

# Autonomous Portable Glass Cockpit System

**High-Performance Synthetic Vision EFIS with Perspective Flight Guidance, Flight Management and Moving Map - affordable and suitable for any cockpit**

**Autonomous Portable Glass Cockpit (PGC-A) is a complete flight and navigation instrumentation system, which is portable and fully independent from onboard systems.**

It includes an ultra-compact integrated INS/GPS CompaNav-2, developed by TeKnol.

To increase situational awareness and enhance flight safety PGC-A uses intuitive indication and processing, which provides knowledge of the future flight path and its relation to the



## Applications

- ☞ General Aviation
- ☞ Experimental Aviation
- ☞ Special Purpose Aviation
- ☞ Commercial Aviation



# Performance

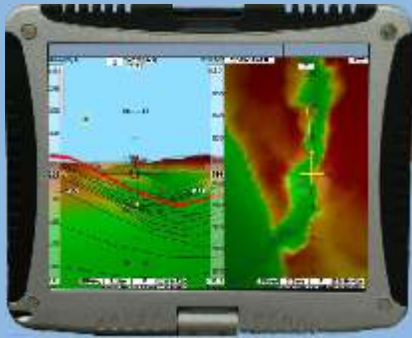
## Moving Map



## Primary Flight Display



## Digital Terrain / TAWS

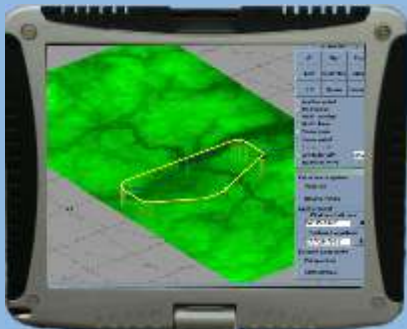


- Flight planning and post-mission analysis
- Flight training and simulation
- Primary flight display (PFD)
- Navigation (ND) and moving map displays
- Standard instruments display
- Combination of displays and screens
- Forward-looking 3D views of terrain and TAWS
- Obstacles and planned flight trajectory indication
- Predictive flight guidance (from take-off to landing)
- Quick charts and digital terrain maps upload
- Wind parameters identification
- Direct-to function
- Store/recall navigation points
- AS/SI measurement systems
- Indicated parameter source switching
- Navigation signal source monitoring
- Approach and landing pattern programming

## Standard Instruments



## 3D Flight Planning



## Simulation and Training



**PGC-A uses advanced algorithms to predict aircraft states and displays this information as a flight path vector (FPV).** FPV, accurate position information, and perspective flight guidance allow a pilot to relate the required aircraft control movement to the desired trajectory and gain understanding of external dynamics.

# Architecture



**CompaNav-2** is an innovative MEMS-based system developed by TeKnol which combines capabilities of a standalone AHRS and an Inertial Navigation System integrated with GNSS (INS/GPS).

Thanks to proprietary sensor fusion algorithms **CompaNav-2** operates in AHRS mode without GPS aiding for unlimited time, providing not only roll, pitch and heading data, but also angular rates and accelerations. **CompaNav-2** consists of MEMS gyroscopes, accelerometers and magnetometers, temperature sensors.

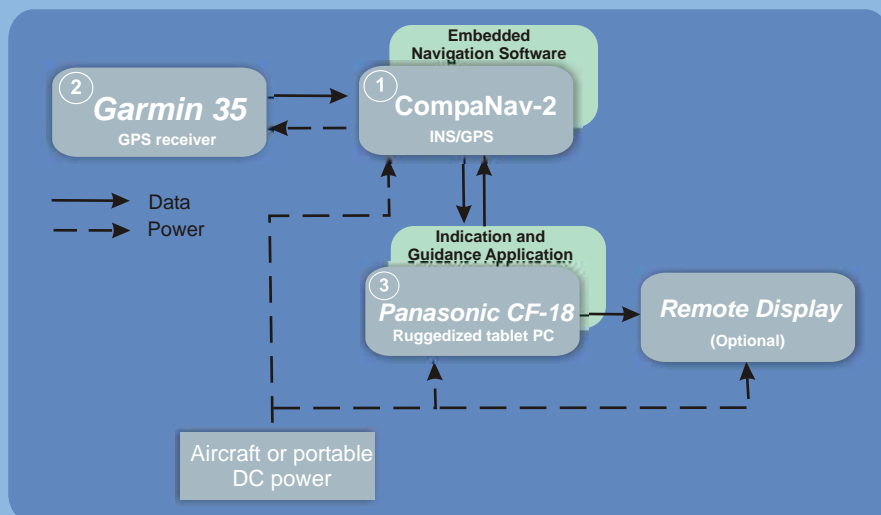


**Garmin® GPS 35 TracPak** is a complete GPS receiver and embedded antenna designed for a broad spectrum of OEM system applications. Based on the proven technology GPS 35 will track up to twelve satellites at a time while providing one-second navigation updates and low power consumption. Its far-reaching capability meets the sensitivity requirements of land navigation as well as the dynamics requirements of high-performance aircraft.



TeKnol-proprietary “indication and guidance” application runs on Panasonic **CF-18**. **CF-18** was designed to protect data from impact, moisture, water and dust. Its hard drive comes wrapped in a newly developed damper to reduce external vibrations and its ultra light, ultra strong alloy body is 20 times stronger than ABS plastic - tested to withstand drops from 90cm onto a hard surface.

## Interconnection Diagram



# Characteristics

## CompaNav-2 Integrated INS/GPS System

& 25,000 hours MTFB & Built-in pressure sensor & Drift and precession compensated & Update rate 50Hz		
Size	in	4,3x3,3x1,4
Weight	cm	11,0x8.5x3,5
	lbs	<1,4
Voltage	kg	<0,6
	VDC	12-30
Current	A	0,15 at 28 VDC
Operating temperature	deg C	-30 to +85
Storage temperature	deg C	-60 to +85
<b>Position Accuracy</b>	m RMS	6
INS/GPS mode (see GPS35)		
<b>Velocity Accuracy</b>		
X,Y Velocity	m/s RMS	0,3
Z Velocity	m/s RMS	0,28
<b>Pitch/ Roll Accuracy</b>		
Straight Horizontal Flight	deg RMS	0,2...0,3
Normal Maneuvres	deg RMS	0,4...0,6
Complex Maneuvres	deg RMS	1,3
Resolution	deg	0,05
no intentional turns or climbs Pitch and roll less 45 deg Pitch and roll 45 deg...75 deg		
<b>Heading (Track Angle)(*)</b>		
Accuracy	deg RMS	0,5
Resolution	deg RMS	0,1

### Notes

(\*) Heading is calculated as deviation from the track angle value which is output by GNSS receiver immediately after CINS initialization.  
The increments are sensed by IMU.

## Garmin GPS35 GPS Receiver

<b>Physical</b>		
Size	in	2,23x3,8x1,05
Weight	cm	5,6x9,6x2,7
	oz	<5
	kg	<0,125
	<b>Environmental</b>	
Operating temperature	deg C	-30 to +85
Storage temperature	deg C	-40 to +90
<b>Electrical</b>		
Input Voltage	VDC	10-30
Input Current (at 12 VD )	A	0,15
<b>Performance</b>		
Update rate	Hz	1
Position accuracy	m RMS	15 GPS mode
Velocity accuracy	m/s RMS	0,2

## Panasonic CF-18 Tablet PC

<b>Screen</b>	10.4" anti-reflective 1024x768 pixel 16 million colours
<b>Processor OS</b>	Intel® Pentium® M 1.1GHz Microsoft® Windows® XP Tablet Edition
<b>Pointing Device</b>	Touchpad and Touchscreen or Digitizer
<b>Battery</b>	Li-Ion 7.4v (7050mAh) 4-6 hours operating time
<b>Size(WxHxD)</b>	in 10,7x 8,5x1,9 cm 27,1x4,9x21,6
<b>Weight</b>	lb(Kg) 4,5(2,0)