Data and Configuration Modem -> App

the modem sends these data to the application via UDP port 40133:
the first Byte is a message ID:

- 3: responses to broadcast messages (see: GUI Interface: UDP/IP/Initialization)
- 1: received payload data
- 4: FFT data for a spectrum monitor
- 5: IQ data for a constellation display
- 6: received RTTY characters

Response to broadcast

see: GUI Interface: UDP/IP/Initialization

Data Reception

when the modem detects incoming data it unpacks the payload and sends this message to the user
application:

```
Byte 0 ... 0x01
Byte 1 ... frame type (which was inserted by the sender)
Byte 2 ... frame counter MSB
Byte 3 ... frame counter LSB (10 bits used)
Byte 4 ... frame information (which was inserted by the sender)
Byte 5 ... unused
Byte 6 ... measured line speed MSB
Byte 7 ... measured line speed LSB
Bytes 8-10 ... unused
Bytes 11-229 ... 219 bytes payload
```

FFT data for a spectrum monitor

```
Byte 0 ... 0x04
Byte 1 ... usage of the TX fifo (used by the transmitter to sync its data
           output to the modem). This is a value between 0..255. During
           an active transmission keep it above 4.
Byte 2 ... usage of RX fifo (not important, but can be displayed to the
           user). A very high RX fifo usage indicates the the computer
           is too slow for HSmodem.
Byte 3 ... 0 or 1. Indicates that an RF level was detected
Byte 4 ... 0 or 1. Indicates that the HSmodem receiver is synchronized
           with a signal
Byte 5 ... maximum audio level (0..100%) of the audio input from the
```

```
          transceiver. Can be used to detect clipping.
Byte 6 ... maximum audio level (0..100%) of the audio output to the
          transceiver. Can be used to detect clipping.
Byte 7 ... in RTTY mode this is the auto-locked RTTY frequency MSB
Byte 8 ... and LSB
Byte 9 ... RTTY: 0=tx off, 1=txon
Byte 10 to the end ... FFT spectrum data, beginning at 0 Hz to 4kHz with
          a resolution of 10 Hz
```

IQ Data for constellation diagram

```
Byte 0 ... 0x05
Byte 1 ... point-1 real part MSB
Byte 2 ... point-1 real part LSB
Byte 3 ... point-1 imaginary part MSB
Byte 4 ... point-1 imaginary part LSB
Byte 5 ... point-2 real part MSB
Byte 6 ... point-2 real part LSB
Byte 7 ... point-2 imaginary part MSB
Byte 8 ... point-2 imaginary part LSB
.
.
.
. to the end of the message
```

not all IQ values are transferred to avoid flooding the computer running the GUI. But the number is sufficient for a good constellation display.

RTTY

```
Byte 0 ... 0x06
Byte 1 ... received RTTY character (Ascii)
Byte 2 ... 0 (unused)
Byte 3 ... 0=RX idle, 1=RX in sync with a received RTTY signal
```

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