
WingtraOne Technical Specifications



Modular WingtraOne payloads: RGB and specialty cameras



WingtraOne can be equipped with a range of cameras and lenses for diverse aerial surveying applications. The payloads are easy to swap, so one drone can be used for different use cases.

In addition, smooth vertical landings of the WingtraOne drone protect the expensive cameras even in rough and complicated environments.

RBG Cameras



Sony RX1RII
The highest quality payload for 1 cm (0.4 in) accuracy and 1 cm/px (0.4 in/px) GSDs



Sony QX1
Professional payload for surveying



Sony QX1 15 mm (0.6 in)
A high quality bundle for 3D reconstruction

Technical specification	35 mm lens, Full-frame sensor, 42 MP	20 mm lens, APS-C sensor, 20 MP	15 mm Voigtlander lens, APS-C sensor, 20 MP
Main quality features	Ultra-high quality, best coverage to GSD ratio, sub-cm GSD	High image quality, flexible lens options	Ultra-high quality, Largest coverage at limited flight altitude, flexible lens options
Camera weight (incl. mount)	575 g (1.27 lb)	330 g (0.73 lb)	600 g (1.32 lb)
GSD Range	0.7–31 cm/px 0.28–12.3 in/px	1.4–53 cm/px 0.55–21.0 in/px	1.4–70 cm/px 0.55–28.0 in/px
Coverage at Lowest GSD*	100 ha (at 0.7 cm/px) at 57 m flight altitude 247 acres (at 1.18 in/px) at 188 ft flight altitude	150 ha (1.4 cm/px) at 66 m flight altitude 370 acres (0.55 in/px) at 218 ft flight altitude	130 ha (at 1.4 cm/px) at 50 m flight altitude 320 acres (at 0.55 in/px) at 164 ft flight altitude
Coverage at 120m/394 feet*	210 ha (at 1.5 cm/px) 520 acres (at 0.6 in/px)	270 ha (at 2.6 cm/px) 667 acres (at 1.0 in/px)	320 ha (at 3.4 cm/px) 790 acres (at 1.3 in/px)

Technical specifications of RGB cameras

	Sony QX1 + SEL20F28	Sony QX1 + Voigtländer 15mm	Sony RX1RII
Sensor type	APS-C	APS-C	Full Frame
Sensor size x	23.2 mm	23.2 mm	35.9 mm
Sensor size y	15.4 mm	15.4 mm	24.0 mm
mega pixel	19.8	19.8	42.4
Shutter type	focal plane	focal plane	leaf shutter
Pixel in x	5,456	5,456	8,000
Pixel in y	3,632	3,632	5,320
Focal length of lens	20.0 mm	15.0 mm	35.9 mm
Focal length equivalent (at 35mm)	30.0 mm	22.5 mm	35.0 mm
Veritcal angle of view	42.1°	54.3°	37.0°
Horizontal angle of view	60.2°	75.4°	53.1°
Minimal trigger time	0.8 s	0.8 s	0.6 s
Minimal trigger distance	12.8 m	12.8 m	9.6 m

GSD overview RGB cameras

	Sony QX1 + SEL20F28	Sony QX1 + Voigtländer 15mm	Sony RX1RII
Lowest possible GSD	1.4 cm/px, 0.55 in/px	1.4 cm/px, 0.55 in/px	0.7 cm/px, 0.28 in/px
Flight altitude	66 m / 218 ft	50 m / 164 ft	57 m / 188 ft
Trigger distance @ 75 % frontal overlap	13 m / 42 ft	13 m / 42 ft	10 m / 31 ft
Maximal frontal overlap	75 %	75 %	75 %
Max. coverage at 60 % side overlap	150 ha / 370.66 ac	130 ha / 321.24 ac	100 ha / 247.11 ac
GSD 1.5 cm/px	1.5 cm/px, 0.6 in/px	1.5 cm/px, 0.6 in/px	1.5 cm/px, 0.6 in/px
Flight altitude	71 m / 236 ft	53 m / 177 ft	120 m / 402 ft
Trigger distance at 75 % frontal overlap	14 m / 45 ft	14 m / 45 ft	20 m / 66 ft
Maximal frontal overlap	80 %	80 %	87 %
Max. coverage at 60 % side overlap	160 ha / 395 ac	140 ha / 346 ac	210 ha / 519 ac
GSD 3.0 cm/px	3 cm/px, 1.2 in/px	3 cm/px, 1.2 in/px	3 cm/px, 1.2 in/px
Flight altitude	141 m / 472 ft	106 m / 354 ft	240 m / 803 ft
Trigger distance at 75 % frontal overlap	27 m / 91 ft	27 m / 91 ft	40 m / 134 ft
Maximal frontal overlap	>90 %	>90 %	>90 %
Max. coverage at 60 % side overlap	310 ha / 791 ac	280 ha / 717 ac	400 ha / 1013 ac
GSD 6.0 cm/px	6 cm/px, 2.5 in/px	6 cm/px, 2.5 in/px	6 cm/px, 2.5 in/px
Flight altitude	282 m / 981 ft	212 m / 736 ft	480 m / 1669 ft
Trigger distance at 75 % frontal overlap	54 m / 189 ft	54 m / 189 ft	80 m / 279 ft
Maximal frontal overlap	>90 %	>90 %	>90 %
Max. coverage at 60 % side overlap	610 / 1606	550 / 1433	780 / 2026
GSD 8.0 cm/px	8 cm/px, 3.5 in/px	8 cm/px, 3.5 in/px	8 cm/px, 3.5 in/px
Flight altitude	376 m / 1373 ft	282 m / 1030 ft	640 m / 2336 ft
Trigger distance at 75 % frontal overlap	72 m / 264 ft	72 m / 264 ft	107 m / 390 ft
Maximal frontal overlap	>90 %	>90 %	>90 %
Max. coverage at 60 % side overlap	800 ha / 2199 ac	730 ha / 1977 ac	1010 ha / 2768 ac
highest possible GSD*	53.2 cm/px, 20.93 in/px	70.9 cm/px, 27.9 in/px	31.3 cm/px, 2.3 in/px
Flight altitude	2500 m / 8200 ft	2500 m / 8200 ft	2500 m / 8200 ft
Trigger distance at 75 % frontal overlap	481 m / 1579 ft	642 m / 2105 ft	418 m / 1371 ft
Maximal frontal overlap	>90 %	>90 %	>90 %
Max. coverage at 60 % side overlap	3940 ha / 9736 ac	4440 ha / 10971 ac	2640 ha / 6524 ac
GSD at 120 m flight altitude	2.6 cm/px, 1.02 in/px	3.4 cm/px, 1.36 in/px	1.5 cm/px, 0.6 in/px
Flight altitude	120 m / 400 ft	120 m / 400 ft	120 m / 400 ft
Trigger distance at 75 % frontal overlap	23 m / 77 ft	31 m / 103 ft	20 m / 67 ft
Maximal frontal overlap	85 %	85 %	90 %
Max. coverage at 60 % side overlap	270 ha / 667 ac	320 ha / 791 ac	210 ha / 519 ac

* limited by maximum flight altitude (at 2500 m above home)

Specialty Cameras



MicaSense RedEdge-M
multispectral payload for precision farming, forestry and environmental research



FLIR Duo Pro
payload for thermal mapping and monitoring

Technical specification	5.5 mm lens, 5 individual custom sensors, multispectral	13 mm, thermal (7.5–13.5 μm) and visible spectrum
Main quality features	High quality multispectral images	High precision thermal images and high resolution visible mapping
Camera weight (incl. mount)	325 g (0.72 lb)	425 g (0.94 lb)
GSD Range	6.7–170 cm/px 2.6–67.0 in/px	6.5–320 cm/px (thermal) 1.3–66.0 cm/px (visible) 2.5–127.0 in/px (thermal) 0.5–26 in/px (visible)
Coverage at Lowest GSD*	160 ha (at 6.8 cm/px) at 98 m flight altitude 395 acres (at 2.62 in/px) at 321 ft flight altitude	80 ha (at 6.5 cm/px thermal) at 50 m flight altitude 200 acres (at 2.55 in/px) at 164 ft flight altitude
Coverage at 120m/ 394 feet*	170 ha (at 8.2 cm/px) 420 acres (at 3.2 in/px)	190 ha (at 15.5 cm/px thermal) 469 acres (at 6.1 in/px thermal)

Technical specifications of specialty cameras

	Micasense Rededge-M	FLIR Duo ProR 640 (thermal)	FLIR Duo Pro R 640 (visible)
Sensor type	5 individual sensors	thermal sensor	visible sensor
Sensor size x	4.8 mm		
Sensor size y	3.6 mm		
mega pixel	5x 1.22	0.32	12
Shutter type	electronic shutter	electronic shutter	electronic shutter
Pixel in x	1,280	640	4,000
Pixel in y	960	512	3,000
Focal length of lens	5.5 mm	13.0 mm	
Focal length equivalent (at 35mm)	40.0 mm		
Veritcal angle of view	36.2°	37.0°	45.0°
Horizontal angle of view	47.1°	45.0°	56.0°
Minimal trigger time	1.0 s	0.03 s	0.03 s
Minimal trigger distance	16.0 m	0.5 m	0.5 m

GSD overview of specialty cameras

	Micasense Rededge-M	FLIR Duo ProR 640 (thermal)	FLIR Duo Pro R 640 (visible)
Lowest possible GSD	6.7 cm/px, 2.62 in/px	6.5 cm/px, 2.55 in/px	1.3 cm/px, 0.52 in/p
Flight altitude	98 m / 321 ft	50 m / 164 ft	50 m / 164 ft
Trigger distance at 75 % frontal overlap	16 m / 52 ft	8 m / 8 ft	10 m / 10 ft
Maximal frontal overlap	75 %	>85 %	>85 %
Max. coverage at 60 % side overlap	160 ha / 395.37 ac	80 ha / 197.68 ac	80 ha / 197.68 ac
GSD 1.5 cm/px	-	7.4 cm/px, 2.9 in/px	1.5 cm/px, 0.6 in/px
Flight altitude	-	57 m / 187 ft	57 m / 187 ft
Trigger distance at 75 % frontal overlap	-	10 m / 31 ft	12 m / 39 ft
Maximal frontal overlap	-	>85 %	>85 %
Max. coverage at 60 % side overlap	-	90 ha / 222 ac	90 ha / 222 ac
GSD 3.0 cm/px	-	14.8 cm/px, 5.86 in/px	3 cm/px, 1.2 in/px
Flight altitude	-	114 m / 377 ft	114 m / 377 ft
Trigger distance at 75 % frontal overlap	-	19 m / 63 ft	24 m / 78 ft
Maximal frontal overlap	-	>90 %	>85 %
Max. coverage at 60 % side overlap	-	180 ha / 445 ac	180 ha / 445 ac
GSD 6.0 cm/px	-	29.3 cm/px, 12.18 in/px	6 cm/px, 2.5 in/px
Flight altitude	-	226 m / 784 ft	226 m / 784 ft
Trigger distance at 75 % frontal overlap	-	38 m / 131 ft	47 m / 162 ft
Maximal frontal overlap	-	>90 %	>90 %
Max. coverage at 60 % side overlap	-	350 / 914	350 / 914
GSD 8.0 cm/px	8 cm / 3.5 px	38.8 cm/px, 3.5 in/px	8 cm/px, 3.5 in/px
Flight altitude	117 m / 428 ft	300 m / 984 ft	300 m / 984 ft
Trigger distance at 75 % frontal overlap	19 m / 70 ft	50 m / 165 ft	62 m / 204 ft
Maximal frontal overlap	1	>90 %	87
Max. coverage at 60 % side overlap	190 ha / 544 ac	470 ha / 1161 ac	470 ha / 1161 ac
highest possible GSD*	170.5 cm/px, 67.11 in/px	323.6 cm/px, 127.4 in/px	66.5 cm/px, 26.17 in/px
Flight altitude	2500 m / 8200 ft	2500 m / 8200 ft	2500 m / 8200 ft
Trigger distance at 75 % frontal overlap	409 m / 1342 ft	418 m / 1372 ft	518 m / 1699 ft
Maximal frontal overlap	>90 %	>90 %	>90 %
Max. coverage at 60 % side overlap	3020 ha / 7463 ac	2880 ha / 7117 ac	2880 ha / 7117 ac
GSD at 120 m flight altitude	8.2 cm/px, 3.27 in/px	15.5 cm/px, 6.22 in/px	3.2 cm/px, 1.28 in/px
Flight altitude	120 m / 400 ft	120 m / 400 ft	120 m / 400 ft
Trigger distance at 75 % frontal overlap	20 m / 65 ft	20 m / 67 ft	25 m / 83 ft
Maximal frontal overlap	75 %	>85 %	>85 %
Max. coverage at 60 % side overlap	200 ha / 494 ac	190 ha / 469 ac	190 ha / 469 ac

* limited by maximum flight altitude (at 2500 m above home)