



SCAN-T

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INFRARED SCANNER **SCAN-T**

Infrared scanner Scan-T was developed specially for airborne survey. Its thermal images have not only high energy and spatial resolution, but also topographic quality and accuracy of georeferencing.

Infrared survey technology is successfully used in solving engineering tasks, for monitoring of underground heat supply network, oil, gas, and other products pipelines, electric power lines.



Monitoring of heat supply network. Infrared image and the result of 'anomaly check'.
Infrared survey in Riga.

SCAN-T BENEFITS

○ HIGH RESOLUTION

Scan-T's optomechanical principle of forming a thermal image provides a wide viewing angle, high spatial resolution, high speed, and high sensitivity to infrared radiation in long wave infrared range 8-14 μm .

○ HIGH SENSITIVITY

SCAN-T high sensitivity of 0,05°C allows location of low contrast areas associated the background surface temperature variations. This makes possible not only to detect damaged zones of the object under monitoring, but also to find subsurface objects with thermal contrasts, to obtain maps of natural contrasts distribution related to geological features of the surveying area – type and degree of soil moisture, thickness of active layer of permafrost etc.



Underground ammonia pipe.
Temperature difference between pipe and environment - 5°C.
Temperature difference on ground surface - 0,5°C.

FULL GEOMETRY CONTROL

A unique feature of SCAN-T is the built-in integrated system of positioning and orientation based on combination of global satellite GPS/GLONASS and gyro-inertial technologies. It greatly simplifies the operation requirements for on-board installation – no need to use any gyrostabilizer, SCAN-T can be attached to the parts of aircraft structure directly.

Using measured parameters of scanner position and angular orientation for each element of thermal image its coordinates in user-defined projective coordinate system are calculated automatically. High sample rate of the solution allows successful correction of small vibrations of the aircraft. And accuracy of the solution is good enough for obtaining high quality thermal image even during high rate maneuvers.



Image captured in a turn

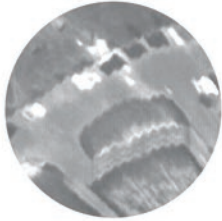


Image correction for vibrations and angular fluctuations



Image correction for GPS errors



SCAN-T installed in MBB/Kawasaki BK-117

Technical specifications

Operating principle	Scanner, image captured line by line
Angle of view	120°
Scanning frequency	230 lines per second
Ray width	2,4'
Number of points in a line	3500
Wavelength range	8-14 μm (LWIR)
Sensitivity	0,05°C for background temperature 20°C
Cooling system	Integrated Stirling engine
Data compression	Lossless 2x
Data storage	Computer hard disk drive
Software	NavDat
Interface	Ethernet (TCP/IP)
Navigation system	Integrated navigation system based on - GPS/GLONASS (Javad/Topcon/Novatel) - strapped-down attitude system - radar altimeter TRA 4500/Smartmicro
Accuracy of navigation system	attitude angles - 1° position - 3-5 m
Precision of navigation system	less than 1'
Noise of position	less than 10 cm
Dimensions	50x30x30 cm
Weight	30 kg
Output image	Raster layer in ArcGIS format