ike™
304

A RAPID DATA CAPTURE DEVICE
FOR MOBILE MAPPING GEOSPATIAL INTELLIGENCE

Smart Laser • • Calculate position up to 1km away
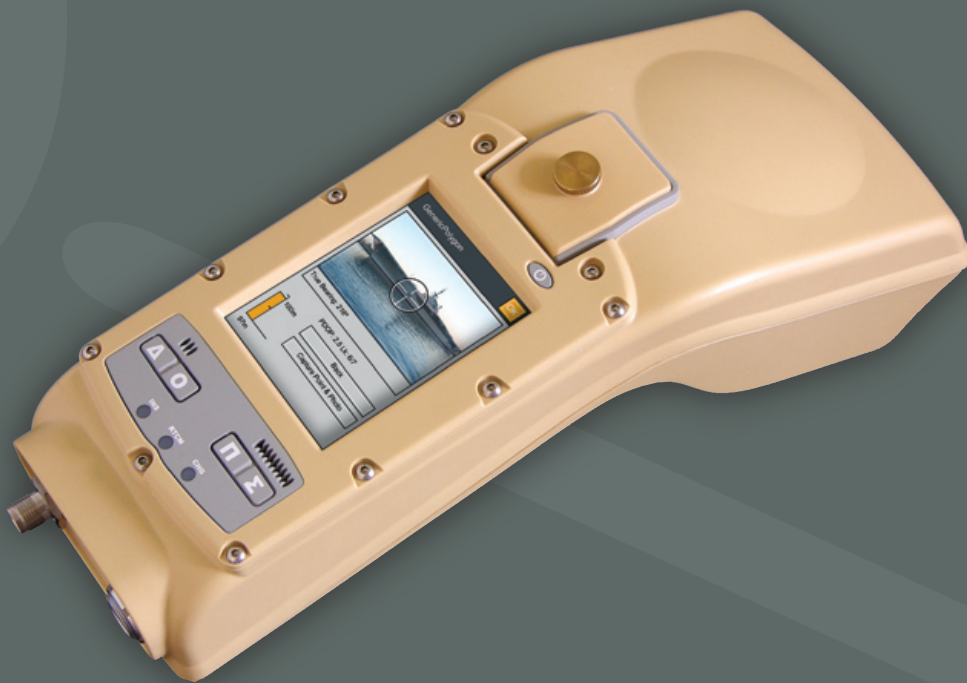
Sub-meter capable GPS • • Seamless GIS integration

Photos tied to spatial information • • Rugged and reliable

surveylab

ike ™

ALL-IN-ONE TERRAIN CAPTURE

In the battlefield environment, war fighters and war planners know that one of the keys to understanding and maximizing advantage in the battle space is *terrain knowledge*. Fundamentally, that constitutes an understanding of the precise location of features on the landscape and their geospatial relationship to each other.

Current approaches involve numerous steps and technologies that have not been seamlessly integrated. That "seamless integration" can be provided by **ike**. From a stand off position the mobile operator can capture the details of a remote point and provide terrestrially-based intelligence into integrated command and control and GIS systems.
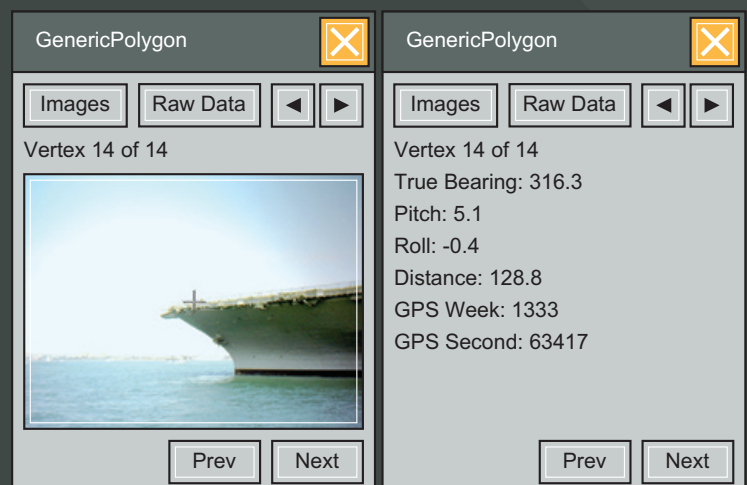
As **ike** takes a photo, it records geospatial information about the target point, linking and locking the data into a single record.

ike also records the following information about the target point in the photo:

- The direction from where you are standing (bearing)
- The difference in height from where you are standing (pitch)
- The distance from where you are standing to the point of interest (up to 1,000 metres)
- The local latitude, longitude and altitude.

From all this **ike** calculates the latitude, longitude and altitude of the target point in the photo. A crosshair on the picture confirms the mapped point.

The captured point or polygon is then mapped into popular mobile mapping products such as ESRI's ArcPad™ using **ike** application extensions.

GenericPolygon ⊠

| Images | Raw Data | ◄ | ► |

Vertex 14 of 14

Prev   Next

GenericPolygon ⊠

| Images | Raw Data | ◄ | ► |

Vertex 14 of 14
True Bearing: 316.3
Pitch: 5.1
Roll: -0.4
Distance: 128.8
GPS Week: 1333
GPS Second: 63417

Prev   Next

EVERY SOLDIER IS A SENSOR

ike, through its tightly integrated and ruggedized 1.1 kg package, offers the opportunity to make every soldier in the field a sensor. The combination of GPS, distance meter, pitch and roll sensors, compass and camera as measurement tools, plus a high performance computer that is able to display background maps as well as resulting measurements against that background, puts a high degree of data collection potential in the hands of the soldier. Because of the seamlessly integrated data capture and display capabilities in the system, and the variety of measurement sub-systems, the richness of data collected by the system is very high, especially in proportion to the package size and ease of use. The collected data can be quickly transmitted to a central analysis, interpretation and dissemination point, and then be returned as processed information to the soldier together with further instructions regarding data collection or other battlefield activities.

MOBILE MAPPING A POLYGON

What if all you had to do was walk around the dock and take the photos and let all the 'mapping' just happen?

Diagram Symbol Key	
⬤	Operator Position
🟠	Image Location
◎	Image Captured
▬	Operator Route

USS Midway - ArcPad

ike™ 304
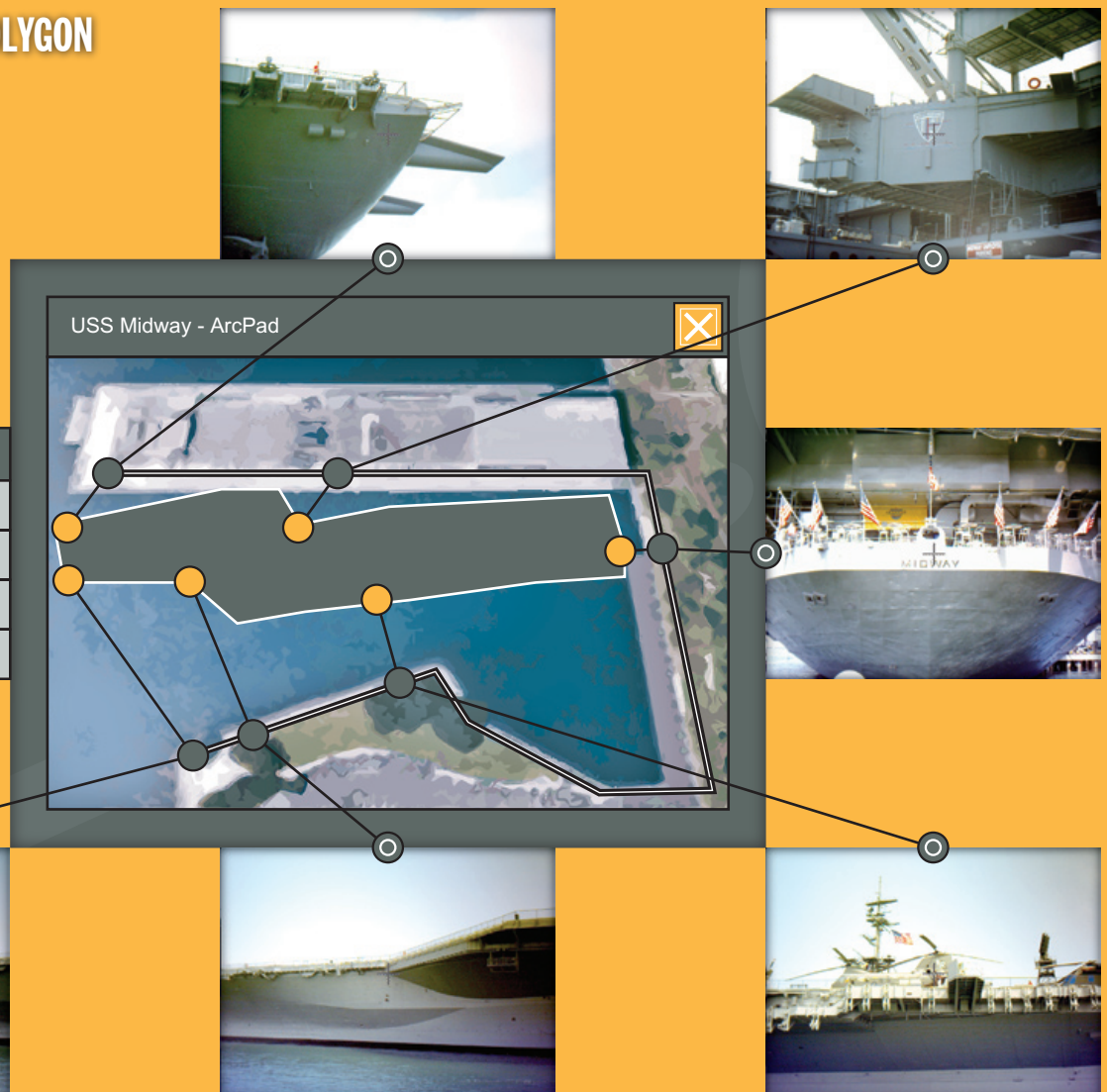
TECHNICAL SPECIFICATIONS

Physical

Size: 300mm x 110mm x 80mm

Weight: 1100g

Color Options:
Sand/Olive-Drab/Black/Orange-Grey

Tripod Mount: Standard Camera 1/4"

External Interfaces

Main Interface Connector:
14 pin Connector carries
Power/USB/RS232/RTCM

External Antenna:
TNC female, provides 5V for active antenna
(*automatic switching*)

Touch Screen: Over LCD display

Buttons: 4 user programmable

Reset Button: Accessible with stylus

Environmental

Casing: Plastic (*ABS + polycarbonate*)

Shock Resistance: 1m drop onto concrete

Operating Temperature: -10ºC to +40ºC

Storage Temperature: -15ºC to +60ºC

Ingress Protection: IP65

Electrical

Battery: Internal rechargeable Li-Polymer

Operation Time: 8 hours

DC Input: 11 to 17 Vdc @ 1.5A max

Charging Time: 3 hours max

Laser Distance Meter

Range: 5m to 1km

Accuracy: ±0.5m + 0.5% of range

Wavelength: 905nm (*invisible infrared*)

Safety:
Class 1 (*eye safe*)
21.CFR1040.10

Display

Screen Size: 3.5" diagonal

Screen Resolution:
64k color Transflective TFT with touch screen

Viewable Image: 320 x 240

GPS

Channels:
12 channel parallel
"all in view" tracking

Frequency: L1 C/A code and carrier phase (*1Hz*)

Autonomous Position Accuracy: < 5m (CEP)

DGPS Position Accuracy: < 1m (CEP)

Time to First Fix (Cold Start): 2 min (*typical*)

Time to First Fix (Warm Start): 45 s (*typical*)

Time to First Fix (Hot Start): 15 s (*typical*)

Signal Reacquisition (5 s Obstruction):
< 1 s (*typical*)

Signal Reacquisition (60 min Obstruction):
< 3 s (*typical*)

Multipath Mitigation: Yes

DGPS Real Time: RTCM-SC104 Messages

DGPS Post Processing:
By Waypoint® GrafNav Lite™ (*optional*)

SBAS (WAAS, EGNOS): Supported

Computer

Processor: 624MHz Intel® PXA 270 processor

Ram: 128MB RAM

Non-volatile Memory (System):
128MB Flash ROM

Non-volatile Memory (Storage):
Removable SD memory card 1GB (*std*)

Operating System:
Microsoft© Pocket PC2003™

Communication (Synchonization):
USB 1.1 via Interface Cable

Communication (Wireless):
Bluetooth and Wi-Fi

Communication (Serial):
RS232 (3 wire) via Interface Cable

Software

Data Capture Applications (DCAs):
Standard DCA (*CSV file format*)
ArcPad Application Builder™ DCA
(*ArcPad™ shapefile format*)

Desktop Data Synchronization Application:
ikeSync performs synchronization
of shapefile and CSV file data

Optional Software

DGPS Post Processing:
ikeSync including DGPS Post Processing
powered by Waypoint® GrafNav Lite™

Customization Tools:
ESRI® ArcPad Application Builder
ike Software Development Kit

Digital Camera

Preview Resolution:
320 x 240

Captured Image Resolution:
640 x 480
1280 x 1024 (*1.3Mpixel*)
24 bit color

Video Frame Rate: 15fps

Output Image Format:
JPEG or Bitmap

Digital Compass

Accuracy (Level): 1.0º RMS

Accuracy (Platform Tilt 0º to 30º): 3.0º RMS

Accuracy (Platform Tilt 30º to 60º): 4.0º RMS

Resolution: 0.1º

**Magnetic Field Range
(Max. Magnetic Flux Density):**
± 2 gauss

Magnetic Field Range (Resolution):
0.1 Millgauss

Inclinometer

Roll and Pitch Range: ± 60º

Accuracy (0º to 30º): 0.4º

Accuracy (30º to 60º): 1.0º

Sub-meter accuracy specification requires data to be collected with a minimum of five satellites, a maximum Position Dilution of Precision (PDOP) of six, minimum satellite Signal to Noise Ratio (SNR) of 30dB, minimum satellite elevation of fifteen degrees and reasonable multipath conditions.

Ionospheric conditions, multipath signals or obstructions of the sky by buildings or dense trees may degrade precision by interfering with signal reception.

Wide Area Augmentation System (WAAS) is only available in North America, European Geostationary Navigation Overlay Service (EGNOS) is only available in Europe.

surveylab

Email: info@survey-lab.com
Web: www.survey-lab.com