Controlling RS-232 Enabled Maxa Beam Searchlights

RS-232 Enabled Maxa Beam Searchlights are automatically configured to be controlled by two methods:

1. **Serial Control**, also called **Computer Control** or **RS-232 Serial Control**
2. **Wired Remote Control**, also called **Digital Switches** or **Hand Controller**[1]

For **Serial Control**, the searchlight's three serial conductors are connected via DB9 Serial Cable to either:

- A computer's serial port[2] for direct RS-232 communication, or
- A third party Ethernet to Serial Device Server for communication via Ethernet over a network. (This allows a COM port (or ports), which are required for serial communication, to be assigned to the IP address of the server; multiple searchlights may be networked together using this option.)

To control the searchlight in Serial Control, you can use:

- Peak Beam's Maxa Beam Control Software program (MBA-GUI), or
- A third party User Interface, or
- A terminal emulator program such as HyperTerminal to send ASCII Commands directly to the searchlight. (A list of all ASCII commands is included in the Searchlight's RS-232 Interface Control Document.)

For **Wired Remote Control,** the searchlight's six wired remote conductors are connected to switches, either using:

- An off-the-shelf Peak Beam controller, or
- Your own set of momentary, normally open switches. (See page 16 of the Operation Manual for more info on Remote Control Operation.)

To control the searchlight in Wired Remote Control configuration, the operator presses an on/off button and, if using our switch design, rocks a 4-way switch to change beam width, beam intensity, etc. (This is the same way that a standard MBS-410 Handheld Searchlight would be controlled using its onboard switches.)

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[1] The only E series searchlight that is not configured for Wired Remote Control is the MBPKG-E-48. This model is only available with wiring for serial control.

[2] If a serial port is not available on the computer, a simple USB-to-serial adapter may be used to convert serial to USB for ease of connection.

Control Connector Pin-Outs for all RS-232 Enabled Searchlights may be found on page 17 of the Operation Manual. As an example, here is the pin-out for the MBPKG-E2-24 Searchlight's 10-pin control connector:

Pin	Control Type	Function
A	Wired Remote	12 VDC Out
B	Wired Remote	Focus Narrow
C	Wired Remote	Strobe/Battery Saver Mode
D	Wired Remote	On/Off
E	Serial	RS-232 Ground (DB-9 Pin 5 + Drain Wire)
F	-	Ground; *not Connected on MBPKG-E Series*
G	Wired Remote	High/Low Beam
H	Wired Remote	Focus Wide
J	Serial	RS-232 Receive (To Computer) (DB-9 Pin 2)
K	Serial	RS-232 Transmit (From Computer) (DB-9 Pin 3)

If you are only interested in controlling this searchlight via Wired Remote Control, you would only need to use the six conductors (A, B, C, D, G, H) necessary for a hand controller. Likewise, to exclusively control the light via Serial Control, you'd only need to connect the three serial conductors (E, J, K) via a DB-9 serial cable to your computer or third party server.

MBS-430-RSMY and MBPKG-E Series Searchlights automatically ship with mating power and control connectors. You may opt to use these connectors to build your own power and control cables for the searchlight. Alternatively, for dual-connector searchlight models only, you may choose to have Peak Beam install these connectors on a standard power cable (typically 10 or 25 feet long) and either a standard DB-9 serial cable (10 or 25 feet) or a standard hand controller (6 or 25 feet; metal or plastic controller).

Using an Ethernet to Serial Device Server to Control a Serial Device

An **Ethernet to Serial Device Server**, also called an Ethernet-to-Serial Adapter or a Serial Ethernet Converter, or simple a Serial Server, allows communication between a serial enabled device and a computer anywhere on a local network, or anywhere in the world (using the internet). In other words, use of an Ethernet to Serial Device Server allows you to network one or more searchlight together and communicate with them over Ethernet.

The process of sourcing, connecting and networking Ethernet-to-serial servers (also called Serial Ethernet Servers or Serial Device Servers) is not specific to the Maxa Beam and should be a fairly routine task for any network/IT professional. Here at Peak Beam we have successfully utilized the ES-257 2 Port RS-232 Ethernet to Serial Device Server manufactured by Brainboxes LLC. We recommend that an IT technician or whoever normally manages your computer network source their own preferred Ethernet to Serial Device Server and complete the network configuration.

Maxa Beam Control Software

The Maxa Beam Control Software CD that is included with all RS-232-enabled searchlights contains two programs:

1. **MaxaBeam Single Light**, a single light controller that allows control of one searchlight by one computer, and
2. **MaxaNet**, the network controller capable of connecting to multiple searchlights at the same time.

For step-by-step instructions on how to install and configure these programs please consult the ReadMe Before Install (V1030).pdf document located on the Software Installation Disc.

To access and control multiple searchlights with MaxaNet, the lights must be connected together on a common network using an Ethernet to Serial Device Server that is configured on the network and assigned an IP address. Connect the searchlights to the serial server using DB9 serial cables. Then, assign a virtual COM port on the Serial Server for each connected searchlight. When configuring the Ethernet to Serial Device Server, virtual COM ports should be set to the following default port settings: 9600 baud rate, 8 data bits, 1 stop bit, no parity, no flow control.

The actual process of assigning and connecting to IP addresses and COM Ports will vary depending on the specific server you are using, but again, this process should be routine for an IT technician or whoever normally manages that particular computer network.

Correctly configured COM ports will appear in the computer's device manager and the operator can direct MaxaNet to communicate with these COM ports during the program's normal configuration process.

To access a group of networked searchlights from more than one computer, connect the additional computer(s) to the Ethernet to Serial Device Server's IP address and repeat the process of assigning virtual COM ports and installing MaxaNet. Note, however, that only one computer should access a specific COM port at any one time, meaning that once a searchlight's COM port is connected and opened on one computer, a second computer will not be able to access that light until the first computer's session has ended. (In the event that a particular Serial Device Server does allow multiple computers to simultaneously connect to a single COM Port, this will result in data collision and is not recommended.)