



## ***Multipoint Guide***

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# 1 Multipoint Cable Replacement

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Amp'ed RF modules may be loaded with a point-to-multipoint firmware application which supports up to 6 simultaneous connections. Only one master link is supported.

A sample application can be provided upon request for evaluation. However, this application is not intended as a final product and will likely need some or several customizations.

## 1.1 Protocol Summary

Since multiple devices may be communicating at the same time, a simple serial protocol was added in order to direct the data to the desired node; a layer 2 protocol on top of the passthrough mode layer.

This protocol consists of a destination/source field and a length field:

Dest/Source Node	Length	Data
1 byte	3 bytes	Up to 315 bytes

Destination/Source Node: Node Id from 0 to 9, 1 ASCII decimal digit.

Length: 3 ASCII decimal digits from 001 to 315.

Data: Up to 315 bytes.

## 1.2 AT Commands

Two AT commands, connect and disconnect, were modified for this sample application as follows:

`AT+AB SppConnect [remote address]`

This command has the same syntax as before, but a Node Id for the remote device is automatically assigned when the connection is successfully established. These node assignments begin at 0, and will increment as new connections are added using successive SppConnect commands. The lowest available Node Id will always be assigned next, in cases where disconnections have caused an Id to become available. Node Ids cannot be manually assigned in this application.

When the device is connected to, as a slave (client), a Node Id is also assigned to the initiating device independently. Thus, the devices forming a new connection may not assign each other the same Node Id.

`AT+AB SppDisconnect [remote Node Id]`

A Node Id parameter has been added to the disconnect command. Only 1 device may be disconnected per command.

Bypass and Command modes are basically the same as in the standard point-to-point application.

### 1.3 Example

1. Device A initiates a connection to device B:

```
AT+AB SppConnect [address of B]
```

2. A Node Id of 0 is assigned to B for A's network.

3. B assigns A an Id of 0 as well.

4. A sends data to B as follows: (from bypass mode)

```
0004abcd
```

Note: no Cr or Lf is necessary

5. B displays:

```
0004abcd
```

6. A initiates a connection to device C: (from command mode)

```
AT+AB SppConnect [address of C]
```

7. A Node Id of 1 is assigned to C in A's network.

8. C assigns A an Id of 0.

9. A sends data to C as follows: (from bypass mode)

```
1003efg
```

10. C displays:

```
0003efg
```

11. C sends data to A as follows:

```
0003xyz
```

12. A displays:

```
1003xyz
```

Note: the Node Ids do not match.

B and C cannot send data to each other.