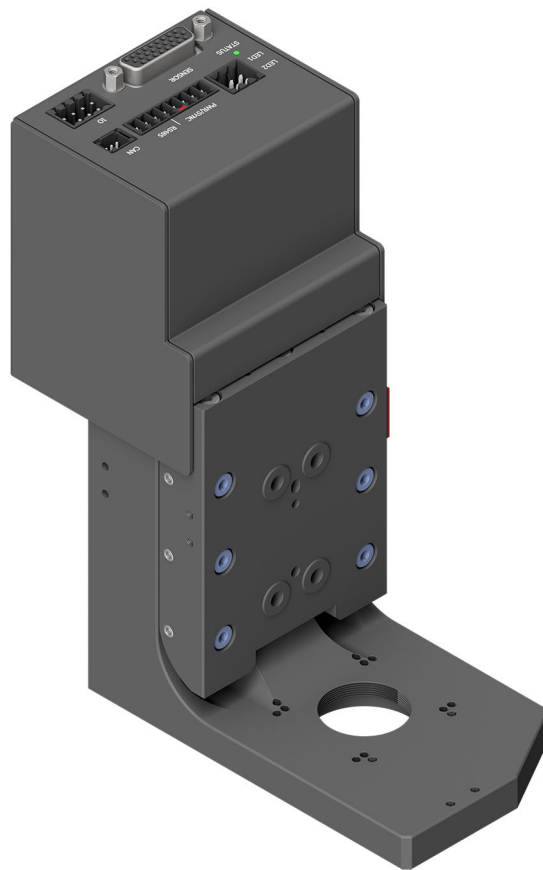




iZAA Datasheet



2025

iZAA Description

The iZAA is a device designed to move objective lens(es) in the Z-axis. It is designed to integrate seamlessly with WDI's family of microscopy components, including the Modular Microscope System (MMS).

The iZAA 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. The iZAA comes in two models: Single Objective (iZAA-SO) and Multi Objective (iZAA-MO). The iZAA-SO uses a 0.5A motor and the iZAA-MO uses a 1A motor. These two models are externally identical.

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 has a robust mechanical design and an accurate, fast response, making it ideal for such applications.

The iZAA is also able to control either up to two 1.5 A illuminators, or one 3 A illuminator (purchased separately).

Ordering Info

Table 1 iZAA Types

Type	Part Number
Z Actuator (iZAA-SO)	973070
Z Actuator (iZAA-MO)	973080

Product Specifications

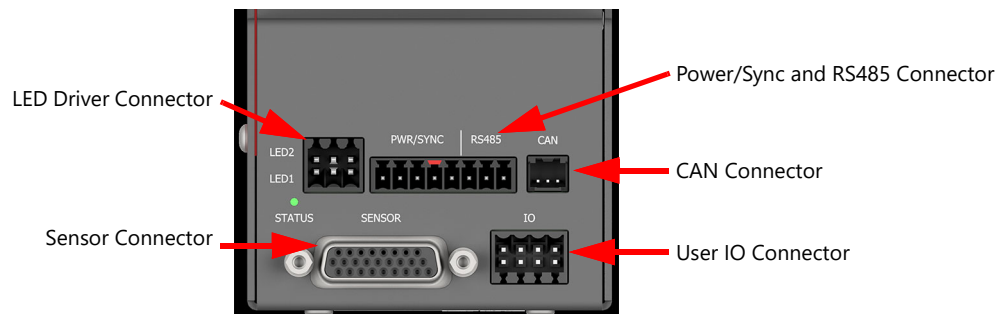
Table 2 iZAA Specifications

Parameters	Specification	
	iZAA-SO	iZAA-MO
Motor Rated Current (A)	0.5	1.0
Compatible Lens Changers	Not applicable (single objective)	LLC2, LLC3, iLLC-3MBD, iLLC-SM, sLLC-SM
Motion Type	Stepper motor	
Motion Controller	Integrated	
Positional Feedback	PFA-DT or PFA-LN sensor	
Maximum Travel (mm)	10	
Weight (kg)	1.14	1.16
Maximum Load (kg)	1.0	3.5

Table 2 iZAA Specifications (continued)

Parameters	Specification	
	iZAA-SO	iZAA-MO
Maximum Speed (mm/s)	10	
Maximum Acceleration (mm/s ²)	120	
Maximum Resolution (μm)	0.039 with 1/64 micro stepping	

Electrical Connections

**Figure 1** iZAA 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.

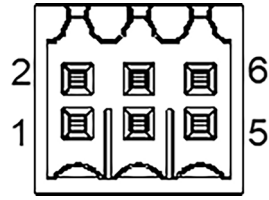


Figure 3 LED Driver Connector

Table 4 LED Driver Connector Pin Assignments

Pin	Signal	Description
1	LED1 Anode	LED1 Anode current output
2	LED2 Anode	LED2 Anode current output
3	NC	Not Connected, do not connect
4	NC	Not Connected, do not connect
5	LED1 Cathode	LED1 Cathode (return)
6	LED2 Cathode	LED2 Cathode (return)

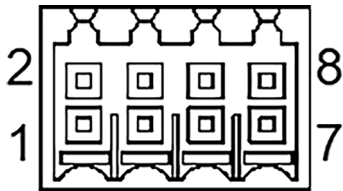


Figure 4 User IO Connector

Table 5 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 1K Ω pull up to +5V.
6	INF	In Focus. Open Drain with internal 1K Ω pull up to +5V.
7	GND	AO Return.
8	AO	Analog Output.

Connector Specifications

Table 6 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	
CAN Termination Plug		WDI	801437	

Electrical Specifications

Table 7 Power/Sync and Comm Electrical Specifications

Parameter	Minimum	Typical	Maximum	Units	Conditions
Power Supply					
Supply Voltage	22	24	26	VDC	
Supply Power	2.4		40	W	2 channels ILED=1.5A, max 5V LED fwd voltage when used with a PFA-DT or PFA-LN sensor
Supply Power	2.4		70	W	2 channels ILED=1.5A, max 20V LED fwd voltage when used with a PFA-DT or PFA-LN sensor
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		

Table 7 Power/Sync and Comm Electrical Specifications (continued)

Parameter	Minimum	Typical	Maximum	Units	Conditions
Receiver Differential Threshold Voltage	50	105	200	mV	
Differential Termination Resistor		120		Ω	
Data Rate		115200		bps	

Table 8 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 9 iZAA Environmental Specifications

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

Mechanical Dimensions

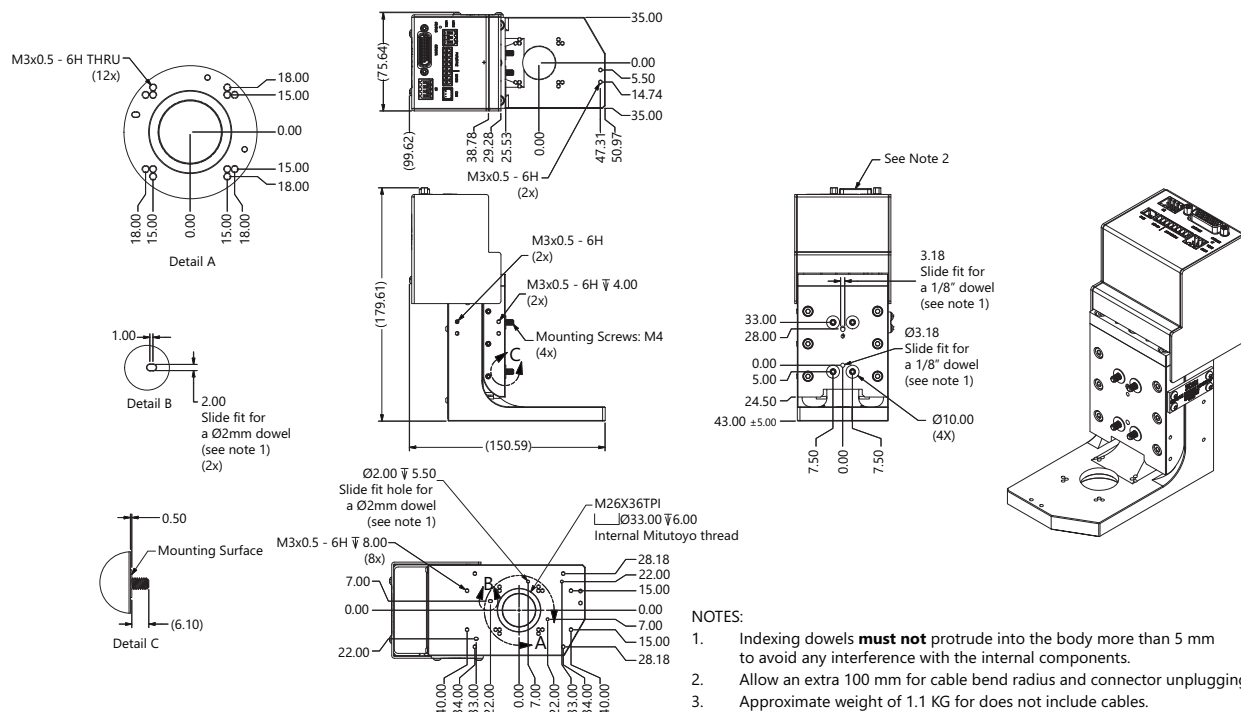


Figure 5 iZAA Dimensions – SO

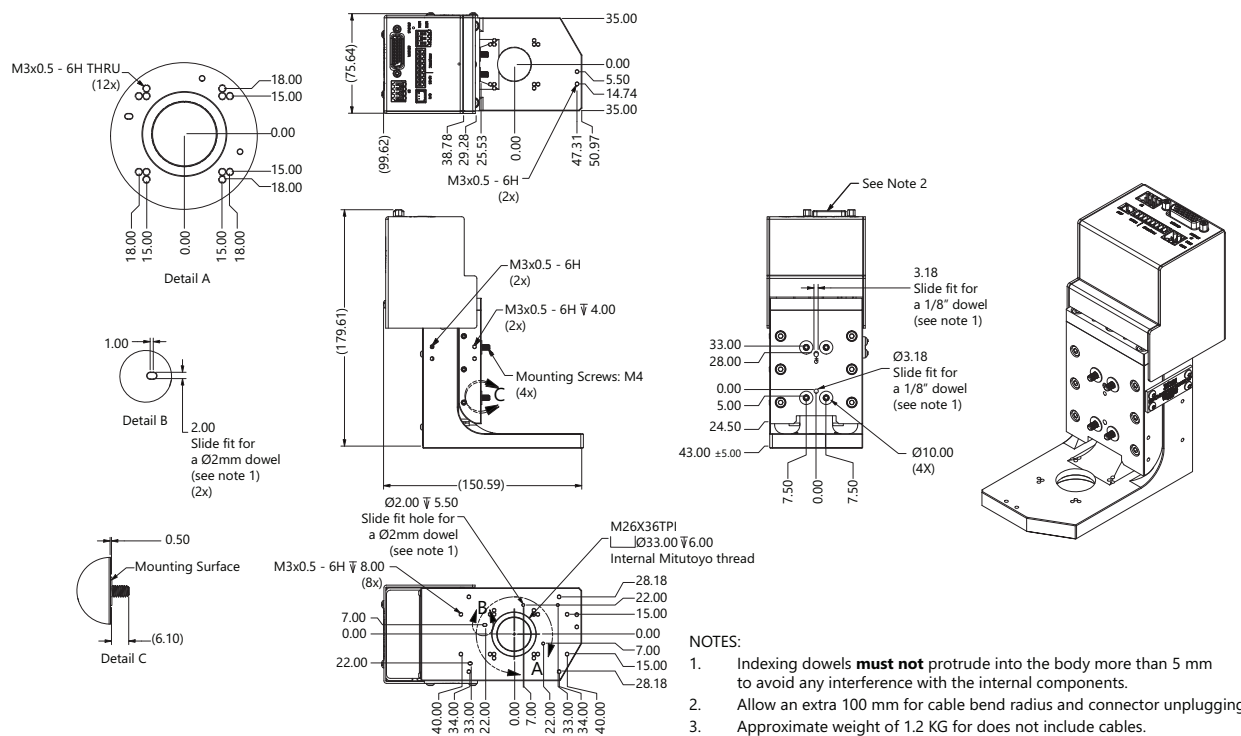


Figure 6 iZAA Dimensions – MO

Available Accessories

Table 10 iZAA Accessories

Accessory	Part Number	Remarks
Cable (CAB-LLC-MMS), (300 mm)	801443	300 mm length (for attached and integrated controller configurations)
Cable (CAB-LLC-MMS), (1000 mm)	801443-1	1 m length (for separated controller configuration)
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

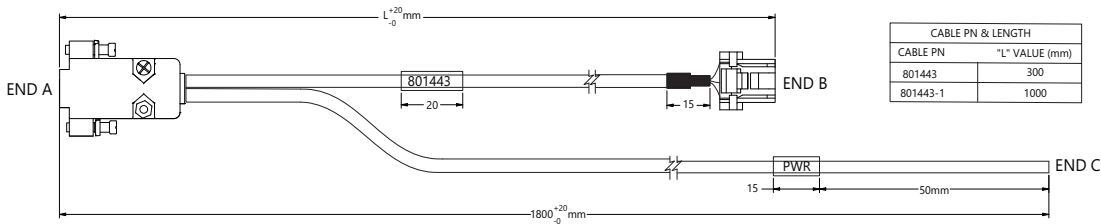


Figure 7 CAB-LLC-MMS Cable Wiring

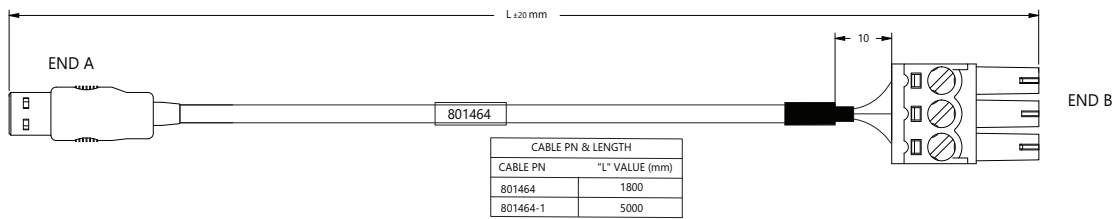


Figure 8 CAB-USB-RS485 Cable Wiring