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AFDM101 Electric Controlled Continuous Zoom and Autofocus Digital Microscope



- 5 groups 16 elements EMZO with 20X zoom ratio, supports auto and manual focus;
- 195mm standard working distance with 156~196mm depth of field;
- At standard working distance, the large field of view 200mm*112.5mm at low magnification;
- the small field of view 10mm*5.6mm at higher magnification;
- Head suction LED ring light, the brightness can be directly controlled by XFCAMView;
- Sony 1/2.8" 1080P CMOS with high signal-to-noise ratio;
- Connect to HDMI monitor with 1080P@60FPS video format;
- SD card storage supports 1080P pictures and video streams(asf format);
- Built-in mouse control software XFCAMView, all functions can be realized with USB mouse;
- Embedded mouse control panel, Measurement Toolbar, Comprehensive Control Toolbar, AF Control Panel;
- Multi-language support;
- With the adapter bracket of 76mm diameter, a electric controlled continuous zoom AFDM can be built.

AFDM101 Electric Controlled Continuous Zoom and Autofocus Digital Microscope

AFDM is the abbreviation of Auto-focus Digital Microscope. Different products in the AFDM series can be formed with different part to satisfy the application requirement. AFDM is a series of electric controlled continuous zoom and autofocus all-in-one digital microscope with a large field of view by ToupTek Photonics. It is integrated with HDMI camera, Electric Controlled Continuous Zoom Auto-focus Objective and LED Integrated Illumination Light.

AFM101 comes with H1080PA HDMI camera, EMZO-20XA lens and DRL-5076A-NPC light source(Optional); The camera use an embedded ARM core, allowing the camera to be connected directly to the HDMI monitor. The camera has XFCAMView software built within it, including Camera Control Panel, Auto Focus Control Panel, Measurement Toolbar, and Synthesis Camera Control Toolbar. Users can directly control the camera and perform various operations through a USB mouse. The images and videos captured by AFDM101 can be saved on an SD card for on-site analysis and follow-up research.

AFDM101 can be widely used in industrial inspection, medical observation, teaching and scientific research, automation system, and other fields.

AFDM Camera Module Datasheet

Order Code	Sensor & Size(mm)	Pixel(μm)	G Sensitivity Dark Signal	FPS/Resolution	Binning	Exposure
H1080PA	Sony IMX462LQR-C	2.9x2.9	921 mv with 1/30s	60@1920x1080	1x1	0.06ms~918ms

1/2.8"(5.57x3.13)

0.15 mv with 1/30s

(HDMI)

C: Color; M: Monochrome;

AFDM Lens Module Datasheet

Order Code	Working Distance(mm)	Zoom Range	MTF(lp/mm)	Distortion	FOV@1.0X(mm)	FOV@20X(mm)
EMZO20XA	156-196	0.028X~0.56X	160	0.5%	200x112.5	10x5.6

1X and 20x are defined as the normalized magnification, which is only used to represent the relative relationship between the lowest and highest magnification. Here, the normalized equation $1x = 0.028/0.028$; $20X = 0.56/0.028$;

AFDM Light Module

Order Code	LED	Power	Inner Dia.(mm)	Out Dia.(mm)
DRL-5076A-NPC	8 CREE xpes	3V/3A	50	76

DRL: LED direct ring light with adjustable brightness; NPC: No power cable

AFDM101 Characteristic And Specification

The AFDM101 comes with H1080PA HDMI camera, EMZO-20XA lens and DRL-5076A-NPC light source;



Interface & Button Functions

USB Mouse	USB mouse for XFCAMView control
USB2.0	USB keyboard or other USB control device
HDMI	HDMI output12V Power in
On/OFF	Power on/off switch
LED	Power LED indicator
SD	SD card slot
DC12V3A	DC12V3A power input

Software Functions

UI Operation	With USB mouse to operate on the embedded XFCAMView
Image Capture	JPEG format with 2M Resolution in SD card
Video Record	ASF format 1080P 30fps in SD card
Camera Control Panel	Including Exposure, Gain, White Balance, Color Adjustment, Sharpness and Denoising Control
Auto Focus Control Panel	Including Zoom, Auto Focus, One Push, Manual Focus, Reset, and other functions
Measurement Toolbar	Including Calibration, Measurement, and measurement parameter Export functions
Synthesis Control Toolbar	Including software Zoom, Flip, Freeze, Crosshair, LED Control, Auto-focus, Comparison, Browser , Setting, Version Check function,

Other Specification for USB Output

White Balance	Auto White Balance
Color Technique	Ultra-Fine Color Engine (USB)
Capture/Control SDK	Standard UVC for Windows/Linux/Mac(USB)
Recording System	Still Picture or Movie (USB)

Operating Environment

Operating Temperature(in Centidegree)	-10~ 50
Storage Temperature(in Centidegree)	-20~ 60
Operating Humidity	30~80%RH
Storage Humidity	10~60%RH

Overall Dimensions

Width x Depth x Height	80 mm x 80 mm x 80mm
Shipping Weight	0.75 kg

AFDM101

The AFM101 comes with H1080PA HDMI camera, EMZO-20XA lens and DRL-5076A-NPC light source(Optional);



Front View of the AFDM101



Back View of the AFDM101



Normal View



Side View



The AFDM101 and Screen



UI of the XFCAMView for AFDM Series Product

Potential Application

- Scientific research, education (teaching, demonstration and academic exchanges);
- Digital laboratory, medical research;
- Industrial visual (PCB examination, IC quality control);
- Medical treatment (pathological observation);
- Food (microbial colony observation and counting);
- Aerospace, military (high sophisticated weapons);

AFDM101 Dimension

Installation drawings(Click to enlarge). The AFDM series body, made from tough, CNC aluminium alloy, ensures a heavy duty, workhorse solution. The HDMI camera is designed with a high quality IR-CUT to protect the camera sensor. No moving parts included. This design ensures a rugged, robust solution

with an increased lifespan when compared to other industrial HDMI solutions.



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