

iIPSC-PT-150

Pan/Tilt Positioner & Stabilizer

The [iIPSC-PT-150](#) is part of a family of Pan / Tilt (two axes, azimuth and elevation) positioners for antennas, optical payloads or other payloads, mounted statically or on moving ground vehicles or naval vessels. It is used for applications like border control and communication tasks, for the tracking of targets with moderate dynamics or for other special tasks. For tracking of highly agile vessels, also our families iIPSC-ANTRAD (for antennas) and iIPSC-MSG (for optical payloads) are available.

- open frame design for easy implementation of customer's payloads; designed for minimum maintenance effort a user site
- size scalable to operator's payload size / weight
- option: integrated gyro stabilization, true north reference (by dual-antenna GNSS or gyro compassing → see e.g. iNAT-M300 or iNAT-FSLG or iNAT-RQT etc.)
- high angular resolution on all axes
- dedicated, sturdy gearbox drives without significant backlash; no brakes required during power-off state, if payload is reasonably balanced
- twisted cables or customized RF & NF slip rings, optional FORJ (fiber optic rotary joint) available
- protection against harsh environment (naval, desert); qualified according to MIL-STD-810, MIL-STD-461, MIL-STD-704 or customized requirements
- control via CAN or Ethernet or UART RS232 / RS422.

The system is delivered with full integrated gearbox motors, high resolution encoders, stabilization gyro or IMU (inertial measurement unit) / INS, integrated GNSS receiver, integrated iSCU stabilization & control unit and algorithms for stabilization, pointing to and

tracking of moving and static targets (satellites, vehicles), capability for conical scan and RF signal feedback for pointing support. 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 N or TNC to the user.

The **modular system design** allows easy adaptation to a wide range of **customer specific requirements** regarding:

- payload weight & size,
- limitation of angular sectors on pan and tilt or continuous rotation capability,
- selection of sliprings or twisted cables or FORJ,
- max. angular speed and acceleration,
- max. acceptable wind load, icing, snow etc
- temperature environment (sun-shield, heating)

Standard designs as well as customized designs are provided.

The next page shows an example for an antenna pointing application (available with and without gyro stabilization and/or geo-referencing).



Technical Data iIPSC-PT-150:

Angular Positioning Rate / Accel:	± 100 °/s / 50 °/s ² on Pan (azimuth) and Tilt (elevation) (other values TBD, e.g. 200 °/s / 250 °/s ²)
Azimuth / Elevation Range:	± 135 ° or ± 180 ° or $n \times 360$ ° (continuous) / -30 ° ... $+110$ ° or continuous or TBD
Angular resolution / accuracy:	< 1 arcmin (other TBD, down to 0.0002 deg) / < 0.1 deg (other TBD, down to 5 arcsec)
Stabilization Accuracy (option):	< 0.02 ... 0.5 deg rms, depending on requirement and selected version (default: 0.15 deg rms)
True North Determination:	option: by integrated GNSS dual-antenna compass, integrated gyro compassing or by external command
Head Size:	depends on: selected payload size & weight, payload's mass moment of inertia, desired motion sector on pan and tilt and on desired motion dynamics
Payload Weight:	150 kg or TBD, if balanced
Signal Transmission:	twisted wires (cable wrap) or NF / DC sliprings, x ways or RF sliprings (e.g. coax, 6 ways DC to 2.2 GHz) or FORJ (Gbit/s via fiber optical, N lines)
Interfaces:	Ethernet / CAN / UART RS232/422/485 for command and read-out of stabilization and control; video tracker (option), joystick panel iJP / control center iIPSC-CTRL (option)
Inertial sensors / IMS (option):	if gyro stabilization is desired: integrated iNAT-M300 or iNAT-U200 or iNAT-RQT for localization & true heading
Odometer input:	interface available as option to aid the IMS on surface vehicles with ground speed
Connectors:	MIL-C-38999-III, TNC or N type, other tbd. according to customer requirements (e.g. type Z for naval)
Temperature:	-20 ... $+56$ °C (operating) or tbd (e.g. -40 ... 65 °C); -46 ... $+85$ °C storage
Environment / MTBF/ MTTR:	IP66 / $30'000$ hrs (estimated) / 10 minutes; designed according to MIL-STD-810G, MIL-STD-461G
Size, Weight:	approx. 200 kg; depends on payload and motion dynamics constraints
Power:	24 V DC (optional 235 V AC converter); example: iIPSC-PT-155 with antenna payload: typ. < 250 W (depends on required dynamics and payload balancing)

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iIPSC-PT-X: Example of Customized Version

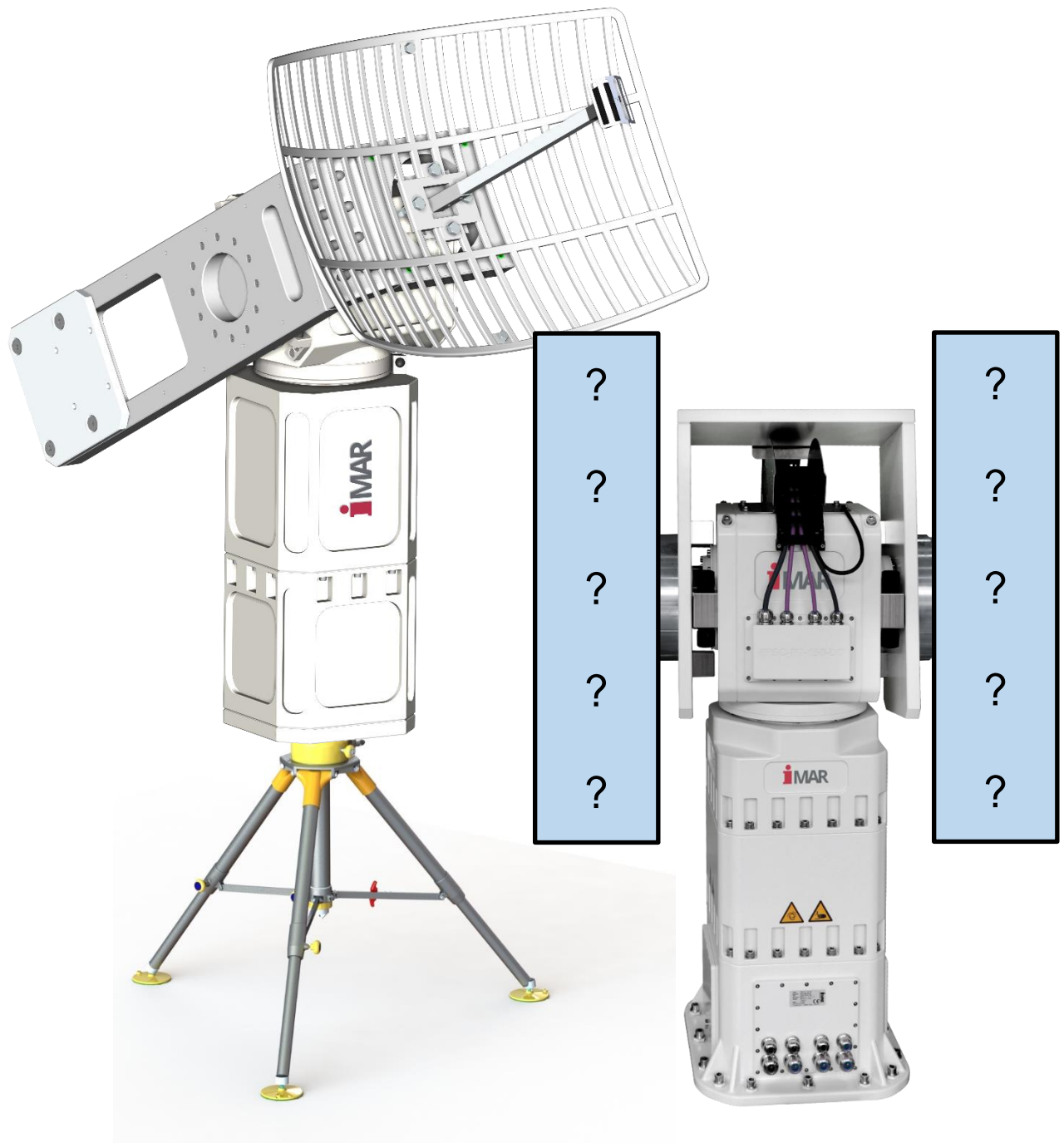


Figure: iIPSC-PT-10 (left) for a customer defined grid antenna payload, mounting slot for optional counter weights (depending on the weight of the payload), with heavy duty tripod for quick installation or directly mounted on a vessel, integrated iSCU Stabilization & Control Unit (supporting pointing / tracking using external commands) and optional gyro stabilization. Right: iIPSC-PT-150 with customer payload.

Please do not hesitate to contact our technical sales staff to provide you a standard or customized solution for your application.

