

Orthomode Transducers, SAT Series

A

FEATURES:

- ◆ Frequency coverage: 8.2 to 140 GHz
- ◆ High isolation
- ◆ Low insertion loss
- ◆ Up to full waveguide bandwidth



APPLICATIONS:

- ◆ Waveform polarization separation and combination
- ◆ Antenna ranges
- ◆ Radar systems

A

DESCRIPTION:

SAT series orthomode transducers, or OMTs, are used to either separate a waveform that is input through the circular waveguide into two orthogonal waveforms or to combine two orthogonal waveforms into one waveform at the circular waveguide output. Orthomode transducers can support circular, elliptical and linear polarized waveforms.

By adding a compact square to circular waveguide mode transition to the A-port (antenna-port), these orthomode transducers can be utilized for applications requiring a circular waveguide interface. The standard offering covers the frequency range of 8.2 to 140 GHz and features rectangular waveguides at the H- and V-port and a square or circular waveguide at the A-port (antenna port). While full waveguide band models are available for X through W band, narrow band models with enhanced cross polarization and port isolation are offered as custom models. Check the website for more models.

CATALOG MODELS:

| Band | Model Number | Frequency Range | Insertion Loss | Cross Polarization | Isolation | VSWR | V/H-port Waveguide |
|------|------------------|--------------------|----------------|--------------------|-----------|-------|--------------------|
| X | SAT-FX-90090-S1 | 8.2 to 12.4 GHz | 0.30 dB | 35 dB | 30 dB | 1.3:1 | WR-90 |
| Ku | SAT-KU-62262-S1 | 12.0 to 18.0 GHz | 0.40 dB | 30 dB | 30 dB | 1.3:1 | WR-62 |
| K | SAT-FK-42042-S1 | 18.0 to 26.5 GHz | 0.50 dB | 35 dB | 40 dB | 1.3:1 | WR-42 |
| N/A | SAT-F3-34034-S1 | 22.0 to 33.0 GHz | 0.50 dB | 35 dB | 40 dB | 1.3:1 | WR-34 |
| Ka | SAT-FA-28028-S1 | 26.5 to 40.0 GHz | 0.60 dB | 35 dB | 40 dB | 1.4:1 | WR-28 |
| Q | SAT-FQ-22422-S1 | 33.0 to 50.0 GHz | 0.70 dB | 35 dB | 40 dB | 1.3:1 | WR-22 |
| U | SAT-FU-18819-S1 | 40.0 to 60.0 GHz | 0.80 dB | 35 dB | 40 dB | 1.3:1 | WR-19 |
| V | SAT-FV-14115-S1 | 50.0 to 75.0 GHz | 0.90 dB | 35 dB | 40 dB | 1.3:1 | WR-15 |
| E | SAT-FE-12212-S1 | 60.0 to 90.0 GHz | 1.00 dB | 35 dB | 40 dB | 1.3:1 | WR-12 |
| W | SAT-FW-10010-S1 | 75.0 to 110.0 GHz | 1.20 dB | 35 dB | 40 dB | 1.3:1 | WR-10 |
| F | SAT-114-07508-S1 | 110.0 to 118.0 GHz | 1.50 dB | 25 dB | 35 dB | 1.3:1 | WR-08 |

Note: Full band models are equipped with a square waveguide at the A-port, and narrow band models are equipped with a circular waveguide.

CUSTOM MODELS:

SAGE Millimeter's orthomode transducer model numbers are configured per the following format. Customers may refer to the format and specify their own model numbers accordingly when placing an order.

SAT - F0N - DDD WG - XY OR SAT - FB - DDD WG - XY

F0N is the center frequency in MHz x 10N. For example: 26.0 GHz = 263 or **FB** is the waveguide band designator for full band operation.

DDD is the diameter of the circular waveguide or the dimensions of the square waveguide at the antenna port in mils.

WG is the waveguide band designator for the V- and H-port.

X is the V-port configuration type. "T" is with a rectangular to circular waveguide transition and "S" is without a transition.

Y is for factory reserve.

Example: SAT-383-21922-S1 is an orthomode transducer with a center frequency of 38 GHz. The orthomode transducer has a 0.219" diameter circular waveguide, and the waveguide band designator for the V- and H-port is WR-22. 1" is a factory assigned number.