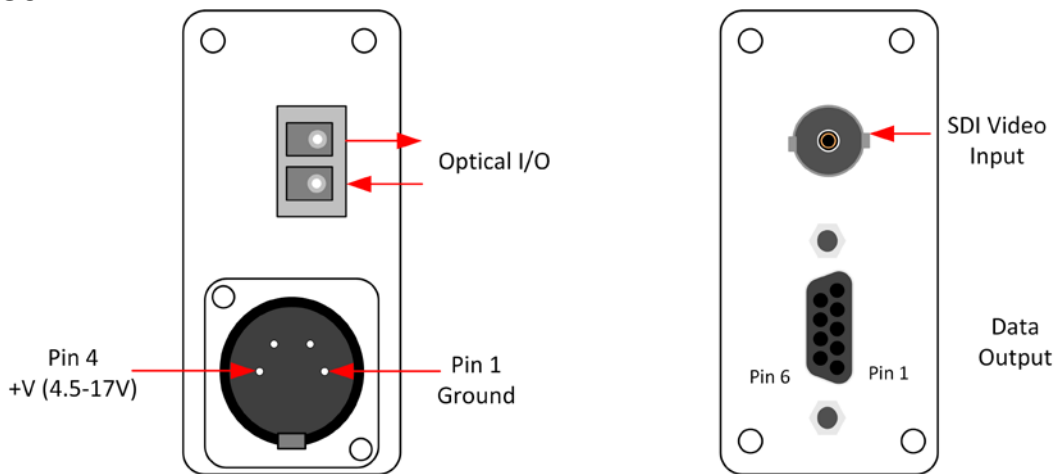
Optical Input/Output

Connector	1 x female LC as standard per channel
Wavelength	1310 nm, 1550 nm (see Ordering Information for variants)
Optical Power	-2 dBm @ 1310 nm (typical) -2 dBm @ 1510 nm (typical) 0 dBm @ CWDM (typical)

BC550AT



BC550DT



4-pin connector - Power

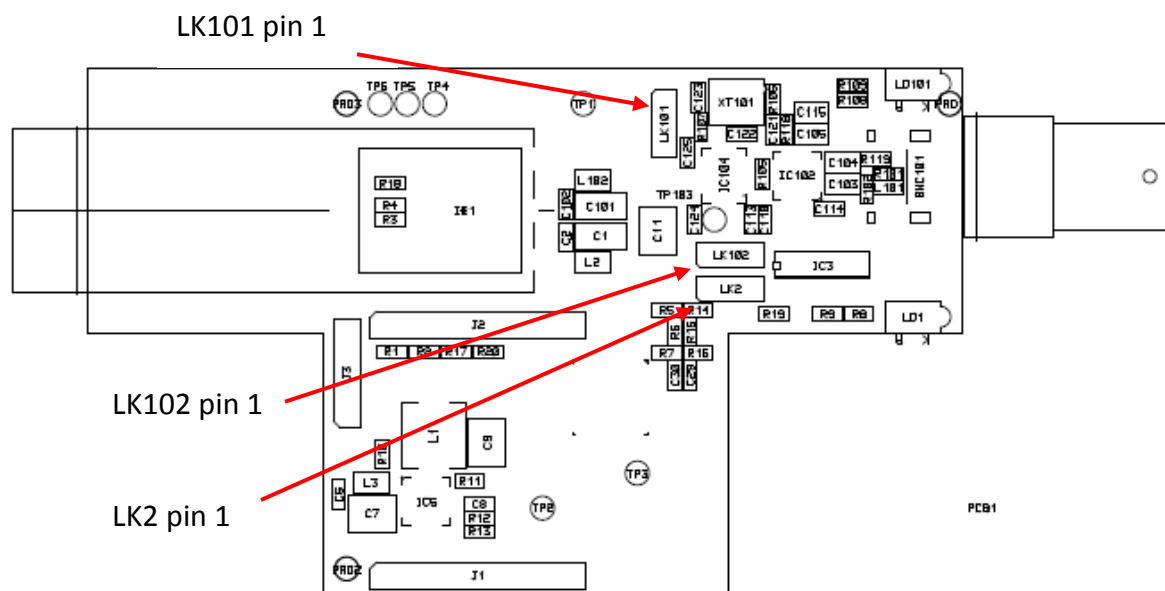
pin 1	Ground
pin 2	no connection
pin 3	no connection
pin 4	+V (+4.5 to +17V DC)

9 Way D-type - Data Output

pin 1	Logic_1 output
pin 2	Logic_2 output
pin 3	RS232_1 output
pin 4	RS232_2 output
pin 5	RS422_1- output
pin 6	RS422_1+ output
pin 7	RS422_2- output
pin 8	RS422_2+ output
pin 9	Ground

Internal Link Settings - all on BC550TX baseboard

	Link	To Link	
Digital input video clocking			
LK101	Pin 1	Pin 2	disable digital input re-clocking
LK101	Pin 2	Pin 3	enable digital input re-clocking(Default)
Digital input signal detect: Signal Error_B and LD101 (next to BNC)			
LK102	Pin 1	Pin 2	data lock error indication (Default)
LK102	Pin 2	Pin 3	digital input signal strength error indication
Optical receiver signal detect: Signal Error_A and LD1 (not normally fitted)			
LK2	Pin 1	Pin 2	data lock error indication (Default)
LK2	Pin 2	Pin 3	optical signal strength level indication



Indicator LEDs

Indicator	Function
LED LD101 (next to BNC socket)	green = SDI/HD/3G input signal detected on BNC red = no signal detected on BNC
LED LD1 (not normally fitted)	green = input signal detected on optic fibre red = no signal detected on optic fibre

Circuit Description

BC550TS

Circuit Description

BC550TD

Component layout

BC550TX

Component layout

BC550TS

Parts list

BC550TS

Parts list

BC550TD

General module specifications

Length	92mm (excluding connectors)
Width	64mm
Height	30mm
Weight	100g
Operating Temperature	-30°C to +70°C
Power supply voltage	4.5 to 17V DC
Power consumption	1.8W

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: 24 CFR 1040.10 & 1040.11
RoHS	Complies with Directive 2002/95/EC
Warranty	5 years

Optical Input/Output

Connector	1 x female LC as standard per channel
Wavelength	1270-1610nm, (see ordering Information for variants)
Sensitivity	> -25.0 dBm @ 3 Gb/s > -25.5 dBm @ 1.485 Mb/s > -26.0 dBm @ 270 Mb/s
Max I/P power	> -1 dBm
Data rate	50 Mb/s to 3 Gb/s

Electrical Input - BC550AR

Connector	XLR
Format	1 x analogue audio

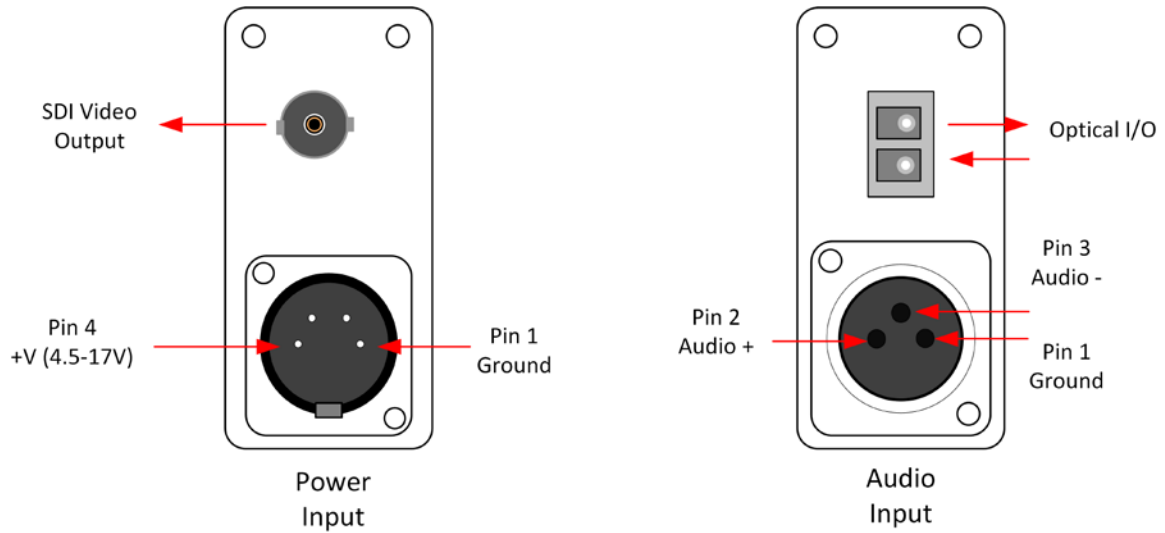
Electrical Input - BC550DR

Connector	9 pin D type
Format	1 x RS232/RS422
Max data rate	RS232: 1 Mb/s RS422: 5 Mb/s

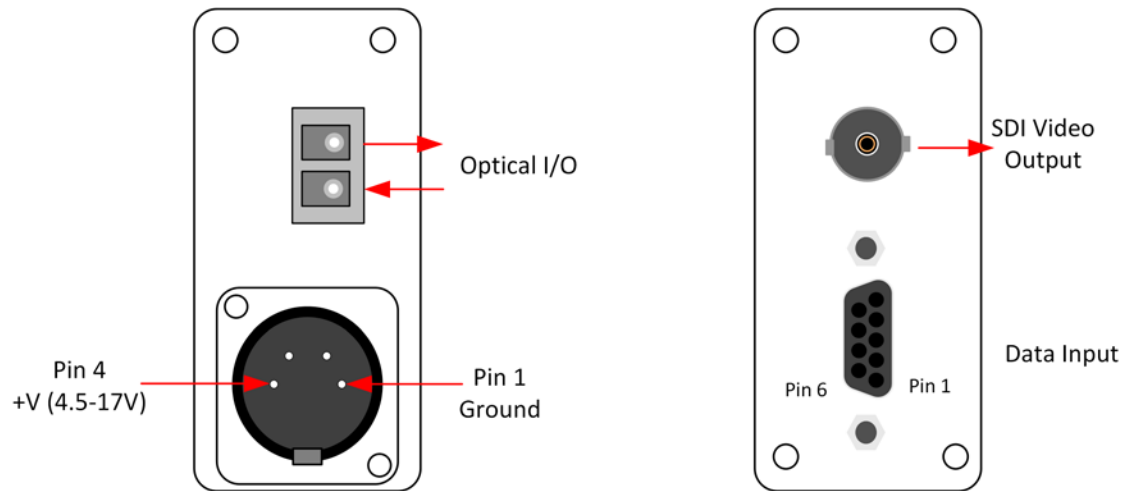
Electrical Output

Standards	SMPTE 424M, SMPTE 292M, SMPTE 259M, SMPTE297M, DVB-ASI Automatic rate selection for SD-SDI, HD-SDI and 3G-SDI
Connector	1 x 75 Ohm BNC (per IEC 60169-8 Amendment 2)
Return Loss	> 15 dB @ 1.485 Gb/s
Signal Level	800mV \pm 10%
DC Offset	0 \pm 0.5 V
Jitter	<0.15 UI line equalised
Format	Re-clocked (bypass allows data rates down to 50 Mb/s) (Unless specified, factory default is re-clocking mode. Non-re-clocking mode is accessed via pcb link.)

BC550AR



BC550DR



4-pin connector - Power

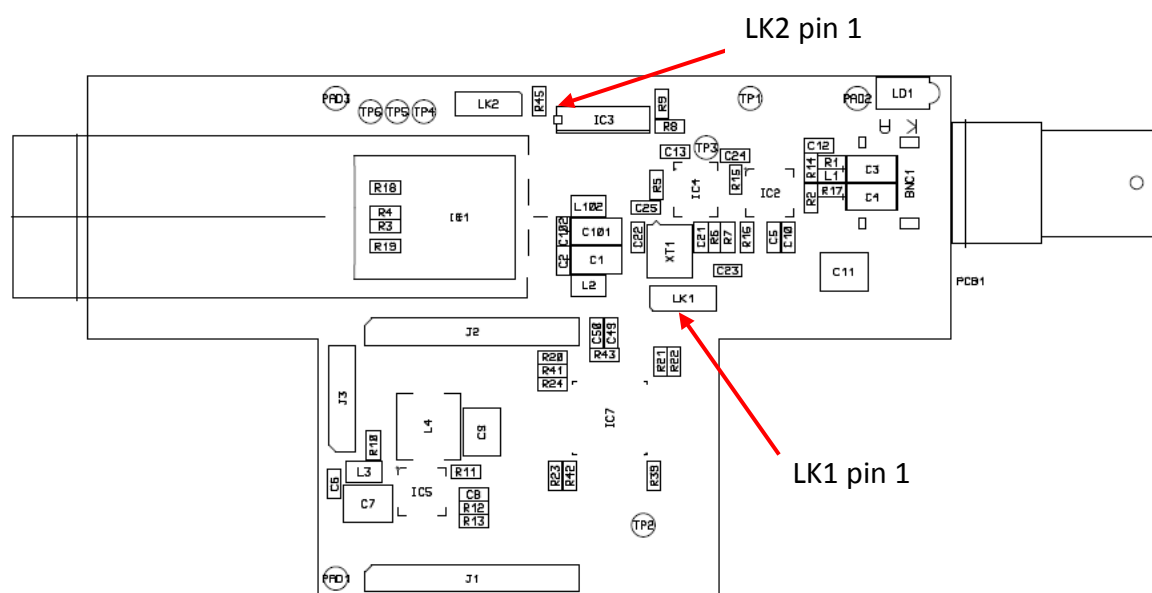
pin 1	Ground
pin 2	no connection
pin 3	no connection
pin 4	+V (+4.5 to +17V DC)

9 Way D-type - Data Input

pin 1	Logic_1 input
pin 2	Logic_2 input
pin 3	RS232_1 input
pin 4	RS232_2 input
pin 5	RS422_1- input
pin 6	RS422_1+ input
pin 7	RS422_2- input
pin 8	RS422_2+ input
pin 9	Ground

Internal Link Settings - all on BC550RX baseboard

	Link	To Link	
Digital video receiver clocking			
LK1	Pin 1	Pin 2	disable receiver re-clocking
LK1	Pin 2	Pin 3	enable receiver re-clocking (Default)
Optical receiver signal detect: Signal Error_A and LD1 next to BNC			
LK2	Pin 1	Pin 2	receiver lock status (Default)
LK2	Pin 2	Pin 3	receiver light level status



Indicator LED

Indicator	Function
LED LD1 (next to BNC socket)	green = input signal detected on optic fibre red = no signal detected on optic fibre

Circuit Description

BC550RS

Circuit Description

BC550RD

Component layout

BC550RX

Component layout

BC550RS

Parts list

BC550RS

Parts list

BC550RD