PRODUCT DATA SHEET

BLACKINDUSTRY RGB

Smart Multi-Line-Scan Colour Camera

3840 px

High Resolution

Sensor Fusion

Up to 30720 lines/s

Fast

GPU

Integrated

Included Software Tools

Colour Correction

Gigabit Ethernet

GenI Cam



HAIP Solutions BlackIndustry RGB is a smart multi-line-scan colour camera optimised for seamless integration with the BlackIndustry SWIR 1.7 series. Together, both sensors enable the simultaneous acquisition of 4K RGB line-scan data and SWIR hyperspectral information. With its outstanding line rate of up to 30720 lines/s and precise colour identification, the camera is perfectly suited for sensor-based sorting and inspection.

REVISION 260108

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BLACKINDUSTRY RGB

HAIP Solutions BlackIndustry RGB is engineered for seamless integration with the BlackIndustry SWIR 1.7 series. This setup enables the capture of 4K high-resolution RGB line-scan data alongside hyperspectral information from the SWIR camera, allowing precise colour determination and enhanced visual context.
The RGB camera features a modern area sensor optimised for high-speed line-scan acquisition, functioning as a multi-line camera. To ensure perfect alignment of both cameras on the identical scan line, the RGB camera can be digitally mapped to the HSI camera. This calibration workflow is fully supported and easily managed using the included HAIP software tools. In addition, the integrated GPU enables pre-processing, real-time debayering and classification directly on the camera. Designed for industrial and research applications, the system combines high performance with durability: a robust housing, flexible configuration options, and straightforward integration make the BlackIndustry RGB a reliable addition to any BlackIndustry SWIR setup.



BlackIndustry SWIR 1.7 Max combined with BlackIndustry RGB

FEATURES

Modern CMOS sensor with Bayer Filter

Mapping to HSI via HAIP software tools

Resolution up to 4K (3840 px)

Integrated GPU

Optional HSV colour classification available

GenICam compatible interface

Combination with BlackBright RGB LED Bar

APPLICATIONS

SENSOR-BASED SORTING & INSPECTION

Recycling

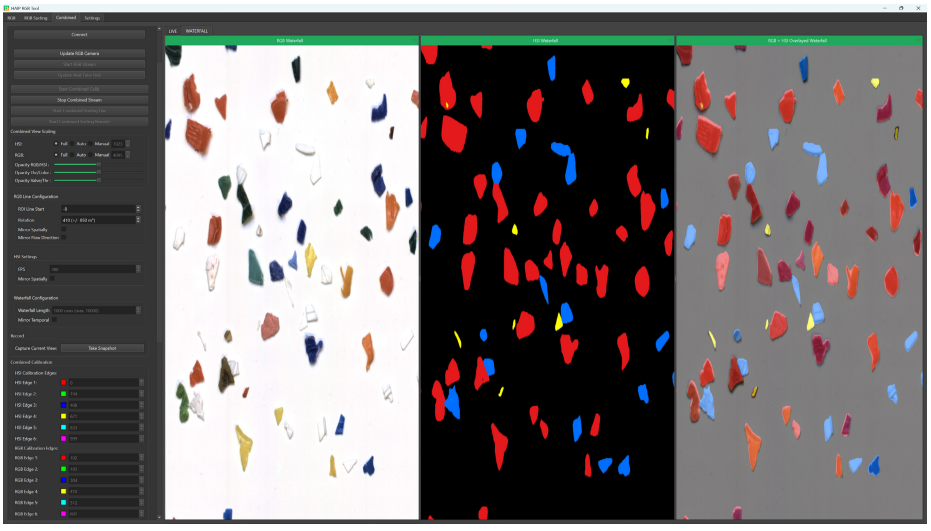
Food Industry

Industrial Inspection

Colour Identification

COMBINED LIVESTREAM

Both RGB (left) and HSI (middle) waterfall (classified) can be displayed individually as well as spatially overlaid after digital mapping was performed successfully (right).



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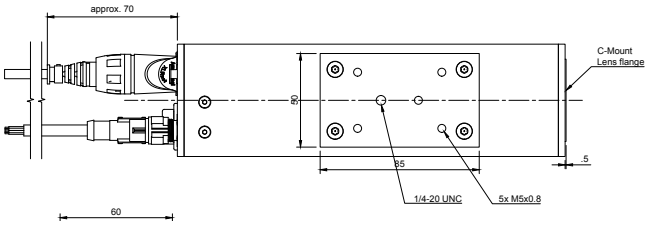
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RGB RESOLUTION	3840 x 2160 px
SENSOR TYPE	CMOS Nyxel
SENSOR	OS08A20
FRAMERATE	Up to 30720 lines/s
BIT DEPTH	10-bit (12-bit binned)

LENS MOUNT	Standard C-Mount
HOUSING	Anodised aluminium
TEMPERATURE (OPERATION)	-10 - +50°C
TEMPERATURE (STORAGE)	-15 - +60°C
SIZE	60 x 80 x 210 mm
WEIGHT	0.8 kg

CONNECTOR TYPE	GigE (RJ45/XLRnet) / M12 (8 Pin)
DATA INTERFACE	GenICam / HAIP TCP API
INTERNAL DATA PROCESSING	NVIDIA Jetson Nano
RAM	4 GB 64-bit LPDDR4
MEMORY	16 GB eMMC 5.1flash memory
POWER CONSUMPTION	< 15 W
POWER INPUT	24V DC ± 10%



ACHIEVABLE FRAME RATE WITH MULTI-LINE 64 MODE		
RGB Resolution	Max. Framerate	Eff. Line Rate*
3840 x 64 px	240 fps	15360 lines/s
1920 x 32 px **	960 fps	30720 lines/s
960 x 16 px **	1000 fps	16000 lines/s

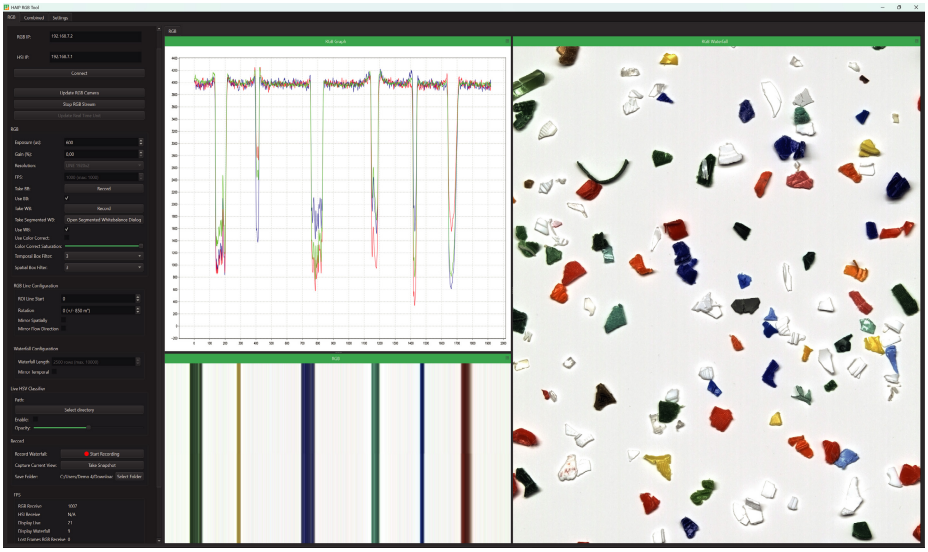
ACHIEVABLE FRAME RATE WITH MULTI-LINE 4 MODE		
RGB Resolution	Max. Framerate	Eff. Line Rate*
3840 x 4 px	1000 fps	4000 lines/s
1920 x 2 px **	1000 fps	2000 lines/s
960 x 1 px **	1000 fps	1000 lines/s

* Eff. line rate = frame rate × number of lines (multi-line mode).
* * Mode is binned down (x1 or x2 or x4) on camera from the respective 4K Multi-Line Mode (3840x2160, 3840x64, 3840x4).

HAIP RGB TOOL

Graphic Interface for BlackIndustry RGB camera with camera control panel (left), RGB graph and single-line view (middle), and waterfall screen (right).

Easy to integrate C++ and Python API available.



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BLACKINDUSTRY RGB

ORDER INFORMATION

Use this following guideline to order a BlackIndustry RGB camera with your individual preferences. For example you will get a BlackIndustry RGB with an 8 mm lens and a UL-certified cable by using this code:

3033-080-UL

	NAME	DESCRIPTION	OPTION	CODE
	PRODUCT NUMBER	BlackIndustry RGB		3033
	LENS (FOCAL LENGTH)	Choose your needed lens option here. All lenses feature a C-mount interface.	6 mm	060
			8 mm	080
			12 mm	120
			16 mm	160
			25 mm	250
			35 mm	350
			50 mm	500
	UL-CABLE	An optional UL-certified cable is available by adding -UL at the end of the order number.		UL

HAIP PRODUCTS COMBINED

	NAME	DESCRIPTION	LINK
	BLACKINDUSTRY SWIR 1.7 MAX	A smart line scanning near-infrared hyperspectral imaging camera that allows the acquisition of real-time spectral data with very high spatial resolution (1280 px) and seamless integration with the BlackIndustry RGB.	BLACKINDUSTRY SWIR 1.7 MAX
	BLACKSTUDIO SOFTWARE	The powerful free software enables live analysis, visualization, data management, and on-camera classification through flexible tools tailored to industrial sorting and inspection workflows.	BLACKSTUDIO SOFTWARE
	BLACKBRIGHT RGB LED BAR	The illumination is specifically developed for industrial integration in combination with BlackIndustry RGB, integrating RGBWW COB LEDs for high colour saturation. *Available to order. Coming soon to our website.	BLACKBRIGHT RGB LED BAR*

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