Colour
Imaging
Process
Technology

RGB LINE SCAN CAMERA

uniScanRGB

LLA Instruments GmbH & Co. KG

Purpose

The RGB line scan camera uniScanRGB (figure 1) is characterised by a minimised noise level, high image contrast and low power consumption. The camera is ideally suitable for colour machine vision applications in industrial environment. Based on colour analysis in HSV colour space, the RGB line scan camera is suitable for applications such as colour sorting of material streams, surface inspection of materials, monitoring or scanning applications. Due to the extensive application development toolkit available, the RGB line scan camera is applicable in R&D as well.

Setup

The camera uniScanRGB is based on a two-dimensional (2D) silicon sensor array with Bayer pattern. The 2D sensor is binned for operation as a line scanning system. Sensor and electronics are integrated into a dust- and waterproof housing with grade IP 65. The utilisation of high-quality and industrial-proof RGB objective (prime lens) ensures a distortion free colour image. The light reflected in the line shaped detection area is mapped through the objective onto the 2D silicon sensor array. This detection procedure permits line scanning of the object. Consecutive line scans can be subsequently combined to a 2D image. Based on the obtained RGB data, the colour as well as HSV variables can be determined for each image point. Due to the high spatial resolution of up to 2048 RGB pattern per scan, even small objects are detected reliably. The camera uniScanRGB is suitable for a combination with NIR hyperspectral imaging cameras uniSPECx.xHSI and KUSTAx.xMSI (figure 2). For this purpose, special binning modes are availabe. An industrial PC equipped with Windows 7 Embedded® OS and preinstalled camera control software is included in delivery. Acessories such as illumination unit, installation bridge and application development toolkit are available additionally.

Figure 1: RGB Line scan camera uniScanRGB

Figure 2: Setup uniScanRGB in combination with KUSTAx.xMSI

RGB Line scan camera with	Stand-alone	KUSTA1.9MSI/2.2MSI^{sens} uniSPEC1.9HSI/2.2HSI^{sens}	KUSTA1.7MSI uniSPEC1.7HSI
Camera type	CMOS, max. 2048 RGB pattern		
Measurement tracks adapted to	2048	192	320
RGB pixel size	10 µm	50 µm	30 µm
Full frame rate	260 Hz – 830 Hz		
Digital resolution	12 bit	16 bit	15 bit
Objective lens	10 mm / F1.9 – 16 (standard setup) 50 mm / F2.8 – 16 (small FOV setup)		
Field of view (FOV)	800 mm – 2000 mm (standard setup) 100 mm (small FOV setup)		
Process interface	Push-Pull plugs, 1 Gigabit Ethernet		
Power supply	24 V DC / 2.5 A		
Environmental temperature range	0 °C to +50 °C		
Weight	2.2 kg		
Dimensions (LxWxH)	170 mm x 131 mm x 129 mm		

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