

iPEGASUS

Surveying and Alignment of Machining Centers, Antennas and Fire Control Systems Autonomous Determination of Differential Angles in Space

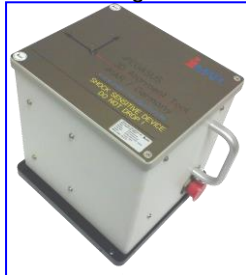
With increasing quality requirements and the need for a continuous monitoring of quality, the surveying or aligning of machining centers and robots or the transfer alignment of inertial navigation systems (INS), fire control systems, missile attack warning systems or the alignment of telecom-antennas has gotten of

significant importance during the last couple of years. Therefore, iMAR provides iPEGASUS, a patented highly precise inertial based transfer alignment system, which provides a three dimensional attitude/heading information

relative to a reference orientation with an accuracy up to 0.01°.

The system works without external aid and is easy to handle for everybody, where only one single people is

necessary for operation. Thus the measurement time for aligning or surveying is reduced dramatically compared to traditional laser or camera aided systems. iPEGASUS is a handy tool which generates up to 300 measurements per second, shows results on screen and plots a



protocol designed for your application.

Using two iPEGASUS in differential mode allows furthermore the transfer alignment of fire-control systems and guns even on moving naval vessels.

Technical Data of iPEGASUS models Economy Precision / High Precision / Ultra High Precision:

Measured data	: $\varphi_x, \varphi_y, \varphi_z$ (angles around space coordinate axes)	
Measuring range	: ± 360 deg (any rotations in space)	
Resolution	: 300 μ deg	
Linearity error	: < 0.001 % (incertainty due to rotation, 1 σ)	
Measuring incertainty	: < 0.02 / 0.001 / 0.0005 deg	over 1 minute of measuring
	: < 0.04 / 0.002 / 0.001 deg	over 5 minutes of measuring
	: < 0.05 / 0.003 / 0.002 deg	over 10 minutes of measuring
Random walk / Q	: < 0.05 / 0.003 / 0.0018 deg/sqrt(hr)	
Random constant	: < 0.1 / 0.003 / 0.002 deg/hr	
Data rate	: 1 ... 100 Hz via RS232 (internally 300 Hz)	
Output	: in real-time, on file, as plot, Tablet output on request (roll, pitch, yaw, time)	
Power supply	: 11...34 V	
Self testing	: automatically	
	<u>Standard System</u>	<u>SHP Miniature System</u>
Mass	: 6.2 kg	2.98 kg (meas. head)
Size	: 275 x 200 x 205 mm ³	145 x 145 x 145 mm ³ (meas. head)

For the real-time surveying of the parallelism of rolls iMAR manufactures iPEGASUS-M under the trademark PARALIGN™ for Prüftechnik AG (www.prueftechnik.com) under exclusive license. All applications like the alignment of fire control systems, MAWS and aircraft alignment or gun surveying are provided directly by iMAR. iPEGASUS is protected by patents worldwide.

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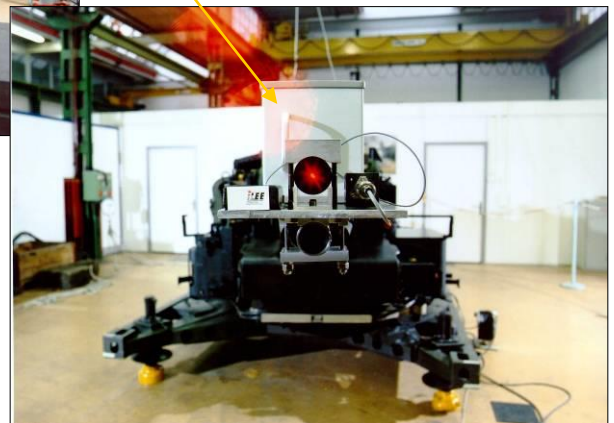


Technical Information:

Example for the Usage of iPEGASUS-UP in Calibrating Kinematic Chains (Pictures: Surveying of turrets with Oerlikon-Contraves AG, Zurich)



- Automatical surveying of turrets in azimuth and elevation for **quality assurance** and **calibration**.
- Improvement of positioning accuracy of guns due to the usage of the data of surveying for calibration purposes.



- Mobile and accurate **determination of geometrical relations** between gun and fire control system at army and navy applications

Advantages of iPEGASUS:

- Calibration or surveying can be done by **unskilled employees**.
- No external equipment required (no mirrors, theodolites etc.). Therefore high mobility and **very short time needed for installation and surveying**.
- Surveying also possible on moved vehicles with use of two measuring heads in differential mode.
- Direct communication with field computer. Open interface.

