

#### Advanced, cost-effective barcode readers

The Code Reader™ line of advanced barcode readers have been designed to provide reliable data capture in a variety of settings, while maintaining an ergonomic, lightweight form factor. Code has developed the world's best image capture by using a powerful vision sensor and built-in lighting to reliably capture the barcode while not relying on external light sources.

In addition to leading-edge technical capabilities, all Code handheld barcode scanners feature housings made from specially engineered CodeShield™ plastics. These case materials are designed to provide superior, long-term protection against most commonly used chemicals and chemical disinfectants without damage to the housing.



The Code Reader™ 950 (CR950) is an aggressive barcode reader that rapidly decodes 1D and 2D barcodes. Its lightweight, ergonomic design makes it comfortable to use over long shifts, and unmatched durability makes it an invest



The Code Reader™ 5210 (CR5210) is designed for use in fast-paced environments and handles data from 1D, 2D and postal barcodes with speed and accuracy. The tabletop design allows for hands-free operation or optional trigger reading of large, heavy or bulky items.



The Code Reader™ 1500 (CR1500) is a compact tethered barcode reader that features a high-performance scan engine, patented dual-field optical platform, and intuitive targeting that makes reading 1D, 2D, and postal bar codes extremely fast and reliable.



**CR1100** 

The Code Reader™ 1100 (CR1100) is a compact, corded barcode reader that takes up limited workspace without compromising barcode reading performance. The patented dual-field optical platform of the CR1100 allows users to quickly scan both wide 1D barcodes and small dense 2D barcodes.



The Code Reader™ 6022 (CR6022) is an industrial grade direct part mark (DPM) imager designed to read barcodes of every sort. The CR6022 effortlessly reads laser-etched, embossed, dot peen and low-contrast barcodes and easily decodes dense and extremely small barcodes.



CR2701 / CR2702

The Code Reader™ 2700 (CR2701/CR2702) is Code's fourth-generation (Bluetooth 5) barcode scanner, combining nearly 20 years of market experience with new features to improve workflow in any setting. Code has taken their unparalleled scanning performance and stepped it up a notch, tackling even more damaged or poorly-printed barcodes to keep your business moving.



#### CR950 Advanced Cost-Effective Barcode Scanner



The Code Reader™ 950 (CR950) is a versatile barcode reader that is easy to set up and use in a variety of different settings. It is available with either USB or RS-232 communication capabilities. The USB version can connect to the **C-more** HMI. AutomationDirect provides sample code which can be used to connect the reader to Click, BRX, and Productivity PLCs.

#### **Features**

- High-speed, omnidirectional reading of 1D and 2D barcode symbologies.
- Manual or automatic triggering. Stand (sold separately) is required for automatic triggering.
- · User feedback with LED and audible tone.
- All-inclusive kits include reader and cable.
- Reads barcodes on backlit screens such as those found on mobile devices.
- Optional stand (sold separately).

	Code Handheld Barcode Reader – Selection Chart						
Part Number	t Number Price Description Communication Protocol Cordless Form Factor					Weight (lb [kg])	Dimensional Drawing
CR950-K301-C298	\$153.00	Code barcode scanner, 6ft [1.83 m] USB cable included.	USB	Corded	Handheld	0.25 [0.11]	PDF
CR950-K302-C298	\$177.00	Code barcode scanner, 6ft [1.83 m] RS-232 (DB9) cable and power supply included.	RS-232	Corded	Handheld	0.25 [0.11]	<u>PDF</u>

Code Handheld Barcode Scanners Typical Working Range (in [mm])					
Circ and Time of Daysonds (in [mm])	CR950-K	30x-C298			
Size and Type of Barcode (in [mm])	Min	Max			
3 mil Code 39	_	_			
7.5 mil Code 39	2 [50]	9.6 [245]			
10.5 mil GS1 DataBar	1.4 [35]	8.9 [225]			
5.8 mil PDF417	3.3 [85]	6.1 [155]			
6.7 mil PDF417	2.6 [65]	6.9 [175]			
13 mil UPC	1.6 [40]	14.6 [370]			
4.2 mil Data Matrix	-	_			
5 mil Data Matrix	3.0 [75]	3.5 [90]			
6.3 mil Data Matrix	2.8 [70]	5.3 [135]			
10 mil Data Matrix	2.0 [50]	8.1 [205]			
20.8 mil Data Matrix	1.2 [30]	15.7 [400]			

Note: Working ranges may vary depending on barcode quality and reading environment. The above numbers are a combination of both the wide and high density fields. All samples were high quality barcodes and were read along a physical center line at a 10 degree angle. Distances are measured from the front of the reader. Default automatic gain control settings were used with regular office lighting. Accuracy = +/- 10%. Test conditions may affect working ranges.

Code Handheld	Barcode Scanners Specifications
	CR950-K30x-C298
Power Requirements	5VDC (USB versions are powered from the host device) (RS232 versions utilize a 120VAC-to-5VDC power adapter)
Sensor	CMOS 1.2 megapixel monochrome
Operating Temperature	-20 to 50°C [-4 to 122°F]
Storage Temperature	-30 to 65°C [-22 to 150°F]
Humidity	5% to 95% non-condensing
Field Selection	Wide Field (used for long barcodes)
Field of View	51° horizontal by 39.4° vertical
Focal Point	Approximately 130mm [5.12 in]
Optical Resolution	1280 x 960
Pitch	± 65° (from front to back)
Skew	± 60° from plane parallel to symbol (side to side)
Rotational Tolerance	±180°
Symbol Contrast	15% minimum reflectance difference
Target Beam	Single, blue targeting bar
Ambient Light Immunity	Sunlight: Up to 9,000 ft candles
Shock	Withstands multiple drops of 6ft [1.8 m] to concrete
IP Rating	IP54
Agency Approval	CE

tBRV-2

www.automationdirect.com Barcode, RFID, Vision



#### **CR1100 Advanced Cost-Effective Barcode Scanner**



The Code Reader™ 1100 (CR1100) is a versatile barcode reader that is easy to set up and use in a variety of different settings. It is available with either USB or RS-232 communication capabilities. The USB version can connect to the *C-more* HMI. Automation Direct provides sample code which can be used to connect the reader to Click, BRX, and Productivity PLCs.

#### **Features**

- High-speed, omnidirectional reading of 1D and 2D barcode symbologies.
- · Manual or automatic triggering.
- Pre-threaded screw holes to allow for mounting.
- · User feedback with LED and audible tone.
- · Reads barcodes on mobile device screens.
- Efficient power consumption (lowest in its class).
- Optional stand (sold separately).

	Code Handheld Barcode Reader – Selection Chart						
1Part Nilmner   Price   liescription   ' Form Factor   3						Dimensional Drawing	
CR1100-K201-C298	\$236.00	Code barcode scanner, 6ft [1.83 m] USB cable included.	USB	Corded	Handheld/ presentation	0.15 [0.07]	<u>PDF</u>
CR1100-K202-C298	\$260.00	Code barcode scanner, 6ft [1.83 m] RS-232 (DB9) cable and power supply included.	RS-232	Corded	Handheld/ presentation	0.15 [0.07]	<u>PDF</u>

#### **Code Handheld Barcode Scanners** Typical Working Range (in [mm]) CR1100-K20x-C298 Size and Type of Barcode (in [mm]) Min Max 3 mil Code 39 3.3 [84] 4.3 [109] 7.5 mil Code 39 1.9 [47] 7 [177] 10.5 mil GS1 DataBar 0.6 [16] 7.7 [196] 5.8 mil PDF417 \_ 6.7 mil PDF417 13 mil UPC 1.3 [33] 11.3 [286] 4.2 mil Data Matrix 5 mil Data Matrix 1.9 [48] 4.8 [121]

Note: Working ranges may vary depending on barcode quality and reading environment. The above numbers are a combination of both the wide and high density fields. All samples were high quality barcodes and were read along a physical center line at a 10 degree angle. Distances are measured from the front of the reader. Default automatic gain control settings were used with regular office lighting. Accuracy = +/- 10%. Test conditions may affect working ranges.

1.4 [35]

0.6 [14]

1.0 [25]

6.3 mil Data Matrix

10 mil Data Matrix

20.8 mil Data Matrix

Code Handheld	Barcode Scanners Specifications
	CR1100-K20x-C298
Power Requirements	5VDC (USB versions are powered from the host device) (RS232 versions utilize a 120VAC-to-5VDC power adapter)
Sensor	CMOS 1.2 megapixel monochrome
Operating Temperature	-20 to 55°C [-4 to 131°F]
Storage Temperature	-30 to 65°C [-22 to 150°F]
Humidity	5% to 95% non-condensing
Field Selection	High Density (used for small/dense barcodes) and Wide Field (used for long barcodes)
Field of View	High Density: 30° horizontal by 20° vertical Wide Field 50° horizontal by 35.5° vertical
Focal Point	High Density: ∼100mm [3.94 in] Wide Field ∼115mm [4.53 in]
Optical Resolution	High Density: 960 x 640 Wide Field: 960 x 640
Pitch	± 65° (from front to back)
Skew	± 60° from plane parallel to symbol (side to side)
Rotational Tolerance	±180°
Symbol Contrast	15% minimum reflectance difference
Target Beam	Single, blue targeting bar
Ambient Light Immunity	Sunlight: Up to 9,000 ft candles
Shock	Withstands multiple drops of 6ft [1.8 m] to concrete
IP Rating	Not tested
Agency Approval	CE

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5.6 [142]

7.2 [182]

12.6 [319]



#### CR6022 Advanced Cost-Effective Barcode Scanner



The Code Reader™ 6022 (CR6022) is a versatile barcode reader that is easy to set up and use in a variety of different settings. It is available with either USB or RS-232 communication capabilities. The USB version can connect to the **C-more** HMI. AutomationDirect provides sample code which can be used to connect the reader to Click, BRX, and Productivity PLCs.

#### **Features**

- Reads laser-etched and dot peen markings.
- · Reads color and low-contrast barcodes.
- IP54 housing protects against dust and debris.
- Small form factor for operator comfort.
- Integrated metal hook holder for ease of placement and retrieval.
- User feedback with programmable LED, audible tone and vibrating good read indicators.
- Operates hands-free or handheld.
- Optional stand (sold separately).

Code Handheld Barcode Reader – Selection Chart							
Part Number	Part Number Price Description Communication Corded/ Cordless Form Factor Weight (lb [kg]) Dra					Drawing	
CR6022-C500-C298	\$744.00	Code barcode scanner, 6ft [1.83 m] USB cable included.	USB	Corded	Handheld	0.35 [0.16]	PDF
CR6022-C502-C298	\$754.00	Code barcode scanner, 6ft [1.83 m] RS-232 (DB9) cable and power supply included.	RS-232	Corded	Handheld	0.35 [0.16]	PDF

Code Handheld Barcode Scanners Typical Working Range (in [mm])						
Cize and Tune of Paraoda (in [mm])	CR6022-C50x-C298					
Size and Type of Barcode (in [mm])	Min	Max				
3 mil Code 39	1 [25]	2 [50]				
7.5 mil Code 39	0.8 [20]	5.9 [150]				
10.5 mil GS1 DataBar	0 [0]	5.9 [150]				
5.8 mil PDF417	_	_				
6.7 mil PDF417	_	_				
13 mil UPC	0.6 [15]	7.9 [200]				
4.2 mil Data Matrix	0.6 [15]	1.8 [45]				
5 mil Data Matrix	0.6 [15]	2.4 [60]				
6.3 mil Data Matrix	0.2 [5]	3 [75]				
10 mil Data Matrix	0 [0]	3.9 [100]				
20.8 mil Data Matrix	0.4 [10]	7.5 [190]				
Low Contrast D	Low Contrast Data Matrix DPM					
Laser Marks	0 [0]	1.4 [35]				
Dot Peen Marks	0 [0]	2.8 [70]				

Note: Working ranges may vary depending on barcode quality and reading environment. The above numbers are a combination of both the wide and high density fields. All samples were high quality barcodes and were read along a physical center line at a 10 degree angle. Distances are measured from the front of the reader. Default automatic gain control settings were used with regular office lighting. Accuracy = +/- 10%. Test conditions may affect working ranges.

Code Handheld I	Barcode Scanners Specifications
	CR6022-C50x-C298
Power Requirements	5VDC (USB versions are powered from the host device) (RS232 versions utilize a 120VAC-to-5VDC power adapter)
Sensor	CMOS 1.2 megapixel monochrome
Operating Temperature	-20 to 55°C [-4 to 131°F]
Storage Temperature	-30 to 65°C [-22 to 150°F]
Humidity	5% to 95% non-condensing
Field Selection	High Density (used for small/dense barcodes) and Wide Field (used for long barcodes)
Field of View	30° horizontal by 33.5° vertical
Focal Point	~50mm [1.97 in]
Optical Resolution	High Density: 960 x 640 Wide Field: 960 x 640
Pitch	± 65° (from front to back) (varies with DPM)
Skew	± 60° from plane parallel to symbol (side to side)
Rotational Tolerance	±180°
Symbol Contrast	15% minimum reflectance difference
Target Beam	Single, blue targeting bar
Ambient Light Immunity	Sunlight: Up to 9,000 ft candles
Shock	Withstands multiple drops of 6ft [1.8 m] to concrete
IP Rating	IP54
Agency Approval	CE

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#### CR1500 Advanced Cost-Effective Barcode Scanner



The Code Reader™ 1500 (CR1500) is a dual-field barcode reader that is easy to set up and use in a variety of different settings. It is available with either USB or RS-232 communication capabilities. The USB version can connect to the **C-more** HMI. AutomationDirect provides sample code which can be used to connect the reader to Click, BRX, and Productivity PLCs.

#### **Features**

- Dual-field imager enhances readability and processing time.
- High-speed, omnidirectional reading of 1D and 2D barcode symbologies.
- Manual or automatic triggering. Stand (sold separately) is required for automatic triggering.
- User feedback with LED and audible tone.
- All-inclusive kits include reader and cable.
- Reads barcodes on backlit screens such as those found on mobile devices.
- Optional stand (sold separately).

	Code Handheld Barcode Reader – Selection Chart						
Part Nilmner   Price   liescrintion   '   Form Factor   3						Dimensional Drawing	
CR1500-K201-C298	\$242.00	Code barcode scanner, 6ft [1.83 m] USB cable included.	USB	Corded	Handheld	0.26 [116]	<u>PDF</u>
CR1500-K202-C298	\$258.00	Code barcode scanner, 8ft [2.44 m] RS-232 (DB9) cable and power supply included.	RS-232	Corded	Handheld	0.26 [116]	<u>PDF</u>

Code Handheld Barcode Scanners Typical Working Range (in [mm])					
Circ and Time of Daysonds (in Imm)	CR1500-K20x-C298				
Size and Type of Barcode (in [mm])	Min	Max			
3 mil Code 39	3.3 [84]	4.2 [107]			
7.5 mil Code 39	0.7 [18]	6.6 [167]			
10.5 mil GS1 DataBar	0.2 [5]	8.1 [205]			
5.8 mil PDF417	_	_			
6.7 mil PDF417	_	_			
13 mil UPC	0.5 [13]	10.4 [265]			
4.2 mil Data Matrix	_	_			
5 mil Data Matrix	1.1 [28]	3.9 [100]			
6.3 mil Data Matrix	0.7 [18]	5.3 [135]			
10 mil Data Matrix	0.2 [5]	6.5 [165]			
20.8 mil Data Matrix	0.5 [13]	12.9 [328]			

Code Handheld Barcode Scanners Specifications						
	CR1500-K20x-C298					
Power Requirements	5VDC (USB versions are powered from the host device) (RS232 versions utilize a 120VAC-to-5VDC power adapter)					
Sensor	CMOS 1.2 megapixel monochrome					
Operating Temperature	-20 to 55°C [-4 to 131°F]					
Storage Temperature	-30 to 65°C [-22 to 150°F]					
Humidity	5% to 95% non-condensing					
Field Selection	High Density (used for small/dense barcodes) Wide Field (used for long barcodes)					
Field of View	High Density: 30° horizontal by 20° vertical Wide Field 50° horizontal by 35.5° vertical					
Focal Point	High Density: ~100mm [3.94 in] Wide Field ~115mm [4.53 in]					
Optical Resolution	High Density: 960 x 640 Wide Field: 960 x 640					
Pitch	± 65° (from front to back)					
Skew	± 60° from plane parallel to symbol (side to side)					
Rotational Tolerance	±180°					
Symbol Contrast	15% minimum reflectance difference					
Target Beam	Single, blue targeting bar					
Ambient Light Immunity	Sunlight: Up to 9,000 ft candles [96,890 lux]					
Shock	Withstands multiple drops of 6ft [1.8 m] to concrete					
IP Rating	IP54					
Agency Approval	CE					
	Barcode, RFID, Vision tBRV-5					

www.automationdirect.com Barcode, RFID, Vision



#### CR5210 Advanced Cost-Effective Barcode Scanner



The Code Reader™ 5210 (CR5210) is a dual-field barcode reader that is easy to set up and use in a variety of different settings. It is available with either USB or RS-232 communication capabilities. The USB version can connect to the **C-more** HMI. AutomationDirect provides sample code which can be used to connect the reader to Click, BRX, and Productivity PLCs.

#### **Features**

- Dual-field imager enhances readability and processing time.
- High-speed, omnidirectional reading of 1D and 2D barcode symbologies.
- · Manual or automatic triggering.
- · User feedback with LED and audible tone.
- · All-inclusive kits include reader and cable.
- · Reads barcodes on backlit screens such as those found on mobile devices.

Code Handheld Barcode Reader – Selection Chart							
Part Number Price Description Communication Protocol Corded/				Form Factor	Weight (lb [g])	Dimensional Drawing	
CR5210-C500-C298	\$312.00	Code barcode scanner, 6ft [1.83 m] USB cable included.	USB	Corded	Presentation	0.7 [318]	PDF
CR5210-C502-C298	\$346.00	Code barcode scanner, 6ft [1.83 m] RS-232 (DB9) cable and power supply included.	RS-232	Corded	Presentation	0.7 [318]	<u>PDF</u>

Code Handheld Barcode Scanners Typical Working Range (in [mm])					
Circ and Time of Devecto (in Imm!)	CR5210-0	50x-C298			
Size and Type of Barcode (in [mm])	Min	Max			
3 mil Code 39	_	_			
7.5 mil Code 39	0.4 [10]	5.9 [150]			
10.5 mil GS1 DataBar	0.4 [10]	6.7 [170]			
5.8 mil PDF417	0.6 [15]	4.0 [102]			
6.7 mil PDF417	0.4 [10]	4.8 [122]			
13 mil UPC	0.4 [10]	8.0 [203]			
4.2 mil Data Matrix	_	_			
5 mil Data Matrix	1.2 [31]	2.3 [59]			
6.3 mil Data Matrix	0.9 [23]	3.5 [89]			
10 mil Data Matrix	0.4 [10]	5.7 [146]			
20.8 mil Data Matrix	0.4 [10]	8.9 [225]			

Note: Working ranges may vary depending on barcode quality and reading environment. The above numbers are a combination of both the wide and high density fields. All samples were high quality barcodes and were read along a physical center line at a 10 degree angle. Distances are measured from the front of the reader. Default automatic gain control settings were used with regular office lighting. Accuracy = +/- 10%. Test conditions may affect working ranges.

Code Handheld I	Barcode Scanners Specifications
	CR5210-C50x-C298
Power Requirements	5VDC (USB versions are powered from the host device) (RS232 versions utilize a 120VAC-to-5VDC power adapter)
Sensor	CMOS 1.2 megapixel monochrome
Operating Temperature	-20 to 55°C [-4 to 131°F]
Storage Temperature	-30 to 65°C [-22 to 150°F]
Humidity	5% to 95% non-condensing
Field Selection	Single field
Field of View	51° horizontal by 39.4° vertical
Focal Point	~40mm [1.6 in]
Optical Resolution	1280 x 960
Pitch	± 65° (from front to back)
Skew	± 60° from plane parallel to symbol (side to side)
Rotational Tolerance	±180°
Symbol Contrast	15% minimum reflectance difference
Target Beam	Single, blue targeting bar
Ambient Light Immunity	Sunlight: Up to 9,000 ft candles [96,890 lux]
Shock	Withstands multiple drops of 6ft [1.8 m] to concrete
IP Rating	IP 52
Agency Approval	CE

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CR2702-200-C298



#### **CR2700 Advanced Cordless Barcode Scanner**



The Code Reader™ 2700 (CR2700) is a cordless, rechargeable, rugged barcode reader that is easy to set up and use in a variety of different settings. It features Bluetoothto-USB communication and can connect to the **C-more** HMI.

#### **Features**

- · Dual-field imager enhances readability and processing time.
- · High-speed, omnidirectional reading of 1D and 2D barcode symbologies.
- · Manual or automatic triggering.
- User feedback with LED and audible
- · All-inclusive kits include reader and cable
- Reads barcodes on backlit screens such as those found on mobile devices.

	Code Handheld Barcode Reader – Selection Chart							
Part Number	Price	Description	Communication Protocol	Corded/ Cordless	Form Factor	Weight (lb [g])	Dimensional Drawing	
CR2701-200-C298	\$750.00	Code barcode scanner (Bluetooth) with removable battery and charging base, 3ft [0.91 m] USB cable included.	Bluetooth to USB	Cordless	Palm	0.29 [131]	<u>PDF</u>	
CR2702-200-C298	\$792.00	Code barcode scanner (Bluetooth) with removable battery and charging base, 3ft [0.91 m] USB cable included.	Bluetooth to USB	Cordless	Handheld	0.39 [177]	PDF	

Code Handheld Barcode Scanners Typical Working Range (in [mm])				
Circ and Time of Dayanda (in Imm!)	CR270x-2	200-C298		
Size and Type of Barcode (in [mm])	Min	Max		
3 mil Code 39	3.5 [90]	4.4 [112]		
7.5 mil Code 39	0.9 [23]	6.8 [172]		
10.5 mil GS1 DataBar	0.4 [10]	8.3 [210]		
5.8 mil PDF417	_	-		
6.7 mil PDF417	_	-		
13 mil UPC	0.7 [18]	10.6 [270]		
4.2 mil Data Matrix	_	-		
5 mil Data Matrix	1.3 [33]	4.1 [105]		
6.3 mil Data Matrix	0.9 [23]	5.5 [140]		
10 mil Data Matrix	0.4 [10]	6.7 [170]		
20.8 mil Data Matrix	0.7 [18]	13.1 [333]		

Note: Working ranges may vary depending on barcode quality and reading environment. The above numbers are a combination of both the wide and high density fields. All samples were high quality barcodes and were read along a physical center line at a 10 degree angle. Distances are measured from the front of the reader. Default automatic gain control settings were used with regular office lighting. Accuracy = +/- 10%. Test conditions may affect working ranges.

Code Handheld Barcode Scanners Specifications				
	CR270x-200-C298			
Power Requirements	5VDC, 5W max Powered from the host device			
Sensor	CMOS 1.2 megapixel monochrome			
Operating Temperature	-20 to 55°C [-4 to 131°F]			
Storage Temperature	-30 to 65°C [-22 to 150°F]			
Humidity	5% to 95% non-condensing			
Field Selection	High Density (used for small/dense barcodes) Wide Field (used for long barcodes)			
Field of View	High Density: 30° horizontal by 20° vertical Wide Field 50° horizontal by 33.5° vertical			
Focal Point	~100mm [3.94 in]			
Optical Resolution	High Density: 960 x 640 Wide Field: 960 x 640			
Pitch	± 65° (from front to back)			
Skew	± 60° from plane parallel to symbol (side to side)			
Rotational Tolerance	±180°			
Symbol Contrast	15% minimum reflectance difference			
Target Beam	Single, blue targeting bar			
Ambient Light Immunity	Sunlight: Up to 9,000 ft candles [96,890 lux]			
Shock	Withstands multiple drops of 6ft [1.8 m] to concrete			
IP Rating	IP 65			
Agency Approval	CE			
Number of Scans Per Charge	50,000			
Reader Communication	Bluetooth 5 Low Energy (Class II)			

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# 1-800-633-0405 For the latest prices, please check Automation Direct.com. Code Handheld Barcode Scanners Code



	Code Hand	held Barcod	le Scanners	Decode Ca	apability		
	Decode Capability	CR950	CR1100	CR1500	CR5210	CR270x	CR6022
	BC412	<b>√</b>	<b>√</b>	<b>√</b>	✓	<b>√</b>	<b>√</b>
	Codabar	<b>√</b>	✓	<b>√</b>	✓	✓	✓
	Code 11	<b>√</b>	✓	<b>√</b>	✓	✓	✓
	Code 32	<b>√</b>	<b>✓</b>	<b>√</b>	✓	✓	✓
	Code 39	<b>√</b>	✓	<b>√</b>	✓	✓	✓
	Code 39 Extended	_	✓	_	_	_	✓
	Code 93	✓	✓	<b>√</b>	✓	✓	✓
_	Code 128	✓	✓	<b>√</b>	✓	✓	✓
_	GS1 Databar	✓	1	<b>√</b>	✓	✓	✓
	Hong Kong 2 of 5	✓	1	<b>√</b>	✓	✓	✓
1D	IATA 2 of 5	✓	✓	<b>√</b>	✓	✓	✓
_	Interleaved 2 of 5	✓	1	<b>√</b>	✓	✓	✓
	Matrix 2 of 5	✓	1	<b>√</b>	✓	✓	✓
_	MSI Plessey	✓	✓	<b>√</b>	✓	✓	✓
_	NEC 2 of 5	✓	1	✓	✓	✓	✓
	Pharmacode	_	✓	<b>√</b>	✓	✓	✓
	Straight 2 of 5	<b>√</b>	✓	<b>√</b>	✓	✓	✓
	Telepen	<b>√</b>	✓	<b>√</b>	✓	✓	✓
	Trioptic	<b>√</b>	✓	<b>√</b>	✓	✓	✓
	UK Plessey	<b>√</b>	<b>✓</b>	<b>√</b>	<b>√</b>	✓	✓
	UPC/EAN/JAN	<b>√</b>	✓	<b>√</b>	✓	✓	✓
	Codablock F	_	<b>√</b>	<b>√</b>	✓	✓	✓
	Code 49	_	<b>✓</b>	<b>√</b>	<b>√</b>	✓	✓
	GS1 Composite (CC-A/CC-B/CC-C)	<b>√</b>	<b>√</b>	<b>√</b>	✓	✓	✓
Stacked 1D	GS1 DataBar Expanded Stack	<b>√</b>	<b>✓</b>	_	_	_	✓
	MicroPDF	<b>√</b>	1	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	PDF417	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	Aztec Code	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	Data Matrix	<b>√</b>	1	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	Grid Matrix	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	HanXin	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
2D	Maxicode	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	Micro QR Code	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	QR Code	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	QR Model 1	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	Australian Post	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	Canada Post	_	<b>√</b>	✓	<b>√</b>	<b>√</b>	<b>√</b>
	Japan Post	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	KIX Code	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	Korea Poast	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
Postal Codes	UK Royal Mail	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	UPU ID Tags	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	USPS Intelligent Mail	_	✓ <b>/</b>	✓	<b>√</b>	<b>√</b>	<b>√</b>
	USPS Planet	_	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>
	USPS Post-net	_	<b>√</b>	✓	<b>√</b>	<b>√</b>	<b>√</b>

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Barcode, RFID, Vision



	Code Handheld Barcode Reader Accessories					
Part Number	Price	Description	Weight (lb [kg])	Drawing		
CRA-C503-C298	\$38.50	8ft coiled RS232 cable with power supply	0.40 [0.18]	N/A		
CRA-A274-P1-C298	\$108.00	Quad bay battery charger	0.67 [0.30]	N/A		
CRA-B27DK-C298	\$75.00	Battery for CR270x	0.10 [0.05]	N/A		
CRA-C34-C298	\$15.00	3ft straight USB cable (USB-A to micro USB)	0.09 [0.04]	N/A		
CRA-C500-C298	\$14.50	6ft straight USB cable	0.15 [0.07]	N/A		
CRA-C501-C298	\$14.50	8ft coiled RS232 cable	0.35 [0.16]	N/A		
CRA-C502-C298	\$14.50	6ft straight RS232 cable	0.20 [0.09]	N/A		
CRA-C508-C298	\$14.50	8ft coiled USB cable	0.25 [0.11]	N/A		
CRA-C519-C298	RA-C519-C298 \$14.50 6ft straight DB9-RJ12 RS232 cable		0.20 [0.09]	N/A		
CRA-US3-C298	\$26.00	Flexible stand for CR950, CR1100 in dark gray	0.85 [0.39]	<u>PDF</u>		
CRA-US4-C298	\$38.50	Flexible stand for CR6022 in dark gray 0.85 [0.39]		<u>PDF</u>		
CRA-US9-C298	\$17.50	Rigid stand for CR950, CR1100 in dark gray 0.20 [0.09] <u>PDF</u>		<u>PDF</u>		
CR2AG-P1-C298	\$26.00	Power supply for RS232 readers	0.10 [0.05]	N/A		

#### **RS232 Accessories**











CRA-C501-C298

CRA-C502-C298

CR2AG-P1-C298

CRA-C519-C298

CRA-C503-C298

**USB Cables** 









**Stands** 





CRA-C500-C298

CRA-C508-C298

CRA-C34-C298

**CRA-US4-C298** 

**CRA-US3-C298** 

**CRA-US9-C298** 

**Battery and Charger** 





CRA-B27DK-C298

CRA-A274-P1-C298



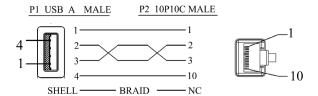
	Compatibility					
Scanner	C-more EA7*	C-more EA9	C-more CM5	Productivity PLC	CLICK PLC	BRX PLC
CR950-K301-C298	Yes	Yes	Yes	No	No	No
CR950-K302-C298	No	No	No	Yes	Yes	Yes
CR1100-K201-C298	Yes	Yes	Yes	No	No	No
CR1100-K202-C298	No	No	No	Yes	Yes	Yes
CR1500-K201-C298	Yes	No	Yes	No	No	No
CR1500-K202-C298	No	No	No	Yes	Yes	Yes
CR5210-C502-C298	No	No	No	Yes	Yes	Yes
CR5210-C500-C298	Yes	Yes	Yes	No	No	No
CR2701-200-C298	Yes**	Yes**	Yes**	No	No	No
CR2702-200-C298	Yes**	Yes**	Yes**	No	No	No
CR6022-C500-C298	Yes	No	No	No	No	No
CR6022-C502-C298	No	No	No	Yes	Yes	Yes

#### **System Assembly Options**

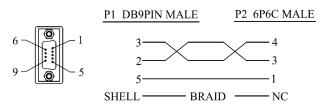


#### **Connection Diagrams**

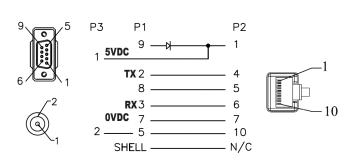
**USB Connections** (CRA-C500-C298, CRA-C508-C298)



#### DB9 to RJ12 (CRA-C519-C298)



#### **RS232 Connections** (CRA-C501-C298, CRA-C502-C298)





<sup>\*</sup> Please note that the C-more EA7 is no longer in active production.
\*\* Please note that although the CR270x will work with the HMI, the HMI will not provide enough current to charge the scanner. However, the scanner battery can always be charged using an external charger such as the CRA-A274-P1-C298 quad bay battery charger.

# Datalogic Smart-VS Vision Sensor





The Smart-VS is a smart vision sensor. It can be set up as easily as a basic photoelectric sensor but provides enhanced functionality. This self-contained vision sensor provides an elegant solution for applications requiring presence and/or orientation object detection. The Smart-VS is built around a powerful multiprocessor platform featuring embedded artificial intelligence technology. The user can step through the simple teach procedure to obtain a GOOD or NO-GOOD (pass or fail) result.

#### **Features**

- · Machine learning assisted setting
- No vision tools programming experience required
- · No inspection threshold adjustment
- Fast and easy set-up
- Deterministic response time 50ms
- Reduced cost of ownership and maintenance
- TEACH button and comprehensive UI with 5 status LEDs
- · Electronic focus control
- 50-150 mm operating distance
- Bright and highly visible red LED pointer
- Built-in white polarized light illuminator
- Green/red LED spot for GOOD/NO GOOD part
- Ethernet point-to-point communication available for configuration
- Easy and intuitive WEB server GUI for maintenance and job setting
- Easy photosensor-style output interface
- Cable exit connections can be rotated to accommodate a variety of installation configurations.

#### **Applications**

- Processing and packaging machinery
- Transport and handling lines
- · Assembly lines
- Food and beverage
- · Bottling lines
- Machines for the cosmetic and pharmaceutical sectors

#### **Agency Approvals**

• CE and CSA





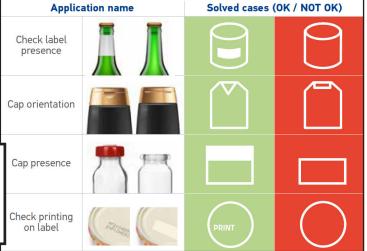
Datalogic Smart-VS Smart Vision Sensor Selection Guide						
Part Number	Price	Operating Distance	Resolution	Illuminator	I/O	Drawing
<u>959971320</u>	\$879.00	50 to 150 mm [1.97 to 5.91 in]	320 x 240	Polarized white LED	2 inputs and 3 outputs	PDF

#### The Smart-VS System

The Smart-VS system teaches the sensor GOOD and NO GOOD object conditions. This allows the Smart-VS system to be used in an effective and reliable way for detecting the presence/absence of object features for side orientation of objects, referring to proper object attributes.

This makes the sensor setting independent of the type, material, or color of the object that needs to be detected.





### **Datalogic Smart-VS Vision Sensor**



Datalogic Smart-VS Smart Vision Sensor Specifications				
Supply Voltage	10 to 30 VDC			
Communication Interface (Ethernet) <sup>1</sup>	10/100 Mbit/s			
Inputs	Opto-coupled and polarity insensitive			
Maximum Voltage	30VDC			
Maximum Input Current Consumption	0.4 to 0.14 A (4.2 W)			
Output Type	Push-pull, NPN or PNP. Short circuit protected. Default is push-pull.			
Outputs	3 outputs (DATA VALID, GOOD, NO GOOD)			
$V_{out}(I_{load} = 0mA)$ Maximum	30VDC			
V <sub>out</sub> (I <sub>load</sub> = 100mA) Maximum	3VDC			
I <sub>load</sub> Maximum	100mA			
Operating Distance	50 to 150 mm [1.97 to 5.91 in]			
View Angle	19°			
Field Of View Area @ 50 mm	22mm (H) x 16mm (V) [0.87 in (H) x 0.63 in (V)] (Refer to field of view diagram below)			
Field Of View Area @ 150 mm	55mm (H) x 41mm (V) [2.17 in (H) x 1.61 in (V)] (Refer to field of view diagram below)			
Response Time	50ms from input trigger			
Maximum Reference Images (GOOD+NO GOOD)	6 images			
Maximum Inspection Rate	20 per second			
Active Area Resolution	320x240 pixels			
Illuminator	White LED polarized			
Weight	173g [6.1 oz]			
Material	Aluminum with plastic PMMA protective window			
Operating Temperature <sup>2</sup>	-10° to 50°C [14° to 122°F]			
Storage Temperature	-20° to 70°C [-4° to 158°F]			
Maximum Humidity	90% non-condensing			
Vibration Resistance	14mm [0.55 in] @ 2 to 10 Hz; 1.5 mm [0.06 in] @ 13 to 55 Hz; 2 g @ 70 to 500 Hz (2 hours on each axis)			
Shock Resistance	30g; 11ms; 3 shocks on each axis			
Protection Class <sup>3</sup>	IP65 and IP67			
Agency Approvals	CE, CSA			

<sup>1)</sup> The embedded Ethernet interface is intended for configuration only through connection to the device IP. Point-to-point connection is recommended. The IP address is factory set to 192.168.3.100.

- 2) High ambient temperature applications should use metal mounting bracket for heat dissipation.
  3) When correctly connected (fully tightened) to IP67 cables with seals.

#### Field of View Diagram

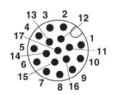


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# **Datalogic Smart-VS Vision Sensor**



#### **Connections**



	M12 17-Pin Power and I/O Connector Pinout						
Pin	Name	Color*	Function				
1	Vdc	Brown	Power supply input voltage +				
2	GND	Blue	Power supply input voltage -				
Connector Case	Chassis	-	Connector case provides electrical connection to chassis				
6	I1A	Yellow	I1A Trigger Input A (polarity insensitive)				
5	I1B	Pink	I1B Trigger Input B (polarity insensitive)				
13	I2A	Green	I2A Remote Teach A (polarity insensitive)				
3	I2B	White	I2B Remote Teach B (polarity insensitive)				
9	01	Red	Data Valid (default is push-pull)				
8	O2	Gray	GOOD Output (default is push-pull)				
16	O3	Black	NO GOOD Output (default is push-pull)				

<sup>\*</sup> The wire colors refer to cables part numbers <a href="#">CAB-GD03</a> and <a href="#">CAB-GD05</a>



M12 8	M12 8-Pin Standard Ethernet Network Connector Pinout						
Pin	Name	Function					
1	TX+	Transmit data (positive pin)					
2	TX-	Transmit data (negative pin)					
3	RX+	Receive data (positive pin)					
4	RX-	Receive data (negative pin)					
5	NC	Not connected					
6	NC	Not connected					
7	NC	Not connected					
8	NC	Not connected					

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### Datalogic Smart-VS Vision Sensor Mounting Bracket



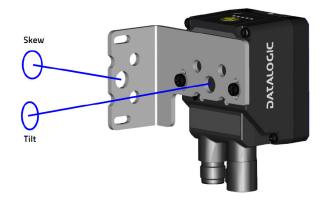
Datalogic Smart-VS Smart Vision Sensor Mounting Bracket Selection Guide						
Part Number	Part Number   Price   Description   Drawing					
BK-22-000	BK-22-000 \$36.50 Replacement mounting bracket, stainless steel PDF					



BK-22-000

#### Mounting and Positioning the Smart-VS Vision Sensor

Smart-VS mounting brackets are fabricated with slots which allow for easy rotation. This permits precise setting of skew and tilt. When using Smart-VS mounting brackets, you have the ability to rotate the sensor on two axes, as shown in the accompanying diagrams.



#### **Smart-VS Vision Sensor Mounting Options**

The Smart-VS Vision Sensor can be attached to the mounting bracket in several ways. Cable exit connections can be rotated to accommodate a variety of installation configurations.



Side mounting with vertical cable exit



Top mounting with vertical cable exit (Horizontal cable exit is also possible)



Side mounting with horizontal cable exit

# **Datalogic X-Coded Ethernet Cables**



Datalogic X-Coded Ethernet Cables Selection Guide						
Part Number	Price					
CAB-ETH-X-M01	\$92.00	Datalogic cable, Ethernet, PVC jacket, shielded, 1m [3.28 ft] cable length, M12 8-pin male X-coded to RJ45				
CAB-ETH-X-M03	\$101.00	Datalogic cable, Ethernet, PVC jacket, shielded, 3m [9.84 ft] cable length, M12 8-pin male X-coded to RJ45				
CAB-ETH-X-M05	\$122.00	Datalogic cable, Ethernet, PVC jacket, shielded, 5m [16.40 ft] cable length, M12 8-pin male X-coded to RJ45				

Note: Ethernet cable jacket color may vary.



CAB-ETH-X-M01

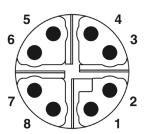


CAB-ETH-X-M03

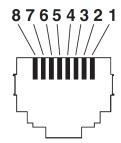


CAB-ETH-X-M05

#### **Diagrams**



Pin assignment M12 male connector, 8-pin, X-coded, male side



Connector pin assignment plug RJ45

## Datalogic 17-Pin M12 Cables ◆DATALOGIC

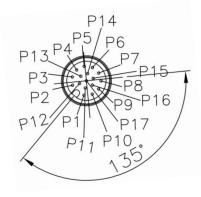


Datalogic 17-Pin M12 Cables Selection Guide					
Part Number	Price				
CAB-GD03	\$50.00	Datalogic cable, M12 axial female to pigtail, 17-pin, PVC, 9.8 ft [3m] cable length.			
CAB-GD05	\$67.00	Datalogic cable, M12 axial female to pigtail, 17-pin, PVC, 16.4 ft [5m] cable length.			





#### **Diagrams**



Wire Run List						
AWG	CONN 1	Color				
	1	Brown				
	2	Blue				
	3	White				
	4	Not connected				
	5	Pink				
	6	Yellow				
	7	Not connected				
	8	Gray				
26	9	Red				
	10	Not connected				
	11	Not connected				
	12	Not connected				
	13	Green				
	14	Not connected				
	15	Not connected				
	16	Black				
	17	Not connected				

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### Machine Vision Lighting Overview

Generic lighting products are designed to provide basic illumination. However, lights designed for use as part of machine vision systems are designed with high-quality LEDs to provide consistent and uniform light across the desired field of view. Here are some considerations that should be kept in mind when designing an optimized machine vision lighting system.

#### **Goals for Machine Vision Lighting**

#### **Contrast**

Maximizing contrast is the ultimate goal for any machine vision lighting system. If high contrast can be obtained, then detection is going to be a lot easier. In fact, maximizing contrast is the reason that most camera vision applications are monochrome. Contrast in monochrome images makes image processing easier.





To achieve the best contrast, the user must have a balance between homogeneity and brightness.

#### Homogeneity

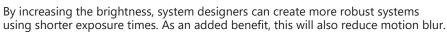
Homogeneity can be thought of as uniformity. The light needs to illuminate the whole field of view uniformly. Hot spots or dark spots remove contrast from specific regions of the field of view and can adversely impact vision accuracy, while a homogenous (uniform) field of illumination can greatly enhance accuracy.





Brightness

Brightness, which is essential in creating contrast, is important in machine vision systems.







It is true that if you put more current through an LED, it will get brighter. But one of the worst things for an LED's lifespan is over-current. Even though more current means a brighter LED, that brightness comes at a cost, for the brighter the LED gets the more heat is generated and the more its lifespan is reduced. In other words, the lifespan of an LED is directly related to the current through the LED.

The manufactures of our machine vision lights have taken great care in selecting the brightest and highest quality LEDs. They have also carefully engineered these lights to maximize light output and LED lifespan in order to deliver a product that will work consistently well for a long period of time. For instance, in order to achieve higher brightness, some of our lights can be strobed with higher current. In these lights, built-in microprocessors manage strobe duration to maximize brightness without adversely impacting life expectancy of the LEDs.

#### **Dealing With Ambient Light**

One of the hardest things to design out of a machine vision application is the ambient light present in the location where the system will be used. Ambient light varies greatly from location to location, so designers must keep potential ambient light impacts in mind when designing machine vision lighting systems.

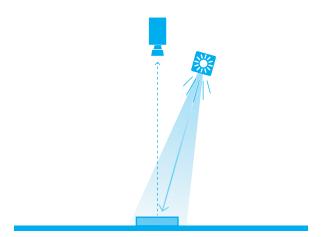
A common misconception is that ambient light comes only from overhead. However, the truth is that ambient light can come from several sources. Among the conditions which can impact ambient lighting are sunlight through a window, the reflection off of a reflective surface, or even a shadow.

There are situations in which building a shroud around the inspection area is the most appropriate way to deal with ambient light. In other situations, the best way to deal with it is to increase the brightness of the light source.

# Machine Vision Lighting Overview, continued

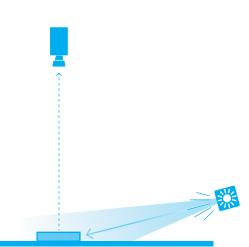
#### **Lighting Principles**

Effective machine vision lighting relies on several factors, including what is known as the "angle of incidence." Angle of incidence is defined as the angle at which the light strikes the object being illuminated. This angle is measured from an imaginary line between the camera and the light source, The examples below illustrate how different lighting angles can be used in various applications.



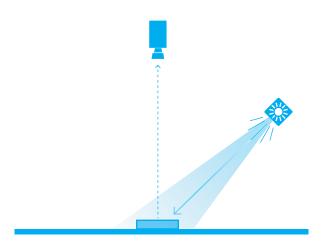
#### **Bright field**

- Usually, the angle of incidence is between 0 and 30 degrees.
- Bright field is the easiest type of lighting principle for humans to understand, because this is how we generally see the world. However, this type of lighting system may not be well suited for use where shiny parts are involved.
- Diffusers or polarizers might be needed to decrease the unintended direct reflections.



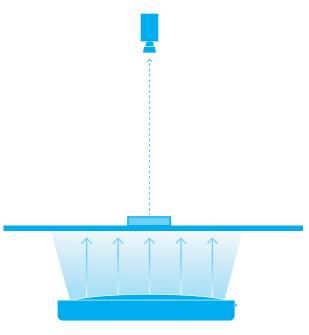
#### Dark field

- Usually, the angle of incidence is between 80 and 90 degrees
- This lighting configuration will generally bring high contrast to the edges. For parts that are not shiny, a narrow beam angle is usually best. For shiny parts, a diffused light source usually works best.
- Applications include edge detection and measurement.



#### Low angle

- Usually, the angle of incidence is between 30 and 80 degrees.
- The lighting source is placed between the dark field and the bright field so that the user can take advantage of both illumination methods.
- Good for engravings



#### **Backlight**

- The light source is placed behind the object.
- When using this method, it is importaint that the light is bigger than the field of view.
- Backlighting light sources should be highly diffused and offer high homogeneity.
- Backlighting makes it possible to see a silhouette.

# WenglorTPL Vision Lighting M-EBAR Lights

WenglorTPL M-EBAR (Modular Essential Bar) Lights, which feature high-power LEDs, come in various sizes and are available with either white or infared lights to help create the best contrast for image processing. These linear lights are extremely versatile and can be used to create different types of lighting (for example, bright field, dark field, or dome effect) suited to various automation and robotics applications. Designed with flexibility in mind, WenglorTPL bar lights simplify the product selection process and make for easy integration.

WenglorTPL's award-winning Modular Essential Bar Light illumination provides universal solutions for pick-and-place, logistics, packaging and traceability applications. These bar lights can be combined with WenglorTPL's Angle Changers to suit almost any machine vision application.

## wenglor TPL

#### **Features**

- Illumination angle can be customized to suit almost any application with the addition of angle changers
- Ultra narrow lens delivers ±7° illumination
- · Robust aluminum body
- IP6
- · Non-removable M4 nut included on back of bar
- Built-in overdrive protection safeguards against damage from overcurrent



**OPT2401** 

WenglorTPL White M-EBAR Selection Guide								
Part Number	Price	Color of Light	Light Temperature	Length of Light	Overdrive	Mode of Operation	Drawings	
<u>OPT2400</u>	\$381.00	White		125mm [4.92 in]			<u>PDF</u>	
OPT2401	\$511.00		EOUUN	YAS	Continuous	PDF		
OPT2402	\$642.00		5800K		or strobe	<u>PDF</u>		
OPT2403	\$775.00			500mm [19.69 in]			<u>PDF</u>	



**OPT2406** 

WenglorTPL Infrared M-EBAR Selection Guide									
Part Number	Price	Color of Light	Wavelength	Length of Light	Overdrive	Mode of Operation	Drawings		
<u>OPT2404</u>	\$401.00	Infared	850nm	125mm [4.92 in]	Yes	Continuous or strobe	<u>PDF</u>		
OPT2405	\$532.00			250mm [9.84 in]			PDF		
OPT2406	\$659.00			375mm [14.76 in]			PDF		
<u>OPT2407</u>	\$789.00			500mm [19.69 in]			PDF		

WenglorTPL Vision Bar Clamp Selection Guide							
Part Number	Price	Description	Material	Drawing			
OPT2432	\$81.00	Bar clamp	Aluminium	PDF			



OPT2432

#### **Angle Changers**

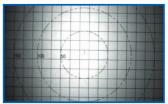
WenglorTPL bar lights can be used as-is in a wide range of applications. However, the addition of an angle changer accessory can greatly enhance the versatility of the overall lighting system by changing the angle of the illumination and thus allowing a single light to be used in multiple applications.

Angle changers are easy to install on the Wenglor bar lights and do not have any impact on the IP rating. Installation takes just seconds and is simply a matter of clipping them into the light's aluminum frame.

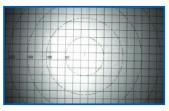


without angle changer

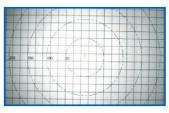
#### Result when using different angle changers



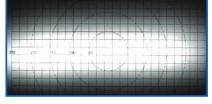
With Narrow Angle Changer



With Medium Angle Changer



With Wide Angle Changer



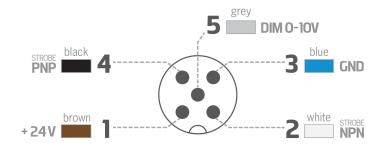
With Line Light Angle Changer

# WenglorTPL Vision Lighting M-EBAR Lights

## wenglor TPL

M-EBAR General Specifications					
	125mm [4.92 in]	250mm [9.84 in]	375mm [14.76 in]	500mm [19.69 in]	
Electi	ronics				
Functioning Mode		Continuou	is or strobe		
Strobe Input			ON. From 0 to 1V for 10 Above 2V for 100% OF		
Overdrive		Y	es		
Strobe Conditions (ON time, duty cycle)	I		240% maximum curren supplied at 100% level.	t.	
Maximum Rising Time		15	iμs		
Maximum Falling Time		15	iμs		
Connection		M12 5-pol	e connector		
Consumption CW Mode	0.3 A	0.6 A	0.9 A	1.2 A	
Consumption Strobe Mode	1.2 A	2.4 A	3.6A	4.8 A	
Minimum Functioning Voltage		20V at the	e light input		
Normal Functioning Voltage		24V at the ligh	t input (±10%)		
Maximum Functioning Voltage			e light input		
Maximum Consumption Strobe and Dimming Signal			mA		
Maximum Strobe Duty Cycle			0%		
Dimming	Pin 5 (I		0-10 V = 100-30% resp	ectively	
Operating Temperature			[14°F to 104°F]		
Operating Maximum Humidity			condensation		
Maximum Temperature Variation in 24 Hours		10°C [18°F]	over 24 hours		
Ор	tics				
Color			(5800k) (850nm)		
Mech	anics		, ,		
Weight	0.8 lb [380g]	1.4 lb [ 630g]	2.1 lb [950g]	2.6 lb [1.20 kg]	
Materials		Aluminum and fiber	glass-reinforced ABS		
Mounting	2 M4 nuts (non-removable) (non-removable) installed in T slot in rear of bar light  4 M4 nuts (non-removable) installed in T slot in rear of bar light				
Enviro	nment				
Storage Temperature	-20°C to 60°C / 80% humidity without condensation No thermal shock (maximum temperature variation 10C in 24 hours)				
IP Protection		IF	65		

#### **Connections**



Strobe PNP					
1	+24V				
2	Not connected				
3 Ground					
4	PNP-signal				
5	Dim 0-10 V				

	Strobe NPN					
1	+24V					
2	NPN-signal					
3	Ground					
4	Not connected					
5	Dim 0-10 V					

Continuous Mode							
1	1 +24V +24V						
2	Not connected		Ground				
3	Ground	OR	Ground				
4	+24V		Not connected				
5	Dim 0-10 V		Dim 0-10 V				

# WenglorTPL Vision Lighting Angle Changers for M-EBAR



WenglorTPL Angle Changers are inserts for the modular essential bar light that make it easy for you to change illumination angles as needed to meet changing application demands.



<u>OPT2408</u> <u>OPT2409-2</u> <u>OPT2410-4</u>

#### **Features**

- Quickly and easily change illumination angles as your project evolves.
- No need to dismantle the product to adjust the illumination angle. All you need to do is to swap Angle Changers.
- Angle Changers do not have an impact on the IP rating of the bar light.
- Allows for rapid feasibility testing.
- Quickly and easily identify the best illumination solution with different angle changer combinations.

Weng	JorTP	L M-EBAR Angl	le Changers S	election (	Guide
Part Number	Price	Angle Type	Angle	Quantity in Package	Drawings
<u>OPT2408</u>	\$30.50			1	PDF
OPT2408-2	\$58.00	Narrow	±10°	2	PDF
OPT2408-4	\$110.00			4	PDF
<u>OPT2409</u>	\$30.50			1	PDF
OPT2409-2	\$58.00	Medium	±17°	2	PDF
<u>OPT2409-4</u>	\$110.00			4	PDF
<u>OPT2410</u>	\$30.50			1	PDF
<u>OPT2410-2</u>	\$58.00	Wide	±25°	2	PDF
<u>OPT2410-4</u>	\$110.00			4	PDF
<u>OPT2411</u>	\$30.50	Line light	±9° x ±16°	1	PDF
<u>OPT2412</u>	\$70.00	Polarized narrow	±10°	1	PDF
<u>OPT2413</u>	\$70.00	Polarized medium	±17°	1	PDF
<u>OPT2414</u>	\$70.00	Polarized wide	±25°	1	PDF
<u>OPT2415</u>	\$70.00	Polarized line light	±9° x ±16°	1	PDF
<u>OPT2416</u>	\$52.00	Polarized	None	1	PDF
<u>OPT2417</u>	\$21.00			1	PDF
<u>OPT2417-2</u>	\$39.50	Transparent	None	2	PDF
<u>OPT2417-4</u>	\$75.00			4	PDF

Number of Angle Changers Needed					
Length of Bar Light Quantity of Angle Changers Required					
<b>125mm [4.92 in]</b>					
250mm [9.84 in]	2				
375mm [14.76 in]	3				
500mm [19.69 in]	4				

#### **Angle Changer Installation**



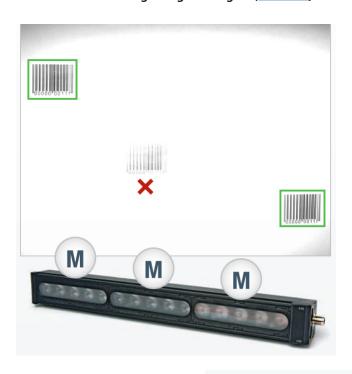
### WenglorTPL Vision Lighting Angle Change Inserts For M-EBAR

## wenglor TPL

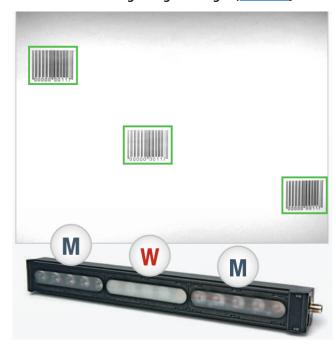
#### **Application Example**

Hot spots are often a problem in machine vision lighting, and WenglorTPL Angle Changers provide an excellent solution to help you deal with hot spots by utilizing different angle changers on the same bar light.

<u>OPT2402</u> light bar with 3 medium-angle Angle Changers (OPT2409)



OPT2402 light bar with 2 medium-angle Angle Changers (OPT2409) and 1 wide-angle Angle Changer (OPT2410)



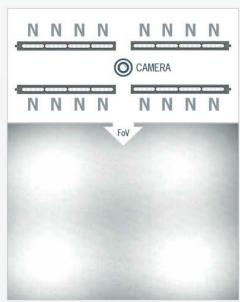
#### **Example**

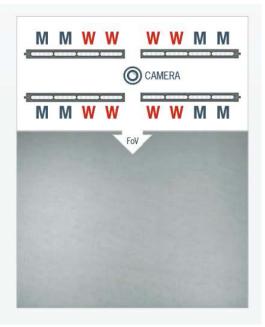
- 2000mm working distance
- 1300 x 900 field of view
- Four OPT2403 light bars with angle changers

Angle changers marked at each 125mm as Narrow, Medium or Wide by N, M, or W

Schematic views show a plan of the system from behind the camera







### WenglorTPL Vision Lighting Modular Ring Light, Dome, wenglor TPL and Low-Angle Accessories

The WenglorTPL Modular Ring Light offers bi-color LED illumination. Models are available in two sets of colors (only one color can be used at a time) and in two different sizes. All have been designed with tough production environments in mind with IP65 as standard and overdrive embedded.

To further enhance the Modular Ring Light's versatility, users have the ability to select colors and quadrants via the simple controls on the device or via I/O from a connected PLC.

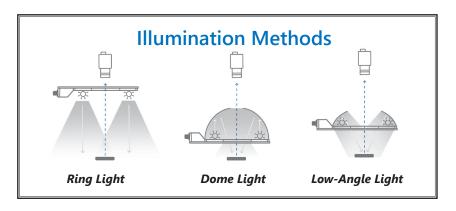


WenglorTPL Modular Ring Light Selection Guide								
Part Number Price Colors Size* (mm [in]) Overdrive Mode of Operation								
OPT2424	\$757.00	Red / Cyan	80 [3.15]			<u>PDF</u>		
OPT2425	\$757.00	White / Infared	80 [3.15]	V	Continuous or strobe	<u>PDF</u>		
OPT2426	\$1,005.00	Red / Cyan	130 [5.12]	Yes		<u>PDF</u>		
OPT2427	\$1,005.00	White / Infared	130 [5.12]			<u>PDF</u>		

\* Approximate diameter to inner ring of LEDs



**OPT2427** 



#### **Ring Light Accessories**

WenglorTPL ring light accessories transform a ring light into a dome light or a low-angle light. These accessories attach to the appropriate sized modular ring light by use of built-in magnets. They are then secured using the provided screws.

For dome light applications, the aperture size for the dome light may need to be reduced to decrease the dark spot on the field of view. The WenglorTPL dome accessory comes with multiple aperture covers to maximize flexibility.

WenglorTPL Ring Light Accessory Selection Guide								
Part Number	Price	Item	Corresponding Ring Light Size* (mm [in])	Drawings				
OPT2428	\$91.00	Dome	80 [3.15]	<u>PDF</u>				
<u>OPT2429</u>	\$116.00	Dome	130 [5.12]	<u>PDF</u>				
<u>OPT2430</u>	\$91.00	Low-angle dome	80 [3.15]	<u>PDF</u>				
<u>OPT2431</u>	\$116.00	Low-angle dome	130 [5.12]	<u>PDF</u>				

<sup>\*</sup> Approximate diameter to inner ring of LEDs on corresponding ring light







**OPT2428** 

**OPT2430** 

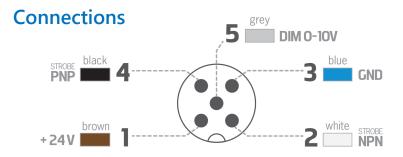


**OPT2425** 

# WenglorTPL Vision Lighting Modular Ring Light

## wenglor TPL

Modular Ring Light General Specifications							
	80mm [3.15 in]	130mm [5.12 in]					
Electronics							
Power Supply	24VDC	±10%					
Functioning Mode	Continuous, strobe, overdrive, di	mming, sector control, LED color					
Rising Time	10	μѕ					
Falling Time	10	μѕ					
Wiring	5-pin M12 male co Optional: 8-pin M12 male c	onnector for power onnector for remote control					
Maximum Consumption, Red-Cyan	9W average / 51W peak 11W average, 82W peak						
Maximum Consumption, White-IR	nsumption, White-IR 10W average / 42W peak 13W average / 62W peak						
	Optics						
Color	Red (625nm) - Cyan (505nm) - V	Vhite (5000K) - Infrared (860nm)					
Number of LEDs	96	144					
	Mechanical						
Height	Lighting por Wiring portion, with						
Weight	360g [0.8 lb]	550g [1.2 lb]					
Material	Aluminum	and ABS					
Mounting	2 x M5 screws (included	with <u>OPT2434</u> bracket)					
	Environment						
Operating Temperature	-10°C to 40°C / 80% humidity without condensation No thermal shock (maximum temperature variation 10C in 24 hours)						
Storage Temperature	-20°C to 60°C / 80% humidity without condensation No thermal shock (maximum temperature variation 10C in 24 hours)						
IP Protection	IP	65					



	Strobe PNP				
1	+24V				
2	+24V*				
3	Ground				
4	PNP				
5	Dim 0-10 V				

Strobe NPN					
1	+24V				
2	NPN				
3	Ground				
4 Ground					
5	Dim 0-10 V				

<sup>\*</sup> Using this connection increases EMC immunity. This connection is not required.

	Continuous Mode							
1	+24V		+24V					
2			Ground					
3	Ground	OR	Ground					
4	+24V							
5	5 Dim 0-10 V Dim 0-10 V							

<b>Optional Remo</b>	te Connection I/O
(8-pin M12)	grey <b>5</b>
pink	6 yellow
7·	green 3
white	1 brown
	8
	red

NOTE: The colors used in this connection chart are for 292 series 8-pin cables.

	Remote I/O	
1	Overdrive	
2	LED color selection	n
3	Ground	
4	Sector 1 ON	
5	Sector 2 ON	
6	Sector 3 ON	
7	Sector 4 ON	
8	Deactivate Keyboa	ard

# WenglorTPL Vision Lighting High-Powered Back Light





The WenglorTPL Vision Back light is a high-powered solution for all backlighting applications and quality control tasks, including detection of presence/absence, analysing edge defects, liquid fill level measurement and silhouetting.

The WenglorTPL Vision Back Light has exceptionally narrow borders (only 4mm wide), making the useful illumination area of the light easy to integrate into your system. The unit's LEDs are mounted with highly efficient lenses, engineered to distribute the highest brightness and uniformity balance available for machine vision backlights.

The Back Light also features integrated current control, making it easy to wire, install and use.

	WenglorTPL Vision Back Lighting Selection Guide								
Part Number	Price	Color of Light	Light Temperature	Area of Light	Overdrive	Mode of Operation	Drawings		
<u>OPT2418</u>	\$676.00			200 x 200mm [7.87 x 7.87 in]			PDF		
<u>OPT2420</u>	\$1,135.00	White	5700K	5700K	300 x 300mm [11.81 x 11.81 in]	No	Continuous or strobe	PDF	
<u>OPT2422</u>	\$1,646.00			400 x 400mm [15.75 x 15.75 in]			<u>PDF</u>		

	WenglorTPL Vision Infrared Back Lighting Selection Guide								
Part Number	Price	Color of Light	Wavelength	Area of Light	Overdrive	Mode of Operation	Drawings		
<u>OPT2419</u>	\$841.00			200 x 200mm [7.87 x 7.87 in]			PDF		
<u>OPT2421</u>	\$1,546.00	Infrared	850nm	300 x 300mm [11.81 x 11.81 in]	No	Continuous or strobe	<u>PDF</u>		
<u>OPT2423</u>	\$2,271.00			400 x 400mm [15.75 x 15.75 in]			<u>PDF</u>		

WenglorTPL Vision Lighting Bracket Selection Guide							
Part Number   Price   Description   Material   Qty in Package   Drawing							
<u>OPT2433</u>	\$82.00	Mounting bracket	Aluminium	4	PDF		



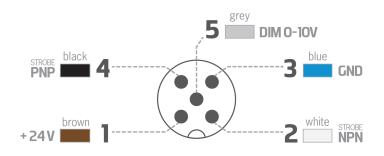
**OPT2433** 

# WenglorTPL Vision Lighting High-Powered Back Light

## wenglor TPL

Back Light General Specifications						
<i>Electronics</i>						
Power Supply	24VDC ±10%					
Functioning Mode	Continuous or strobe					
Strobe Input	PNP: From 5 to 24V for 100% ON. From 0 to 1V for 100% OFF NPN: Less than 1V for 100% ON. Above 2V for 100% OFF. Max 20V					
Overdrive	No					
Strobe Conditions (ON time, duty cycle)	No restriction					
Dimming	Pin 5 (M12 5-pole connector): 0-10 V = 100-30% respectively					
Maximum Rising Time	15µs					
Maximum Falling Time	10µs					
Control	Conector M12 5 poles					
Consumption	White: 21.6 W ( <u>OPT2418</u> ), 48.6 W ( <u>OPT2420</u> ), 86.4 W ( <u>OPT2422</u> ) Infrared: 27.5 W ( <u>OPT2419</u> ), 61.9 W ( <u>OPT2421</u> ), 110 W ( <u>OPT2423</u> )					
Minimum Functioning Voltage	20V at the light input					
Normal Functioning Voltage	24V at the light output (±10%)					
Maximum Functioning Voltage	30V at the light input					
Maximum Consumption Strobe Signal On Largest Product (400x400 mm)	250mA					
Maximum Consumption Dimming Signal On Largest Product (400x400 mm)	150mA					
Optics						
Color	White (5700K) Infrared (850nm)					
Mechanics						
Thickness	45mm					
Weight	23.2 kg/m² ±15%					
Materials	Aluminum and loaded ABS					
Diffuser	White PMMA					
Mounting	4 M4 nuts (supplied) to insert in the groove or 4 M4x20 screws (not supplied) applied to the corner slots					
<b>Environment</b>						
Operating Temperature	-10°C to 40°C / 80% humidity without condensation No thermal shock (maximum temperature variation 10C in 24 hours)					
Storage Temperature	-20°C to 60°C / 80% humidity without condensation No thermal shock (maximum temperature variation 10C in 24 hours)					
IP Protection	IP40					

#### **Connections**



	Strobe PNP				
1	+24V	1			
2	Not connected	2			
3	Ground	3			
4	PNP	4			
5	Dim 0-10 V	5			

		Strobe NPN					
	<b>1</b> +24V						
	2 NPN						
	3 Ground						
l	4 Not connected						
	5 Dim 0-10 V						

Continuous Mode							
1	+24V		+24V				
2	Not connected		Ground				
3	Ground	OR	Ground				
4	+24V		Not connected				
5	Dim 0-10 V		Dim 0-10 V				

# WenglorTPL Vision Lighting wenglor TPL Flat Dome Light



WenglorTPL Vision's Flat Dome Light is a high-power flat dome illumination solution for machine vision applications such as Pick and Place or Logistics. The LEDs are mounted with highly efficient lenses, engineered to distribute the highest brightness and uniformity balance available for machine vision applications.

The Flat Dome Light also also features integrated current control, making it easy to wire, install and use. The central opening allows for simple placement of cameras using lenses up to 65mm [2.56 in] in diameter.

WenglorTPL Vision White Illumination Flat Dome Light Selection Guide							
Part Number	Price	Color of Light Emmission	Temperature	Area of Light	Overdrive	Mode of Operation	Drawings
OPT2435	\$1,002.00	\\/\b:\-	5/10K	F700K	Continuous	<u>PDF</u>	
OPT2437	\$1,432.00	White		INO	or strobe	PDF	

WenglorTPL Vision Infrared Illumination Flat Dome Light Selection Guide							
Part Number	Price	Color of Light Emmission	Wavelength	Area of Light	Overdrive	Mode of Operation	Drawings
OPT2436	\$1,169.00	Informal	0F0	200 x 200 mm	No	Continuous or Strobe	<u>PDF</u>
OPT2438	\$1,682.00	Infared	850nm	300x300 mm	No		PDF

Part Number	Price	Description	Material	QTY in Package	Drawings
<u>OPT2433</u>	\$82.00	Mounting Bracket	Aluminium	4	PDF



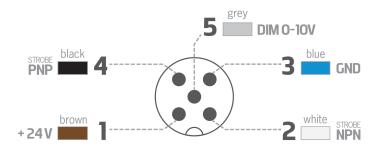
**OPT2433** 

www.automationdirect.com

# WenglorTPL Vision Lighting wenglor TPL Flat Dome Light

Flat Dome Light General Specifications						
Electronics						
Power Supply	24VDC ±10%					
Functioning Mode	Continuous or strobe					
Strobe Input	PNP: From 5 to 24V for 100% ON. From 0 to 1V for 100% OFF NPN: Less than 1V for 100% ON. Above 2V for 100% OFF. Max 20V					
Overdrive	No					
Strobe Conditions (ON time, duty cycle)	No restriction					
Dimming	Pin 5 (M12 5-pole connector): 0-10 V = 100-30% respectively					
Maximum Rising Time	15us					
Maximum Falling Time	10us					
Control	Conector M12 5 poles					
Consumption	White: 21.6 W ( <u>OPT2435</u> ), 48.6 W ( <u>OPT2437</u> ) Infrared: 27.5 W ( <u>OPT2436</u> ), 61.9 W ( <u>OPT2438</u> )					
Minimum Functioning Voltage	20V at the light input					
Normal Functioning Voltage	24V at the light output (±10%)					
Maximum Functioning Voltage	30V at the light input					
Maximum Consumption Strobe Signal On Largest Product (400x400 mm)	250mA					
Maximum Consumption Dimming Signal On Largest Product (400x400 mm)	150mA					
Optics						
Color	White (5700k) Infrared (850nm)					
Mechanics						
Thickness	45mm					
Internal Diameter	65mm					
Weight	23.8 kg/m² ±15%					
Materials	Aluminum and loaded ABS					
Diffuser	White PMMA					
Mounting	4 M4 nuts (supplied) to insert in the groove or 4 M4x20 screws (not supplied) applied to the corner slots					
Environment Control of the Control o						
Operating Temperature	-10°C to 40°C / 80% humidity without condensation No thermal shock (maximum temperature variation 10°C in 24 hours)					
Storage Temperature	-20°C to 60°C / 80% humidity without condensation No thermal shock (maximum temperature variation 10°C in 24 hours)					
IP Protection	IP40					

#### **Connections**



	Strobe PNP					
<b>1</b> +24V						
2 Not connected						
3 Ground						
4 PNP						
5	Dim 0-10 V					

	Strobe NPN						
1	+24V						
2	NPN						
3	Ground						
4	Not connected						
5	Dim 0-10 V						

Continuous Mode								
1	+24V +24V							
2	Not connected		Ground					
3	Ground	OR	Ground					
4	+24V		Not connected					
5	Dim 0-10 V		Dim 0-10 V					

# Swivellink Mounting System Standard Series (Imperial/English Units)



Swivellink Mounts are a better way to mount vision cameras, lights, and sensors. Because of the flexibility and range of Swivellink's patented design, you can fine-tune each installation to just about any position required. Components are made from aluminum alloy for light weight and structural rigidity. Both Metric and Imperial/English versions are available; however, they are not interchangeable.

This page describes Swivellink's AFSB components, which are blue in color and are in Imperial/English units.

Consider the following when selecting your components:

- · Amount of weight the mount will be holding
- · The overall length of the mount
- The area you have to work with

Carrying capacity varies with overall length and system configuration. The Standard Series can hold up 30lb [13.6 kg] at 1ft [0.3 m] with all screws torqued to 50 in•lb [5.65 N•m].



Swivellink Bases (Imperial/English) Selection Guide*						
Part Number Price		Description	Weight (oz [g])	Drawing		
AFSB-1	\$32.00	Round ball base	5.28 [149.7]	<u>PDF</u>		
AFSB-1-15	\$47.00	Narrow ball base	5.28 [149.7]	<u>PDF</u>		







Swivellink Knuckle (Imperial/English) Selection Guide							
Part Number Price Description		Description	Weight (oz [g])	Drawing			
AFSB-2	\$40.50	Knuckle	5.49 [155.6]	<u>PDF</u>			
AFSB-2-2XS	\$44.00	Standard to XS Series coupler	1.95 [55.3]	PDF			

Swivellink Tee (Imperial/English) Selection Guide						
Part Number	Price	Description	Length (in [mm])	Weight (oz [g])	Drawing	
AFSB-3T	\$28.00	Tee link	4 [101.6]	2.19 [62.1]	PDF	
AFSB-290	\$41.50	Tee knuckle	NA	5.15 [146.1]	PDF	





Swivellink Links (Imperial/English) Selection Guide						
Part Number	Price	Description	Length (in [mm])	Weight (oz [g])	Drawing	
AFSB-3-2	\$20.00		2 [50.8]	1.47 [41.7]	PDF	
AFSB-3-4	\$23.00		4 [101.6]	2.05 [58.1]	PDF	
AFSB-3-6	\$26.00	Ball link	6 [152.4]	2.62 [74.4]	PDF	
AFSB-3-8	\$31.50		8 [203.2]	3.20 [90.7]	PDF	
AFSB-3-12	\$36.50		12 [304.8]	3.78 [107.0]	PDF	

Swivellink Handle Kit (Imperial/English) Selection Guide						
Part Number	Price	Description	Weight (oz [g])	Drawing		
AFSB-CLAMP-HANDLE	\$21.50	Clamp handle kit	1.44 [40.8]	PDF		



AFSB-CLAMP-HANDLE

# **Swivellink Mounting System Standard Series (Metric Units)**



Swivellink Mounts are a better way to mount vision cameras, lights, and sensors. Because of the flexibility and range of Swivellink's patented design, you can fine-tune each installation to just about any position required. Components are made from aluminum alloy for light weight and structural rigidity. Both Metric and Imperial/English versions are available; however, they are not interchangeable.

This page describes Swivellink's SLM components, which are gray in color and are in Metric units.

Consider the following when selecting your components:

- · Amount of weight the mount will be holding
- The overall length of the mount
- The area you have to work with

Carrying capacity varies with overall length and system configuration. The Standard Series can hold up 13.6 kg [30lb] at 0.3 m [1ft] with all screws torqued to 5.65 N•m [50 in•lb].



SLM-1-40

Swivellink Bases (Metric) Selection Guide*						
Part Number Price Description		Weight (g [oz])	Drawing			
SLM-1	\$32.00	Round ball base	149.7 [5.28]	<u>PDF</u>		
SLM-1-40	\$47.00	Narrow ball base	149.7 [5.28]	<u>PDF</u>		







Swivellink Knuckle (Metric) Selection Guide						
Part Number	Price	Description	Weight (g [oz])	Drawing		
SLM-2	\$40.50	Knuckle	155.6 [5.49]	PDF		
SLM-2-2XS	\$44.00	Standard to XS Series coupler	55.3 [1.95]	PDF		

Swivellink Tee (Metric) Selection Guide						
Part Number	Price	Description	Length (mm [in])	Weight (g [oz])	Drawing	
SLM-3T	\$28.50	Tee link	100 [3.94]	62.1 [2.19]	PDF	
SLM-290	\$41.50	Tee knuckle	NA	146.1 [5.15]	<u>PDF</u>	





Swivellink Links (Metric) Selection Guide							
Part Number	Price	Description	Length (mm [in])	Weight (g [oz])	Drawing		
SLM-3-50	\$20.00		50 [1.97]	41.7 [1.47]	PDF		
SLM-3-100	\$23.00		100 [3.94]	58.1 [2.05]	PDF		
SLM-3-150	\$26.00	Ball link	150 [5.91]	74.4 [2.62]	PDF		
SLM-3-200	\$31.50		200 [7.87]	90.7 [3.20]	PDF		
SLM-3-300	\$44.00		300 [11.81]	107.0 [3.78]	PDF		

Swivellink Handle Kit (Metric) Selection Guide						
Part Number	Price	Description	Weight (g [oz])	Drawing		
SLM-CLAMP-HANDLE	\$21.50	Clamp handle kit	40.8 [1.44]	<u>PDF</u>		



**SLM-CLAMP-HANDLE** 

# **Swivellink Mounting System Standard Series Accessories**



#### **Blank Mounting Plates**



The AFSB-6 (Imperial/English) and SLM-6 (metric) mounting plates allow users to customize mounting holes for their specific application.

Swivellink Generic Mounting Accessories Blank Mounting Plate Selection Guide							
Part Number	Price	Description	Fits To	Weight (oz [g])	Drawing		
AFSB-6	\$29.50	Diant mounting plate	AFSB-1 and AFSB-1-15	6.11 [173.3]	PDF		
SLM-6	\$31.00	Blank mounting plate	SLM-1 and SLM-1-40	6.11 [173.3]	PDF		

#### **Barrel Sensor Mounts**

The barrel sensor mount accessories allow use with standard threaded barrel sensors of 18mm and 30mm diameter.

Swivellink Generic Mounting Accessories Knuckle Selection Guide							
Part Number	Price	Description	For Use With	Weight (oz [g])	Drawing		
AFSB-7	\$29.50	Mounting for 30mm barrel sensor	AFSB-2 and AFSB-290	5.84 [165.6]	<u>PDF</u>		
AFSB-8	\$30.50	Mounting for 18mm barrel sensor	AFSB-2 and AFSB-290	5.26 [149.2]	PDF		
SLM-7	\$36.50	Mounting for 30mm barrel sensor	SLM-2 and SLM-290	5.84 [165.6]	PDF		
SLM-8	\$36.50	Mounting for 18mm barrel sensor	SLM-2 and SLM-290	5.26 [149.2]	<u>PDF</u>		











#### Mounting Plates for Cognex, Dalsa and Keyence



AFSB-5



SLM-5

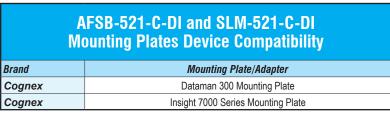
	Swivellink Versatile Mounting Plates Selection Guide							
Part Number	Price	Туре	Fits to	Weight (oz [g])	Drawing			
AFSB-5	\$43.00	Varaatila maunting plata	AFSB-1 and AFSB-1-15	5.38 [152.4]	PDF			
<u>SLM-5</u>	\$45.50	Versatile mounting plate	SLM-1 and SLM-1-40	5.38 [152.4]	PDF			

AFSB-5 and SLM-5 Versatile Mounting Plates Device Compatibility				
Brand	Mounting Plate/Adapter			
Cognex	Dataman 70 Mounting Plate			
Cognex	Dataman 100 Mounting Plate			
Cognex	Dataman 200 Mounting Plate			
Cognex	Dataman 260 Mounting Plate			
Cognex	Dataman 280 Mounting Plate			
Cognex	Insight 5000 Series Mounting Plate			
Cognex	Insight 9902L Series Mounting Plate			
Cognex	Insight 9912 Series Mounting Plate			
Dalsa	Boa Vision Mounting Plate			
Keyence	IV-150 Vision Mounting Plate			
Keyence	IV-2000 Vision Mounting Plate			
Keyence	IV-500 Vision Mounting Plate			

Note: Device compatibility was verified at time of launch.

#### **Mounting Plates for Cognex**

Swivellink Mounting Plates Selection Guide						
Part Number	Price	Туре	Fits to	Weight (oz [g])	Drawing	
AFSB-521-C-DI	\$46.50	Mounting plate	AFSB-1 and AFSB-1-15	5.30 [150.1]	PDF	
<u>SLM-521-C-DI</u>	\$46.50		SLM-1 and SLM-1-40	5.30 [150.1]	<u>PDF</u>	



Note: Device compatibility was verified at time of launch.



AFSB-521-C-DI



SLM-521-C-DI



#### **Mounting Plates for WenglorTPL and Keyence**



AFSB-550-K-CVIV



Swivellink Mounting Plates Selection Guide						
Part Number	Part Number Price Type Fits to Weight (oz [g]) Drawing					
AFSB-550-K-CVIV	\$39.00		AFSB-1 and AFSB-1-15	6.37 [180.5]	<u>PDF</u>	
SLM-550-K-CVIV	\$41.00	Mounting plate	SLM-1 and SLM-1-40	6.37 [180.5]	<u>PDF</u>	

AFSB-550-K-CVIV and SLM-550-K-CVIV Mounting Plates Device Compatibility				
Brand	Mounting Plate/Adapter			
WenglorTPL	OPT2400 through OPT2407			
Keyence	IV-150 Vision Mounting Plate			
Keyence	IV-2000 Vision Mounting Plate			
Keyence	IV-500 Vision Mounting Plate			
Keyence	IV-H2000MA Series Mounting Plate			
Keyence	IV-H500CA Vision Mounting Plate			
Keyence	IV-H500MA Vision Mounting Plate			

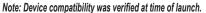
Note: Device compatibility was verified at time of launch.

SLM-550-K-CVIV

#### **Mounting Plates for Smart Vision Lights (Brick Lights)**

Swivellink Mounting Plates Selection Guide						
Part Number Price Type Fits to Weight (oz [g]) Drawing						
AFSB-620-S75	\$46.50	Mounting plate	AFSB-1 and AFSB-1-15	8.5 [240.9]	<u>PDF</u>	
SLM-620-S75	\$46.50	Mounting plate	SLM-1 and SLM-1-40	8.5 [240.9]	<u>PDF</u>	

AFSB-620-S75 and SLM-620-S75 Mounting Plates Device Compatibility					
Brand	Mounting Plate/Adapter				
Smart Vision Lights	ODS75 Brick Light Mounting Plate				
Smart Vision Lights	ODSB75 Brick Light Mounting Plate				
Smart Vision Lights	ODSW75 Brick Light Mounting Plate				
Smart Vision Lights	S75 Brick Light Mounting Plate				
Smart Vision Lights	SB75 Brick Light Mounting Plate				
Smart Vision Lights	SC75 Brick Light Mounting Plate				
Smart Vision Lights	SW75 Brick Light Mounting Plate				





AFSB-620-S75



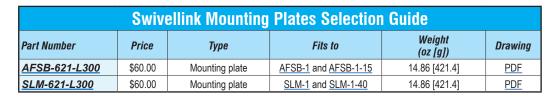
SLM-620-S75



#### **Mounting Plates for Smart Vision Lights (Bar Lights)**



AFSB-621-L300



AFSB-621-L300 and SLM-621-L300 Mounting Plates Device Compatibility				
Brand	Mounting Plate/Adapter			
Smart Vision Lights	L300 Bar Light Mounting Plate			
Smart Vision Lights	LB300 Bar Light Mounting Plate			
Smart Vision Lights	LC300 Bar Light Mounting Plate			



Note: Device compatibility was verified at time of launch.

#### **Mounting Plates for Cognex Insight**

Swivellink Mounting Plates Selection Guide					
Part Number	Price	Туре	Fits to	Weight (oz [g])	Drawing
AFSB-523-C-I2000	\$46.50	Maunting plate	AFSB-1 and AFSB-1-15	3.57 [101.2]	<u>PDF</u>
SLM-523-C-12000	\$46.50	Mounting plate	SLM-1 and SLM-1-40	3.57 [101.2]	PDF

AFSB-523-C-I2000 and SLM-523-C-I2000 Mounting Plates Device Compatibility			
Brand	Mounting Plate/Adapter		
Cognex	Insight 2000 Series Mounting Plate		
Cognex	Insight 8000 Series Mounting Plate		

Note: Device compatibility was verified at time of launch.



AFSB-523-C-I2000



SLM-523-C-12000



#### Mounting Plates for Banner, Dalsa, IFM and Wenglor



Swivellink Mounting Plates Selection Guide					
Part Number	Price	Туре	Fits to	Weight (oz [g])	Drawing
<u>SLM-540-IFM</u>	\$40.00	Mounting plate	SLM-1 and SLM-1-40	5.38 [152.4]	<u>PDF</u>

AFSB-621-L300 and SLM-621-L300 Mounting Plates Device Compatibility				
Brand	Mounting Plate/Adapter			
IFM	01D Barcode Reader			
IFM	02D Vision Camera			
IFM	03D 3-Dimensional Camera			
Banner	Q5X Mounting Plate			
Dalsa	Boa 2 Vision Mounting Plate			
Wenglor	Weqube Vision Camera			

Note: Device compatibility was verified at time of launch.

#### **Mounting Plates for VESA**

Swivellink Mounting Plates Selection Guide						
Part Number	Part Number Price Type Fits to Weight Drawing (oz [g])					
AFSB-9	\$60.00	VESA mounting plate	AFSB-1 and AFSB-1-15	11.86 [336.1]	<u>PDF</u>	
SLM-9	\$60.00		SLM-1 and SLM-1-40	11.86 [336.1]	PDF	

Note: Carrying capacity varies with overall length and system configuration. The Standard Series can hold up 30lb [13.6 kg] at 1ft [0.3 m] with all screws torqued to 50 in·lb [5.65 N·m].







#### Clamp-On Base



Swivellink Mounting Plates Selection Guide						
Part Number	Price	Туре	Fits to	Range of Grip	Weight (oz [g])	Drawing
AFSB-CB	\$92.00	Clamp-on base	AFSB-1 and AFSB-1-15	0.5 to 1.25 in [12.7 to 31.8 mm]	11.65 [330.2]	<u>PDF</u>
SLM-CB	\$118.00		<u>SLM-1</u> and <u>SLM-1-40</u>	0.63 to 1.38 in [16 to 35 mm]	11.65 [330.2]	<u>PDF</u>



www.automationdirect.com Barcode, RFID, Vision tBRV-36

# Swivellink Mounting System XS Series (Imperial/English Units)



Swivellink Mounts are a better way to mount vision cameras, lights, and sensors. Because of the flexibility and range of Swivellink's patented design, you can fine-tune each installation to just about any position required. Components are made from aluminum alloy for light weight and structural rigidity. Both Metric and Imperial/English versions are available; however, they are not interchangeable.

This page describes Swivellink's AFSB components, which are blue in color and are in Imperial/English units.

Consider the following when selecting your components:

- · Amount of weight the mount will be holding
- The overall length of the mount
- The area you have to work with

Carrying capacity varies with overall length and system configuration. The XS Series can hold up 3lb [1.36 kg] at 1ft [0.3m] with all screws torqued to 50 in•lb [5.65 N•m].



Swivellink Bases (Imperial/English) Selection Guide*					
Part Number	Price	Description	Weight (oz [g])	Drawing	
AFSB-1XS	\$15.00	Round ball base	0.67 [19.1]	<u>PDF</u>	

<sup>\*</sup> These bases fit SureFrame 10 Series and 15 Series T-slotted rail.

AFSB-1XS



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Swivellink Knuckle (Imperial/English) Selection Guide						
Part Number	Price	Description	Weight (oz [g])	Drawing		
AFSB-2XS	\$31.00	Knuckle	1.46 [41.3]	PDF		
AFSB-2-2XS	\$44.00	Standard to XS Series coupler	1.95 [55.3]	PDF		

-	Top (Immerial/English) Calcution Cuide					
•						
	AFSB-2-2XS	\$44.00	Standard to XS Series coupler	1.95 [55.3]		
		*				

Swivellink Tee (Imperial/English) Selection Guide							
Part Number	Price	Description	Length (in [mm])	Weight (oz [g])	Drawing		
AFSB-3XST	\$13.00	Tee link	3 [76.2]	0.77 [21.8]	PDF		
AFSB-2XS90	\$32.50	Tee knuckle	NA	1.71 [48.5]	PDF		









	FS	D	2	2	XS
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Swivellink Links (Imperial/English) Selection Guide							
Part Number	Price	Description	Length (in [mm])	Weight (oz [g])	Drawing		
AFSB-3-2XS	\$16.00	Dall link	2 [50.8]	0.54 [15.4]	PDF		
AFSB-3-4XS	\$23.00	Ball link	4 [101.6]	0.83 [23.6]	PDF		

Swivellink Handle Kit (Imperial/English) Selection Guide						
Part Number	Price	Description	Weight (oz [g])	Drawing		
AFSB-CLAMP-HANDLE	\$21.50	Clamp handle kit	1.44 [40.8]	PDF		



# Swivellink Mounting System XS Series (Metric Units)



Swivellink Mounts are a better way to mount vision cameras, lights, and sensors. Because of the flexibility and range of Swivellink's patented design, you can fine-tune each installation to just about any position required. Components are made from aluminum alloy for light weight and structural rigidity. Both Metric and Imperial/English versions are available; however, they are not interchangeable.

This page describes Swivellink's SLM components, which are gray in color and are in Metric units.

Consider the following when selecting your components:

- Amount of weight the mount will be holding
- The overall length of the mount
- The area you have to work with

Carrying capacity varies with overall length and system configuration. The Standard Series can hold up 1.36 kg [3lb] at 0.3 m [1ft] with all screws torqued to 5.65 N•m [50 in•lb].



 Swivellink Bases (Metric) Selection Guide\*

 Part Number
 Price
 Description
 Weight (g [oz])
 Drawing

 SLM-1XS
 \$15.00
 Round ball base
 19.1 [0.67]
 PDF

\* These bases fit SureFrame 40 Series and 45 Series T-slotted rail.





SLM-2-2XS

Swivellink Knuckle (Metric) Selection Guide					
Part Number	Price	Description	Weight (g [oz])	Drawing	
SLM-2XS	\$31.00	Knuckle	41.3 [1.46]	<u>PDF</u>	
SLM-2-2XS	\$44.00	Standard to XS Series coupler	55.3 [1.95]	PDF	

Swivellink Tee (Metric) Selection Guide						
Part Number	Price	Description	Length (mm [in])	Weight (g [oz])	Drawing	
SLM-3XST	\$13.00	Tee link	100 [3.94]	21.8 [0.77]	PDF	
SLM-2XS90	\$32.50	Tee knuckle	NA	36.3 [1.28]	PDF	







SL	М-	3-	50	XS

Swivellink Links (Metric) Selection Guide							
Part Number	Price	Description	Length (mm [in])	Weight (g [oz])	Drawing		
SLM-3-50XS	\$16.50	Dall link	50 [1.97]	15.4 [0.54]	<u>PDF</u>		
SLM-3-100XS	\$23.00	Ball link	100 [3.94]	23.6 [0.83]	PDF		

Swivellink Handle Kit (Metric) Selection Guide						
Part Number	Price	Description	Weight (g [oz])	Drawing		
SLM-CLAMP-HANDLE	\$21.50	Clamp handle kit	40.8 [1.44]	<u>PDF</u>		



SLM-CLAMP-HANDLE

### **Swivellink Mounting System XS Series Accessories**



### **Blank Mounting Plates**



The AFSB-6XS (Imperial/English) and SLM-6XS (metric) mounting plates allow users to customize mounting holes for their specific application.

Swivellink Generic Mounting Accessories Blank Mounting Plate Selection Guide							
Part Number	Price	Description	Fits To	Weight (oz [g])	Drawing		
AFSB-6XS	\$16.50	Diagla manufica alata	AFSB-1XS	2.99 [84.8]	PDF		
SLM-6XS	\$16.50	Blank mounting plate	SLM-1XS	2.99 [84.8]	PDF		



#### **Barrel Sensor Mounts**

The barrel sensor mount accessories allow use with standard threaded barrel sensors of 18mm and 30mm diameter.

Swivellink Generic Mounting Accessories Knuckle Selection Guide							
Part Number	Price	Description	For Use With	Weight (oz [g])	Drawing		
AFSB-7XS	\$25.00	Mounting for 12mm barrel sensor	AFSB-2XS	0.8 [22.7]	PDF		
AFSB-8XS	\$20.50	Mounting for 8mm barrel sensor	and AFSB-2-2XS	0.94 [26.8]	<u>PDF</u>		
SLM-7XS	\$35.50	Mounting for 12mm barrel sensor	SLM-2XSand	0.8 [22.7]	PDF		
SLM-8XS	\$30.50	Mounting for 8mm barrel sensor	SLM-2-2XS	0.94 [26.8]	PDF		



#### **Camera Stem Mounts**

The camera stem mounts allow use with standard camera mounts. This link has a standard tripod mount (1/4 in - 20) screw on it.

Swivellink Generic Mounting Accessories Camera Stem Mounts Selection Guide							
Part Number	Price	Description	For Use With	Weight (oz [g])	Drawing		
AFSB-5XS	\$18.50	0	AFSB-2XS and AFSB-2-2XS	0.5 [14.1]	PDF		
SLM-5XS	\$26.50	Camera stem mount	SLM-2XS and SLM-2-2XS	0.5 [14.1]	<u>PDF</u>		



SLM-7XS





#### **Sensor Brackets**

Choose sensor bracket holder based on size (Standard vs XS) and series (AFSB vs SLM). Then choose the sensor bracket based on the size of sensor barrel.

Swivellink Mounting Plates Selection Guide								
Part Number	Price Type		Fits to	Weight (oz [g])	Drawing			
		Sensor Bracket H	olders (Standard)					
AFSB-SBH	\$43.50	Sensor bracket holder for standard series knuckles	Fits to Standard Series knuckle (ie AFSB-2)	2.51 [71.2]	<u>PDF</u>			
AFSB-SBH-XS	\$38.50	Sensor bracket holder for XS series knuckles	Fits to XS Series knuckle (ie AFSB-2XS)	0.8 [22.7]	PDF			
		Sensor Bracke	ets (Standard)					
AFSB-SB-8	\$9.50	Sensor bracket 8mm		1.63 [46.3]	<u>PDF</u>			
AFSB-SB-12	\$9.75	Sensor bracket 12mm	Fits to AFSB-SBH	1.57 [44.5]	<u>PDF</u>			
AFSB-SB-18	\$14.00	Sensor bracket 18mm	or <u>AFSB-SBH-XS</u>	1.41 [39.9]	PDF			
AFSB-SB-30	\$14.00	Sensor bracket 30mm		2.14 [60.8]	PDF			



AFSB-SBH



AFSB-SB-12



SLM-SBH



SLM-SB-30

Swivellink Mounting Plates Selection Guide								
Part Number	Price	Туре	Fits to	Weight (oz [g])	Drawing			
	Sensor Bracket Holders (Metric)							
SLM-SBH	\$31.00	Metric sensor bracket holder for standard series knuckles	Fits to Standard Series knuckle (ie <u>SLM-2</u> )	2.5 [70.8]	PDF			
SLM-SBH-XS	\$27.50	Metric sensor bracket holder for XS series knuckles	Fits to XS Series knuckle (ie. <u>SLM-2XS</u> )	0.8 [22.7]	PDF			
		Sensor Brac	kets (Metric)					
SLM-SB-8	\$9.50	Metric sensor bracket 8mm		1.63 [46.3]	PDF			
SLM-SB-12	\$9.75	Metric sensor bracket 12mm	Fits to SLM-SBH	1.57 [44.5]	PDF			
SLM-SB-18	\$10.00	Metric sensor bracket 18mm	or SLM-SBH-XS	1.41 [39.9]	PDF			
<u>SLM-SB-30</u>	\$10.50	Metric sensor bracket 30mm		2.14 [60.8]	PDF			

### Swivellink Mounting System Assemblies



### **Mounting System Assemblies**

Mounting system assemblies come with 2 bases, 2 knuckles and a link.

Standard Mounting System Assemblies Selection Guide								
Part Number Price		Measurement Type	Length of Link	Drawing				
AFSB-1002	\$187.00		2in	PDF				
AFSB-1004	\$190.00	Imperial	4in	PDF				
AFSB-1006	\$193.00		6in	PDF				
<u>SLM-10050</u>	\$187.00	Metric	50mm	PDF				
<u>SLM-100100</u>	\$190.00	Metric	100mm	PDF				





AFSB-1004

SLM-100100



AFSB-1004XS



**SLM-100100XS** 

Extra Small Standard Mounting System Assemblies Selection Guide								
Part Number	Price	Measurement Type	Length of Link	Drawing				
AFSB-1002XS	\$130.00	lman orial	2in	<u>PDF</u>				
AFSB-1004XS	\$137.00	Imperial	4in	PDF				
<u>SLM-10050XS</u>	\$130.00	Metric	50mm	PDF				
SLM-100100XS	\$136.50		100mm	PDF				

### **Sensor Mounting Kit Assemblies**

Sensor mounting kit assemblies come with 1 base, 1 knuckle, 1 sensor bracket holder, and 1 sensor bracket.

Sensor Mounting Kit Assemblies Selection Guide								
Part Number	Price	Measurement Type	Length of Link	Drawing				
AFSB-SBKIT-8	\$126.00		8mm	PDF				
AFSB-SBKIT-12	\$126.00	Imperial -	12mm	PDF				
AFSB-SBKIT-18	\$130.00		18mm	PDF				
AFSB-SBKIT-30	\$130.00		30mm	PDF				
SLM-SBKIT-8	\$113.00		8m	PDF				
SLM-SBKIT-12	\$113.00	Matria	12mm	PDF				
SLM-SBKIT-18	\$114.00	Metric	18mm	PDF				
SLM-SBKIT-30	\$114.00		30mm	PDF				



AFSB-SBKIT-12



SLM-SBKIT-30

# Swivellink Mounting System (Imperial/English Units)



Swivellink Mounts are a better way to mount vision cameras, lights, and sensors. Because of the flexibility and range of Swivellink's patented design, you can fine-tune each installation to just about any position required. Both Metric and Imperial/English versions are available; however, they are not interchangeable.

This page describes Swivellink's AFSB components, which are blue in color and are in Imperial/English units.

Consider the following when selecting your components:

- Amount of weight the mount will be holding
- The overall length of the mount
- The area you have to work with

Carrying capacity varies with overall length and system configuration. Estimated hold weight is up to 30lb [13.6 kg].



Swivellink Bases (Imperial/English) Selection Guide*							
Part Number Price Description		Weight (oz [g])	Drawing				
AFSB-1	\$32.00	Round ball base	5.28 [149.7]	<u>PDF</u>			
AFSB-1-15	\$47.00	Narrow ball base	5.28 [149.7]	<u>PDF</u>			

<sup>\*</sup> These bases fit SureFrame 15 Series T-slotted rail.





Swivellink Knuckle (Imperial/English) Selection Guide						
Part Number	Price	Description	Weight (oz [g])	Drawing		
AFSB-2	\$40.50	Knuckle	5.49 [155.6]	<u>PDF</u>		

Swivellink Tee (Imperial/English) Selection Guide							
Part Number	Price	Description	Length (in [mm])	Weight (oz [g])	Drawing		
AFSB-3T	\$28.00	Tee link	4 [101.6]	2.19 [62.1]	PDF		
AFSB-290	\$41.50	Tee knuckle	NA	5.15 [146.1]	PDF		





Swivellink Links (Imperial/English) Selection Guide						
Part Number	Price	Description	Length (in [mm])	Weight (oz [g])	Drawing	
AFSB-3-2	\$20.00		2 [50.8]	1.47 [41.7]	PDF	
AFSB-3-4	\$23.00		4 [101.6]	2.05 [58.1]	PDF	
AFSB-3-6	\$26.00	Ball link	6 [152.4]	2.62 [74.4]	PDF	
AFSB-3-8	\$31.50		8 [203.2]	3.20 [90.7]	PDF	
AFSB-3-12	\$36.50		12 [304.8]	3.78 [107.0]	PDF	

Swivellink Handle Kit (Imperial/English) Selection Guide						
Part Number	Price	Description	Weight (oz [g])	Drawing		
AFSB-CLAMP-HANDLE	\$21.50	Clamp handle kit	1.44 [40.8]	<u>PDF</u>		



# **Swivellink Mounting System** (Metric Units)



Swivellink Mounts are a better way to mount vision cameras, lights, and sensors. Because of the flexibility and range of Swivellink's patented design, you can fine-tune each installation to just about any position required. Both Metric and Imperial/English versions are available; however, they are not interchangeable.

This page describes Swivellink's SLM components, which are gray in color and are in Metric units.

Consider the following when selecting your components:

- Amount of weight the mount will be holding
- · The overall length of the mount
- The area you have to work with

Carrying capacity varies with overall length and system configuration. Estimated hold weight is up to 13.6 kg [30lb].



SLM-1-40

Swivellink Bases (Metric) Selection Guide*						
Part Number Price De		Description	Weight (g [oz])	Drawing		
SLM-1	\$32.00	Round ball base	149.7 [5.28]	PDF		
SLM-1-40	\$47.00	Narrow ball base	149.7 [5.28]	PDF		







Swivellink Knuckle (Metric) Selection Guide					
Part Number	Price	Description	Weight (g [oz])	Drawing	
SLM-2	\$40.50	Knuckle	155.6 [5.49]	<u>PDF</u>	

Swivellink Tee (Metric) Selection Guide						
Part Number	Price	Description	Length (mm [in])	Weight (g [oz])	Drawing	
SLM-3T	\$28.50	Tee link	100 [3.94]	62.1 [2.19]	PDF	
SLM-290	\$41.50	Tee knuckle	NA	146.1 [5.15]	PDF	





Swivellink Links (Metric) Selection Guide							
Part Number	Price	Description	Length (mm [in])	Weight (g [oz])	Drawing		
SLM-3-50	\$20.00		50 [1.97]	41.7 [1.47]	PDF		
SLM-3-100	\$23.00		100 [3.94]	58.1 [2.05]	PDF		
SLM-3-150	\$26.00	Ball link	150 [5.91]	74.4 [2.62]	PDF		
SLM-3-200	\$31.50		200 [7.87]	90.7 [3.20]	PDF		
SLM-3-300	\$44.00		300 [11.81]	107.0 [3.78]	PDF		

Swivellink Handle Kit (Metric) Selection Guide						
Part Number	Price	Description	Weight (g [oz])	Drawing		
SLM-CLAMP-HANDLE	\$21.50	Clamp handle kit	40.8 [1.44]	PDF		



SLM-CLAMP-HANDLE

### **Swivellink Mounting System Accessories**



### **Blank Mounting Plates**



The AFSB-6 (Imperial/English) and SLM-6 (metric) mounting plates allow users to customize mounting holes for their specific application.

Swivellink Generic Mounting Accessories Blank Mounting Plate Selection Guide							
Part Number	Price	Description	Fits To	Weight (g [oz])	Drawing		
AFSB-6	\$29.50	Blank mounting plate	AFSB-1 and AFSB-1-15	6.11 [173.3]	PDF		
SLM-6	\$31.00	Blank mounting plate	SLM-1 and SLM-1-40	6.11 [173.3]	PDF		

#### **Barrel Sensor Mounts**

The barrel sensor mount accessories allow use with standard threaded barrel sensors of 18mm and 30mm diameter.

Swivellink Generic Mounting Accessories Knuckle Selection Guide							
Part Number	Price	Description	For Use With	Weight (oz [g])	Drawing		
AFSB-7	\$29.50	Mounting for 30mm barrel sensor	AFSB-2 and AFSB-290	5.84 [165.6]	<u>PDF</u>		
AFSB-8	\$30.50	Mounting for 18mm barrel sensor	AFSB-2 and AFSB-290	5.26 [149.2]	<u>PDF</u>		
SLM-7	\$36.50	Mounting for 30mm barrel sensor	SLM-2 and SLM-290	5.84 [165.6]	<u>PDF</u>		
SLM-8	\$36.50	Mounting for 18mm barrel sensor	SLM-2 and SLM-290	5.26 [149.2]	PDF		











### Mounting Plates for Cognex, Dalsa and Keyence



	Swivellink Versatile Mounting Plates Selection Guide							
Part Number	Price	Туре	Fits to	Weight (oz [g])	Drawing			
AFSB-5	\$43.00	Versatile mounting plate	AFSB-1 and AFSB-1-15	5.38 [152.4]	PDF			
SLM-5	\$45.50	Versatile mounting plate	SLM-1 and SLM-1-40	5.38 [152.4]	PDF			

AFSB-5



SLM-5

AFSB-5 and SLM-5 Versatile Mounting Plates Device Compatibility					
Brand	Mounting Plate/Adapter				
Cognex	Dataman 70 Mounting Plate				
Cognex	Dataman 100 Mounting Plate				
Cognex	Dataman 200 Mounting Plate				
Cognex	Dataman 260 Mounting Plate				
Cognex	Dataman 280 Mounting Plate				
Cognex	Insight 5000 Series Mounting Plate				
Cognex	Insight 9902L Series Mounting Plate				
Cognex	Insight 9912 Series Mounting Plate				
Dalsa	Boa Vision Mounting Plate				
Keyence	IV-150 Vision Mounting Plate				
Keyence	IV-2000 Vision Mounting Plate				
Keyence	IV-500 Vision Mounting Plate				

Note: Device compatibility was verified at time of launch.

### **Mounting Plates for Cognex**

Swivellink Mounting Plates Selection Guide						
Part Number	Price	Туре	Fits to	Weight (oz [g])	Drawing	
AFSB-521-C-DI	\$46.50	Mounting plate	AFSB-1 and AFSB-1-15	5.30 [150.1]	<u>PDF</u>	
SLM-521-C-DI	\$46.50	Mounting plate	SLM-1 and SLM-1-40	5.30 [150.1]	<u>PDF</u>	

AFSB-521-C-DI and SLM-521-C-DI Mounting Plates Device Compatibility							
Brand	rand Mounting Plate/Adapter						
Cognex	Dataman 300 Mounting Plate						
Cognex	Insight 7000 Series Mounting Plate						

Note: Device compatibility was verified at time of launch.



AFSB-521-C-DI



SLM-521-C-DI



### **Mounting Plates for WenglorTPL and Keyence**



Swivellink Mounting Plates Selection Guide									
Part Number Price Type Fits to Weight (oz [g]) Drawing									
AFSB-550-K-CVIV	\$39.00	Mounting plate	AFSB-1 and AFSB-1-15	6.37 [180.5]	PDF				
SLM-550-K-CVIV	\$41.00	Mounting plate	SLM-1 and SLM-1-40	6.37 [180.5]	PDF				

AFSB-550-K-CVIV



AFSB-550-K-CVIV and SLM-550-K-CVIV Mounting Plates Device Compatibility							
Brand	Mounting Plate/Adapter						
WenglorTPL	OPT2400 through OPT2407						
Keyence	IV-150 Vision Mounting Plate						
Keyence	IV-2000 Vision Mounting Plate						
Keyence	IV-500 Vision Mounting Plate						
Keyence	IV-H2000MA Series Mounting Plate						
Keyence	IV-H500CA Vision Mounting Plate						
Keyence	IV-H500MA Vision Mounting Plate						

Note: Device compatibility was verified at time of launch.

SLM-550-K-CVIV

### **Mounting Plates for Smart Vision Lights (Brick Lights)**

Swivellink Mounting Plates Selection Guide									
Part Number Price Type Fits to Weight (oz [g]) Drawing									
AFSB-620-S75	\$46.50	Mounting plate	AFSB-1 and AFSB-1-15	8.5 [240.9]	<u>PDF</u>				
SLM-620-S75         \$46.50         Mounting plate         SLM-1 and SLM-1-40         8.5 [240.9]         PDF									

AFSB-620-S75 and SLM-620-S75 Mounting Plates Device Compatibility							
Brand Mounting Plate/Adapter							
Smart Vision Lights	ODS75 Brick Light Mounting Plate						
Smart Vision Lights ODSB75 Brick Light Mounting Plate							
Smart Vision Lights	ODSW75 Brick Light Mounting Plate						
Smart Vision Lights	S75 Brick Light Mounting Plate						
Smart Vision Lights	SB75 Brick Light Mounting Plate						
Smart Vision Lights	SC75 Brick Light Mounting Plate						
Smart Vision Lights	SW75 Brick Light Mounting Plate						

Note: Device compatibility was verified at time of launch.



AFSB-620-S75



SLM-620-S75



### **Mounting Plates for Smart Vision Lights (Bar Lights)**



Swivellink Mounting Plates Selection Guide										
Part Number Price Type Fits to Weight (oz [g]) Drawing										
AFSB-621-L300	\$60.00	Mounting plate	AFSB-1 and AFSB-1-15	14.86 [421.4]	<u>PDF</u>					
<u>SLM-621-L300</u>										

AFSB-621-L300

Mounting Plates Device Compatibility

Brand Mounting Plate/Adapter

Smart Vision Lights L300 Bar Light Mounting Plate

Smart Vision Lights LB300 Bar Light Mounting Plate

Smart Vision Lights LC300 Bar Light Mounting Plate

Smart Vision Lights LC300 Bar Light Mounting Plate

AFSB-621-L300 and SLM-621-L300

Note: Device compatibility was verified at time of launch.

SLM-621-L300

### **Mounting Plates for Cognex Insight**

Swivellink Mounting Plates Selection Guide									
Part Number Price Type Fits to Weight (oz [g]) Drawing									
AFSB-523-C-I2000	\$46.50	Mounting plate	AFSB-1 and AFSB-1-15	3.57 [101.2]	PDF				
SLM-523-C-I2000	\$46.50	Mounting plate	SLM-1 and SLM-1-40	3.57 [101.2]	PDF				

AFSB-523-C-I2000 and SLM-523-C-I2000 Mounting Plates Device Compatibility					
Brand	Mounting Plate/Adapter				
Cognex	Insight 2000 Series Mounting Plate				
Cognex	Insight 8000 Series Mounting Plate				

Note: Device compatibility was verified at time of launch.



AFSB-523-C-12000



SLM-523-C-12000

<u>1-800-633-0405</u>

### Contrinex Read-Write Modules IO-Link Capable RFID (13.56 MHz)



#### **RFID**

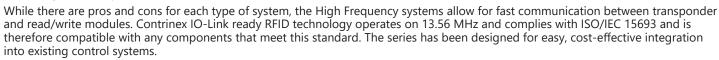
RFID (Radio Frequency IDentification) technology is useful in a wide range of automation and logistics applications.

This technology allows objects to be identified by means of electronic labels (also known as tags or transponders). Compared to more traditional approaches such as bar codes or laser marking, RFID technology offers a number of significant advantages. For example:

- A direct line of sight between the tag and the read/write module is not needed to read or write data.
- Information stored in the tag can be added, modified or replaced.
- Human error is reduced while increasing reliability, flexibility and traceability.

There are three standard frequencies of RFID:

- Low-Frequency (30 to 300 KHz most are 125 to 134.2 Khz). Various application-specific standards apply
- High-Frequency (13.56 MHz) (ISO/IEC 15693)
- Ultra High-Frequency (860 to 960 MHz) (ISO/IEC 18000-63)

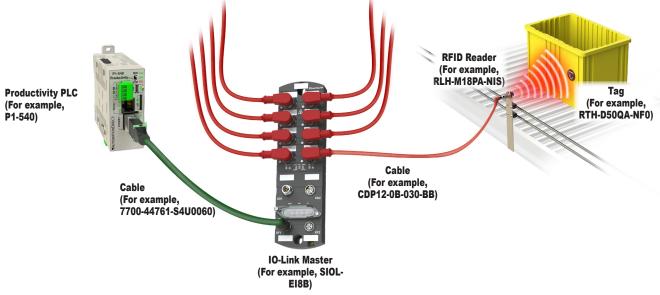


### Simplicity of IO-Link

IO-Link is a standardized protocol (IEC 61131-9) that enables connection of intelligent devices, similar to the Contrinex RFID Read-Write Modules, to an automation system.

Communication takes place between an IO-Link master and one or more IO-Link devices. IO-Link is a point-to-point communication system and is not a fieldbus. A master module has one or more ports, and one device can be connected to each port.

The IO-Link master module serves as the interface between the IO-Link devices and the controller (PLC or Computer). The example below uses an IO-Link Master to communicate using EtherNet/IP.







### **Contrinex RHL Read/Write Units**

Once the RLH unit is attached to the IO-Link master, the SIO functions of the device can be configured. Note that the SIO outputs will only be active if the IO-Link is not active. After the RLH unit is attached to the PLC using IO-Link, a lot more data will be available to the PLC.

- Read the identification of the Read-Write unit (for example: Manufacture, Firmware Version, Part Number, etc.)
- How long the RFID tag has been present
- Tag history
- Diagnostics
- Write to the tag
- Read the tag

And many more functions.



### Contrinex Read-Write Modules IO-Link Capable RFID (13.56 MHz)









**RLH-M30PA-NIS** 

#### **Features**

- IO-Link for greatly simplified RFID integration
- Available in M18 and M30 barrel sizes as well as 44mm cubic housing
- IO-Link compatible (V 1.1).
- IO-Link Class A device
- Simple I/O (SIO) mode available
- IP68/IP69K option available
- Complies with ISO/IEC 15693 (High Frequency) 13.56 MHz

### **Applications**

- Track and trace
- Production automation
- · Process control
- · Automatic sorting systems
- Logistics and distribution
- Access control
- Machine tools
- Robotics
- · Packaging System
- Automotive Industry
- Pharmaceutical

### **Agency Approvals**

• CE, UL (E239373)







#### Simple I/O (SIO) Mode

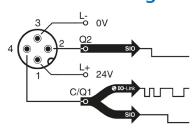
If the Read/Write unit has a simple task, then the device may be able to be used in Simple I/O Mode.

Out of the box, the read/write module is configured to simultaneously trigger both of its outputs upon tag detection. The two outputs can be individually reconfigured for data block comparison, tag IN-RANGE time over threshold, or tag is too far from reader (RSSI is below threshold) via an IO-Link master.

Full functionality is available when the module is used as an IO-Link device.

Contrinex HF RFID Read-Write Module Selection Guide									
Part Number Price Housing Size IP Rating Weight (g [oz]) Draw									
RLH-C44PA-NIS	\$169.00	40 x 40 x 67 mm [1.57 x 1.57 x 2.64]	IP68/IP69K	105g [3.7 oz]	<u>PDF</u>				
RLH-M30PA-NIS	\$169.00	30mm [1.18 in] diameter 63.5 mm [2.5 in] length	IP67	87g [3.1 oz]	<u>PDF</u>				
RLH-M18PA-NIS	\$158.00	18mm [0.71 in] diameter 63.5 mm [2.5 in] length	IP67	37g [1.3 oz]	<u>PDF</u>				

### **Connection Diagram**



Standard HF RFID Read-Write Module Specifications								
	RLH-C44PA-NIS	RLH-M30PA-NIS	RLH-M18PA-NIS					
Supply Voltage		11-32 VDC						
Maximum Current		≤ 50mA (with no load)						
Maximum Output Current	≤ 200mA (per output)							
Maximum Operating Temperature		-25° to 80°C [-13° to 176°F]						
Maximum Storage Temperature		-25° to 80°C [-13° to 176°F]						
Maximum Cable Length		20m [65.62 ft]						
Housing Material	PBTP (polybutylene terephthalate polymer) Chrome-plated brass Chrome-plated brass							
Sensing Face Material	PBTP (polybutylene terephthalate polymer)							
Tightening Force	0.6 N•m [0.4 lb•ft] (on M12 connector)	70 N•m [51.6 lb•ft]	25 N•m [18.4 lb•ft]					

### Contrinex 13.56 MHz HF RFID Tags CONTRIN



### **Standard HF RFID Tags**







RFID tags (also known as transponders) are electronic devices that store data. Each tag has fixed memory which stores a unique preset number (i.e., an identifier) as well as user memory which can be written to for storing data. Writeable data may include, for example, the object's history or the parameters of operations to which it will be subjected.

### **EEPROM Tag Features**

- · Unlimited read cycles
- 100,000 write cycles
- 4 bytes per block
- Fully complies with ISO/IEC 15693 (High Frequency) 13.56 MHz

### **FRAM Tag Features**

- Unlimited read cycles
- 10<sup>12</sup> write cycles
- · Larger amount of memory
- 8 bytes per block

### **Applications**

- Track and trace
- Production automation
- Process control
- Automatic sorting systems
- Logistics and distribution
- Access control

### **Agency Approvals**

• CF



	Standard HF RFID Tag Selection Guide												
Part Number	Price	Pack Size	Diameter (mm [in])	Memory Type	User Memory Size	IP Rating	Component Material	Operating Temperature	Storage Temperature	Tightening Torque	Weight (g [oz])	Drawing	
RTH-D09RA-NF0-901	\$50.00	10	9 [0.35]	EEPROM	316 bytes	IP67	Epoxy + PPS	-20° to 85°C	-20° to 110°C	NA NA	0.25 g [0.01 oz]	PDF	
RTH-D16RA-NF0-901	\$45.00	10	16 [0.63]	EEPROM	316 bytes	IP67	(Polyphenylene sulfide)	[-4° to 185°F]	[-4° to 230°F]	I NA	0.75 g [0.03 oz]	PDF	
RTH-D20QA-NF0-901	\$80.00	10	20 [0.79]	EEPROM	316 bytes	IP68 IP69K		PPA -25° to 80°C [-13° to 176°F]		NA	1.3 g [0.05 oz]	PDF	
RTH-D20QA-ND0	\$11.00	1	20 [0.79]	FRAM	2000 bytes	IP68 IP69K			A [-40° to		INA	1.3 g [0.05 oz]	PDF
RTH-D30QA-NF0-901	\$80.00	10	30 [1.18]	EEPROM	316 bytes	IP68 IP69K	PPA					3g [0.11 oz]	PDF
RTH-D30QA-ND0	\$17.50	1	30 [1.18]	FRAM	2000 bytes	IP68 IP69K	(Polyphthalamide)			1 N•m	3g [0.11 oz]	PDF	
RTH-D50QA-NF0	\$9.50	1	50 [1.97]	EEPROM	316 bytes	IP68 IP69K						[0.74 lb•ft]	9.5 g [0.34 oz]
RTH-D50QA-ND0	\$19.50	1	50 [1.97]	FRAM	2000 bytes	IP68 IP69K					9.5 g [0.34 oz]	<u>PDF</u>	

### **High-Temperature HF RFID Tag**

High-temperature RFID tags feature 100% silicone-free construction and thermal cycling reliability of 1000 hours (or 1000 cycles). Passive tags from the high-temperature family are ideal for use in paintshops and other high-temperature environments. Tags are insensitive to dirt, and their housings have an IP68 and IP69K enclosure rating. They are also fully ISO/IEC 15693-compliant. Tags are made from PPS (polyphenylene sulfide).

High-Temperature HF RFID Tag Selection Guide										
Part Number	Price	Diameter (mm [in])	Memory Type	User Memory	IP Rating	Operating Temperature	Storage Temperature	Tightening Torque	Weight (g [oz])	Drawing
RTP-0263-020	\$11.00	26 [1.97]	EEPROM	160 bytes	IP68 IP69K	-25 to 180°C [-13 to 356°F]	-40 to 180°C [-40 to 356°F]	1 N•m [0.74 lb•ft]	3.3 g [0.12 oz]	<u>PDF</u>



RTP-0263-020

### Contrinex 13.56 MHz HF RFID Tags CONTRINE

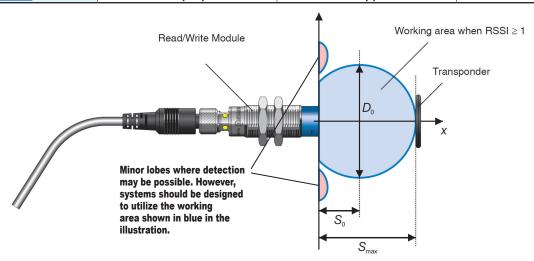


### **Working Distance Tables**

Typical Working Distances When Using RLH-C44PA-NIS					
Tag (Transponder) Part Number	S <sub>max</sub> (mm [in])	S <sub>o</sub> (mm [in])	D <sub>o</sub> (mm [in])		
Ø 9 <u>RTH-D09RA-NF0-901</u>	24 [0.94]	9 [0.35]	32 [1.26]		
Ø 16 <u>RTH-D16RA-NF0-901</u>	40 [1.57]	20 [0.79]	44 [1.73]		
Ø 20 <u>RTH-D20QA-NF0-901</u>	40 [1.57]	18 [0.71]	44 [1.73]		
Ø 20 <u>RTH-D20QA-ND0</u>	38 [1.50]	17 [0.67]	42 [1.65]		
Ø 26 <u>RTP-0263-020</u>	38 [1.50]	17 [0.67]	44 [1.73]		
Ø 30 <u>RTH-D30QA-NF0-901</u>	44 [1.73]	21 [0.83]	48 [1.89]		
Ø 30 <u>RTH-D30QA-ND0</u>	46 [1.81]	23 [0.91]	52 [2.05]		
Ø 50 <u>RTH-D50QA-NF0</u>	64 [2.52]	32 [1.26]	68 [2.68]		
Ø 50 <u>RTH-D50QA-ND0</u>	58 [2.28]	26 [1.02]	66 [2.60]		

Typical Working Distances When Using RLH-M30PA-NIS					
Tag (Transponder) Part Number	S <sub>max</sub> (mm [in])	S <sub>o</sub> (mm [in])	D <sub>o</sub> (mm [in])		
Ø 9 <u>RTH-D09RA-NF0-901</u>	17 [0.67]	5.5 [0.22]	24 [0.94]		
Ø 16 <u>RTH-D16RA-NF0-901</u>	28 [1.10]	13 [0.51]	31 [1.22]		
Ø 20 <u>RTH-D20QA-NF0-901</u>	26 [1.02]	12 [0.47]	30 [1.18]		
Ø 20 <u>RTH-D20QA-ND0</u>	26 [1.02]	11.5 [0.45]	31 [1.22]		
Ø 26 <u>RTP-0263-020</u>	33 [1.30]	15 [0.59]	36 [1.42]		
Ø 30 <u>RTH-D30QA-NF0-901</u>	30 [1.18]	13 [0.51]	38 [1.50]		
Ø 30 <u>RTH-D30QA-ND0</u>	34 [1.34]	15 [0.59]	38 [1.50]		
Ø 50 <u>RTH-D50QA-NF0</u>	46 [1.81]	19 [0.75]	54 [2.13]		
Ø 50 <u>RTH-D50QA-ND0</u>	44 [1.73]	18 [0.71]	54 [2.13]		

Typical Working Distances When Using RLH-M18PA-NIS					
Tag (Transponder) Part Number	S <sub>max</sub> (mm [in])	S <sub>o</sub> (mm [in])	D <sub>o</sub> (mm [in])		
Ø 9 <u>RTH-D09RA-NF0-901</u>	11 [0.43]	3.5 [0.14]	15 [0.59]		
Ø 16 <u>RTH-D16RA-NF0-901</u>	19 [0.75]	8.5 [0.33]	22 [0.87]		
Ø 20 <u>RTH-D20QA-NF0-901</u>	18 [0.71]	8 [0.31]	21 [0.83]		
Ø 20 <u>RTH-D20QA-ND0</u>	17 [0.67]	6 [0.24]	21 [0.83]		
Ø 26 <u>RTP-0263-020</u>	15 [0.59]	4 [0.16]	21 [0.83]		
Ø 30 <u>RTH-D30QA-NF0-901</u>	22 [0.87]	9 [0.35]	28 [1.10]		
Ø 30 <u>RTH-D30QA-ND0</u>	19 [0.75]	5 [0.20]	28 [1.10]		
Ø 50 <u>RTH-D50QA-NF0</u>	24 [0.94]	6 [0.24]	42 [1.65]		
Ø 50 <u>RTH-D50QA-ND0</u>	20 [0.79]	0 [0]	44 [1.73]		



www.automationdirect.com Barcode, RFID, Vision

# AutomationDirect Standalone HF (13.56 MHz) RFID Read/Write Unit

#### RFIC

RFID (Radio Frequency IDentification) technology is useful in a wide range of automation and logistics applications.

This technology allows objects to be identified by means of electronic labels (also known as tags or transponders). Compared to more traditional approaches such as bar codes or laser marking, RFID technology offers a number of significant advantages. For example:

- A direct line of sight between the tag and the read/write module is not needed to read or write data.
- Information stored in the tag can be added, modified or replaced.
- Human error is reduced while increasing reliability, flexibility and traceability.

There are three standard frequencies for RFID:

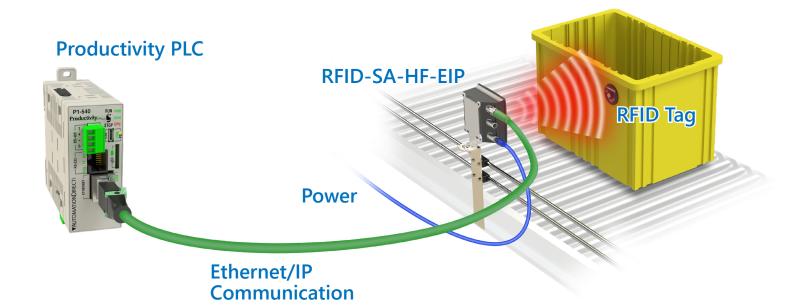
- Low-Frequency (30 to 300 KHz most are 125 to 134.2 Khz). Various application-specific standards apply
- High-Frequency (13.56 MHz) (ISO/IEC 15693)
- Ultra High-Frequency (international range 860 to 960 MHz, US range 902-928 MHz) (ISO/IEC 18000-63)

It is worth noting that NFC (Near Field Communication) also operates on the 13.56 MHz frequency. The NFC standard is detailed in ISO14443 and ISO18092. Some items that comply with NFC also comply with ISO15693. However, not all items that comply with 15693 also comply with NFC.

While there are pros and cons for each type of system, the High Frequency systems allow for fast communication between transponder and read/write modules. AutomationDirect RFID technology operates on 13.56 MHz and complies with ISO/IEC 15693 and is therefore compatible with any components that meet this standard. The series has been designed for easy, cost-effective integration into existing control systems.



RFID-SA-HF-EIP



### AutomationDirect Standalone HF (13.56 MHz) RFID Read/Write Unit



RFID-SA-HF-EIP

Designed for simple integration into an existing network, the AutomationDirect Standalone HF Read/Write unit is optimized for high speed, high payload data transfer. The unit also contains an internal Ethernet switch for easy incorporation into a prewired network.

#### **Features**

- Compact standalone unit with antenna, evaluation unit and integrated communication fieldbus
- EtherNet/IP communications
- Two configurable digital I/O points
- Complies with ISO/IEC

### **Applications**

- Track and trace
- · Production automation
- · Process control
- · Automatic sorting systems
- Logistics and distribution
- Access control
- Machine tools
- Robotics
- Packaging System
- · Automotive Industry
- Pharmaceutical

AutomationDirect RFID Read/Write Unit Selection Guide						
Part Number Price IP Rating Communication Protocol Drawing						
RFID-SA-HF-EIP         \$647.00         IP 67         Ethernet/IP         PDF						

### **Mounting Bracket**



AutomationDirect RFID Unit Mounting Bracket Selection Guide						
Part Number Price Material Weight Drawing						
RFID-SA-BA1	\$25.50	304 stainless steel	0.37 lb [168g]	<u>PDF</u>		

RFID-SA-BA1

#### **Electrical Connections**

Connection (M12 D-Coded Ethernet)			
Pin Signal			
1 TxD+, transmit data +			
2	RxD+, receive data +		
3	TxD-, transmit data –		
4	RxD-, receive data –		

Note: Unit provides	two M12 D coded	Ethernet connections.
Note. Utili provides	two wrz D-coded	Ethernet connections.





**M12 5-Pin Connections** 

Color

Brown

White

Blue

Black

Gray

Pin

1

2

3

4

5

Signal

+24V

Digital Input/Output 2

0V

Digital Input/Output 1

Not Used

### AutomationDirect Standalone HF (13.56 MHz) RFID Read/Write Unit

AutomationDirect RFID Read/Write Unit General Specifications					
Electrical Data					
Operating Voltage	19.2 to 28.8 VDC				
Current Consumption	500mA				
Protection Class	III				
Operating Frequency	13.56 MHz				
RFID Standard	ISO 15693				
	Outputs				
Maximum Current Load Per Output	100mA				
	Monitoring Range				
Maximum Distance to ID Tag	220mm				
	Interfaces				
Communication Interface	Ethernet				
Protocol	Ethernet/IP				
	Default Settings, Ethernet – TCP/IP				
Protocol	TCP/IP				
Factory Settings	IP address: 192.168.0.79 Subnet mask: 255.255.255.0 Gateway IP address: 192.168.0.100				
Usage Type	Parameter setting: Data transmission				
Operating Conditions					
Ambient Temperature	-20 to 60°C [-4 to 140°F]				
Storage Temperature	-25 to 80°C [-13 to 176°F]				
Protection IP 67					
	Tests/Approvals				
EMC	EN 301489-3				
Shock Resistance	IEC 60028-2-27 50g (11ms) / single shock				
Vibration Resistance	EN 60068-2-6 2g (10 to 150 Hz)				
Radio Approval	EN 300 330 V2.1.1				
MTTF	130 years				
	Mechanical Data				
Weight	640.5 g [22.58 oz]				
Material	PBT/PC, stainless steel, aluminum				
	Displays/Operating Elements				
Voltage Supply	1xLED, green				
Signal Strength LED Display	4x LED, yellow				
Ethernet Status (per Ethernet Port)	2x LED, green/yellow				

www.automationdirect.com Barcode, RFID, Vision tBRV-54

### **Contrinex 13.56 MHz HF RFID Tags**

### **Working Distance Tables**

Ty	pical Working Distances	When Using RFID-SA-HF-E	IP .		
Tag (Transponder) Part Number	S <sub>max</sub> (mm [in])	S <sub>o</sub> (mm [in])	D <sub>o</sub> (mm [in])		
Ø 9 <u>RTH-D09RA-NF0-901</u>		Not recommended*			
Ø 16 <u>RTH-D16RA-NF0-901</u>	50 [1.97]	20 [0.79]	100 [3.94]		
Ø 20 <u>RTH-D20QA-NF0-901</u>	80 [3.15]	30 [1.18]	130 [5.12]		
Ø 20 <u>RTH-D20QA-ND0</u>	75 [2.95]	30 [1.18]	130 [5.12]		
Ø 26 <u>RTP-0263-020</u>	90 [3.54]	40 [1.57]	135 [5.31]		
Ø 30 <u>RTH-D30QA-NF0-901</u>	100 [3.94]	50 [1.97]	140 [5.51]		
Ø 30 <u>RTH-D30QA-ND0</u>	95 [3.74]	50 [1.97]	140 [5.51]		
Ø 50 <u>RTH-D50QA-NF0</u>	170 [6.69]	65 [2.56]	150 [5.91]		
Ø 50 <u>RTH-D50QA-ND0</u>	165 [6.50]	65 [2.56]	150 [5.91]		

<sup>\*</sup> The size of this particular tag requires extremely short distances to work. For this reason this particular tag is not recommended for use with the RFID-SA-HF-EIP RFID unit.

