

DIGITAL CAMERA (AIRBORNE SCANNER) «3-DAS-1»

«3-DAS-1» is a pushbroom airborne scanner that provides high resolution imaging by three simultaneous color channels. Nadir channel captures ground surface images just below the aircraft and is used for automated creation of orthophoto. Two other channels (forward and backward) capture images with 16° and 26° angles along the flight direction providing permanent triple overlap for stereo mapping, DTM generation, etc.

Features and benefits

Complete digital photogrammetric workflow without film development, scanning, etc.

Contiguous seamless images for whole strip with permanent triple overlay.

Three RGB-sensors from Kodak provide crystal bright 42-bit images.

Realtime Image view and automatic selection of optimal exposition during the flight.

On-the-fly lossless compression allows up to 48 hours continuous capture.

Selectable stereo for 3D-mapping with 16°, 26° or 42° convergence angle.

Simple and robust design for easy maintenance.



Technical specification

Parameters	Units	Values
Flying height	m	550-4400
Swath width	m	360-2880
Ground sample distance	cm	4.5-36
Number of simultaneous RGB channels		3
Radiometric resolution	bit	42
Angles between nadir and other channels	degree	16/26
Focal distance	mm	110
Field of view (across the strip)	degree	36
Line rate	Hz	250-750
Power requirements		DC 28V/20A
Weight, kg (net/whole system with stabilized platform and PC)	kg	32/150
CCD-sensor properties		
Active elements		8000
Pixelsize	micron	9



Camera software

- Provides flight planning and flight management with trajectory control.
- Allows viewing captured images and changing parameters during the flight.
- Creates and process raw and compressed 16/8 bit images of unlimited size.
- Performs calibration and image rectification by GPS/IMU data.
- Provides automatic and semiautomatic DEM extraction for orthophoto.
- Creates seamless orthophoto mosaics with automatic color balancing.
- Allows 3D vector mapping.

Compatibility

- Integration interface to popular IMU/GPS such as Applanix POS AV, Leica IPAS, IGI CCNS/Aerocontrol.
- Servo stabilized platform is included (optional adapter allows using Leica PAV30 as an alternative).

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Flight Management System
Touchscreen tablet PC in pilot's cabin
for realtime position and course control

Digital camera
«3-DAS-1»
Airborne scanner
www.vingeo.com



Pushbroom Camera
Three RGB-channels 8000 x 9 micron x 42 bit
16°/0°/26°, focal distance 110 mm



Stabilized Platform
Compensates aircraft rotations (roll, pitch, yaw)
to keep camera in constant horizontal position
with residual deviation less than 0.1°



GPS/IMU (Applanix POS AV)
Measures absolute orientation elements of camera
(projection center and rotation angles) with 200 Hz frequency

«3-DAS-1» flight modes

Scale	Height m	GSD cm	Swath width m	Maximum speed km/h	Accuracy *, cm	
					plan	height
5000	550	4.5	360	122	4.5	6.8
6000	660	5.4	432	146	5.4	8.1
7000	770	6.3	504	170	6.3	9.5
8000	880	7.2	576	194	7.2	10.8
9000	990	8.1	648	219	8.1	12.2
10000	1100	9.0	720	243	9.0	13.5
11000	1210	9.9	792	267	9.9	14.9
12000	1320	10.8	864	292	10.8	16.2
13000	1430	11.7	936	316	11.7	17.6
14000	1540	12.6	1008	340	12.6	18.9
15000	1650	13.5	1080	365	13.5	20.3
16000	1760	14.4	1152	389	14.4	21.6
17000	1870	15.3	1224	413	15.3	23.0
18000	1980	16.2	1296	437	16.2	24.3
19000	2090	17.1	1368	462	17.1	25.7
20000	2200	18.0	1440	486	18.0	27.0
25000	2750	22.5	1800	608	22.5	33.8
30000	3300	27.0	2160	729	27.0	40.5
40000	4400	36.0	2880	972	36.0	54.0

* Typical accuracy using Applanix POS AV 510 LN200 system when distance to GPS-ground station does not exceed 50 km