

# iIPSC-PT-X

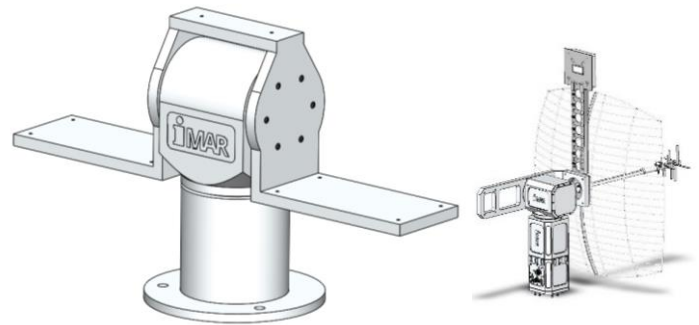
## Pan/Tilt Positioner & Stabilizer

The [iIPSC-PT-X](#) is part of a family of Pan / Tilt (two axes, azimuth and elevation) positioners for optical payloads, antennas or other payloads mounted on masts and towers or on slow moving surface and naval vessels. It is used for applications like border control and communication tasks or tracking of targets with moderate dynamics. For operation on or tracking of agile vessels our families iIPSC-ANTRAD (for antennas) and iIPSC-MSG (for optical payloads) are recommended.

- open frame design for easy implementation of customer's payloads
- setup / size scaleable to operator's payload size / weight
- option: integrated gyro stabilization, true north reference (by dual-antenna GNSS or gyro compassing)
- high angular resolution,
- 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 optc rotary joint) available
- protection against harsh environment
- control via CAN or Ethernet or 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 or 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,
- angular sectors on pan and tilt,
- selection of slirings or twisted cables or FORJ,
- max. angular speed and acceleration,
- max. acceptable wind load, icing, snow etc
- temperature environment (sunshield, 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).

### Technical Data iIPSC-PT-X (X = 05 / 10 / 20 / 30 / .... / 250 or TBD):

Angular Positioning Rate / Accel:	$\pm 100$ °/s / $50$ °/s <sup>2</sup> on Pan (azimuth) and Tilt (elevation) (other values TBD, e.g. $200$ °/s / $250$ °/s <sup>2</sup> )
Azimuth / Elevation Range:	$\pm 135$ ° or $n \times 360$ ° / $-30$ ° ... $+110$ ° or TBD (e.g. continuous on azimuth)
Angular resolution / accuracy:	$< 1$ arcmin (other TBD, down to $0.000'2$ 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 compass, intergrated 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 desired moton dynamics
Payload Weight:	depends on version, 5... $250$ kg or TBD (iIPSC-PT-xx), i.e. available from light-weight to heavy-load
Signal Transmission:	twisted wires (cable wrap) or NF / DC slirings, x ways or RF slirings (e.g. coax, 6 ways DC to 2.2 GHz) or FORJ (Gbit/s optical, N lines)
Interfaces:	Ethernet / CAN / UART RS232/422 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 stabilization is desired: integrated iNAT-M200 or iNAT-U200 or iNAT-RQT for localization / true north
Odometer input:	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
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:	depends on payload and motion dynamics constraints (example: iIPSC-PT-05: $24.5$ kg)
Power:	$24$ V DC (optional $235$ V AC converter); example: iIPSC-PT-05 with antenna payload: typ. $< 150$ W (depends on required dynamics and payload balancing)

iMAR Navigation GmbH • Im Reihersbruch 3 • D-66386 St. Ingbert / Germany

Phone: +49-(0)-6894-9657-0 • Fax: +49-(0)-6894-9657-22

[www.imar-navigation.de](http://www.imar-navigation.de) • [sales@imar-navigation.de](mailto:sales@imar-navigation.de)



## iIPSC-PT-X: Example of Customized Version



**Figure:** iIPSC-PT-05 for a dual-antenna customer specific payload, mounting slot for optional counter weights (depending on the weight of

the payload), with heavy duty tripod for quick installation, integrated iSCU Stabilization & Control Unit (supporting pointing / tracking using external commands) and optional gyro stabilization

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

