Description

The MultiSight is an optical multi-pixel sensor with a pass/fail PNP output. The MultiSight uses three different methods of evaluation (pattern matching, contrast, and brightness) to detect or differentiate objects by means of previously defined optical characteristics, e.g. for separating “good” and “bad” parts. The main applications are in the field of industrial automation for quality assurance purposes. The MultiSight is an easy-to-use economical alternative to conventional vision systems for detecting presence or absence, completeness, position, markings, labeling, packaging, and components.

Features

- Stand-alone vision sensor
- Easy handling and setup
- Compact, sturdy industrial housing with IP 67 rating
- Integrated lighting
- Adjustable focus from 20 mm to infinity
- Short evaluation time (50…100 ms)
- 3 evaluation methods: pattern matching, brightness, and contrast
- 10 virtual detectors
- Individual virtual detectors can be logically linked or grouped for evaluation of different objects with several characteristics for inspection
- Ethernet connection for setup

Benefits

- Perform multiple inspections with one sensor
- Simple setup using PC and configuration software
- Multiple job storage to facilitate flexible product changeovers
- Simple inspection tools for detecting presence or absence, completeness, position, markings, labeling, packaging, and components
- Economical alternative to conventional vision system

Specifications

Certifications	cULus certified and CE marked for all applicable directives
Lighting and Optics	
Imager	640 x 480 pixels, CCD-monochrome 256 level (8-bit) grayscale
Lighting	Integrated LEDs; 6 x white, 2 x red
Lens Type	6 mm or 12 mm integrated lens, adjustable focus
Field of View	12 mm Lens: @ 200 mm; X = 60 mm, Y = 40 mm 6 mm Lens: @ 200 mm; X = 150 mm Y = 100 mm (see Field of View table for details)
Range	Minimum range: 20 mm; Maximum range: Infinite but dependent on illumination
Depth of Field	±5% of focusing distance
Electrical	
Operating Voltage	24V DC ±10%
Current Consumption	≤200 mA
Open Circuit Protection	Short circuit, overload, false pulse, transient noise, reverse polarity
Outputs	OUT1 (pass/fail), OUT2 (position), OUT3 (illumination), OUT4 (ready)
Output Type	4 x PNP type (sourcing MOSFET)
Output Rating	200 mA per output; max. 9.6 W
Input Type	IN1 (trigger) and IN2 (control); high 10…30V DC, low 0…3V DC
Ethernet Interface	Yes
Mechanical	
Housing Material	Aluminum and ABS Plastic
Lens Material	Plastic (PMMA)
LED Indicators	Green: Power; Red: Error; Yellow (2): Q1, Q2 output
Connection Type	Power-I/O: 8-pin micro QD (M12); Ethernet: 8-pin micro QD (M12)
Enclosure Type Rating	IP 67
Vibration	10…55 Hz, 1.5 mm amplitude; 3 planes; Meets or exceeds IEC 60947-5-2
Shock	30 g; 11 ms; meets or exceeds IEC 60947-5-2
Operating Temperature—C (F)	0…50° (32…122°)
Accessories	
Supplied Accessory	Dovetail bracket (48MS-BKTDT), focus adjustment screwdriver, 3 mounting screws, Allen-wrench, software CD
Additional Required Accessory	MultiSight PWR and I/O cordset, Ethernet (programming) cable
Optional Accessory	Mounting brackets, cordsets, external lighting, trigger sensors
Detectors	
Detector Types	Pattern matching, brightness, contrast
Number of Detectors	Up to 10 detectors Programmable: active high or low
Angular Displacement	±5° (for pattern matching)
Typical Cycle Time	Pattern 50…100 ms; brightness 40…50 ms; contrast 40…50 ms
Number of Job Selects	Combination of detectors and job selections = 10 maximum

48MS MultiSight™

Vision Sensor

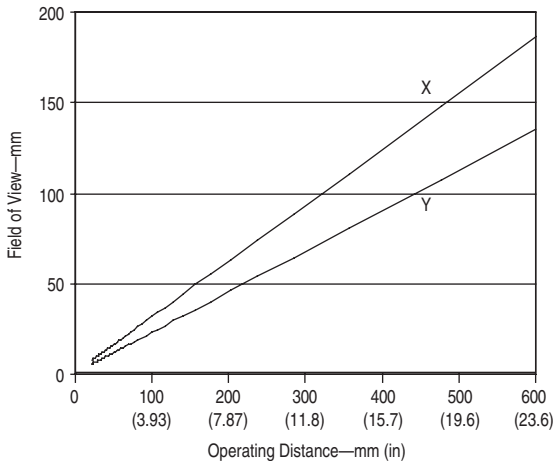
Product Selection

Focal Length of Lens	Field of View	Cat. No.
12 mm	12 mm: @ 200 mm; X = 60 mm Y = 40 mm	48MS-SE1PF2-M2
6 mm	6 mm: @ 200 mm; X = 150 mm, Y = 100 mm	48MS-SE1PF1-M2∗

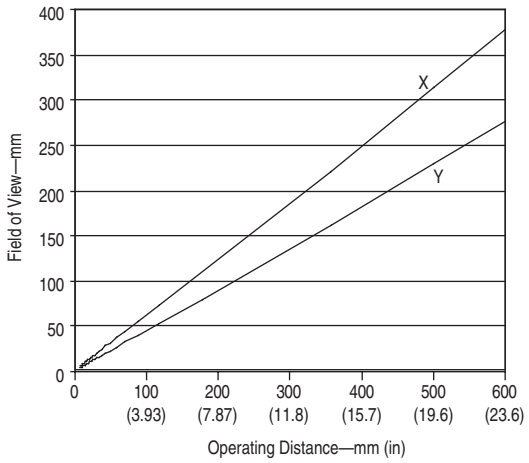
∗ 48MS-SE1PF1-M2 typically requires external lighting because the integrated lighting does not illuminate the entire field of view, i.e., the edges of the image are dark.

Field of View

12 mm Lens

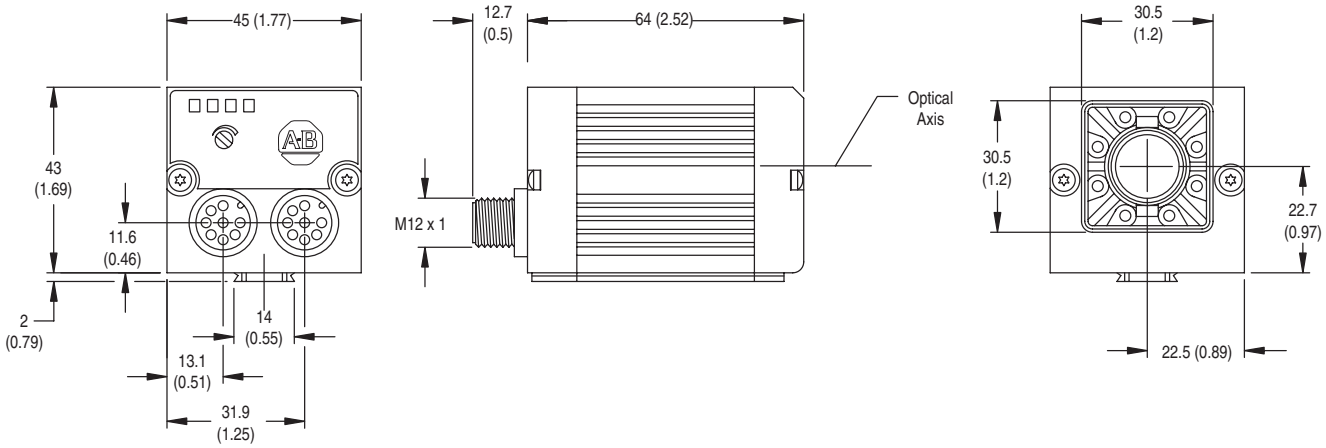


6 mm Lens

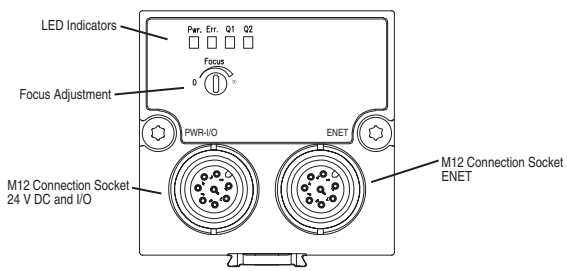


Note: Operating distances of 100…200 mm (4…8 in) may require external lighting. Operating distances of >200 mm (8 in) typically require external lighting.

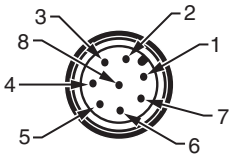
Approximate Dimensions—mm (in)



Rear View of the MultiSight

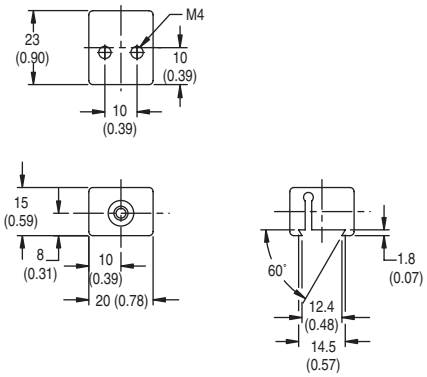


Connection: M12 (Micro) 8-pin Male QD (both PWR and I/O and Ethernet)

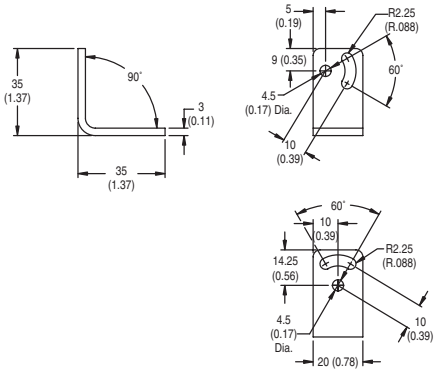


Approximate Dimensions—mm (in) (continued)

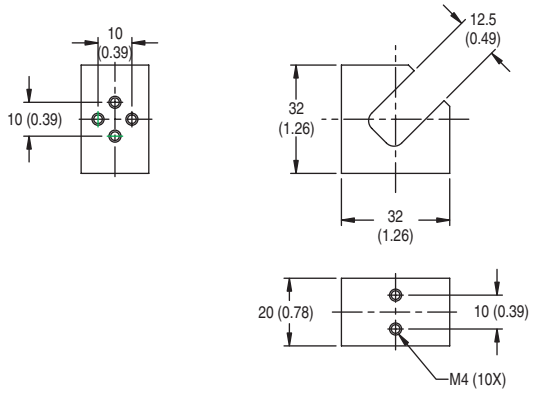
Dovetail Bracket—48MS-BKTDT (Included with MultiSight)



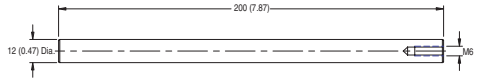
Angle Bracket—48MS-BKTANG



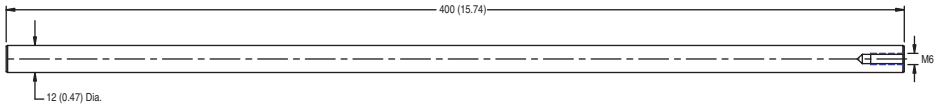
Rod Bracket—48MS-BKTROD



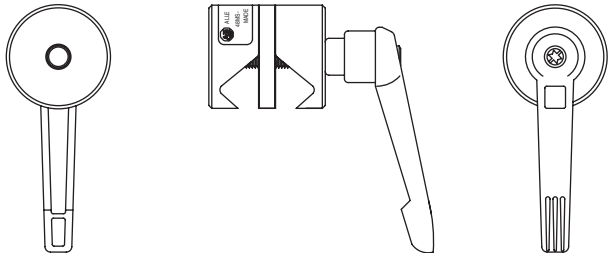
Mounting Rod 200—48MS-ROD200



Mounting Rod 400—48MS-ROD400

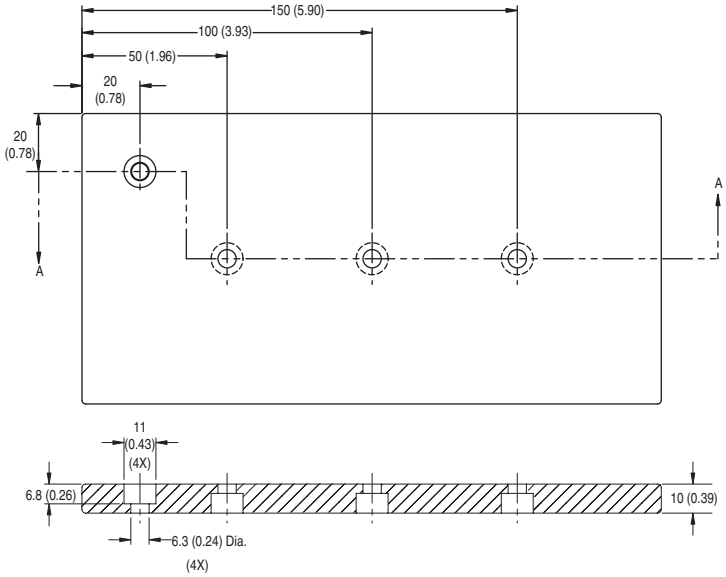


Rod Clamp—48MS-CLAMP

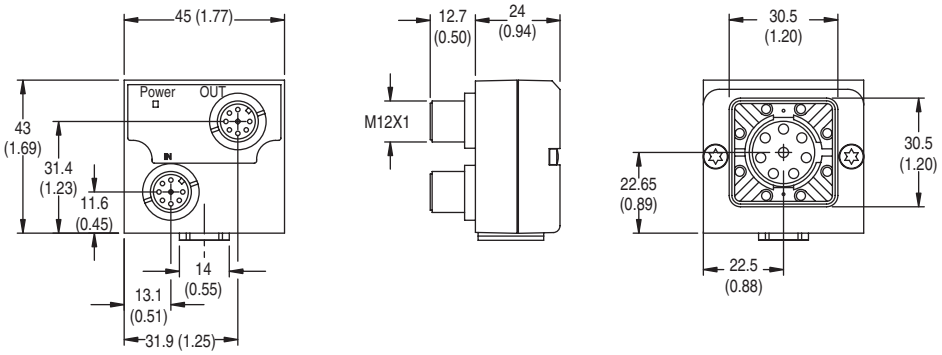


Approximate Dimensions—mm (in) (continued)

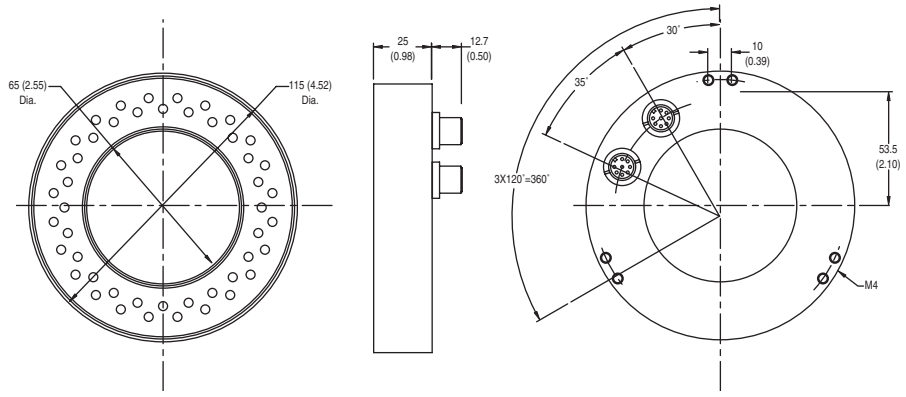
Mounting Plate—48MS-MTPLATE



Area Light (White Light)—48MS-ALWH

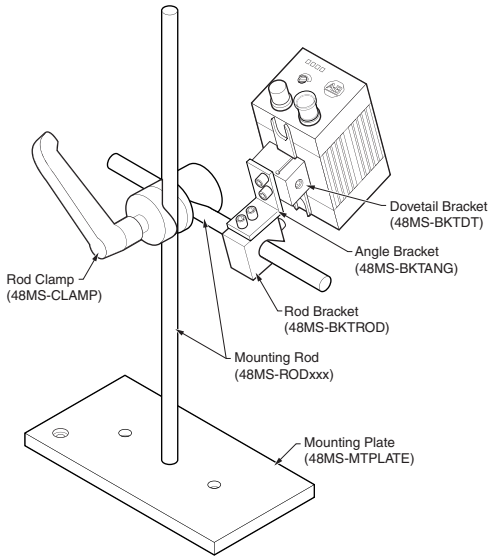


Ring Light (White Light)—48MS-RLWH



Approximate Dimensions—mm (in) (continued)

Mounting Setup



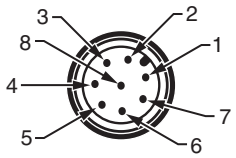
Wiring

Power-I/O Connection

Pin (M12)	Color	Use
1	White	IN1 (external trigger)
2	Brown	24V DC (V+)
3	Green	OUT1 (pass/fail); display LED = Q1
4	Yellow	OUT4 (ready) ∗
5	Gray	IN2 (control input)
6	Pink	OUT3 (external illumination trigger)
7	Blue	GND (V-)
8	Red	OUT2 (position); display LED = Q2

∗ Indicates sensor evaluation is valid for OUT1 and OUT2.

Connection: M12 (Micro) 8-pin Male QD (both PWR and I/O and Ethernet)

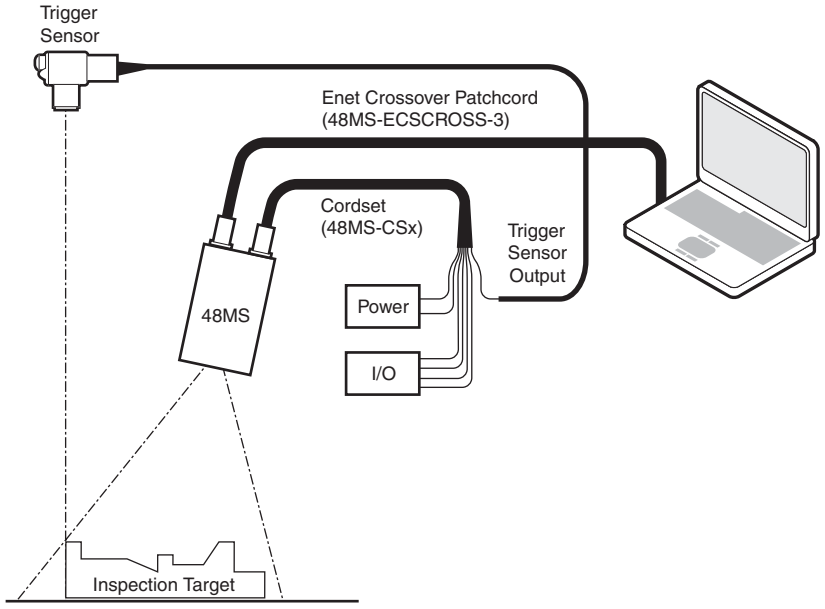


Ethernet Connection

Pin (M12)	Use
1	
2	
3	
4	TxD-
5	RxD+
6	TxD+
7	RxD-
8	

Wiring (continued)

Setup and Wiring



Required Accessories

Description	Cat. No.
Dovetail Bracket	48MS-BKTDT∗
Ethernet Crossover Patchcord 3 m, M12, 8-pin/RJ45	48MS-ECSCROSS-3❄
MultiSight Cordset, 2 m	48MS-CS-2

∗ Included
❄ Or 48MS-ECS-3 and 48MS-RJ45CONN and 48MS-ECROSS

Optional Accessories

Description	Cat. No.
Angle Bracket	48MS-BKTANG
Rod Bracket	48MS-BKTROD
Mounting Rod 200 mm	48MS-ROD200
Mounting Rod 400 mm	48MS-ROD400
Rod Clamp	48MS-CLAMP
Mounting Plate	48MS-MTPLATE
MultiSight Cordset, 5 m	48MS-CS-5
MultiSight Cordset, 10 m	48MS-CS-10
MultiSight Cordset Right Angle, 2 m	48MS-CSRT-2
MultiSight Cordset Right Angle, 5 m	48MS-CSRT-5
Ethernet Patchcord 3 m, M12, 8-pin/RJ45	48MS-ECS-3
RJ45 Connector	48MS-RJ45CONN
Ethernet Crossover Cable RJ45/RJ45	48MS-ECROSS
Area Light—White Light	48MS-ALWH
Ring Light—White Light	48MS-RLWH
Lighting Cable	48MS-LCS
Lighting Cable Right Angle	48MS-LCRT