



**OPERATIONS  
MANUAL**

**For**

**BC160**

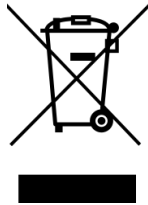
**1U Card Frame**

© 2010-2015 Bluebell Opticom Ltd

Unit 2, The Quadrant, Howarth Road, Maidenhead, Berkshire, SL6 1AP United Kingdom

Tel: +44 (0)1628 510055 Fax: +44 (0)1628 510057 Email: [sales@bluebell.tv](mailto:sales@bluebell.tv) Website: [www.bluebell.tv](http://www.bluebell.tv)

Contents	BC160	2
Description	BC160	3
Description	BC160P	4
Ordering Information	BC160	4
Product photos	BC160	5
Specification	BC160	6
Connections	BC160	7
Indicators	BC160	7

**WEEE Directive & Product Disposal**

At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.

Please note that all documentation herein is of a confidential nature and may not be reproduced without written confirmation from Bluebell Opticom Ltd. The technical descriptions and schematics are to aid service and repair only. Dissemination to a third party or parties will constitute breach of copyright.

Information in this document is subject to change without notice and does not represent a commitment on the part of Bluebell Opticom Ltd.

© 2010- 2015 Bluebell Opticom Ltd  
Unit 2, The Quadrant  
Howarth Road  
Maidenhead  
Berkshire  
SL6 1AP  
United Kingdom

Tel: +44 (0)1628 510055  
Fax: +44 (0)1628 510057  
Email: [support@bluebell.tv](mailto:support@bluebell.tv)  
Website: [www.bluebell.tv](http://www.bluebell.tv)

E&OE January 2015

The BC160 is a 19" 1RU frame for Bluebell BC Series cards that can hold up to 6 single-slot cards. Any of the standard cards can be fitted and mixed within a frame. Some BC Series cards have dual channels allowing up to 12 video signals to be transmitted or received from a single 1RU frame.

### Frame Versions

Note that this guide is for the later frames with the internal 2-row, 64-pin SKT7 that can take the BM102 monitoring card.

For information on the earlier frame, with the internal 3-row, 48-pin SKT7 that can take the BM100 or BM101 monitoring cards, please see the manual: BC160-OpsTechMan-Issue2.pdf

### Monitor Panel

The front panel's "STATUS" area displays information derived from each card position. There are two LEDs for each slot (one each for channels A and B) and a LED for each PSU.

Signal Status information:	Power supply leds (PS1, PS2):
LED OFF      No card / channel present	LED OFF      Power supply no output
LED GREEN    Signal O.K.	LED GREEN    Power supply working
LED RED      Signal missing or error	

### Remote Monitoring

Signal and card monitoring is achieved via an optional monitoring card fitted to the front of the BC160 frame. In this case, a different front panel is fitted with a cut-out for the monitoring card. The BM102 network card monitors the status of the power supplies and the channel A and B status and other diagnostic data from each card. It can then report this data over Ethernet via its internal webpages and to a third party SNMP management system. Note that if a BM102 card is fitted, the PSU relay signals on the ALARM connector on the front panel should not be used.

### Power Supplies

The frame has built-in dual redundant power supplies as standard (each PSU has its own IEC power inlet).

Each PSU has an alarm output, in the form of a relay contact which is normally closed and opens on failure, available on a 9-pin 'ALARM' connector at the front of the frame. However, these contact signals are also sent to the monitoring slot and so if a BM102 monitoring card is in place, the 'ALARM' connector should not be used.

If a BM102 is not being used, the outputs from each PSU relay can be wired in series and then 'daisy-chained' with outputs from other frames.

### Ventilation

The frame has two internal fans that draw in air from the left end (when looking at the front panel) and expels it at the right end.

<b>Description</b>	<b>BC160P</b>
--------------------	---------------

The BC160P frame has the same physical footprint as the BC160 but without any power supplies or signal monitoring. It is specifically intended to house passive optical cards including splitters, WDM, and CWDM devices.

<b>Ordering Information</b>	<b>BC160</b>
-----------------------------	--------------

Main parts and options:

Part Num	Description
BC160	19" 1RU Frame for up to 6 BCxxx Cards. Includes Dual Redundant Power Supplies. Monitoring card is optional and accessible via dedicated front slot.
BC160P	19" 1RU Frame for up to 6 Passive BCxxx Cards. No power supplies or monitoring capability.
Optical 2U Flightcase	Ruggedized aluminium flight case which houses a BC160 frame. Any combination of cards, including WDM and CWDM, can be fitted to give complete flexibility in the field. Dual mains inputs and a rugged rear panel is fitted with BNC, XLR and optical connectors as necessary. Contact the UK Sales Office for a written quotation.
BM102	Network Monitoring Card with Ethernet connection. Optional: 1 per frame.

Related products:

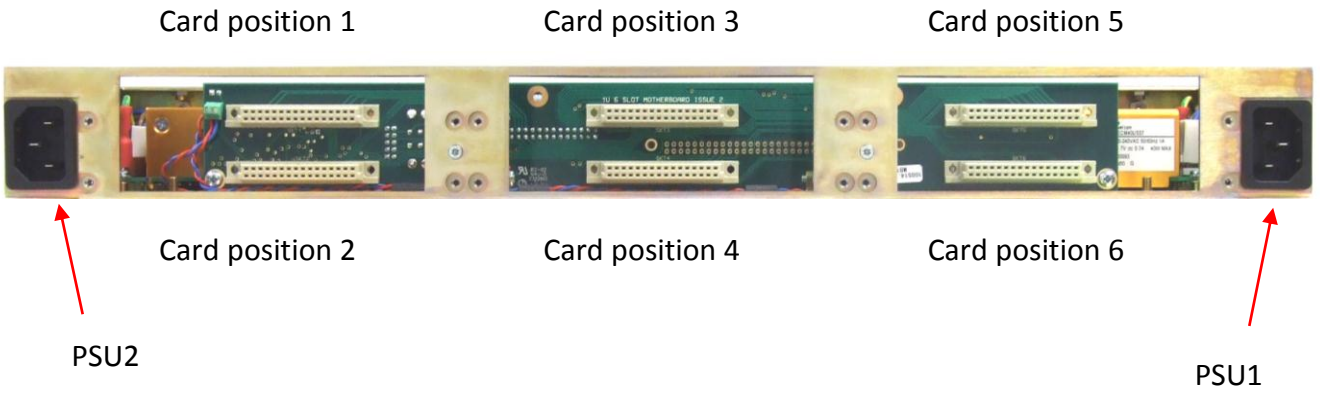
Part Num	Description
BC100	19" 3RU Frame for up to 15 BCxxx Cards, with optional Network Monitoring and facility for Dual Redundant Power Supplies. (Order PSUs separately)
BC101	Single Slot Frame for a BCxxx card. Needs external DC Power Supply.
BC102	Double Slot Frame for BCxxx cards. Needs external DC Power Supply.
PS12	10W Plugtop PSU for the BC101/102 Enclosures. Fitted with 4 pin XLR. IEC Mains Leads not supplied
BC120	Triple Slot Frame for BCxxx cards with Universal Mains Power Supply.



**Front view - with monitoring card option fitted**



**Rear view showing slots for 6 cards**



**General frame specifications**

Depth:	150 mm (excluding connectors)
Width:	445 mm
Height:	44.5 mm (1RU)
Weight:	approx 4.5kg when fully loaded
Operating Temperature:	-30°C to +70°C
Number of slots:	6, plus 1 for monitoring card option
Input Voltage Range:	90 to 260 V ac, 50/60 Hz
Power:	18W when fully loaded
Fuses:	There are no user-serviceable fuses in the frame. In a fused mains cable, a 5A fuse is recommended.

**Alarm connector**

Type of connector:	9-pin 'D' connector (male pins) at the front of frame
PSU 1 pins:	Pins 1 & 2
PSU 2 pins:	Pins 3 & 4
Error indication:	Closed relay contacts open on PSU failure (Not to be used if a BM102 option card is fitted)
Contact resistance:	0.2ohm max.
Current rating:	0.5A @ 100V

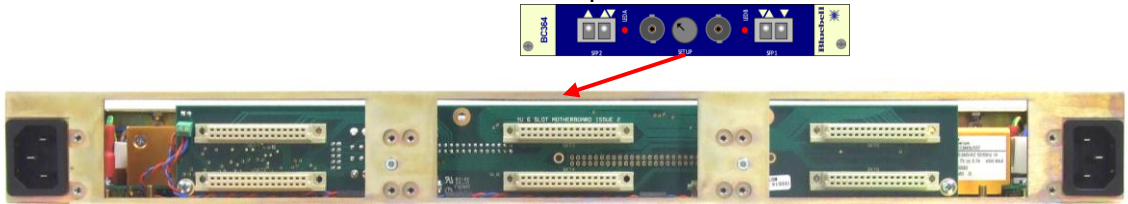
**Conformance**

EMI/RFI:	Complies with 89/336/EEC, EN55022B, EN61000-4-2, EN61000-4-4-(Level 2), EN61000-4-4FTB, EN61000-4-5, EN61000-4-11
Electrical:	Complies with EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4
RoHS:	Complies with Directive 2002/95/EC
Warranty:	5 years

<b>Connections</b>	<b>BC160</b>
--------------------	--------------

**Rear view:**

Example card orientation



PSU2	Card position 1	Card position 3	Card position 5	PSU1
	Card position 2	Card position 4	Card position 6	

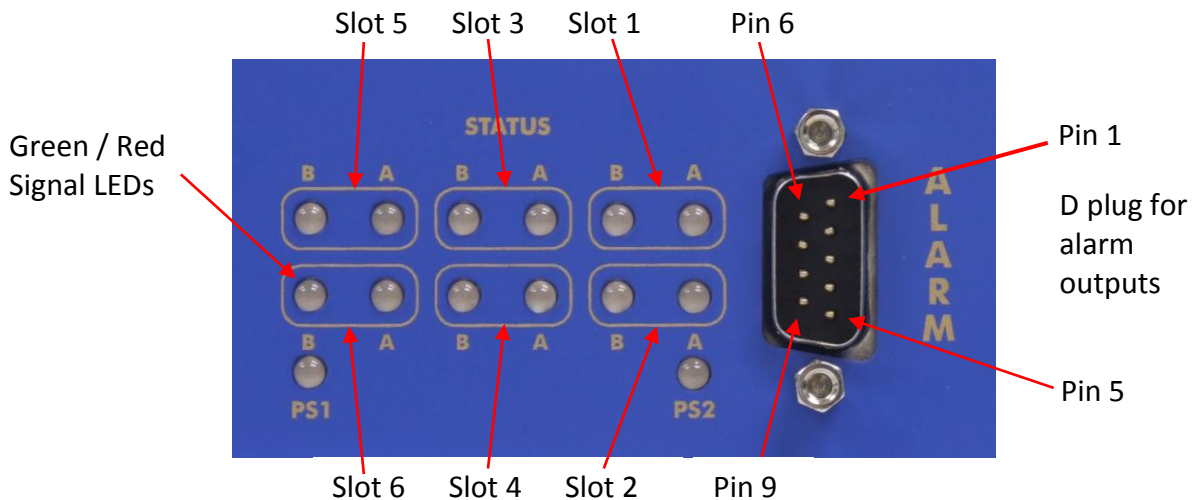
**"ALARM" 9-pin D-plug (male pins) on front of frame**

Pin 1	PSU1 Relay	closed = power good
Pin 2	Contacts:	open = power fail
Pin 3	PSU2 Relay	closed = power good
Pin 4	Contacts:	open = power fail
Pin 5	No connection	
Pin 6	No connection	
Pin 7	No connection	
Pin 8	No connection	
Pin 9	No connection	

**Note:**

These contact signals are also sent to the monitoring slot and so if a BM102 card is fitted, the "ALARM" connector should not be used.

If no BM102 card is fitted, these outputs can be wired in series and 'daisy-chained' with outputs from other frames.



<b>Indicators</b>	<b>BC160</b>
-------------------	--------------

Refer to photograph of "STATUS" panel just above.

The arrangement of Signal LEDs is the same as the arrangement of the cards when viewed from the front (i.e. as though the frame were transparent).

**Signal LEDs:**    **Off**    = No card/signal  
                          **Green** = Good  
                          **Red**    = Fault

**PS1, PS2 LEDs:**    **Off**    = No voltage  
                                  **Green** = Good