Extended TSIP Packet Format

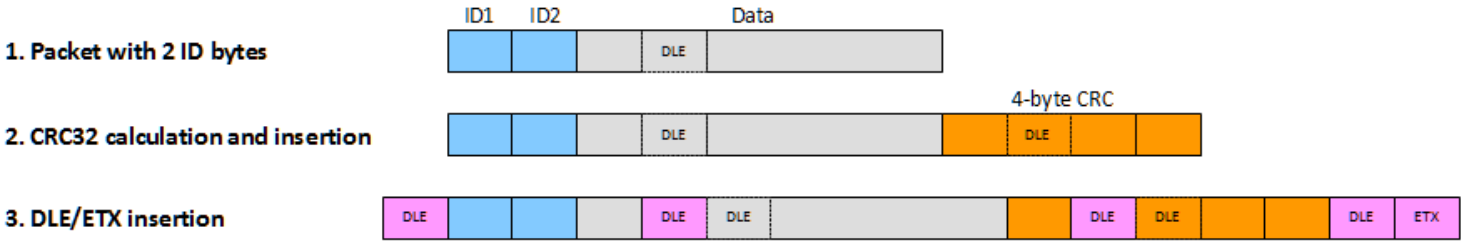
1. The Autopilot communicates using RS232 serial byte format, at 115,200 bps, 8 data bits, no parity, 1 stop bit. Data is transmitted in packets. Packets are delimited using TSIP (Trimble Serial Interface Protocol) protocol, that is:

- Two special byte codes are defined: DLE (0x10) and ETX (0x03)
- Packets start on DLE
- ID1 byte must be different from codes DLE or ETX
- Any byte matching the DLE code, starting from ID2, up to the last CRC byte, must be escaped (preceded) with another DLE
- Packets end on DLE, ETX combination

2. Differing TSIP, Autopilot communication protocol has the following characteristics:

- Byte order is little-endian (i.e., 4 byte integers are sent with their LSB first)
- Packets have a two-byte ID sequence
- The last 4 bytes of the packet are the 32-bit unsigned integer CRC of the complete byte (including ID1 and ID2); CRC calculation and insertion is done before DLE escaping

3. The following diagram shows the coding steps of a typical communications packet:



Note: The examples above include two random DLE bytes, one as part of the 'Data' field and another one as part of the 'CRC' field.

4. A C language implementation of the algorithm used for CRC32 calculation can be found in the KB article 'CRC32 calculation (C language)'.