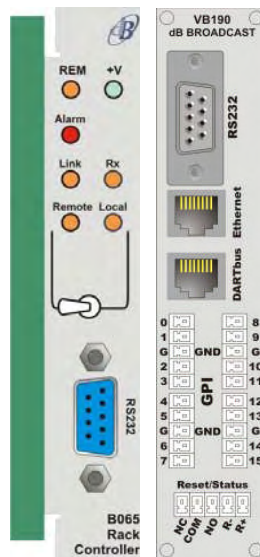


B065

B065 Rack Controller Module, RS232 and Ethernet SNMP-V1



Handbook

Provisional Version 1.0



dB Broadcast Ltd has made every effort to ensure the accuracy of information contained within this document which is nevertheless supplied for information purposes only and does not constitute any form of warranty or guarantee.

All trademarks acknowledged.

The information in this document is subject to change without notice.

dB Broadcast Ltd
Registered Office:
Kestrel House
Sedgeway Business Park
Witchford
Ely
Cambridgeshire
UK
CB6 2HY
Tel: +44 (0) 1353 661117
Fax: +44 (0) 1353 665617
Email: sales@dbbroadcast.co.uk
Web: www.dbbroadcast.co.uk
Registered in England No. 2709677

Document history

Date of first publication 14th June 2007

Current issue and date 1.0 / 22nd December 2007

Firmware versions

Contents

| | |
|---|------------|
| DOCUMENT HISTORY | III |
| INTRODUCTION | 1 |
| <i>The B065 Rack Controller Module</i> | 1 |
| <i>Features</i> | 2 |
| <i>Applications</i> | 2 |
| GENERAL SAFETY SUMMARY | 3 |
| INSTALLATION | 5 |
| <i>Rear I/O</i> | 5 |
| <i>Front panel RS232</i> | 6 |
| <i>Rear panel RS232/485</i> | 6 |
| <i>Ethernet port</i> | 7 |
| <i>DARTbus port</i> | 7 |
| <i>GPI I/O port</i> | 8 |
| <i>Reset/Status port</i> | 9 |
| FUNCTIONAL CHECK | 9 |
| NETWORK CONFIGURATION | 10 |
| INTRODUCTION | 10 |
| EQUIPMENT REQUIRED | 10 |
| FRAME PREPERATION | 10 |
| B070/V6081 INTERFACE CARD TESTS | 11 |
| USING B067 SNMP REMOTE CONTROL SOFTWARE | 12 |
| <i>Installation</i> | 12 |
| <i>Configuration</i> | 12 |
| USING A TERMINAL EMULATOR | 14 |
| <i>Configuration commands</i> | 15 |
| USING A USB RS232 PORT | 16 |
| USING A CROSSOVER ETHERNET CABLE | 17 |
| OPERATION | 19 |
| <i>Front panel features</i> | 19 |

| | |
|-----------------------------------|-----------|
| <i>Local RS232 control</i> | 19 |
| <i>Remote control</i> | 19 |
| THE COMMAND-LINE INTERFACE | 21 |
| <i>Serial port connection</i> | 21 |
| <i>Remote control protocol</i> | 21 |
| DEFAULT SETTINGS | 24 |
| UPDATING FIRMWARE | 25 |
| SPECIFICATION | 27 |
| ORDERING INFORMATION | 30 |

Introduction

The B065 Rack Controller Module

The B065 module enables remote control of the Hawkeye video decoders, audio decoders, receivers and other Hawkeye modules via RS232 or Ethernet SNMP.

The B065 automatically detects compatible modules in the V1606 (3RU) frame in which it is fitted and provides a single point of control.

Status is indicated on the front panel. When used with the optional B067 software a graphical representation of chassis contents, alarm states and logs may be obtained.

Additionally, where fail-safe operation is required, a custom algorithm may be loaded to provide a fully autonomous, in-chassis, redundancy solution. For applications using Simple Network Management Protocol (SNMP) based network management systems Management Information Base objects (MIBs) are available.

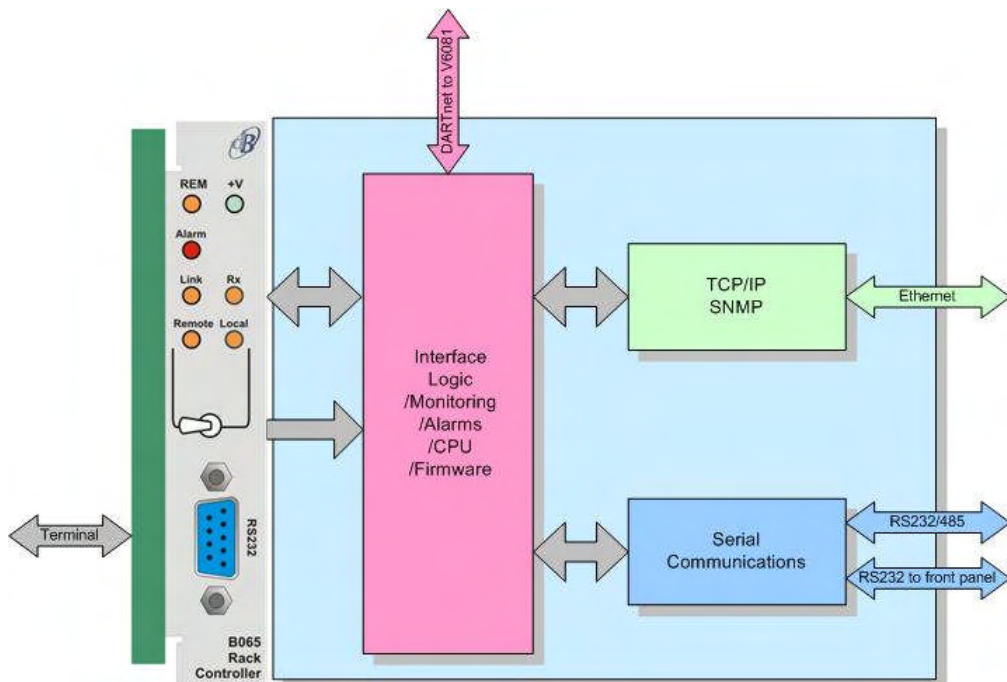


Figure 1: B065 Rack Controller

Note: The B065 requires a V6081 interface module to be fitted in the same frame.

Features

- An Ethernet port, a CAN control port and two RS232 ports
- Alarm reporting via SNMP traps
- SNMP v1 Protocol conversion to CAN control bus (DARTnet)
- Alarm reporting via SNMP traps
- Backup of module configurations
- Alarm aggregation for all modules fitted within the same frame
- Frame environmental status feedback
- Module status indicator available on front panel
- Low power consumption

Applications

- Remote management of Hawkeye modules via RS232 or Ethernet
- Internal redundancy management platform
- General purpose interface for modules fitted within the frame

General safety summary

Precautions to avoid personal injury, fire or product damage.

Every care has been taken in the design, manufacture, assembly and testing of this product to obviate health and safety risks to personnel and to prevent fire or other hazards. However, please review the following safety precautions for continued protection.

General use. This product must only be used as specified in this manual. Failure to follow any ratings or directions for use may impair the protection provided.

On receipt of the product. Verify there is no damage and that all accessories are present .

Suspected damage or failure. Do not operate the product. Have it inspected by qualified service personnel or contact dB Broadcast or an authorised distributor.

Operating environment. The unit is for indoor use only. See the [Specification](#) chapter for further environmental, physical, certification and safety information.

Do not operate in wet or damp conditions.

Do not operate in an explosive atmosphere.

Power cable. Use only a power cable specified for this product and certified safe for the country of use.

Grounding. *This product must be grounded.* Before making any signal connections, ensure that the product is grounded. The product is grounded through the power cable. To avoid electric shock under fault conditions, the protective grounding conductor within the power cable must be connected to an earth terminal of the building in which the product is located.

Mains supply voltage and fuse ratings. See the [Specification](#) chapter. All ratings must be observed.

Ventilation. To prevent overheating do not obstruct ventilation holes.

Cuts and abrasions. When handling the equipment, guard against cuts or abrasions from metal parts of the case or components.

CAUTION. Caution statements identify conditions or practices that could result in damage to this product or other property.

Toxic content. Unwanted or obsolete components must be disposed of safely as some may release toxic vapours if incinerated.

In case of difficulty. Please refer to dB Broadcast.

Lithium battery

A lithium battery may be located in this product to provide back up for a real-time clock. In normal operation this battery has a life in excess of 5 years. If the real-time clock's operation becomes erratic when cycling the power, then the battery may need replacing. Battery replacement should only be performed by a 'skilled and competent technician', or by returning to db Broadcast for repair.

CAUTION: Danger of explosion if battery is incorrectly replaced.

Product damage precautions

Take anti-static precautions

Since this unit contains exposed PCB and electronic components, ensure proper anti-static precautions are observed when handling this equipment.

Provide proper ventilation

To prevent product overheating, provide proper ventilation.

Do not operate with suspected failures

If you suspect there is damage to this product, have it inspected by qualified service personnel.

There are no user serviceable parts

Return to dB Broadcast or an authorized distributor for repair/service.

Installation

On receipt of the unit, open the box and verify that the unit and all accessory items included.

Save the shipping carton and packing materials in case it becomes necessary to ship the unit to dB Broadcast for service or repair.

Installation

The rear panel assembly must be installed prior to fitting the main module.

To do this, remove the blanking plate from the required slot in the rear of the frame.

WARNING: Always remove power whilst fitting the rear module.

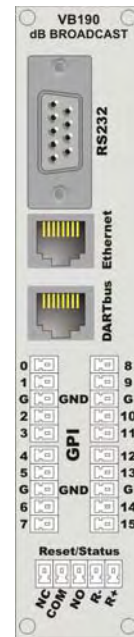
Insert the rear panel assembly taking care to align the control and power pins at the top and bottom of the rear panel correctly. The audio connectors go towards the bottom of the rack.

CAUTION: Damage to the module and/or frame may occur if the rear panel assembly is not the correct type or is incorrectly installed.

Secure the rear panel assembly to the rack system using the 4 screws that held the blanking plate (M2.5 x 10mm).

Pull down the front panel and insert the module into the appropriate slot taking care to ensure it is within the top and bottom guides. Push the module fully home into the DIN connector in the rear panel assembly.

To remove the module from the frame pull the unit from the front of the frame using the handle.



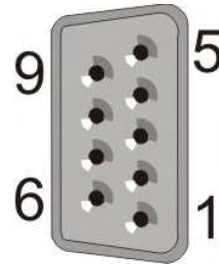
Rear I/O

| VB190 | Connector signal |
|---------------------------|---|
| RS232 | A female 9-pin sub-miniature D-Type connector, providing a bi-directional serial connection to auxiliary equipment complying with RS232 or RS485 signal levels. |
| Ethernet | One female 8-pin RJ-45 connector, providing a bi-directional connection to a 10baseT hub on a local area network. |
| DARTbus | One female 8-pin RJ-45 socket for connection to the DART socket on the V1606 frame using a UTP patch cable. Enables a V6081 module in the same frame. |
| GPI 0-3; 4-7; 8-11; 12-15 | Four 5-pin connectors providing access to the V6081 Controller General Purpose Interface I/O. Refer to GPI section for a full description. |
| Reset/Status | A 5-pin connector providing connection to a telemetry control system. Refer to Reset/Status section for a full description. |

WARNING: Ensure that the Dart bus cable is plugged into the Dartbus connector. Damage will occur if this cable is plugged into the Ethernet port

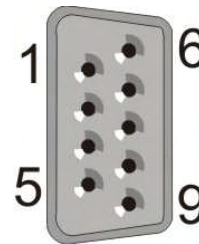
Front panel RS232

| RS232 – 9 way 'D' type | |
|------------------------|---------------------------------|
| PIN | SIGNAL |
| 1 | N/C |
| 2 | Txd - Transmit data (to host) |
| 3 | Rxd - Receive data (from host) |
| 4 | N/C |
| 5 | Signal ground |
| 6 | N/C |
| 7 | CTS – Clear to send (from host) |
| 8 | RTS – Request to send (to host) |
| 9 | N/C |
| Shell | Chassis ground |



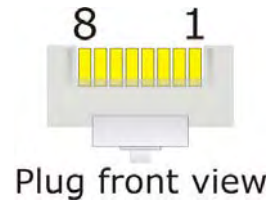
Rear panel RS232/485

| RS232 – 9 way 'D' type | | |
|------------------------|--------------|--------------|
| PIN | RS232 SIGNAL | RS485 SIGNAL |
| 1 | N/C | N/C |
| 2 | Txd | TX |
| 3 | Rxd | RX |
| 4 | N/C | N/C |
| 5 | SGND | SGND |
| 6 | N/C | N/C |
| 7 | CTS | RX+ |
| 8 | RTS | TX+ |
| 9 | N/C | N/C |
| Shell | Chassis GND | Chassis GND |



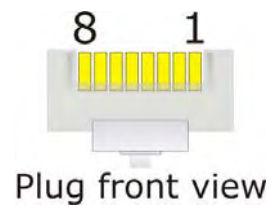
Ethernet port

| Ethernet – RJ45 | | |
|-----------------|-------------|-----------|
| PIN | Function | Notes |
| 1 | TX+ | To host |
| 2 | TX- | From host |
| 3 | RX+ | |
| 4 | N/C | |
| 5 | N/C | |
| 6 | RX- | From host |
| 7 | N/C | |
| 8 | N/C | |
| Shell | Chassis GND | |



DARTbus port

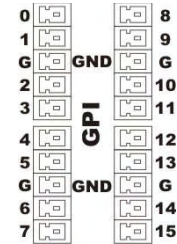
| Ethernet – RJ45 | | |
|-----------------|-------------|---------------------|
| PIN | Function | Notes |
| 1 | CAN-H | Differential signal |
| 2 | CAN-L | Differential signal |
| 3 | Signal GND | |
| 4 | Signal GND | |
| 5 | Signal GND | |
| 6 | Reserved | Do not use |
| 7 | Reserved | Do not use |
| 8 | Reserved | Do not use |
| Shell | Chassis GND | |



GPI I/O port

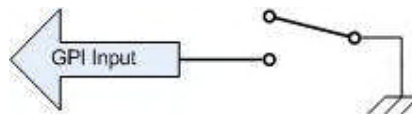
GPIs provide basic telemetry control and monitoring and consists of a block of 16 signals located on the rear panel. Depending upon the application, each GPI signal can be configured as either an input or output.

| GPI | | | | |
|-----|---------|---------|----------|-----------|
| PIN | GPI 0-3 | GPI 4-7 | GPI 8-11 | GPI 12-15 |
| 1 | 0 | 4 | 8 | 12 |
| 2 | 1 | 5 | 9 | 13 |
| 3 | GND | GND | GND | GND |
| 4 | 2 | 6 | 10 | 14 |
| 5 | 3 | 7 | 11 | 15 |



Inputs

A GPI signal configured as an input can be used to monitor telemetry outputs from other equipment or provide basic system control through a closing contact (switch, relay, etc).

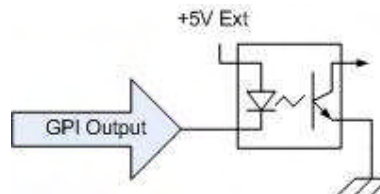


Typical GPI input configuration

A GPI input is deemed inactive if the input is open-circuit or externally pulled up to +5V. It is deemed active if the input is connected or driven to 0V. GPI inputs are internally integrated to prevent contact bounce from causing spurious inputs.

Outputs

A GPI signal configured as an output can drive telemetry inputs on other equipment or provide basic system monitoring through visual indicators (LEDs, lamps, etc).



Typical GPI output configuration

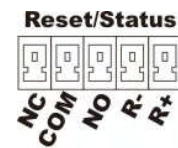
The GPI output in the inactive state does not provide a current source since the output drive transistor is switched off.

The GPI output in the active state is capable of sinking up to 10mA when the output drive transistor is switched on. GPI outputs are internally limited to 10mA and it is not necessary to provide limiting resistors for external indicators.

CAUTION: GPI signals use TTL voltage levels between 0 and 5V with a maximum output current load of 10mA. It is important NOT to exceed their maximum ratings as this may result in damage or malfunction of the module.

Reset/Status port

| Reset/Status | | |
|--------------|----------|------------------------------------|
| PIN | Function | Description |
| 1 | NO | Fail relay normally closed contact |
| 2 | COM | Fail relay common contact |
| 3 | NO | Fail relay normally open contact |
| 4 | R- | Reset input - |
| 5 | R+ | Reset input + |



The Reset/Status Port located on the rear panel allows the module to be monitored and/or reset remotely.

Remote monitoring

The status signals of the Reset/Status Port, NO/COM/NC, are a set of isolated relay contacts. In normal operation the COM (common) and NO (normally open) signals are connected. In a fault condition (or not powered) the COM and NC (normally closed) signals are connected.

Reset

Reset input + (pin 5) and Reset Input - (pin 4) allow module to be reset from an external source such as a relay contact or switch.

To reset the module connect R– to R+ for longer than 10ms.

Functional check

To ensure the B065 Rack Controller is operating correctly complete the following procedures.

1. Power up the rack and ensure the green power indicator (+V) on the front panel is illuminated.
2. Follow the configuration steps in the next chapter [Network configuration](#).

Network configuration

Introduction

This document describes the stages needed to configure a B065 Rack Controller Card for use on an IP/Ethernet based network using the B067 SNMP Remote Control Software or a terminal emulator.

Note: Before connection to a network, contact the network administrator and request the following details:

- An IP Address for every B065 to be configured
- The correct network subnet to use
- The IP address of the default gateway
- The IP address of the SNMP trap destination

Use of incorrect addresses will not only prevent access to the B065 Rack Controller Card but could cause the network to malfunction.

Equipment required

- RS232 1:1 Lead (9 pin Male to Female)
- B067 SNMP Remote Control Software or a terminal emulator
- Insulated pot tweaker
- Optionally an Ethernet crossover cable

The Ethernet crossover cable is suggested to allow the configuration to be tested prior to connection to a network.

Frame preparation

Install the B065 card and rear connector in slot 14, next to the PSU with the power off.

The B065 card must be connected to the frame system, using the supplied cable. The frame Dartnet and the B065 Dart net connectors are adjacent.

WARNING: Do not connect the Rack Dartnet connector to the Ethernet connector; permanent damage to the B065 card can result.

B070/V6081 interface card tests

1. The Hawkeye B070 (or Vistek V6081) module, located above the power supplies, needs to be checked for correct firmware revision **01.00.11**, printed on **U13**.
2. Using ESD precautions, remove the B070/V6081 module. There are two rotary switches, which must be set as follows: **SW3 = 0 and SW4 = 1**.
3. Replace the B070/V6081 module into the rack and power the rack.
4. Push button function switch, SW1, is located behind the module handle behind the power LED. Push this switch, using an insulated tool, while observing the LED display.
5. Press the switch 5 times and the LED should display **r11**.

If the display indicates a different **r number** do the following:

6. Remove power from the rack and press the front panel push button detailed above. Re-power the rack with the button pushed.

When the B070/V6081 has completed the boot up sequence the display should read **AO1**.

7. Now press the switch 5 times and confirm that the display shows **r11**.

After a short period, the display will revert back to **AO1**.

Using B067 SNMP Remote Control Software

Installation

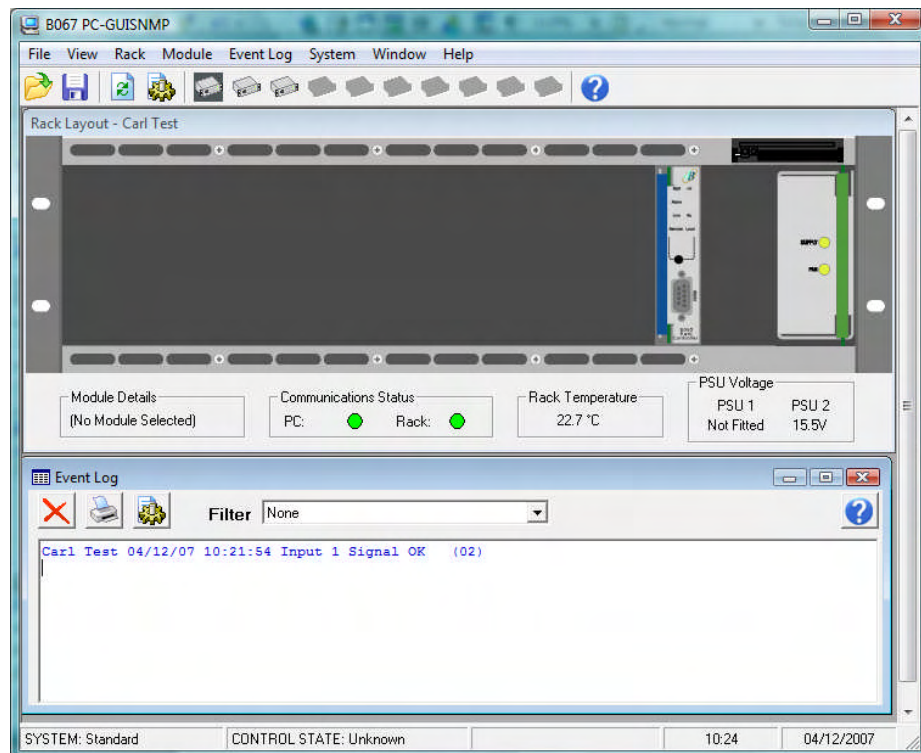
Start the CD and then click on *install* and follow the instructions. Answer *YES* to driver revisions.

Connect the PC RS232 to the B065 front panel RS232 connector. If the PC does not have a RS232 port, see Using a USB RS232 port.

From *Start/All Programs/* click and run the B067 SNMP Remote Control Software Rack Control.

Configuration

The GUI should run and a frame with at least one control module and power supply should appear on the screen.

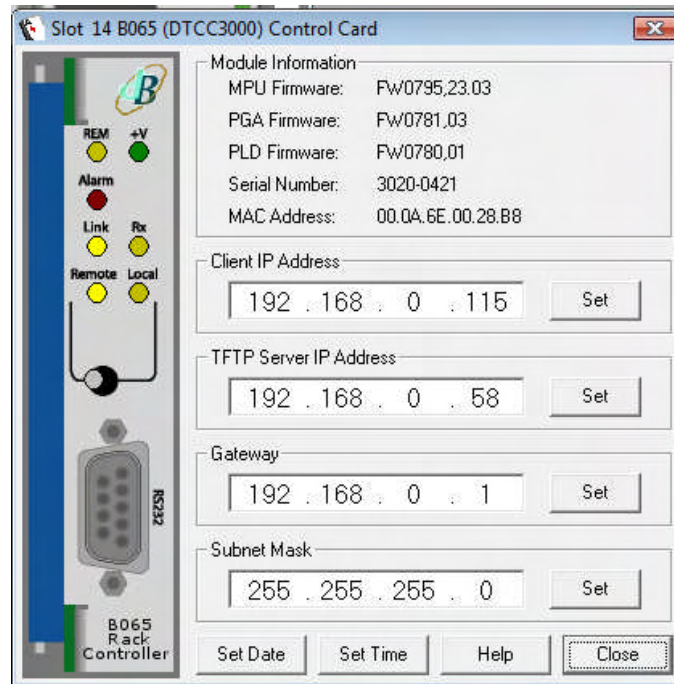


On the toolbar, select *System* and then *Comms Options*. From the Communications options, select *RS232 control* and select the relevant *RS232 serial port*. Select *OK* and return to the main *rack layout* screen. The GUI RS232 port must match the PC RS232 port connection.

The main screen display should now have green LED's for *Communications status*, *PC* and *Rack*.

If the *PC* LED is red, check the RS232 connection and RS232 port used by the PC. If the *Rack* LED is RED, check that the B065 is connected to the frame using the Dartnet connector.

Click on the B065 control card (Slot14) and the DTCC control card page will appear.



If the data is as below, check the RS232 connection.

| | | | | |
|------------------------|----|----|----|----|
| Client IP Address | 0. | 0. | 0. | 0. |
| TFTP Server IP Address | 0. | 0. | 0. | 0. |
| Gateway | 0. | 0. | 0. | 0. |
| Subnet Mask | 0. | 0. | 0. | 0. |

To change the B065 Client IP Address, subnet mask, gateway and TFTP Server to those given by your IT manager, click on the control card and click the appropriate *SET* button and fill in the details required.

Close the B065 card and re-power the rack.

On the control GUI, select *RACK, CONFIGURE* and then *Change rack1* to start. Set the IP address here to match the control card setting. In this example set 192.168.0.115. Enter a suitable rack name i.e Test Rack 1, and then select the number of PSU's fitted. Finally, choose *Set Active* and then *Close*.

The B065 control card and the GUI are now using the same IP address. In the GUI, select *SYSTEM, COMMS OPTIONS* and click on *SNMPv1* and close the page.

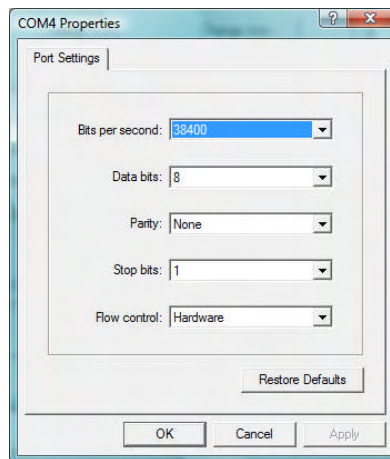
Using a Terminal Emulator

This section describes how to configure the B065 without access to the B067 control software. It is written assuming the user is familiar with a terminal emulator. HyperTerm is recommended but most terminal emulators are suitable:

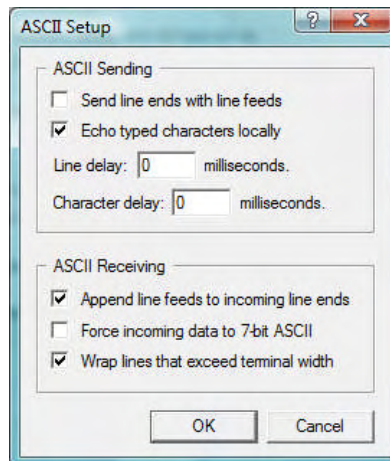
The terminal emulator must be configured using the following settings:

| | |
|----------------------|--|
| Baudrate | 38400 |
| Parity | None (N) |
| Stop bits | 1 |
| Handshaking | Hardware (RTS/CTS) |
| Line ending | Carriage return only ('\r' or code 13) |
| Incoming conversions | Append linefeed ('\n' or 10) to carriage return. |

In Hyperterm this appears as:



And for ASCII configuration



Configuration commands

CLIENT (B065 Controller Card Address)

```
CLIENT xxx.xxx.xxx.xxx
```

Where xxx represents part of the address in the range 0..255

This sets the address of the card. During initial programming the card address is 192.168.0.111 so we set it as such:

```
CLIENT 192.168.0.111
```

SERVER

```
SERVER <Address of TFTP Server>
```

This sets the TFTP server address

GATEWAY

```
GATEWAY 192.168.0.1
```

Sets the default gateway; i.e. the address of the router used to reach addresses that don't appear on the current subnet.

NETMASK

```
NETMASK 255.255.255.0
```

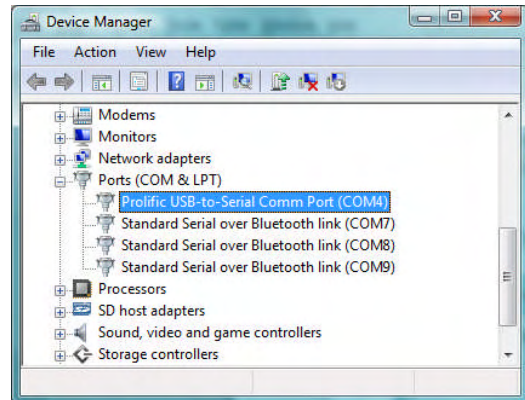
The network mask used to define which bits of the address define the current subnet and which the device address on that subnet.

Using a USB RS232 port

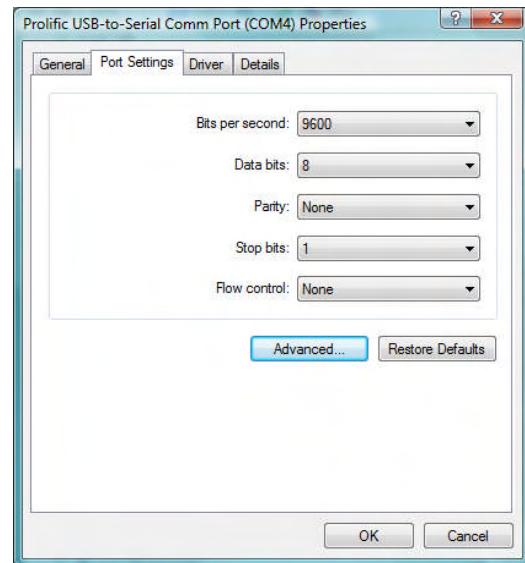
Install a USB RS232 port following the supplier's instructions. Once installed the RS232 port is probably located at Port8 or similar.

To check to see which port has been allocated do the following:

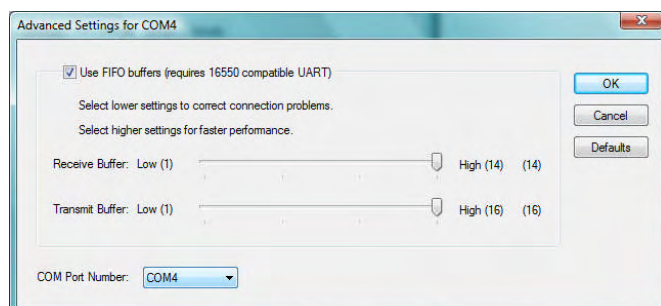
1) Under Control Panel, select *System*, *Hardware* and finally *Device Manager*.



2) Then click on Ports (com and LPT).



3) Select *Advanced* to allow the com port number to be configured:



4) Select a free port in the range 1 to 4 from the COM Port Number drop down menu.

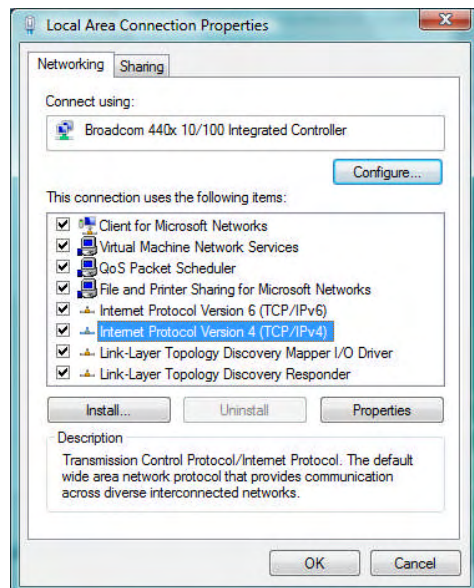
Using a crossover Ethernet cable

As an alternative to network connection the PC may be connected directly to the B065 Rack Controller Card using a **CROSS OVER Ethernet lead**. This is an ideal way to configure a B065 before installation to minimise downtime.

Navigate to *Network Connections*. The method depends on the operating system, for XP/Win2000 it can be found via the *Control Panel*.

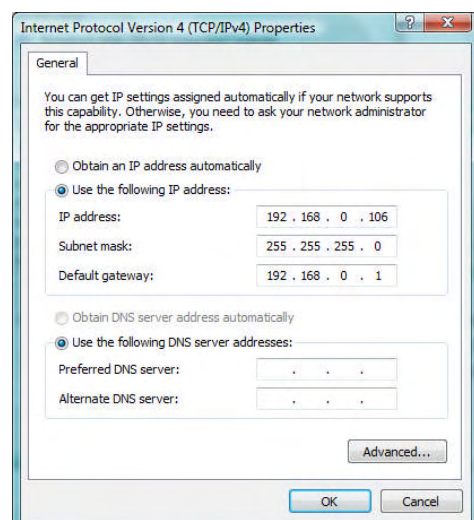
Highlight the active *Local area connection*: right click and select *Properties*.

Select *Internet Protocol (TCP/IP)* (or *IP Version 4* for Windows Vista), and click on *Properties*.



A *General* page will open allowing automatic or manual IP settings.

Note: Make a note of the current settings as they will be required to return the PC to its previous configuration before returning to a cooperate network. Failure to correctly reset the PC IP settings could cause the network to malfunction as well as preventing reconnection.



Select *Use the following IP Address* and then set it to values recommended by your network administrator.

For testing or demonstrations we recommend:

| | | | | |
|-------------------|------|------|------|------|
| Client IP Address | 192. | 168. | 0. | 106. |
| Subnet Mask | 255. | 255. | 255. | 255. |
| Gateway | 192. | 168. | 0. | 1. |

Click OK to exit the TCP/IP properties menu,

Tip: Disable WIFI for the time being.

Navigate to the COMMAND PROMPT (in XP go via Programs >> Accessories).

From the command line type the following:

```
Ping <ip address of B065>
```

Which for the generic configuration is:

```
Ping 192.168.0.111
```

The following responses will be seen.

```
Pinging 192.168.0.111 with 32 bytes of data:
```

```
Reply from 192.168.0.111: bytes = 32 time=1ms TTL=255
```

```
Reply from 192.168.0.111: bytes = 32 time<1ms TTL=255
```

```
Reply from 192.168.0.111: bytes = 32 time<1ms TTL=255
```

```
Reply from 192.168.0.111: bytes = 32 time<1ms TTL=255
```

```
Ping statistics for 192.160.0.111:
```

```
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss)
```

```
Approximate round trip times in milli-seconds:
```

```
Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

If the following message is seen.

```
Request timed out .
```

```
Request timed out .
```

```
Request timed out .
```

```
Request timed out .
```

```
Ping statistics for 192.160.0.111:
```

```
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss)
```

```
Approximate round trip times in milli-seconds:
```

```
Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Check the IP address, network mask and default gateway on the B065 are correctly configured and on the same subnet as the PC.

The B065 Client IP address can only be changed while the card is controlled by RS232. Go back to the GUI which should now be active. If the IP address of the B065 is changed, you MUST repower the rack.

Operation

The B065 Rack Controller provides control and monitoring facilities for the V1606 (3RU) chassis when fitted with a V6081 interface module using either RS232 asynchronous serial or 10baseT Ethernet communications.

Front panel features

The front panel offers local monitoring & control features by means of its LEDs and switches.



| | |
|--------------|---|
| Rem | Amber – Remote mode active |
| +V | Green – Indicates DC power present & OK |
| Alarm | Indicates module failure detected (PSU/MPU) |
| Link | Indicates valid Ethernet connection |
| Rx | Ethernet activity detected |
| Rem/ | Indicates unit in remote control state |
| Local | Indicates unit in local control state |
| RS232 | A female 9-pin sub-miniature D-Type connector providing bi-directional serial connection. |

Local RS232 control

Control is possible by sending commands to the unit for monitoring and configuration using a standard RS232 terminal or terminal emulator/communications package.

Remote serial commands are persistent. They must be overridden by another command of equal or higher precedence.

Command protocol and a list of local control commands are detailed in the [Command Line Interface](#) chapter.

Remote control

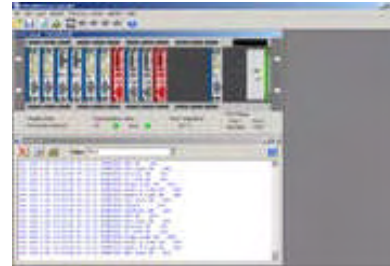
To enable remote management of installed Hawkeye modules via RS232 or Ethernet set the front panel switch in the 'Remote' position.

Remote control can be achieved in two ways; using SNMP or by using the optional B067 Hawkeye Module Management software.

The B067 software can control up to 10 V1606 3RU racks from a single PC. Each rack can be identified by either the IP address or a user-defined name, and accessed at the click of a button.

The active rack graphic, which mimics the actual appearance of the rack, shows module status (red indicates an alarm condition), communication link status, rack operating temperature and power supply voltage levels.

Alarms from all connected racks are aggregated and can be viewed in real time or stored to a nominated file for later analysis.



The Command-Line Interface

Serial port connection

The front panel serial connector (labelled RS232) allows local control and monitoring from a [Command Line Interface](#) (CLI) using a terminal or terminal emulator software. See the Installation chapter for connector information and pin-out.

Before initiating remote control set the terminal/emulator serial port as follows:

| | |
|--------------------------|---|
| Speed: | 38400 baud |
| Decoder protocol: | 1 start bit, 8 data bits, no parity, 1 stop bit |
| Interface: | RS232 |
| Handshaking: | RTS/CTS |

Note: The Command Line Interface (CLI) may be accessed using a standard terminal emulation program such as HyperTerminal® or similar.

Tip: Some versions of Windows HyperTerminal® suffer from a back scroll buffer bug. Alternative communication software is easily available; an example is the HyperTerminal Private Edition available from <http://www.hilgraeve.com/hpe/order.html>.

Remote control protocol

The following remote control commands appear in alphabetical order:

IDN

Requests control module identification

Get format: IDN?

Return: *IDN: dB Broadcast B065 Rack Controller

VER

Requests control module MPU firmware number and revision

Get format: VER?

Returns: *VER: FW0795,01

VERCPLD

Requests control module CPLD firmware number and revision

Get format: VERCPLD?

Returns: *VERCPLD: FW0780,01

VERFPGA

Requests control module FPGA firmware number and revision

Get format VERFPGA?
Returns *VERFPGA: FW0781,01

SER

Requests control module serial number

Get format SER?
Returns *SERIAL: 3020-0050

DEF

Sets control module default settings

Set format DEF

CLIENT

Sets or requests client IP address

Get format CLIENT?
Returns *CLIENT: <ip>
Set format CLIENT <ip>
Parameters <ip> Client IP address (xxx.xxx.xxx.xxx)

SERVER

Sets or requests server IP address

Get format SERVER?
Returns SERVER: <ip>
Set format SERVER <ip>
Parameters ip> Server IP address (xxx.xxx.xxx.xxx)

GATEWAY

Sets or requests gateway IP address

Get format GATEWAY?
Returns *GATEWAY: <ip>
Set format GATEWAY <ip>
Parameters <ip> Gateway IP address

NETMASK

Sets or requests subnet mask

Get format NETMASK?
Returns *NETMASK: <mask>
Set format NETMASK <mask>
Parameters <mask> Subnet mask (xxx.xxx.xxx.xxx)

MACADDR

Requests control module MAC address

| | |
|------------|---------------------------------------|
| Get format | MACADDR? |
| Returns | *MACADDR: <mac> |
| Parameters | <mac> MAC address (00.0A.6E.XX.XX.XX) |

PING

Sends ping command

| | |
|------------|---------------------------------|
| Set format | PING <ip> |
| Parameters | <ip> IP address of unit to PING |

TIME

Sets or requests time on control module RTC

| | |
|------------|-------------------------------------|
| Get format | TIME? |
| Returns | *TIME: <tim> |
| Set format | TIME <tim> |
| Parameters | <tim> Time in 24h format (HH:MM:SS) |

DATE

Sets or requests date on control module RTC

| | |
|------------|--|
| Get format | DATE? |
| Returns | *DATE: <day> <date> |
| Set format | DATE <day> <date> |
| Parameters | <day> Day or week (MON,TUE,WED,THU,FRI,SAT,SUN) <date> Date (DD:MM:YY) |

RUNAPP

Runs application contained in programme memory

| | |
|------------|--------|
| Set format | RUNAPP |
|------------|--------|

Note: Before the application is run, the bootloader checks the integrity of the programme memory. If valid, the bootloader runs the application. If invalid, then an error message is displayed and control remains with the bootloader.

Default settings

This section lists the network configuration default values for user definable settings.

| Item | Default setting |
|-------------------|-----------------|
| Client IP Address | 192.9.200.160 |
| Server IP Address | 192.9.200.13 |
| Subnet Mask | 255.255.255.0 |
| Gateway | 0.0.0.0 |

Table 1: Network configuration defaults

Note: Current settings are restored after power off.

Defaults are only applicable on initial start-up when first shipped or by use of the DEF command.

Updating firmware

New software can be downloaded to the B065 using the following procedure:

In order to upgrade the application software, the B065 Control Card must first be placed in to boot load mode. With a PC connected to the front panel local control port, run a standard communications package (such as HyperTerminal) set to 38400 baud, 8 data bits, no parity, 1 stop bit, hardware handshaking enabled and enter the command `DLOAD*`. The following messages will be displayed:

```
DLOAD*
*INFO: System Restart: Bootloader FW0779 Rev02
*INFO: Bootloader Forced, Application execution halted
```

Once boot load mode is activated then the application upgrade can be performed using either the front panel local control port or the Ethernet port located on the rear panel. The advantage of upgrading using the Ethernet connection is that the download is quicker but requires use of a TFTP server. Serial download is slower but simpler to set-up (see the following sections for details).

Note: Where available please use the TFTP (Ethernet) upload.

TFTP (Ethernet)

Upgrading the B065 Controller Card application software using [TFTP](#) (Ethernet) requires the use of a TFTP server accessible through the network connection. Before starting the upgrade, check and adjust network configuration settings.

A suitable free TFTP Server is available from the following SourceForge project:

<http://sourceforge.net/projects/tftputil>

It will be necessary to make this application point to the directory on the PC holding the release application.

Once the network configuration settings have been checked, to upgrade the application software enter the command `DLTFTP <filename.S19>`, where `<filename.S19>` is the Motorola S-Record file containing the upgrade. For simplicity we have named the latest version of the application `APP.S19`:

```
DLTFTP APP.S19
```

If the upgrade is successful the following messages will be displayed:

```
DLTFTP APP.S19
*INFO: FLASH Update in Progress
```

```
*INFO: Downloading S-Record 'APP.S19' from 192.9.200.13
*INFO: TFTP download successful
*INFO: Read 209118 bytes (409 blocks)
*INFO: Processing new Application Data...
*INFO: Erasing FLASH...
*INFO: Programming FLASH...
*INFO: FLASH programmed successfully - 26.7% used
```

Normally a download takes about 35 seconds from TFTP. If the download appears slow try resetting the B065 (removing power) and try again; it's much faster.

RS232

Once boot load mode has been selected, to upgrade the B065 Controller Card application software, transmit the Motorola S-Record file as a text file to the local control port. If the upgrade is successful the following messages will be displayed:

```
*INFO: Processing new Application Data...
*INFO: Erasing FLASH...
*INFO: Programming FLASH...
*INFO: FLASH programmed successfully - 26.7% used
```

Starting the application

To start the application type:

```
RUNAPP
```

It is essential that the application is running to restore the module to normal operation.

Specification

| Ports | |
|---|--|
| Front Panel RS232: | Baud rate: 38400 Baud Data bits: 8 Parity: none Stop bit: 1 Flow control: RTS/CTS Cable length: 15m (maximum) |
| Rear panel RS232: | Baud rate: 38400, 19200, 9600 Data bits: 7,8 Parity: none, odd, even Flow Control: none, RTS/CTS Cable length: RS232; 15m (maximum), RS485; 1000m (maximum). |
| GPI I/O: | Input voltage: 5V max, Output current (sink): 10mA. |
| Status output contact: | 0.5A@125V ac, 1A@30V dc. |
| Power | |
| Input Voltage: | 15VDC – provided by rack PSU(s) |
| Power Consumption: | 4 W Maximum |
| Environmental | |
| Temperature (Operating): | 0 °C to +50 °C |
| Storing Temperature: | -20 °C to +70 °C |
| Relative Humidity (maximum operating): | 80% for temperatures up to 31 °C, decreasing linearly to 40% at 50 °C |
| Physical | |
| Dimensions Height: | 100 mm (4 inches) |
| Width: | 25 mm (1 inch) |
| Depth: | 265 mm (10.5 inches) (not including rear panel) |
| Net Weight: | 0.35 kg (0.75 pounds) |

| | |
|---|--|
| Safety standards | |
| U.S. Nationally Recognised Testing Laboratory Listing: | UL3111-1, standard for electrical measuring and test equipment |
| Canadian Certification: | CAN/CSA 22.2 No. 1010.1 Safety requirements for electrical equipment for measurement, control and laboratory use. |
| European Union Compliance: | Low Voltage Directive 73/23/EEC, amended by 93/68/EEC IEC 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use. |

| | |
|-------------------------------|---|
| Safety certification | |
| Equipment Type: | Test and Measuring |
| Safety Class: | Class I (as defined in IEC 61010-1, Annex H) – grounded product |
| Over voltage Category: | Over voltage Category II (as defined in IEC 61010-1, Annex J) |
| Pollution Degree: | Pollution Degree 2 (as defined in IEC 61010-1) Note: Rated for indoor use only |

| | |
|---|---|
| EC Declaration of Conformity – EMC: Meets intent of Directive 89/336/EEC and 92/3EEC for Electromagnetic Compatibility. Compliance was demonstrated to the following specifications as listed in the Official Journal of the European Communities: | |
| EC Declaration of Conformity – Low Voltage: Compliance was demonstrated to the following specification as listed in the Official Journal of the European Communities: Low Voltage Directive 73/23/EEC, amended by 93/68/EEC IEC 61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use | |
| EN50081-1 Emissions:¹ | |
| BS EN55022: | Class B radiated and conducted emissions |
| BS EN55013: | Emissions standard for Broadcast Equipment |
| EN50082-1 Immunity:¹ | |
| BS EN61000-4-2: | ESD Requirements |
| BS EN61000-4-3: | Radiated susceptibility |
| BS EN61000-4-4: | Electrical Fast Transient Burst requirement |
| BS EN61000-4-5: | Surges requirement |
| BS EN61000-4-6: | Conducted susceptibility |
| BS EN61000-4-11: | Voltage Dips and Interruptions |
| BS EN55103-2: | Immunity for Product Family Standard, Audio, Video Audio Visual and Entertainment lighting control apparatus for professional use |

FCC Compliance: Emissions comply with FCC Code of Federal Regulations 47, Part 15, Subpart B, Class A Limits¹

FCC Information: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING: The user must install the system as per manufacturers instructions, to comply with the requirements of FCC.

¹ Compliance demonstrated using high-quality, shielded cables.

Ordering information

B065 module

| | |
|-------------|--|
| B065 | RS232/SNMP Rack Controller module - requires V6081 |
|-------------|--|

Options

| | |
|--------------|--|
| V6081 | Rack controller (DART) – required option |
| B067 | PC-GUI control software, one per B065 |

3U Probel Vistek configuration

| | |
|----------------------|--|
| V1606-dB-2PSU | 3U Chassis, 14 Module slots, 2 PSU slots (2 PSUs included) |
| V1606-dB-48V | 3U Chassis, 14 Module slots, 2 48V PSU slots (2 48V PSUs included) |

Passive rear connectors

| | |
|--------------|--------------------------------|
| VB190 | Rear connector for B065 module |
|--------------|--------------------------------|