

Primary data message formats for airtalk link on Ultra HXL and Enigma (configured as master to Ultra slave).

Set Ultra to multipanel mode and master to enable transmission of these messages.

All multibyte values are LSB first (intel format or little endian).

Longint: Signed 32 bit value

Integer: Signed 16 bit value

Byte: Unsigned 8 bit value

boolean: 0 is false, >0 is true, 8 bits

//Primary data tx message 1. This message is transmitted twice per second.

Preamble:

82H,FFH,20,1,0 ;STX,Target address (broadcast),length of data,type,subtype

Altitude: longint; ;Altitude in feet corrected for local pressure (QNH).
;negative values are possible

QNH: word; ;QNH in millibars

VSI: integer; ;vertical speed in feet/minute, positive and negative values

ASI: word; ;airspeed in MPH. Minimum 16MPH, maximum 250MPH

AMBIENT: byte; ;ambient temperature. To calculate degrees C use:
;DegC:=(AMBIENT*10 div 82)-272;

FLIGHTTIME: word; ;Two bytes, first is minutes, second byte is hours.

INFLIGHT: boolean; ;True if flight recording active (flight detected)

RDACFail: boolean; ;True if no data from RDAC

Baro: word; ;current ambient pressure in millibars

CKS: byte; ;checksum, all bytes from Altitude to Baro added modulo 256

End of transmission:

CKS: byte; ;Airtalk checksum, all bytes from target address to byte before this one
;xor'ed with a seed of A5H

83H ;ETX

//Primary data tx message 2. This message is transmitted once per second

Preamble:

82H,FFH,27,1,1 ;STX,Target address (broadcast),length of data,type,subtype

TC1,TC2,TC3,TC4,TC5,TC6,TC7,TC8,TC9,TC10,TC11,TC12: word;
;all temperatures in degrees C (no negative values)

CKS: byte; ;checksum, all bytes from TC1 to TC12 added modulo 256

End of transmission:

CKS: byte; ;Airtalk checksum, all bytes from target address to byte before this one
;xor'ed with a seed of A5H

83H ;ETX

//Primary data tx message 3. This message is transmitted once per second

Preamble:

82H,FFH,31,1,2 ;STX,Target address (broadcast),length of data,type,subtype

OILT: word; ;oil temperature in degrees C. No negative values.

OILP :word; ;oil pressure in tenths of a bar

H2O: word; ;coolant temp in degrees C. No negative values.

CHT1,CHT2: word; ;CHT1 and CHT2 in degrees C for Rotax 912/914 CHT

RPM: word; ;Engine RPM

MAN: word; ;manifold pressure in millibar

FP: byte; ;Fuel pressure in tenths of a bar

Rotor: word; ;Rotor RPM

VOLTAGE: byte; ;Voltage in tenths of a volt

AMPS: integer; ;battery charge/discharge in steps of 10mA

FUELFLOW: word; ;Fuelflow in liters/hour

FUELLEVEL1,FUELLEVEL2,FUELLEVELCALC: word;

;Fuel levels in liters

CKS: byte; ;checksum, all bytes from OILT to FUELEVELCALC added

;modulo 256

End of transmission:

CKS: byte; ;Airtalk checksum, all bytes from target address to byte before this one

;xor'ed with a seed of A5H

83H ;ETX