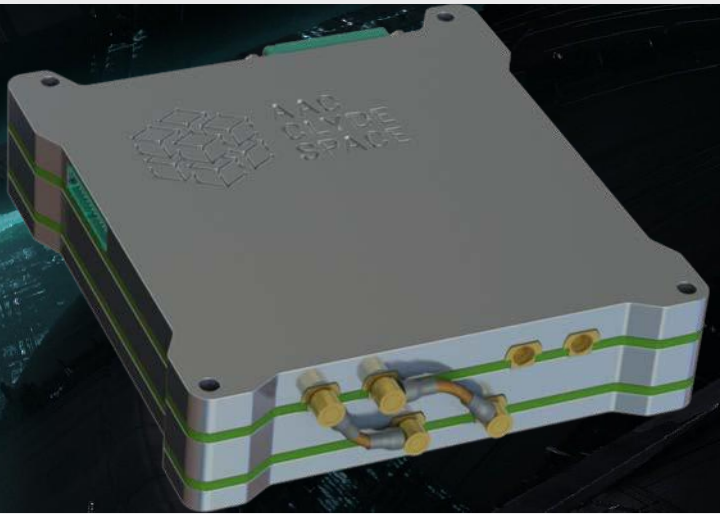


# ONE-STOP TMTC SDR-BASED SOLUTION



The Quasar-STRX is our next generation telecommand/ telemetry transceiver for SmallSats and CubeSats. The transceiver is based on popular industry standard SDR and processing components that have many years' flight heritage. The Quasar-STRX is part of a family of co-developed satellite communication products that provide different options for TMTC subsystem design.

Quasar-STRX is the core of an end-to-end S-band TMTC solution that also include the Quasar-WSANT, a compact wideband S-band patch antenna covering both receive and transmit channels, and a diplexer. All designed for optimal heat transfer from components to enclosure.

Avoid systems integration challenges and costly project delays with our one-stop solution. Compatible with common ground station communications protocols. It is capable of transmitting QPSK and OQPSK at up to 1 Mbps, RS+CC channel coding and receiving BPSK 32 kbps BCH channel coding. This solution is compatible with standard satellite ground station TMTC modems.

The compact, wideband antenna removes the need for two separate antennas for up- and downlink paths and the diplexer option enables improved band-isolation.

This solution is compatible with Bright Ascension Flight Software suite used on AAC Clyde Space spacecraft.



## PERFORMANCE

Designed using flight proven heritage solutions incorporating our latest innovations. This market leading solution is not only able to transmit and receive at impressive rates but packs a punch with its compatibility.



## FLEXIBILITY

The transceiver consists of an assembly of AAC Clyde Space's SDR module and an RF Front End (RFFE) module with band-specific transmit and receive lineups. The two modules are independent and separable to facilitate flexible mounting configurations should a bespoke solution be required – on request.



## RELIABILITY

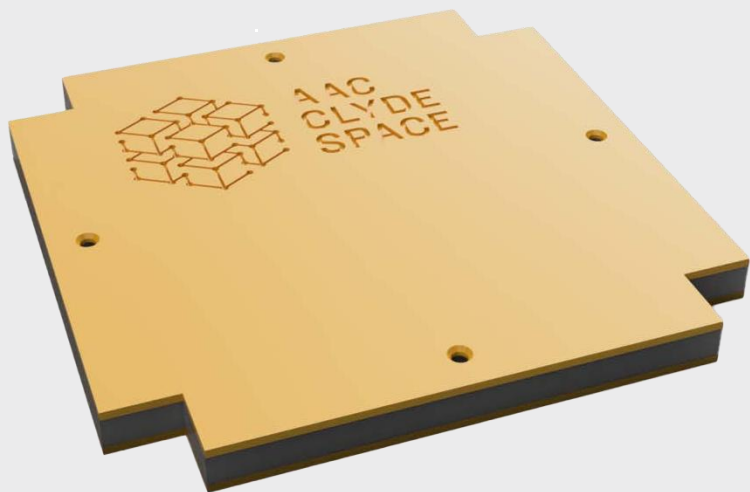
Compact, with extremely durable connectors. It uses Harwin Gecko connectors for power and digital, SMP connectors for RF. The transceiver line-up has flight heritage. The transceiver lineup has flight heritage. Fault tolerant circuits and software to assist recovery from single event upsets and ensure resilience against ionising radiation will be implemented in future version

# TECHNICAL SPECIFICATIONS

General	
Temperature	-25°C to +55°C (operational) -40°C to +85°C (storage)
Mass	< 250 g
Control and data interfaces	I2C (currently supported) CAN, SPI (under development)
Power Consumption	3.4 W receive mode (always on)
RF interface	50 Ω SMP
Radiation tolerance	TBC
Design Life	3-5 years

Transmitter	
Frequency band	2.200 - 2.290 GHz
RF output power	27, 30, 33 dBm
Power consumption	9 W
Spurious responses	<-30 dBc
Frequency stability	±2 ppm
Modulation schemes	Filtered (O)QPSK (CCSDS)
Pulse shaping filter	Root raised cosine, roll-off 0.35
Symbol rate (bit rate)	Up to 512 kSps (1024 kbps)
Channel coding	Convolutional/Reed-Solomon/Concatenated
Data link protocol	TM Synchronization and Channel Coding (CCSDS 131.0-B-3) TM Space Data Link Protocol (CCSDS 132.0 B 3)

Mechanical Dimensions	
Length	93 mm
Width	88 mm
Height including enclosure	24 mm



Quasar-WSANT Wideband patch Antenna



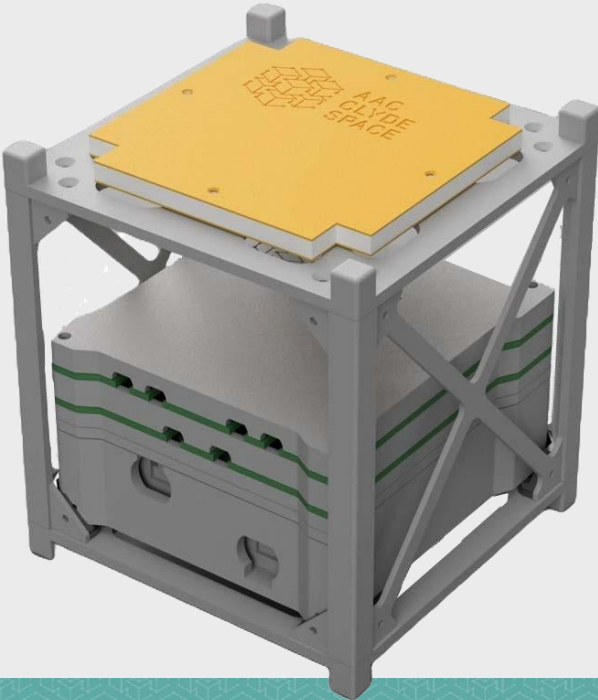
Designed for optimized communications. Avoid systems integration challenges and costly project delays with our one-stop solution.





# TECHNICAL SPECIFICATIONS

Receiver	
Frequency band	2.025 - 2.110 GHz
Symbol rate (bit rate)	32 kSps (32 kbps BPSK / 64 kbps QPSK)
Sensitivity	-150 + 10*log(symbol rate) dBm
Noise figure	<2 dB
Dynamic range	Sensitivity level to -30 dBm
Frequency stability	±2 ppm
Power consumption	3.4 W
Doppler	±150 kHz sweep range Slope 750 Hz/s
Carrier tracking pull-in range	± Symbol rate ÷ 2
Carrier lock tracking	±150 kHz
Modulation schemes	Filtered BPSK (CCSDS)
Pulse shaping filter	Root raised cosine, roll-off 0.35
Data link protocol	TC Synchronization and Channel Coding (CCSDS 231.0-B-4) TC Space Data Link Protocol (CCSDS 232.0 B 4) TM Synchronization and Channel Coding (CCSDS 131.0-B-3) TM Space Data Link Protocol (CCSDS 132.0 B 3)
Channel coding	BCH



To make an enquiry, request a quotation or learn about AAC Clyde Space's other products and services, please contact: [enquiries@aac-clyde.space](mailto:enquiries@aac-clyde.space)



#SPACEISAWESOME

[www.aac-clyde.space](http://www.aac-clyde.space)

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