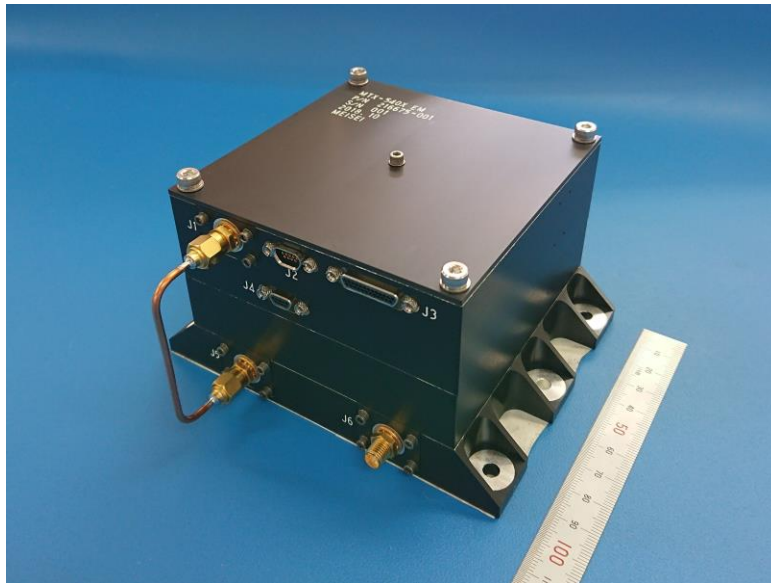


# High-Speed X Band Transmitter MTX-540X



## Outline

MTX-540X is a high-speed X band transmitter for the micro satellites. 64APSK technology achieves the world's highest class frequency efficiency for the earth observation downlink. MTX-540X enables your satellites to maximum 522 Mbps downlink.

## Features

- 64APSK: the highest frequency efficiency for earth observation downlink
- High-speed 522 Mbps downlink in less than 150 MHz frequency bandwidth
- Adaptive coding and modulation (69 Mbps to 522 Mbps)
- Low power consumption (22 watts) & Low mass (about 1.3 kg)
- Compatible with generic ground receiver (Zodiac Cortex HDR 4G)
- ITAR free
- Made in JAPAN

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MEISEI ELECTRIC is provider of components and small satellite systems. Since 1955, MEISEI developed more than 3,000 instruments for rockets, satellites, space probes, and space station in collaboration with JAXA, ESA, and NASA.

# SPECIFICATIONS

## Electrical characteristics

<b>Frequency</b>	8,025 MHz to 8,400 MHz
<b>Symbol rate</b>	100 Msymbol/s (typ.)
<b>Standards</b>	CCSDS 131.2 or DVB-S2 <sup>*1</sup> /S2X <sup>*2</sup>
<b>Modulation</b>	QPSK, 8PSK, 16APSK, 32APSK, and 64APSK
<b>Error correction</b>	Turbo coding (SCCC) or LDPC <sup>*1,2</sup>
<b>Data rate</b>	69 Mbps to 522 Mbps
<b>RF power</b>	+33 dBm (QPSK to 32APSK) +30 dBm (64APSK)
<b>Bandwidth</b>	< 150 MHz
<b>Filter</b>	Compliant with ITU regulations
<b>TTC interface</b>	RS-422 level, UART
<b>DC power supply</b>	+18 V to +34 V, 22 W (typ.)

## Physical characteristics

<b>Dimensions</b>	100 x 100 x 73 mm
<b>Mass</b>	< 1,300 g

## Ordering Information

<b>MTX-540X-FM</b>	Flight model
<b>MTX-540X-EM</b>	Engineering model
<b>MTX-OPT-DATASOURCE</b>	Option: Test data source unit and software (USB 3.0 to Parallel LVDS)
<b>MTX-OPT-SR50M</b>	Option: 50 Msymbol/s mode, (BW < 75 MHz, up to 269 Mbps)
<b>MTX-OPT-DVBS2</b>	Option: DVB-S2 mode, up to 32APSK
<b>MTX-OPT-DVBS2X</b>	Option: DVB-S2X mode, up to 64APSK
<b>MTX-OPT-BPF</b>	Option: External band pass filter for SFCG recommendation (deep space)
<b>MTX-OPT-PANT4</b>	Option: Patch antenna (Gain = 13.5 dBi, Size = 70 x 70 x 10 mm, Mass = 80 g)

## Data input interface

<b>Standard</b>	Parallel LVDS (CCSDS 130.12-G-1)
<b>Clock input</b>	Up to 100 MHz
<b>Data input</b>	8 bits + Data_valid
<b>Data rate</b>	Up to 800 Mbps
<b>Flow control</b>	Data_request from transmitter

## Environment

<b>Operational temperature</b>	-40°C to +50°C
<b>Vibration</b>	GSFC-STD-7000A, Table 2.4-3
<b>Shock</b>	GSFC-STD-7000A, Figure 2.4-1
<b>Radiation tolerance</b>	> 10 krad
<b>Design lifetime</b>	5 years in LEO

\*1 MTX-OPT-DVBS2

\*2 MTX-OPT-DVBS2X

## Caution

- For safe and correct usage, please read the "Operation Manual" prior to the use of the products.
- Specifications and designs are subject to change without notice.
- Specifications and designs are based on the standard model. Please contact us regarding further customization to suit your project's needs.
- This products may be subject to the application of the Foreign Exchange and Foreign Trade Act and other related laws and regulations in Japan. Customer agrees to comply with such regulations and acknowledges that it is their responsibility to obtain any required licenses to export, re-export, or import this products.
- We shall not be liable for any damages arising out of or in connection with the use of specifications herein, including liability for lost profit, business interruption, or any other damages whatsoever.
- The color of the product photography on catalog might be different from that of actual product because of printing.

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