



**1266PX**  
THERMAL  
RESOLUTION

**16Mpx**  
RGB CAMERA  
RESOLUTION

**30x**  
OPTICAL  
ZOOM

**1500M**  
RANGEFINDER

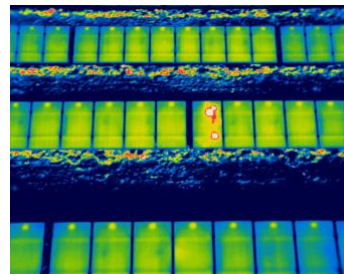
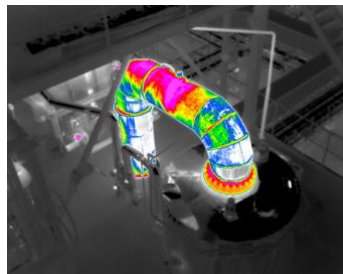
**0.03°C**  
SENSITIVITY

**1500°C**  
TEMPERATURE  
RANGE



# WIRIS ENTERPRISE

MOST ADVANCED DRONE THERMAL CAMERA



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## Datasheet

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Release date: 8<sup>th</sup> of August 2022

Version: 220808

# WIRIS Enterprise technical specification

WIRIS Enterprise Key features description	
<b>Super Resolution Mode</b>	Super Resolution Mode takes 1 266px Radiometric image in one shot
<b>Operating onboard system</b>	WIRIS OS for full real-time data streaming and control during the flight - operating system ensures the full access to all camera functions - easy camera control via S.Bus, CAN bus, MavLink, Ethernet - trigger input for image recording, alarm output for confirmation
<b>30x Optical antivibration zoom</b>	Full HD 30x optical zoom camera with antivibration compensation
<b>Laser rangefinder</b>	Distance measurement 10 to 1500 m (32 to 4920 ft), divergence: 1.4 x 0.4 mrad, EN 60825-1:2015-07 eye-safe 905nm
Thermal camera specification	
<b>IR camera resolution</b>	640 x 512 pixels
<b>IR Super Resolution Mode</b>	1 266 x 1 010 pixels (improvement of native resolution up to 1.3 Mpx)
<b>FPA active sensor size</b>	1.088 x 0.8705 cm
<b>Temperature ranges</b>	-25 °C to +150 °C (-13 °F to 302 °F) -40 °C to +550 °C (-40 °F to 1 022 °F) optional temperature range +50 – 1 000 °C (122 °F to 1 832 °F) optional temperature range +400 – 1 500 °C (752 °F to 2 732 °F)
<b>Temperature sensitivity</b>	Standard 0.05 °C (50 mK) or optional 0.03 °C (30 mK)
<b>Accuracy</b>	±2 % or ±2 °C (in temperature range -10 °C to +150°C and 0 °C to +550°C, after stabilization, climate chamber and black body testing for all products)
<b>Frame rate</b>	30 Hz or < 9 Hz
<b>Spectral range / detector</b>	7.5 – 13.5 μm / Uncooled VOx microbolometer
<b>Calibration of each lens</b>	Package includes a calibration certificate
<b>Available lenses</b>	18°, 32°, 45°, 69° (exchangeable lenses), <a href="#">visit FOV calculator</a>
<b>Protective filter on lens</b>	Filter protects the lens against external damage during the flight
<b>Thermal image digital zoom</b>	1 – 12x steps
Digital RGB cameras – WIRIS Enterprise is equipped with two RGB cameras	
<b>High resolution fixed camera</b>	<b>Resolution:</b> 4 656 x 3 496 pixels (16 Mpx), 1/2.8" IMX298 sensor <b>Field of view:</b> extra wide DFOV 73.2°, focal 4.35mm <b>Settings:</b> configuration and stream in advanced auxiliary menu
<b>30x optical zoom camera</b>	<b>Resolution:</b> 1 920 x 1 080 pixels (Full HD), 1/2.8" EXMOR R CMOS sensor <b>Field of view:</b> 30x optical zoom with vibration compensation and image stabilization, ultra-zoom HFOV 2.3° - extra wide 63.7°, focal 129.0 mm - 4.3 mm
<b>Optical zoom camera Image enhancement</b>	Auto-white balance, WDR, IR cut filtering, DEFOG, 3D noise reduction
<b>Optical focus camera - autofocus</b>	Autofocus with Direct Focus Zoom synchronization



Memory and data recording	
<b>Memory</b>	Internal high-speed SSD 128GB or 256GB for image and video recording External slot for Micro SD card & USB 2.0 for USB stick for taking images
<b>Image and video formats</b>	16Mpx high resolution camera JPEG images, Optical zoom camera Full HD JPEG images, Radiometric IR JPEG and IR TIFF images Pix4D and Agisoft compatible for 3D modeling Digital camera h.264 encode video HD recording Radiometric full-frame IR recording (raw data recording 30 Hz or < 9 Hz)
GPS geo-tagging (image & video)	
<b>GPS tagging (image &amp; video)</b>	MavLink, External GPS (NMEA) or DJI A3 compatible via CANbus
Interfaces & real-time remote control	
<b>Auxiliary digital port</b>	S.BUS UART (MAVLink, NMEA GPS or Workswell Command Control Protocol) - Pixhawk compatible - Auterion compatible - Gremsy gimbals compatible CANbus (direct compatibility with DJI M600 series, A3 controllers or Workswell Command Control Protocol) External trigger input Digital alarm output
<b>Ethernet (RJ-45) port</b>	Video streaming and camera control (SDK optional on request)
<b>Micro USB 2.0 port</b>	Mass storage, USB OTG
<b>USB-A port communication</b>	Keyboard connection for in-house WIRIS camera control
<b>USB-C port communication</b>	USB mass storage connection, Flash drive connection (USB2.0)
<b>Remote control system</b>	WIRIS OS ensures real-time control of all camera functions during the flight via onboard WIRIS operating system
<b>Remote control options</b>	S.BUS protocol Mavlink protocol CANbus & Command Control Protocol - UART CAN bus for real-time control on DJI M600 and GPS geo-tagging Ethernet for wireless uplink installation (video streaming and camera control) – SDK and tutorial App available
<b>Camera functions</b>	<b>WIRIS onboard operating system:</b> full control and access to all functions <b>Measurement functions:</b> Hot/cold spot detection, center point <b>Temperature range settings:</b> Automatic, manual or span mode <b>Advanced alarm modes:</b> Above, below, between, above & below <b>Multi camera modes:</b> Full screen mode, IR only, VIS only, Picture in Picture with blending setup in percentage <b>Periodic capturing:</b> From 1s, IR and VIS images simultaneously <b>Trigger speed of capturing:</b> around 200ms for radiometric image <b>Temperature units:</b> Celsius, Fahrenheit, Kelvin <b>NUC control settings:</b> Automatic, manual or triggered
<b>Micro HDMI video output</b>	1 280 x 720 pixels (720p), Aspect ratio 16:9, Micro HDMI video output



Software & SDK	
Desktop software	Advanced software ThermoLab for radiometric calibrated analysis
SDK libraries	Stream SDK, Data SDK, CANbus & UART SDK (on request)
Power supply, weight & dimensions	
Input supply voltage	9 – 36 VDC, 2-pin HARTING connector
Power dissipation	18W average (21W peak) consumption
Weight	< 680 grams (1.49 lb) including Rangefinder, without IP protection cap
Dimensions (L x W x H)	76 mm x 107 mm x 102 mm (2.99 in x 4.21 in x 4.01 in)
Mounting	2 x 1/4-20 UNC thread (1x bottom side, 1x upper side)
Housing material	Durable aluminium body for long-time measurement stability
Environmental	
Operating temperature range	-15 °C to +50 °C (5 °F to 122 °F)
Storage temperature range	-30 °C to +60 °C (-22 °F to 140 °F)
IP rating	Standard IP40 without backside cap Optional IP54 with backside cap Optional IP66 with backside cap and certification (on request) <i>Backside cap must be ordered together with camera due to IP rating tests; the camera is shipped with IP40 rating as standard configuration without the cap.</i>

**Standard package WIRIS Enterprise:** WIRIS Enterprise camera head with lens, Lens protection cap, WIRIS OS, Calibration certificate, Micro SD card, Micro HDMI cable, 3 connectors (1x power supply, 2x AUX), power supply and AUX 2-pin wire cable (2 meters), USB Mass storage cable, Software ThermoLab FREE license, Quick start guide, Hard transport case



# Contact information

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