



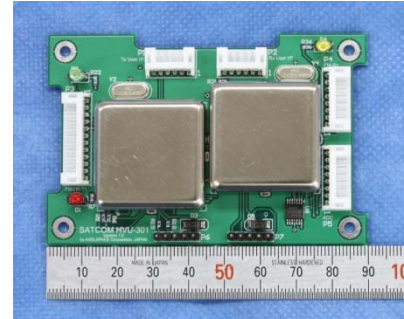
Communication Controller for CubeSat

SatCom HVU-301

Overview

SatCom HVU-301 is a communication controller unit designed for CubeSat, based on technologies in University of Tokyo's XI-IV (world's first CubeSat launched in 2003) and XI-V (2005).

It works best with Nishi RF Laboratory's 430MHz CW/FM transmitter (TXE430MFMCW-301A) and 430MHz/145MHz FM receiver (RXE430M-301A /RXE145M-301A).



Communication Controller



Nishi RF Lab's Transmitter / Receiver

Functions

1. Morse Encoding

- Morse encoded beacon through CW transmitter
- Selectable Morse speed and interval
- Transmittable default message (user-customizable) and/or any variable text messages
- Transmittable 8-bit A/D data in seven channels as minimum telemetry
- Frequency setting for CW-Tx (TXE430MFMCW-301A only)

2. Packet Modulation

- AFSK 1200bps
- AX.25 Protocol (Unnumbered Information Frame)
- Selectable preamble length
- Frequency setting for FM-Tx (TXE430MFMCW-301A only). Independent of CW-Tx frequency

3. Packet Demodulation

- AFSK 1200bps
- AX.25 protocol (Unnumbered Information Frame)
- Destination check to eliminate invalid uplink
- Frequency setting for FM-Rx (RXE430M-301A or RXE145M-301A only)

4. Trigger and Reset Signal Supply

- Trigger signal activated in specified time after deployment from launch vehicle.
- Reset signal activated by uplink command

Specifications

Dimensions	95mmX60mmX15mm (excluding transceiver and cables)
Weight	42 g (excluding transceiver and cables)
Operating Voltage	5V
Input Current	Rx:< 25mA (including RXE430/145M-301A) Tx:< 650mA (including TXE430MFMCW-301A)
Morse Speed	Selectable 9 steps
Morse Duty Ratio	Selectable 10 steps (including stop CW)
Morse Sentence Types	Default message (max. 32 chars) ADC#1 (RSSI, ADC1-ADC3), ADC#2 (ADC4-ADC7) Variable message (max. 172 chars)
Morse ADC	Input range: 0-5V, Resolution: 8-bit Channels: 7ch + Rx-RSSI
Modulation & Demodulation	AFSK-FM, 1200bps
Modulation Output Voltage	0.85Vp-p
Packet Protocol	AX.25 UI-Frame
Max. packet data	170 Bytes (both uplink/downlink)
Frequency setting (5kHz steps)	436.000-438.000MHz (TXE430MFMCW-301A/RXE430M-301A) 145.800-146.000MHz (RXE145M-301A)
Call sign	User-customizable (6 chars of alphabet or digits)
Serial Communication Interface (UART X2 for TxCPU & RxCPU)	Data Rate: 19200bps, Data Length: 8-bit Stop bit: 1-bit, Parity: None
Trigger pulse (1ch)	Trigger start time: 0-65535 seconds after TxCPU startup Trigger duration: 0-255 seconds Both user-customizable
Reset pulse/Toggle (1ch)	Activation by uplink command Reset pulse: HIGH for 1-9 seconds (user-selectable) Toggle: to HIGH (0V to 5V) / to LOW (5V to 0V)

*Specifications subject to change without notice.

Contact



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