

## Application Note: AT220 Pass Through Data Mode

### Overview

The AT220 can be used to send and receive data between a serial port device (attached to the device serial port) and a remote TCP/IP application. This technique is commonly referred to as pass through data mode and is described in this application note.

### Related Documents

The following documents are recommended reading to accompany this document:

- AT220 User Guide
- AT220 Protocol “K” Description

The first document can be obtained from:

<http://www.gps-telematics.co.uk/downloads.htm>

The AT220 Protocol “K” Description document is available on request by emailing Astra Telematics (please see the contact page of our website).

### Compatibility

Protocol “K” and pass through data mode are supported on hardware AT220A and AT220B from firmware version 1.1.17 and later

### Operation of Pass Through Data Mode

Pass through data mode allows data to be sent and received from a second TCP socket and port number, as defined by parameters IPAD2 and PORT2. These parameters can be set by serial mode or OTA mode commands as usual. Once these parameters have been set, pass through data mode is enabled by setting PTDM parameter to 1 (default is zero). Setting PTDM to 1 will suppress all other data on the serial port and further serial mode commands will not be accepted. Serial commands are accepted for 30 seconds after power up to allow PTDM mode to be disabled.

In PTDM mode, the AT220 will attempt to open a TCP socket to IPAD2/PORT2 and will listen for data on that socket. Any data received will be sent to the serial port. Similarly, any data received on the serial port will be assembled into packets and sent to IPAD2/PORT2. The packet assembler timeout is 100mS or 1024 bytes. No retries or acknowledgements are implemented, it is left to the application developer to implement those features within their own serial protocols.

## Device Identification

In many cases, it is useful for the device to identify itself to the remote host each time a new connection is established. This can be enabled by setting PTDM to 3, in which case the following information will be sent to the host each time a new TCP socket is opened:

```
AT220,CONNECT,<IMEI>,<FW_VER><CR><LF>
```

Where:

<IMEI>	is the 15 digit unique device serial number
<FW_VER>	is the device firmware version
<CR>	is a carriage return character
<LF>	is a line feed character

e.g.           AT220 ,CONNECT , 352218030578118 , 1.1.17

## Garmin FMI Device Support

PTDM mode 2 is specifically designed for use with Garmin FMI mode. In this mode, the AT220 will indicate to the host when the FMI device appears to be online/offline based on a 90 second communication timeout. When a timeout occurs, the AT220 will send an FMI Enable packet to the FMI device. If an FMI ACK is received in return, the AT220 will send an FMI online message to the host.

FMI device offline is indicated when the AT220 send the following:

```
AT220 ,FMI_OFFLINE<\r>
```

And when the FMI device comes back online:

```
AT220 ,FMI_ONLINE<\r>
```

Device identification (as described above) is also enabled in PTDM mode 2.

The baud rate will change to 9600 on entering PTDM mode 2.

## Timing

Data can be delayed somewhat due to normal reporting activity on the primary IPAD/PORT, but typically there is no more than a second or two delay between submitting the data to the serial port and transmission to the host (and vice versa).

## **TCP Socket Status**

If the TCP socket is inactive for several minutes, it is likely to be closed by the GPRS network operator (subject to individual network inactivity timeouts). The AT220 will periodically check the TCP socket status and attempt to maintain an open connection. Application developers are advised to consider socket keep-alive solutions or to seek suitably long inactivity timeouts from your GPRS network service provider.

## **Access to GPS NMEA Data**

GPS NMEA output is suspended during PTDM mode operation. In some cases, it may be useful for the serial device to access GPS NMEA data from time to time. This can be done by sending \$GPRMC,REQUEST to the AT220, which will result in a single \$GPRMC sentence being sent to the serial port. The \$GPRMC,REQUEST data string will not be sent to the TCP host.