

iIPSC-ANTRAD-302D

Dynamic Azimuth/Elevation/Roll Axes Antenna Stabilizer and Positioner

The [iIPSC-ANTRAD-302D](#) is part of a family of single axis, two-axes and three axes stabilizers for antennas being used on naval and surface vessels. It is derived from our motion tables, designed for gyro calibration.

- Open frame design for easy implementation of customer's antennas
- Three axes gyro stabilization incl. antenna polarization, wide elevation range and unlimited azimuth
- high angular resolution and accuracy
- high dynamic capability
- no gimbal lock
- size and slings scaleable to operator's needs (RF, cable and/or optical slings etc.)
- control via CAN or Ethernet or UART RS232/422

The antenna is protected against the environment by a radom, which can be adapted by its transmission behavior to the antenna operating frequencies. The system can also be delivered without radom. The system is delivered with full integrated servo motors and electronics, stabilization



gyro or IMS (inertial measurement system), integrated GPS, integrated iSCU stabilization & control unit and algorithms for stabilization and pointing to moving or static targets (satellites, vehicles), capability for conical scan and RF signal feedback for improved pointing performance. As an option the unit can also be delivered with external vibration absorbers.

All signals are fed via robust connectors of type MIL-C-38999-III and TNC to the user. RF signal connectors antenna specific.

The system is also available as single-axis or two-axes antenna stabilization for surface and naval vessels. The systems are also available as an option without gyro stabilization

Standard designs as well as customized designs are provided regarding payload, dynamics and stabilization accuracy.

Technical Data iIPSC-ANTRAD-302D (customized versions on request):

Angular Positioning Rate:	± 300 °/s (all axes)	
Angular Acceleration:	300 °/s ²	(depends on payload size and available power)
Angular Range:	outer axis (azimuth):	unlimited, continuous
	middle axis (polarization / roll):	± 55 deg
	inner axis (elevation):	-25...+105 deg
Positioning Resolution:	< 1 arcsec	
Linearity / Scale factor error:	< 0.003 %	
Accuracy in Position:	< 5 arcsec (0.0014 °)	
Stabilization Accuracy:	depends on integrated IMS; 0.005 ... 1 deg in roll and pitch, 0.05 ... 1 deg true heading	
Size:	designed for applied 400 mm antenna dish; diameter and height antenna specific	
Antenna Payload Weight:	8 kg, balanced to axes intersection point (customer's antenna and amplifier electronics) [can be customized for up to 25 kg payload and up to 650 mm dish diameter]	
Slip Rings for Payload:	FORJ: one channel for bidirectional single-mode fiber (1 GBit/s); DC: 4 way sliring, each 32 V / 6 A; additional: internal housekeeping data	
Interfaces:	Ethernet / CAN / RS232/422 for command and read-out of stabilization and control; CAN, RS422, one fiber optical channel and separate power (DC) for gimbal and user payload	
Inertial sensors / IMS:	standard: iNAT-M200; option: geo-referencing iNAT-FSSG or iNAT-RQT-4003	
Odometer input:	as option to aid the IMS on surface vehicles with velocity information	
Connectors:	ODU G8x series; Huber&Suhner ODC-2 for fiber; MIL-C-38999-III; TNC for GNSS antenna	
Temperature:	-10...+56 °C (operating) or customized (optional heating)	
Environment / MTBF/ MTTR:	IP66 at radome site / 15.000 hrs (estimated) / 10 minutes	
Size, Weight:	600 x 600 x 800 mm (DxWxH); about 50 kg (without payload);	
Power:	18...36 V DC; 40 W nominal, 200 W maximum (depends on implemented options)	

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