TXS Option Sheet

How to use this Option Sheet:

- Please fill-in this Option Sheet carefully. In case you have questions we advise contacting ISIS prior to sending the Option Sheet at: sales@isispace.nl. Note that you are responsible to make sure the inputs you make are correct, since ISIS will produce the product accordingly, and shall not be responsible to verify your inputs or liable to provide refunds, make alterations or send a new product in case your input does not reflect your needs correctly.

Customer Contact Information

Contact Name:	
Email Address:	
Phone Nr:	
Organization / Company / Institution:	
Address:	
Address (Cont'd):	
Country:	

Additional Information (Optional)

Intended use (EM/FM/QM):	
Satellite / Mission name:	

For ISIS Use – Leave Blank –

Order Confirmation:	
Allocated WO:	
Sales responsible:	
Project/Ref.:	

Applicable to TXS REV C

Doc. ID:	ISIS.TXS.OS.001
Doc. Title:	S-band Transmitter Option Sheet
Version:	1
Revision:	2

Physical Layer Configuration

All parameters in the below table are settable upon command. The customer selected values are the ones the TXS defaults to when no command to update these values is issued. In the table in the column "customer selected value", please enter the requested value for each parameter.

Parameter	Supported values	Customer selected value	Unit	Notes
Transmit frequency	2200.000 - 2290.000		MHz	Resolution: 1 kHz
Modulation scheme	BPSK or OQPSK		-	
Symbol rate	0.625 or 1.25 or 2.5 or 5		Msymbol/second	
Root raised cosine pulseshaping filter rolloff factor	0.5 or 0.35		-	
RF output power	20 - 33		dBm	Resolution: 1 dB

Data Link Layer Configuration

TXS transmits downlink data in TM Transfer frames, compliant to CCSDS-132.0-B. The primary header of the TM Transfer Frame contains the Spacecraft Identifier (SCID) which identifies the satellite. SCIDs are assigned by the Spacecraft Assigned Numbers Authority (SANA), see https://sanaregistry.org for details on applying for a SCID. If no value is provided, the SCID defaults to 0x000. Note that the SCID value can be set upon command prior to each transmission.

Parameter	Supported values	Customer selected value (hex)
CCSDS Spacecraft Identifier	0x000 - 0x3FF	

Electrical Interface Configuration

TXS makes use of a Cubesat Kit Bus (CSKB) – Lite connector (non-stack through) which carries the power and I2C data interface.

CSKB-lite Pin-out

Even though only one I2C bus is used, there are two alternative sets of pins on the CSKB-lite connectors that could be used to connect to the board.

Parameter	Supported values	Customer selected value	Notes
I2C SCL	H1-43 or H1-21		
I2C SDA	H1-41 or H1-23		
Supply voltage line	H2-45 & H2-46 or H1-25 & H1-26 or H1-29 & H1-30		2 adjacent pins are always used in parallel

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Grounding of mounting holes

The board is mechanically mounted in a CubeSat stack by means of four mounting holes . Please indicate whether these mounting holes should be connected to TXS power, data and RF ground via a 0 ohm resistor via a 0 Ohm resistor.

Parameter	Supported values	Customer selected value
Mounting holes connected to power & data GND?	yes / no	

> **Note**: If selected, the mounting holes are grounded by means of a 0 Ohm resistor between each hole and power & data ground. For alternative grounding schemes or components to be populated, please leave a comment on the Additional Comment section. ISIS will review your request and contact you as soon as possible

Software Configuration

I2C Protocol Settings

TXS contains two controllers, a supervisorwhich is always powered, and the MSS microcontroller in the baseband system, which is only powered in "standby" and "TX ON" modes. Both have a unique I2C address and are connected to the I2C housekeeping data interface. The I2C addresses can be any 7-bit number with the exception of reserved addresses, specified in the I2C bus specification (http://www.nxp.com/documents/user_manual/UM10204.pdf) and listed in the table below.

Slave address (binary)	Slave address (hex)
0000 000	0x00
0000 001	0x01
0000 010	0x02
0000 011	0x03
0000 1XX	0x04 – 0x07
1111 XXX	0x78 – 0x7F

Parameter	Customer selected value (binary or hex)	Notes
Supervisor I2C address		Must be different from MSS I2C address
MSS I2C address		Must be different from Supervisor I2C address

Supervisor I2C Watchdog Settings

This watchdog is implemented for safety reasons. If the TXS PSupervisor does not receive any command over I2C for a given duration, TXS will reset itself and go into "Supervisor on only " mode. This safety measure can be disabled by command if required.

Parameter	Supported values	Customer selected value	Unit	Notes
Supervisor I2C WDT enable	yes / no		-	
Supervisor I2C WDT timeout (if enable = "yes")	0-3600		seconds	

Modem time to lock parameter

This parameter sets the amount of seconds that the groundstation demodulator needs to acquire a lock on the transmitter signal. During this time interval, TXS transmits idle frames in order to avoid transmitting payload data to an unlocked demodulator on the ground.

Parameter	Supported values	Customer selected value	Unit
Modem time to lock	0-10		seconds

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Additional Comments

Please use this section in case you have additional comments or remarks. If any further option has been agreed during the sales process, please add it here. Everything listed here is subject to ISIS approval before order confirmation.