ADC SAMPLE PACKET (1472 Bytes)

31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 0 0 0 0 0 0 0 packet types: Packet Type (8) UDP Packet Number (increments, 24 bits) 0 ADC Samples packet (can wrap) 1 End of Samples Status packet 2 Timed Status packet keep-alive 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 Unique ID assigned to this detector (18) Seconds (6) ADC Buffer Number (8) This secs is internally synced to real time (can wrap) 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 24 bits reserved adc sequence batch id (8 bits) (can wrap) 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 DMA Complete timer snapshot of 728 ADC samples taken (Timer approx 108MHz, reloads to zero on 1pps pulse) 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 728 Words of 16 bits spare (4) ADC Sample (12 bits used)

Status Packet (140 Bytes)

31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 0 0 0 0 0 0 ? ? 1 0 = timed status Packet Type (8) 0 1 = end seq status UDP Packet Number (increments, 24 bits) same thing (can wrap) // udp packet sent index (24 bits, other 8 bits are packet type) uint32_t udpcount; struct UbxGpsNavPvt { // Type Name Unit Description (scaling) unsigned long iTOW; // ms GPS time of week of the navigation epoch. See the description of iTOW for details. unsigned short year; // y Year UTC unsigned char month; // month Month, range 1..12 UTC unsigned char day; // d Day of month, range 1..31 UTC 7 unsigned char hour; // h Hour of day, range 0..23 UTC unsigned char min; // min Minute 9 unsigned char sec; // s Seconds of minute, range 0.. t 10 NOTE This secs is not real time - it has latency. char valid; //- Validity Flags (see g 11 unsigned long tAcc; // ns Time accuracy estimate UTC 12 long nano; // ns Fraction of second, range -1e9..1e9 UTC 16 unsigned char fixType; //- GNSSfix Type, range 0..5 char flags; // - Fix Status Flags (see graphic l 21 unsigned char reserved1; //- 22 unsigned char numSV 23 long lon; // deg Longitude (1 e 24 long lat; // deg Latitude (1e-7) long height; // mm Height above Ellipsoid 32 hMSL; // mm Height above mean sea level unsigned long hAcc; // mm Horizontal Accuracy Estimate 40 11 unsigned long vAcc; // mm Vertical Accuracy Estimate

```
velN; // mm/s NED north velocity
                                       long
                                                velE; // mm/s NED east velocity
                                                                                                  52
                                       long
                                       long
                                                velD; // mm/s NED down velocity
                                                                                                  56
                                                gSpeed; // mm/s Ground Speed (2-D)
                                       long
                                       long
                                                heading; // deg Heading of motion 2-D (1 64
                                       unsigned long sAcc; // mm/s Speed Accuracy Estimate 68
                                       unsigned long headingAcc; // deg Heading Accui 72
                                       unsigned short pDOP; // - Position DOP (0.01)
                                       short reserved2; // - Reserved
                                                                                                          78
                                       unsigned long reserved3; //- Reserved
                                                                                                          80
                                       } NavPvt;
                                    31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
               clktrim
                                   average of STM32 clock frequency referenced to 1pps
                                                  not used (14)
                                                                                                     Unique ID assigned to this detector (18)
                                   uint32_t uid;
                                                          // only 18 bits used
                                    31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2
                                                           ADC number of buffers sent in last capture sequence before status packet
       same thing
                                   uint32_t adcpktssent;
                                                                  // Number of ADC pks sent in this trigger event
                                                                                                                     adc trigger offset (above the noise)
                                                       adctrigoff : uint16_t;
                                                       adcnoise : uint16_t;
                                                                                              16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
                                                                                                                     adc current noise level
                                                           uint32_t sysuptime;
                                                                                  // number of seconds system up from boot uptime
                                                                                 // number of seconds network up
                                                           uint32_t netuptime;
                                                           uint32_t gpsuptime;
                                                                                  // number of seconds gps locked
                                                           uint8_t majorversion;
                                                                                  // major ver
                                                           uint8_t minorversion;
                                                                                  // minor ver
                                                           uint16_t adcnoise;
                                                                                  // adc average peak noise
AUXSTATUS1
                                                                                                                                 adc sequence batch id (8 bits)
       same thing
                                              24 bits reserved
                                                                                                                                     (can wrap)
                                                                                  // spare AUXSTATUS1
                                                           uint24_t reserved
                                                           uint8_t
                                                                                  adc sequence batch id
                                                           uint32_t reserved1;
                                                                                  // spare
                                                           uint32_t reserved2;
                                                                                  // spare
                                                           uint32_t reserved3;
                                                                                 // spare
                                   Any new fields to be added here .....
    end sentinal marker (keep at the end)
                                                           uint32_t telltale1;
                                                                                  // end of status packet marker
                                                                                                                         0xFEEDCODE
```