



DATASHEET

EYES

v3.0

1. Datasheet

1.1. Hardware Version

Components	Version
Eyes (camera)	v2.0
Eye Box	v1.4
Eyes Lighting Kit	v1.0

1.2. Eyes

Eyes

Camera Characteristics		Unit
Interface	USB-C 3.x	
Image Sensor Technology	Rolling Shutter. Size 1.4 x 1.4	[$\mu\text{m px}$]
RGB Camera Field of View (FOV)	69.4 x 42.5 x 77 (+/- 3)	[$^{\circ}$]
RGB Camera Resolution	1280x720	[px]
Depth Technology	Active IR Stereo	
Depth FOV	65 \pm 2 x 40 \pm 1 x 72 \pm 2	[$^{\circ}$]
Depth Output Resolution	1280 x 720	[px]
Working Distance	400-1000	[mm]
	15.75 - 39.37	[inch]
Operating Temperature	0 – 35	[$^{\circ}\text{C}$]
	32 – 95	[$^{\circ}\text{F}$]
IP Rating	IP 54	
Weight	0.260	[kg]
	0.57	[lb]

Eyes Features		Unit
Type of vision system	2.5 D	
Minimum workpiece size	10x10 or 15 diameter	[mm]
	0.39x0.39 or 0.59 diameter	[inch]
Applications Supported	Detection, Sorting, Inspection, Landmark	

Eyes Features					Unit
Mounting options supported	Robot and External				
Reconfigurability when Robot mounted	12 configurations (4 x 3)				
	Around robot's flange		Tilt orientations		
	0 - 90 - 180 - 270		0 - 45 - 90		[degrees]
	Processing time		Typical: 0.5 s		
Detection Repeatability	< 2				[mm]
	< 0.078				[inch]
Detection Accuracy (typical) measured at 500 mm	External Mount		Robot Mount		
	2		2		[mm]
	0.078		0.078		[inch]
Minimum Inspection Defect Size	Standard		Close-up		
	5		3		[mm]
	0.197		0.118		[inch]
Landmark accuracy**	Waypoint distance from Landmark	Minimum error	Typical error	Maximum error	
	200	0.2635	0.6596	0.9500	[mm]
	7.874	0.0104	0.0260	0.0374	[inch]
	500	0.6586	1.6490	2.3750	[mm]
	19.68	0.0259	0.0649	0.0935	[inch]
	1000	1.3173	3.2981	4.7500	[mm]
	39.37	0.0519	0.1298	0.1870	[inch]

** Depending on the distance from the waypoint (picking point) to Landmark. Obtained using dual capture approach with the camera being 300 mm (11.81 in) above the Landmark.

Application and set-up recommendations	
Lighting conditions	No drastic, instant changes
Reflections and focused light spots	Keep minimal
Characteristics of objects	Different from background
Camera with respect to workspace table	Looking straight to it

Eyes Lighting Kit

Eyes Lighting Kit Features		Unit
Input voltage	24	[V]

Eyes Lighting Kit Features		Unit
Maximum current	1	[A]
Connection	3-pin M8 connector	
Operating temperature	0–50	[°C]
	32–122	[°F]
IP rating	IP54	
Weight	0.131	[kg]
	0.288	[lb]

Eye Box

Eye Box	
Weight	1.01 kg 2.23 lb
Required power supply	24V (6.25A)

Power Supply (6.25A/150W)	Min	Typical	Max	Units
Input voltage (AC)	100	-	240	[V]
Input current	-	-	2.1	[A]
Output voltage	-	24	-	[V]
Output current	-	6.25	-	[A]

Power input (24V connector)	Min	Typical	Max	Units
Supply voltage	-	24	25	[V]
Supply current	-	6.25	-	[A]

Power output (Device connector)	Min	Typical	Max	Units
Output voltage	-	24	25	[V]
Output current (EB HW v1.2)	-	4.5	4.5*	[A]

*Peak currents

Eye Box I/O interface:

Power Reference (24V, GND)	Min	Typical	Max	Units
Reference output voltage	-	24	25	[V]
Reference output current	-	-	100	[mA]

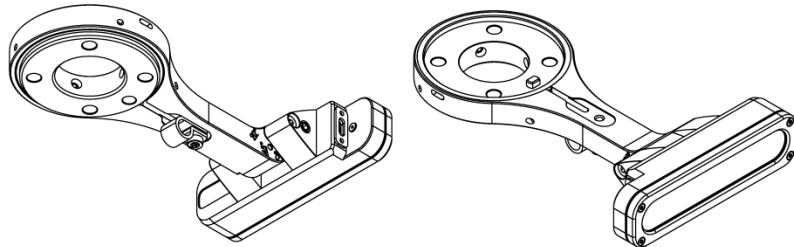
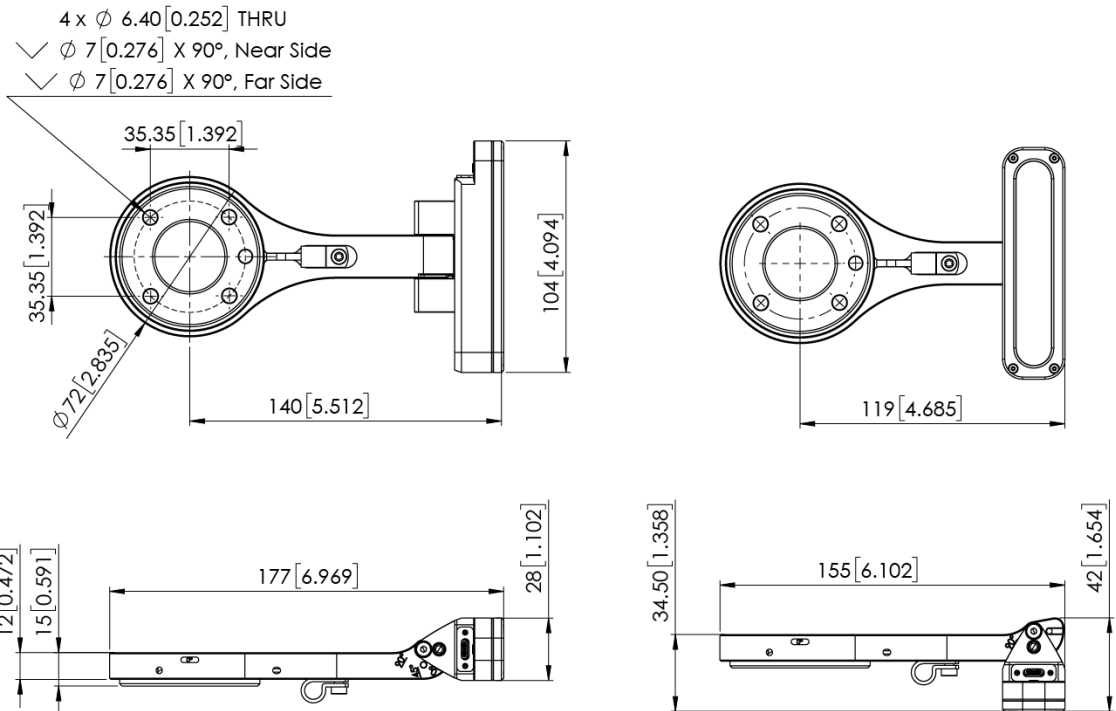
Digital Output (DO1-DO8)	Min	Typical	Max	Units
Output current - altogether	-	-	100	[mA]

Digital Output (DO1-DO8)	Min	Typical	Max	Units
Output resistance (active state)	-	24	-	[Ω]

Digital Input (DI1-DI8) as PNP	Min	Typical	Max	Units
Voltage level - TRUE	18	24	30	[V]
Voltage level - FALSE	-0.5	0	2.5	[V]
Input current	-	-	6	[mA]
Input resistance	-	5	-	[k Ω]

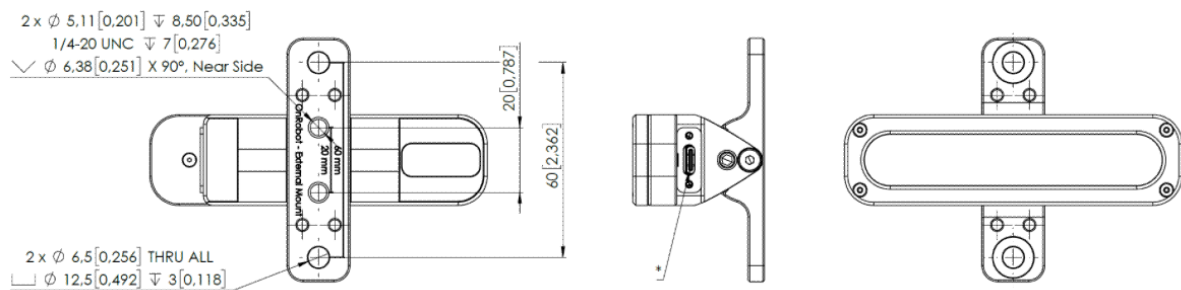
Digital Input (DI1-DI8) as NPN	Min	Typical	Max	Units
Voltage level - TRUE	-0.5	0	5	[V]
Voltage level - FALSE	18	24	30	[V]
Input current	-	-	6	[mA]
Input resistance	-	5	-	[k Ω]

1.3. Eyes - Robot Mount



All dimensions are in mm and [inches].

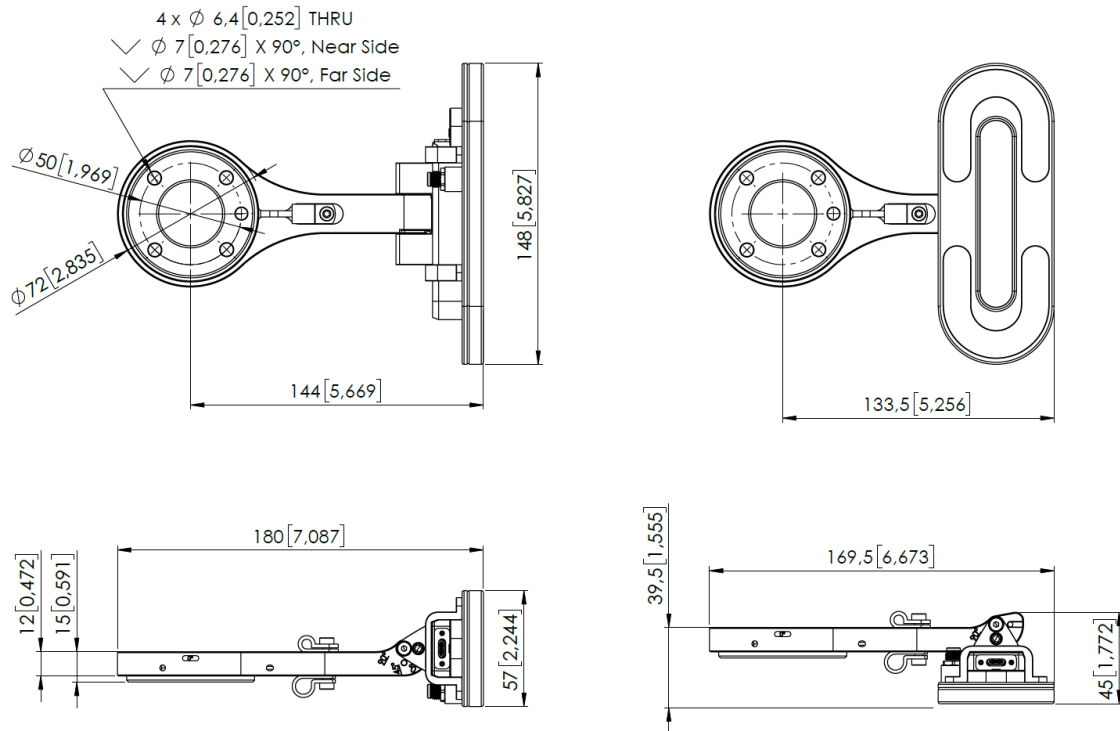
1.4. Eyes - External Mount



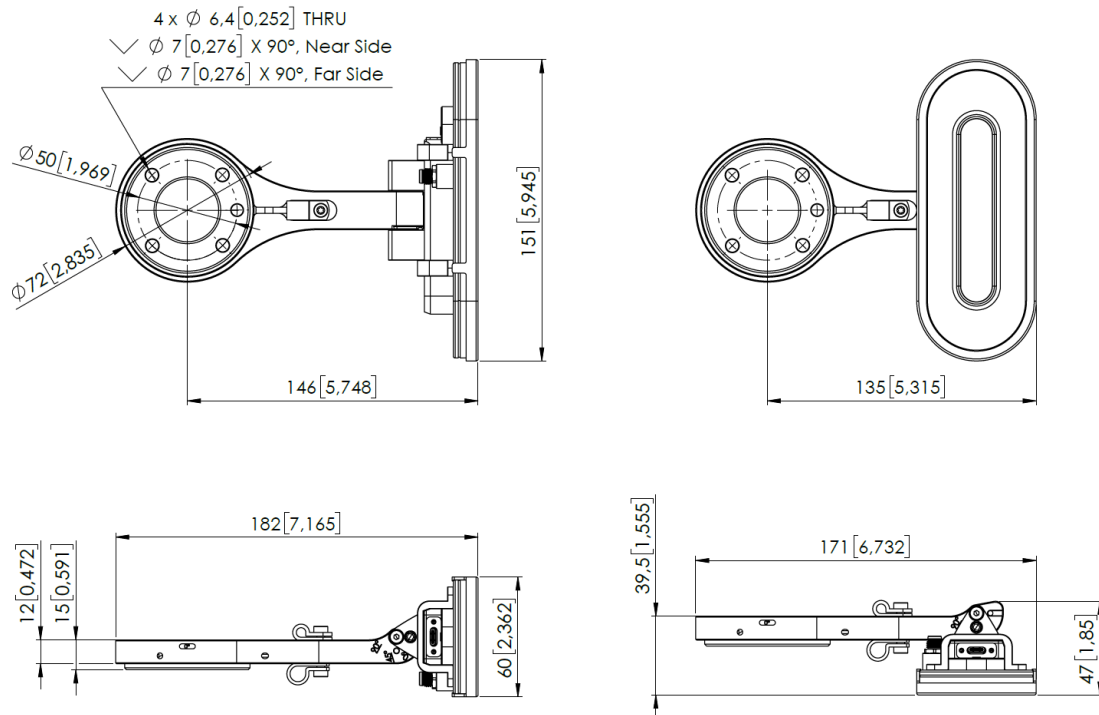
All dimensions are in mm and [inches].

1.5. Eyes Lighting Kit Mount

Eyes with Light

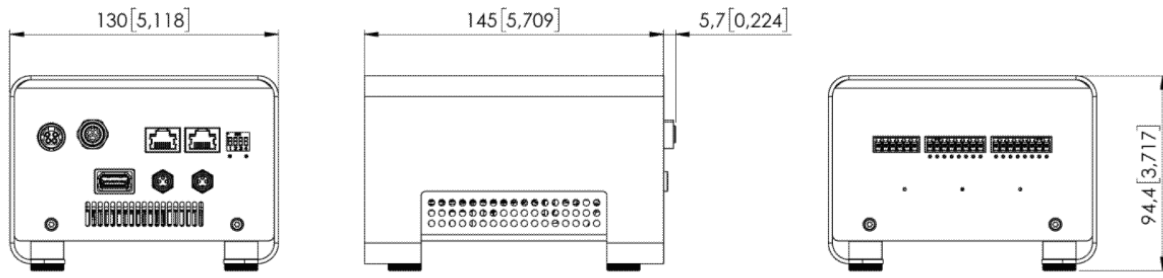


Eyes with Light and Diffuser



All dimensions are in mm and [inches].

1.6. Eye Box



All dimensions are in mm and [inches].