WDI
WISE DEVICE INC

iZAA-LFOV Datasheet

2025

iZAA-LFOV Description

The iZAA-LFOV is a device designed to move a Qioptic mag.x objective lens in the Z-axis. It's compatible with WDI's LFOV mag.x microscopes and with Qioptic's mag.x system 125 microscope.

The iZAA-LFOV includes integrated control electronics. It uses a two-phase stepper motor to quickly and accurately move an objective lens as instructed, to bring your images into focus.

Many applications require fast and accurate tracking of a moving sample. When coupled with a PFA-DT or PFA-LN sensor, it can be used for accurate stationary autofocus applications as well as high speed motion tracking. WDI's iZAA-LFOV has a robust mechanical design and an accurate, fast response, making it ideal for such applications.

Ordering Info

Table 1 iZAA-LFOV Types

Type	Part Number
Z Actuator (iZAA-LFOV)	973090

Product Specifications

Table 2 iZAA-LFOV Specifications

Parameters	Specification
Compatible Objective	QiOptics mag.x
Motion Type	Stepper motor
Motion Controller	Integrated
Positional Feedback	PFA-DT or PFA-LN sensor
Maximum Travel (mm)	8
Weight (kg)	1.1
Maximum Load (kg)	1.6
Maximum Speed (mm/s)	10
Maximum Acceleration (mm/s^2)	350
Maximum Resolution (µm)	0.039 with 1/64 micro stepping

Electrical Connections

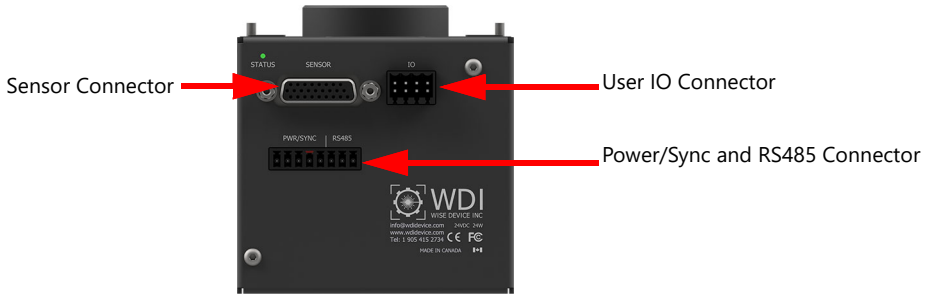

Figure 1 *iZAA-LFOV Connectors*

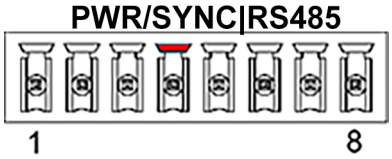

Figure 2 *Power/Sync and RS485 Connector*

Table 3 Power/Sync and RS485 Connector Pin Assignments

Pin	Signal	Description
Power/Sync connector		
1	+24V	+24V Power Supply.
2	GND	Power Supply Return.
3	ESTOP	Emergency Stop (Laser Enable), normally wired to supply voltage through a mushroom button. Actively drive high to enable the PFA-DT/LN laser diode.
4	DI	Digital input.
5	DO	Digital output.
RS485 connector		
6	GND	IO Return.
7	RS485-	Inverting RS485 Receiver Input and Driver Output.
8	RS485+	Non Inverting RS485 Receiver Input and Driver Output.

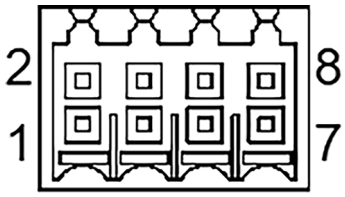

Figure 3 *User IO Connector*

Table 4 User IO Connector Pin Assignments

Pin #	Signal	Description
1	CSYNC	Camera Sync Input, immediately disables the laser for the duration of the pulse. Active high.
2	ESTOP	Emergency Stop (Laser Enable), normally wired to supply voltage through a mushroom button. Actively drive high to enable the PFA-DT/LN laser diode.
3	GND	IO Return.
4	5V	5V for motor external opto-couplers (max 100mA).
5	MIV	Material In View. Open drain with internal 1KΩ pull up to +5V.
6	INF	In Focus. Open Drain with internal 1KΩ pull up to +5V.
7	GND	AO Return.
8	AO	Analog Output.

Connector Specifications

Table 5 Connector Kit

Item	Description	Manufacturer	Manufacturer Part #	Note
Power/Sync and RS485 Connector	A five position plug is provided for Power/Sync.	TE Connectivity	2213936-5	Keyed by WDI
	A three position plug is provided for RS-485.	TE Connectivity	2213936-3	
	Eight ferrules are included.	American Electrical Inc.	1181050	
User IO Connector	An eight position plug.	Weidmuller	1277480000	
	Eight ferrules are included.	American Electrical Inc.	11102050	

Electrical Specifications

Table 6 Power/Sync and Comm Electrical Specifications

Parameter	Minimum	Typical	Maximum	Units	Conditions
Power Supply					
Supply Voltage	22	24	26	VDC	
DI					
Input Voltage Low (VIL)	-0.5	0	1.5	V	
Input Voltage High (VIH)	3.5	5	5.5	V	
Input Resistance		7.5		KΩ	
DO					
Output Type	Open Drain with 1KΩ pull up to 5V				
Output Voltage Low (VOL)		5		V	High impedance load
Output Voltage High (VOH)	0		0.4	V	
Output Impedance		5		KΩ	
Drain Current			100	mA	
RS485					
Differential Driver Output Voltage	2	3.3	V		
Receiver Differential Threshold Voltage	50	105	200	mV	
Differential Termination Resistor		120		Ω	
Data Rate		115200		bps	

Table 7 User IO Electrical Specifications

Parameter	Condition	Minimum	Typical	Maximum	Units
Digital Inputs (ESTOP, CSYNC)					
Input Voltage High (VIH)		2.8		28	V
Input Voltage Low (VIL)		-0.5		1	V
Input Resistance		21.4			KΩ
Digital Outputs (INF, MIV)					
Maximum Drain Current	Output active (low)			100	mA
Maximum Output (pull-up) Voltage	Output inactive (high)		5	5.5	V
Output Voltage Low (VOL)	Output active (low)	0	0.35	0.5	V
Internal Pull Up Resistor Value		1			kΩ
Analog Output					
Output Voltage Range		-10		10	V
Maximum Output Current				±10	mA
Output Resistance		20			Ω

Environmental Specifications

Table 8 iZAA-LFOV Environmental Specifications

Description	Value
Operating Ambient Temperature	20ºC to 30ºC
Transport Temperature (sealed container)	-20ºC to 50ºC
Storage Temperature	10ºC to 40ºC
Humidity Temperature	10% to 80% non-condensing

Mechanical Dimensions

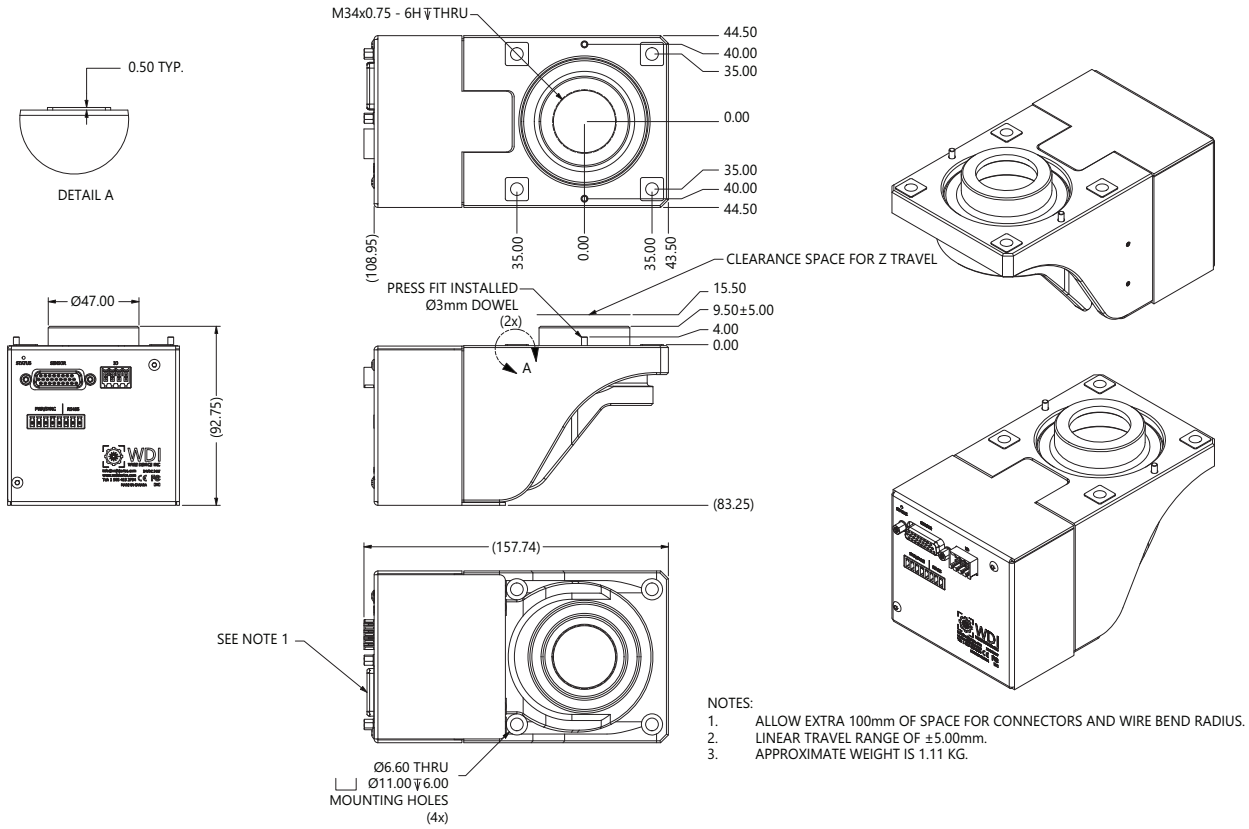

Figure 4 *iZAA-LFOV Dimensions*

Available Accessories

Table 9 iZAA-LFOV Accessories

Accessory	Part Number	Remarks
Cable (CAB-USB-RS485), 1.8m	801464	Cable, USB to RS485, wire end, 1800 mm length
Cable (CAB-USB-RS485), 5m	801464-1	Cable, USB to RS485, wire end, 5000 mm length

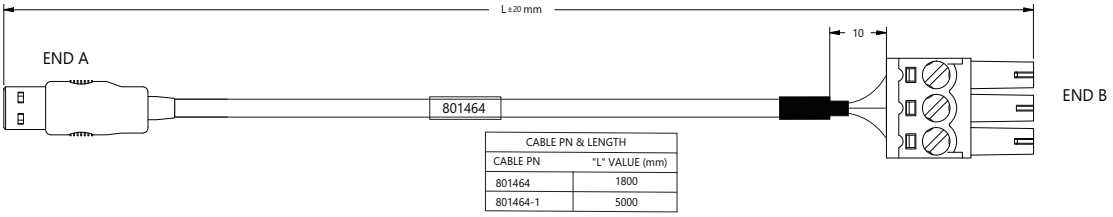

Figure 5 *CAB-USB-RS485 Cable Wiring*