S Band Transceiver for Small Satellites

- High speed data links from/to LEO
- Micro, nano or pico satellite usage
- Configurability for various modes
  - Sat2Ground
  - Ground2Sat
  - Sat2Sat bidirectional communication links
Features
- Fully featured S band transceiver
- Flight grade tested design
- Compact case and low power consumption
- Versatile configuration options
- Low cost design

The **SLink** transceiver system provides a huge payload data downlink for micro, nano or pico satellite applications and the benefit of an integrated data uplink. Further, a bidirectional communication link between satellites can be established. It is designed as highly integrated S Band transceiver system with outstanding technical performance and versatile configuration options. The lifetime goal is for at least two years of operation in Low Earth Orbit (LEO) environment. All software program codes are stored redundantly to ensure a high reliability. The radio system can be adjusted in a frequency band between 2,200 and 2,290 MHz for downlink (Sat2Ground) and inter satellite communication links (Sat2Sat) and between 2,025 and 2,110 MHz for uplink communication links (Ground2Sat), e.g. for telecommand purposes.

**SLink** operates at physical and data link layer in an Open Systems Interconnection model (OSI). It is fully transparent to higher layer protocols, e.g. CCSDS - Proximity -1 Space Protocol. A correspondent transceiver equipment is available for integration into existing ground station equipment via RF interface. The payload and TM/TC data are transparently provided as UDP data via Ethernet 100/10BaseT interface.
**Key Specifications**

- **S band operation:** 2,025–2,300 MHz
- **Data rate Sat2Ground:** 0.6 – 4 Mbps
- **Data rate Ground2Sat:** 30 – 200 kbps
- **Data rate Sat2Sat:** 27 – 150 kbps
- **Operational mode:** Time Division Duplex / semi-duplex
- **Modulation schemes (configurable):** BPSK/QPSK/8PSK/QAM16
- **FEC:** convolutional code, $r=0.5 / 0.75$
- **Linear RF output power:** up to 27 dBm (adjustable)
- **Low power consumption:**
  - 8 ... 12 W transmit mode
  - 3 ... 4.5 W receive mode
- **DC supply voltage:** 7 – 18 V
- **Ultra small volume:** 65 x 65 x 137 mm³
- **Low mass:** approximately 420 grams
- **Data and control interface:** SPI / RS485
<table>
<thead>
<tr>
<th></th>
<th>Sat2Ground</th>
<th>Ground2Sat</th>
<th>Sat2Sat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>2,200—2,290 MHz</td>
<td>2,025—2,110 MHz</td>
<td>2,200—2,290 MHz</td>
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<tr>
<td>Frequency stability</td>
<td>+/- 3 ppm (w/o xryal aging)</td>
<td></td>
<td></td>
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<tr>
<td>RF bandwidth</td>
<td>1.75 MHz</td>
<td>100 kHz</td>
<td>100 kHz</td>
</tr>
<tr>
<td>RF output power</td>
<td>-2…+27 dBm</td>
<td>up to +27 dBm</td>
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### Optional available Equipment

- SLINK ground station equipment (19” rack, 2HU transceiver with data interface)
- S band feeds for parabolic ground station antennas
  (including antenna patch, LNA and RF band pass filter)
- Tx / Rx S band patch antennas for satellite transceiver applications (e.g. RHCP, 70 x 70 mm², gain about 6dBi)
- Tx / Rx antenna switches for satellite transceiver applications
- Customer specific designs and turn-key solutions

*Product specification may be subject to change without notification*