

MICROHAWK® MV-40

SPECIFICATIONS AND OPTIONS



Ultra-Compact
Height: 25 mm (0.98")
Width: 45 mm (1.77")
Length: 45 mm (1.77")

Integrated LEDs

DIMENSIONS

Height: 25 mm (0.98")
Width: 45 mm (1.77")
Length: 45 mm (1.77")
Weight: 68 g (2.40 oz.)

ENCLOSURE: IP-65/67, Aluminum

ENVIRONMENTAL

Operating Temperature: 0° to 45° C (32° to 113° F)
Storage Temperature: -50° to 75° C (-58° to 167° F)
Humidity: 5% to 95% (non-condensing)

EMISSIONS

EN 61326-1:2013 Class B Limits

ELECTRICAL

4.75-30 VDC, 200 mV p-p max ripple, 150 mA at 24 VDC (typ.)

CONNECTOR

M12 12-Pin Power, M12 8-Pin Ethernet

PASSIVE POE

24 Volt Passive Power over Ethernet, Type B. Requires passive PoE power supply.

COMMUNICATION

RS-232, Ethernet TCP/IP, EtherNet/IP, PROFINET I/O

DISCRETE I/O

2 in/3 out: Optoisolated Trigger Input; New Master Input: Bi-directional, Optoisolated, 1-28 V rated (10 mA @ 28 VDC); Strobe Output, 2 General Purpose Outputs: Bi-directional, Optoisolated, 1-28 V rated (I_{CE} < 100 mA @ 24 VDC, current limited by user)

ILLUMINATION

Inner Red: 4 LEDs, 625 nm nominal
Inner White: 4 LEDs
Outer Red, White, Blue, or IR: 8 LEDs
Light Modes: Inner or Outer; Off, On, Strobe, Power Strobe; Power Strobe for Outer LEDs only

SPEED: 800 MHz

INDICATORS

TRIG, PASS, FAIL, MODE, LINK, PWR LEDs, 2 Target Pattern LEDs, 2 Inspection Passed Green Flash LEDs

MEMORY

2 GB Non-Volatile Flash, 256 MB RAM

SOFTWARE

AutoVISION Sensor, AutoVISION, Visionscape

FTP IMAGE STORAGE: Supported

SENSOR OPTIONS

WVGA (Mono): CMOS 0.34 MP (752 x 480), 4.51 x 2.88 mm, 6 μ m pixel size
SXGA (Mono): CMOS 1.2 MP (1280 x 960), 4.80 x 3.60 mm, 3.75 μ m pixel size
QSXGA (Color): CMOS 5 MP (2592 x 1944), 4.536 x 3.402 mm, 1.75 μ m pixel size

SHUTTER

Global (WVGA, SXGA), Rolling (QSXGA)

EXPOSURE

WVGA: 50 to 66,667 μ s; **SXGA:** 66 to 58,825 μ s;
QSXGA: 66 to 66,667 μ s

OPTICS

Fixed: Standard Density (5.2 mm), High-Density (8.0 mm), UHD (16.0 mm)
Autofocus: Standard Density (5.2 mm), High-Density (7.7 mm), UHD (16.0 mm)

FOCUS

Fixed: Factory Set to 50, 102, 190 or 300 mm (SD, HD); 64 or 400 mm (UHD)
Autofocus: Software Adjustable 50 to 300 mm (SD, HD); 40 to 150 mm (UHD)

FRAMES PER SECOND

WVGA: Up to 52; **SXGA:** Up to 40;
QSXGA: Up to 5

SYMBOLOGIES

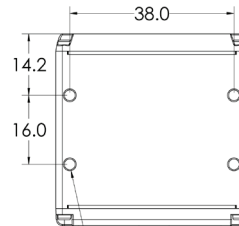
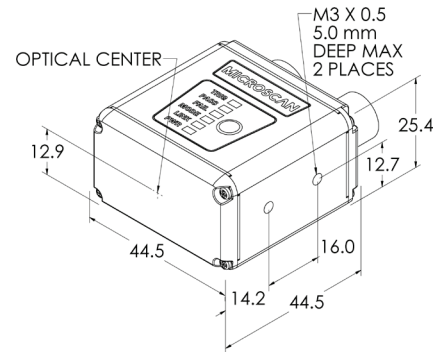
2D: Data Matrix (ECC 0-200), QR Code, Micro QR Code, Aztec Code
Stacked: PDF417, MicroPDF417, GS1 Databar (Composite and Stacked)
Linear: Code 39, Code 128, BC412, Interleaved 2 of 5, UPC/EAN, Codabar, Code 93, Pharmacode, PLANET, POSTNET, Japanese Postal, Australia Post, Royal Mail, Intelligent Mail, KIX

SAFETY AND QUALITY

FCC, CE, UL, RoHS-Compliant

QMS CERTIFICATION

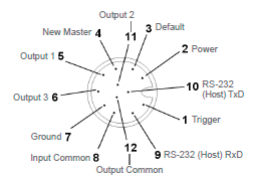
www.microscan.com/quality



Note: Nominal dimensions in MM are shown. Typical tolerances apply.

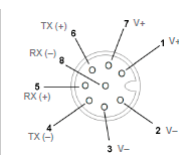
CONNECTOR A M12 12-Pin Plug:

| Pin | Function |
|-----|---------------|
| 9 | Host RxD |
| 10 | Host TxD |
| 2 | Power |
| 7 | Ground |
| 1 | Trigger |
| 8 | Input Common |
| 3 | Default |
| 4 | New Master |
| 5 | Output 1 |
| 11 | Output 2 |
| 6 | Output 3 |
| 12 | Output Common |



CONNECTOR B M12 8-Pin Socket:

| Pin | Function |
|-----|----------|
| 1 | V+ |
| 2 | V- |
| 3 | V- |
| 4 | TX (-) |
| 5 | RX (+) |
| 6 | TX (+) |
| 7 | V+ |
| 8 | RX (-) |



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 Specifications are subject to change. For complete technical information, please see the User Manual.
 Warranty - For current warranty information about this product, please visit www.microscan.com/warranty.



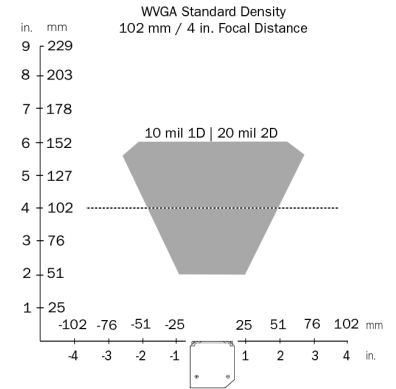
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MICROHAWK® MV-40 FIELD OF VIEW AND READ RANGE CHARTS

WVGA High-Density and Standard Density Fixed Focus

| Focus Distance | | WVGA HIGH-DENSITY | | | | | | WVGA STANDARD DENSITY | | | | | |
|----------------|-----|-------------------|-----|---------------------|---------------------|---------|------------------|-----------------------|-----|---------------------|---------------------|---------|------------------|
| | | Field of View | | Typical 2D Mil Size | Depth of Field (mm) | | Min. 2D Mil Size | Field of View | | Typical 2D Mil Size | Depth of Field (mm) | | Min. 2D Mil Size |
| in. | mm | in. | mm | mil size | Inside | Outside | mil size | in. | mm | mil size | Inside | Outside | mil size |
| 2.0 | 50 | 1.4 | 35 | 7.5 | 43 | 58 | 5 | 2.0 | 50 | 10 | 38 | 65 | 7.5 |
| 4.0 | 102 | 2.6 | 65 | 10 | 83 | 121 | 10 | 3.7 | 94 | 20 | 52 | 152 | 15 |
| 7.5 | 190 | 4.5 | 114 | 20 | 133 | 246 | 15 | 6.5 | 165 | 30 | 128 | 252 | 20 |
| 11.8 | 300 | 7.1 | 180 | 30 | 179 | 422 | 30 | 10.2 | 260 | 40 | 219 | 381 | 30 |

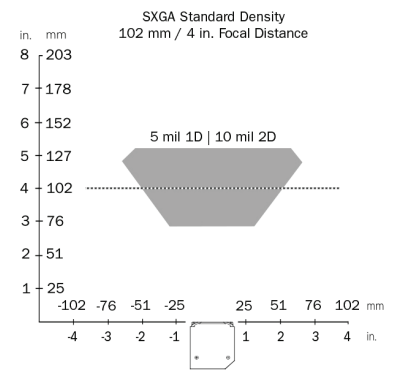
Example Read Range



SXGA High-Density and Standard Density Fixed Focus

| Focus Distance | | SXGA HIGH-DENSITY | | | | | | SXGA STANDARD DENSITY | | | | | |
|----------------|-----|-------------------|-----|---------------------|---------------------|---------|------------------|-----------------------|-----|---------------------|---------------------|---------|------------------|
| | | Field of View | | Typical 2D Mil Size | Depth of Field (mm) | | Min. 2D Mil Size | Field of View | | Typical 2D Mil Size | Depth of Field (mm) | | Min. 2D Mil Size |
| in. | mm | in. | mm | mil size | Inside | Outside | mil size | in. | mm | mil size | Inside | Outside | mil size |
| 2.0 | 50 | 1.5 | 37 | 5 | 47 | 55 | 3.3 | 2.1 | 53 | 7.5 | 37 | 64 | 5 |
| 4.0 | 102 | 2.7 | 69 | 7.5 | 88 | 116 | 5 | 3.9 | 100 | 10 | 74 | 131 | 7.5 |
| 7.5 | 190 | 4.8 | 122 | 15 | 137 | 243 | 10 | 6.9 | 175 | 15 | 115 | 265 | 15 |
| 11.8 | 300 | 7.6 | 192 | 20 | 185 | 400 | 15 | 10.9 | 277 | 20 | 224 | 427 | 20 |

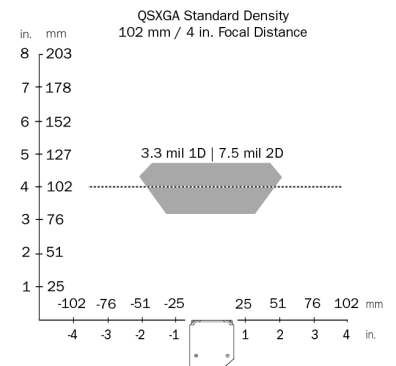
Example Read Range



QXSGA High-Density and Standard Density Fixed Focus

| Focus Distance | | QXSGA HIGH-DENSITY | | | | | | QXSGA STANDARD DENSITY | | | | | |
|----------------|-----|--------------------|-----|---------------------|---------------------|---------|------------------|------------------------|-----|---------------------|---------------------|---------|------------------|
| | | Field of View | | Typical 2D Mil Size | Depth of Field (mm) | | Min. 2D Mil Size | Field of View | | Typical 2D Mil Size | Depth of Field (mm) | | Min. 2D Mil Size |
| in. | mm | in. | mm | mil size | Inside | Outside | mil size | in. | mm | mil size | Inside | Outside | mil size |
| 2.0 | 50 | 1.4 | 35 | 5 | 46 | 55 | 3.3 | 2.0 | 51 | 5 | 43 | 59 | 3.3 |
| 4.0 | 102 | 2.6 | 66 | 5 | 94 | 110 | 3.3 | 3.8 | 96 | 7.5 | 80 | 124 | 5 |
| 7.5 | 190 | 4.6 | 116 | 10 | 154 | 227 | 7.5 | 6.6 | 168 | 10 | 150 | 231 | 10 |
| 11.8 | 300 | 7.2 | 184 | 15 | 227 | 373 | 10 | 10.4 | 265 | 15 | 203 | 397 | 15 |

Example Read Range



SXGA Ultra-High-Density Fixed Focus

| SXGA UHD - 64 MM | | | | |
|------------------|---------------------|---------|---------------|-------|
| Min. 1D Element | Depth of Field (mm) | | Field of View | |
| | Inside | Outside | Hor. | Vert. |
| 2 | 63.5 | 64.5 | 16.5 | 12.5 |
| 2.5 | 62.5 | 66 | | |
| 3 | 62.5 | 66 | | |
| 3.3 | 62.5 | 67 | | |

| SXGA UHD - 400 MM | | | | |
|-------------------|---------------------|---------|---------------|-------|
| Min. 2D Element | Depth of Field (mm) | | Field of View | |
| | Inside | Outside | Hor. | Vert. |
| 7.5 | 360 | 415 | 114 | 86 |
| 10 | 351 | 429 | | |
| 15 | 325 | 451 | | |
| 20 | 309 | 466 | | |
| 30 | 293 | 512 | | |
| 40 | 303 | 563 | | |

Note: Minimum 1D element is typically 1/2 the size of minimum 2D element. Example: 10 mil 2D = 5 mil 1D.

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MICROHAWK® MV-40 FIELD OF VIEW AND READ RANGE CHARTS

WVGA High-Density and Standard Density Autofocus

| Object Distance Std Models | | WVGA HIGH-DENSITY AUTOFOCUS | | | |
|----------------------------|-----|-----------------------------|-------|------------------------|-------|
| | | Horizontal Field of View | | Vertical Field of View | |
| in. | mm | in. | mm | in. | mm |
| 2.0 | 50 | 1.3 | 33.5 | 0.8 | 21.5 |
| 2.5 | 64 | 1.7 | 42.0 | 1.0 | 26.5 |
| 3.2 | 81 | 2.1 | 52.5 | 1.3 | 33.0 |
| 4.0 | 102 | 2.6 | 65.0 | 1.6 | 41.0 |
| 5.2 | 133 | 3.3 | 84.5 | 2.1 | 53.5 |
| 7.5 | 190 | 4.7 | 119.5 | 3.0 | 75.0 |
| 11.8 | 300 | 7.4 | 187.0 | 4.6 | 117.0 |

| Object Distance Std Models | | WVGA STANDARD DENSITY AUTOFOCUS | | | |
|----------------------------|-----|---------------------------------|-------|------------------------|-------|
| | | Horizontal Field of View | | Vertical Field of View | |
| in. | mm | in. | mm | in. | mm |
| 2.0 | 50 | 2.1 | 52.5 | 1.3 | 34.0 |
| 2.5 | 64 | 2.6 | 65.5 | 1.6 | 41.5 |
| 3.2 | 81 | 3.2 | 82.0 | 2.0 | 51.0 |
| 4.0 | 102 | 4.0 | 102.0 | 2.5 | 64.0 |
| 5.2 | 133 | 5.2 | 132.0 | 3.2 | 82.0 |
| 7.5 | 190 | 7.3 | 185.0 | 4.5 | 115.5 |
| 11.8 | 300 | 11.3 | 288.0 | 7.1 | 180.0 |

| Symbol Size (mils) | WVGA High-Density Read Range Testings | | | |
|--------------------|---------------------------------------|-----|---------|-----|
| | IE (mm) | PPE | OE (mm) | PPE |
| 3.3 | 50 | 1.9 | 53 | 1.8 |
| 5 | 50 | 2.8 | 57 | 2.5 |
| 7.5 | 50 | 4.2 | 61 | 3.6 |
| 10 | 50 | 5.6 | 64 | 4.6 |
| 15 | 50 | 8.5 | 71 | 6.3 |

| Symbol Size (mils) | WVGA Standard Density Read Range Testings | | | |
|--------------------|---|-----|---------|-----|
| | IE (mm) | PPE | OE (mm) | PPE |
| 5 | 50 | 1.8 | 60 | 1.5 |
| 7.5 | 50 | 2.7 | 69 | 2 |
| 10 | 50 | 3.6 | 77 | 2.5 |
| 15 | 50 | 5 | 92 | 3.1 |
| 20 | 50 | 7.2 | 99 | 4 |

SXGA High-Density and Standard Density Autofocus

| Object Distance Std Models | | SXGA HIGH-DENSITY AUTOFOCUS | | | |
|----------------------------|-----|-----------------------------|-------|------------------------|-------|
| | | Horizontal Field of View | | Vertical Field of View | |
| in. | mm | in. | mm | in. | mm |
| 2.0 | 50 | 1.4 | 36.5 | 1.1 | 27.4 |
| 2.5 | 64 | 1.8 | 46.0 | 1.4 | 34.5 |
| 3.2 | 81 | 2.3 | 57.2 | 1.7 | 42.9 |
| 4.0 | 102 | 2.8 | 71.4 | 2.1 | 53.6 |
| 5.2 | 133 | 3.6 | 90.5 | 2.7 | 67.9 |
| 7.5 | 190 | 5.0 | 127.0 | 3.8 | 95.3 |
| 11.8 | 300 | 7.8 | 198.4 | 5.9 | 148.8 |

| Object Distance Std Models | | SXGA STANDARD DENSITY AUTOFOCUS | | | |
|----------------------------|-----|---------------------------------|-------|------------------------|-------|
| | | Horizontal Field of View | | Vertical Field of View | |
| in. | mm | in. | mm | in. | mm |
| 2.0 | 50 | 2.3 | 57.2 | 1.7 | 42.9 |
| 2.5 | 64 | 2.9 | 73.0 | 2.2 | 54.8 |
| 3.2 | 81 | 3.5 | 88.9 | 2.6 | 66.7 |
| 4.0 | 102 | 4.3 | 109.5 | 3.2 | 82.2 |
| 5.2 | 133 | 5.6 | 141.3 | 4.2 | 106.0 |
| 7.5 | 190 | 7.9 | 200.0 | 5.9 | 150.0 |
| 11.8 | 300 | 12.4 | 314.3 | 9.3 | 235.7 |

| Symbol Size (mils) | SXGA High-Density Read Range Testings | | | |
|--------------------|---------------------------------------|------|---------|-----|
| | IE (mm) | PPE | OE (mm) | PPE |
| 3.3 | 50 | 3.0 | NA | NA |
| 5 | 50 | 4.6 | 144 | 1.7 |
| 7.5 | 50 | 6.8 | 208 | 1.8 |
| 10 | 50 | 9.2 | 291 | 1.7 |
| 15 | 50 | 13.9 | 374 | 2 |

| Symbol Size (mils) | SXGA Standard Density Read Range Testings | | | |
|--------------------|---|------|---------|-----|
| | IE (mm) | PPE | OE (mm) | PPE |
| 5 | 50 | 2.7 | 94 | 1.6 |
| 7.5 | 50 | 4.4 | 143 | 1.7 |
| 10 | 50 | 5.6 | 186 | 1.7 |
| 15 | 50 | 8.7 | 282 | 1.7 |
| 20 | 50 | 11.5 | 308 | 2.1 |

SXGA Ultra-High-Density Fixed Autofocus

| SXGA UHD AUTOFOCUS | | | |
|--------------------------|-------------------------------|---------|-----------------|
| Min. 2D Element mil size | Horizontal Field of View (mm) | | Read Range (mm) |
| | Inside | Outside | |
| 2 | 10 | 24 | 40 - 104 |
| 3.3 | 10 | 36 | 40 - 146 |
| 5 | 10 | 39 | 40 - 150 |

