



# DATASHEET

## EYES

v3.3

# 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)	[°]
RGB Camera Resolution	Standard	1280x720	[px]
	Close-up	1920x1080	[px]
Depth Technology		Active IR Stereo	
Depth FOV		65 $\pm$ 2 x 40 $\pm$ 1 x 72 $\pm$ 2	[°]
Depth Output Resolution		1280 x 720	[px]
Working Distance		400-1000	[mm]
		15.75 - 39.37	[inch]
Operating Temperature		0 – 35	[°C]
		32 – 95	[°F]
IP Rating		IP 54	
Weight		0.260	[kg]
		0.57	[lb]
Calculated operation life		30 000	[h]

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]

Eyes Features					Unit
Applications Supported	Detection, Sorting, Inspection, Landmark*				
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]

\* Eyes lighting kit is not supported in Landmark applications.

\*\* 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]
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]
Calculated operation life	30 000	[h]

## Eye Box

Eye Box	
Weight	1.01 kg 2.23 lb
Required power supply	24V (6.25A)
Calculated operation life	30 000 h

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]

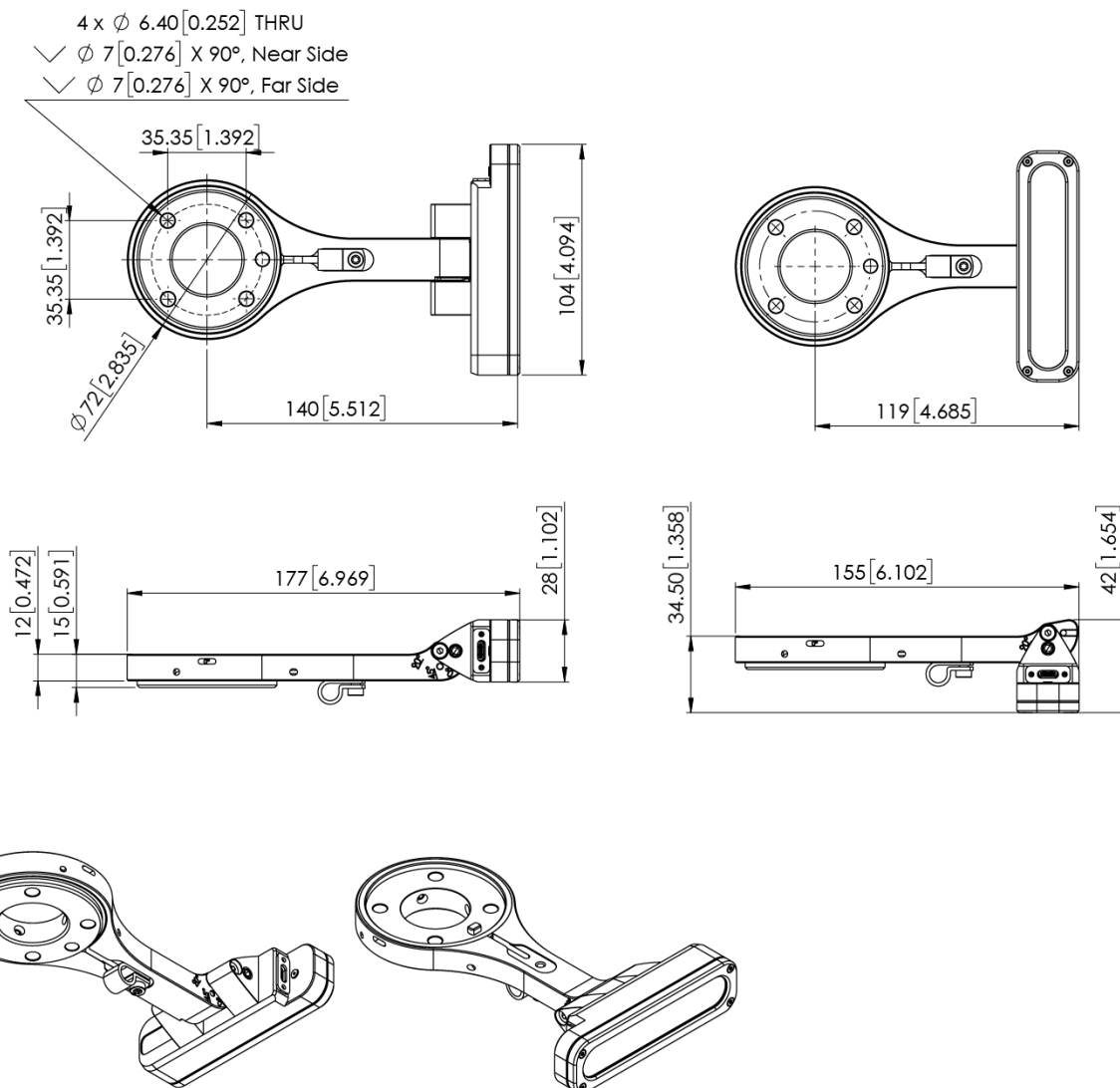
Power Reference (24V, GND)	Min	Typical	Max	Units
Reference output current	-	-	100	[mA]

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

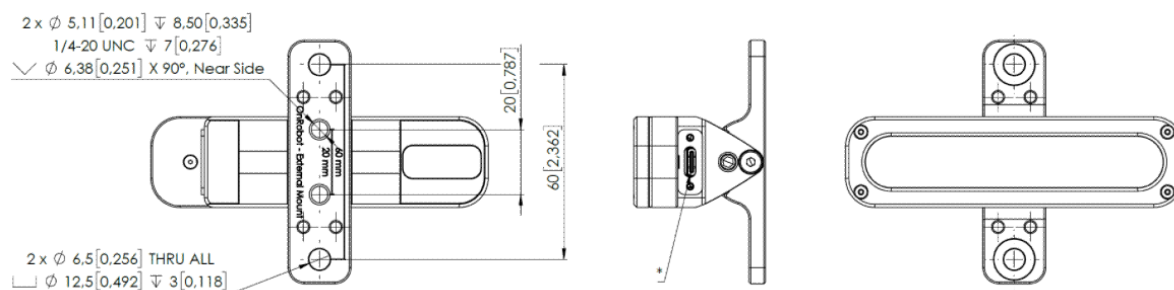
Digital Input (DI1-DI8) as NPN	Min	Typical	Max	Units
Voltage level - TRUE	-0.5	0	5	[V]
Voltage level - FALSE	18	24	30	[V]
Input current	-	-	6	[mA]
Input resistance	-	5	-	[kΩ]

### 1.3. Eyes - Robot Mount



All dimensions are in mm and [inches].

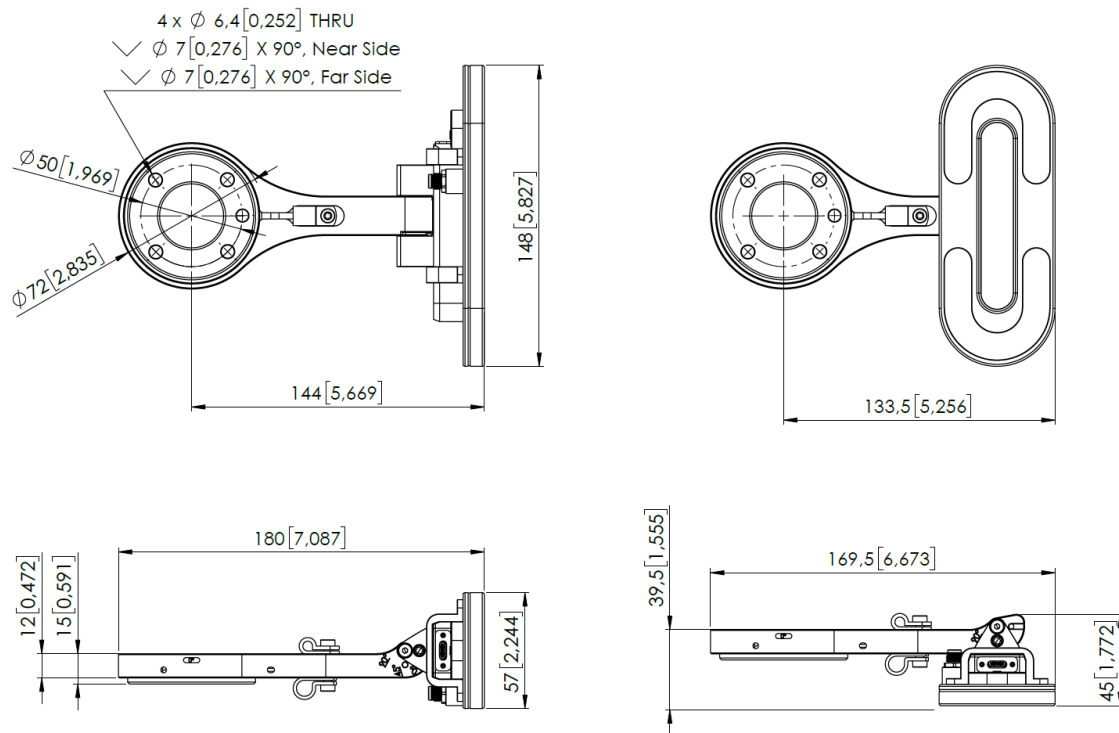
### 1.4. Eyes - External Mount



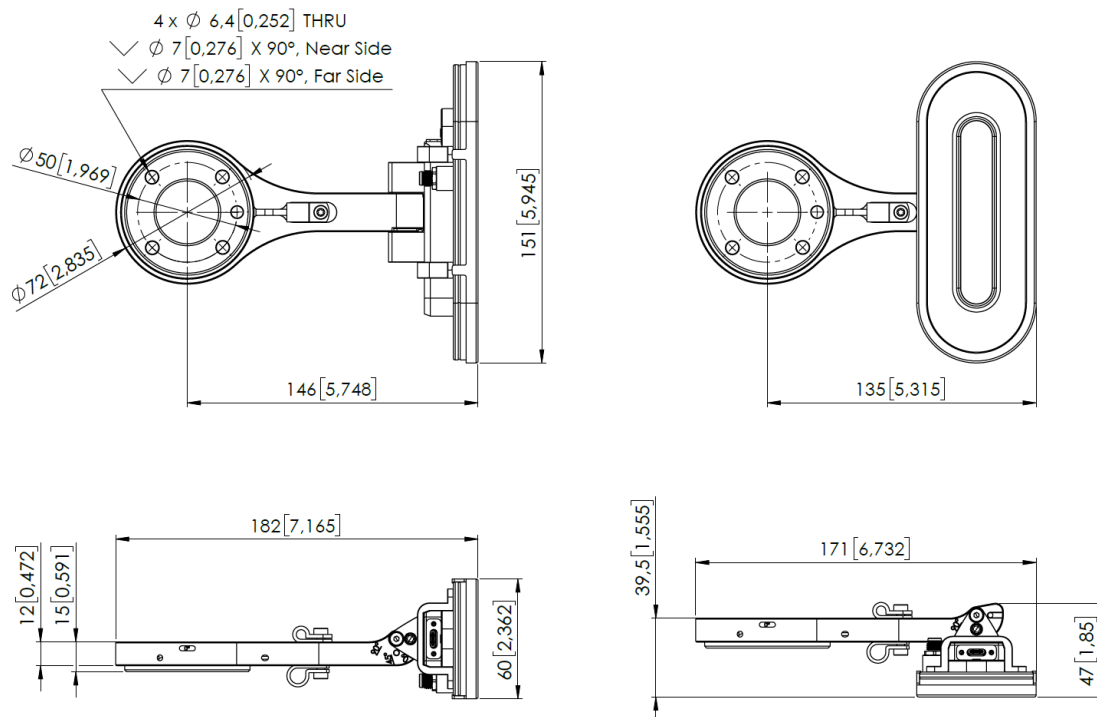
All dimensions are in mm and [inches].

## 1.5. Eyes Lighting Kit Mount

### Eyes with Light

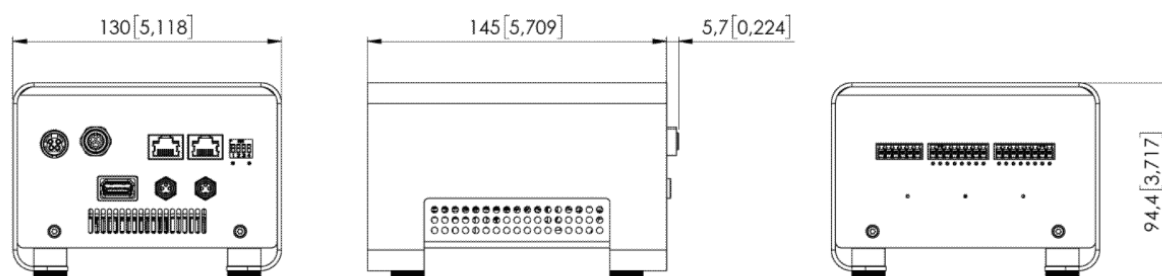


### Eyes with Light and Diffuser



All dimensions are in mm and [inches].

## 1.6. Eye Box



All dimensions are in mm and [inches].