

## MICROHAWK® ID-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 55022:2010 Class A 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

**3 in/3 out:** Optoisolated Trigger and  
 Input Common; New Master: Bi-directional,  
 Optoisolated, 4.5-28 V rated (10 mA @  
 28 VDC); Outputs (1, 2, 3): Bi-directional,  
 Optoisolated, 1-28 V rated ( $I_{CE} < 100$  mA at  
 24 VDC, current limited by user)

#### ILLUMINATION

**High-Output LEDs:** Inner: 4 Red (625 nm),  
 4 White; Outer: 8 Red, White, Blue or IR  
**Operating Life:** 50,000 hours @ 25° C

#### INDICATORS

TRIG, PASS, FAIL, MODE, LINK, PWR LEDs,  
 2 Target Pattern LEDs; 2 Good Read Green  
 Flash LEDs

#### SPEED

Standard (up to 10 FPS)  
 High-Speed (Max. Sensor FPS)

#### DECODER

Standard (High-Contrast 1D)  
 Plus (High-Contrast 1D/2D)  
 X-Mode (Poor or Damaged 1D/2D + DPM)

#### OPTICS

Standard Density, High-Density, UHD

#### SENSOR OPTIONS

**WVGA (Mono):** CMOS 0.34 MP (752 x 480)  
**SXGA (Mono):** CMOS 1.2 MP (1280 x 960)  
**QXSGA (Color):** CMOS 5 MP (2592 x 1944)

#### SHUTTER

Global (WVGA, SXGA), Rolling (QXSGA)

#### EXPOSURE TIME

50 - 100,000, Default: 2,500 µs

#### FOCUS

**Standard, HD:** Fixed (50-300 mm) or Autofocus  
**UHD:** Fixed (64 mm, 400 mm) or Autofocus

#### FRAMES PER SECOND

**WVGA:** Up to 60  
**SXGA:** Up to 42  
**QXSGA:** Up to 5

#### SYMBOLOGIES

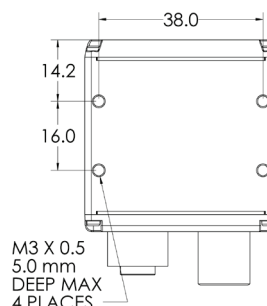
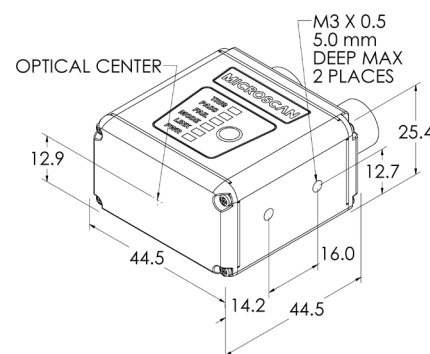
**2D:** Data Matrix (ECC 0-200), QR Code,  
 Micro QR Code, Aztec Code  
**Stacked:** PDF417, MicroPDF417,  
 GS1 Databar (Composite and Stacked)  
**Linear:** Code 39, Code 128, BC412,  
 Interleaved 2 of 5, UPC/EAN, Codabar,  
 Code 93, Pharmacode, PLANET, POSTNET,  
 Japanese Postal, Australia Post,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

#### SAFETY AND QUALITY

FCC, CE, UL, RoHS-Compliant

#### QMS CERTIFICATION

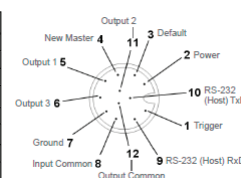
[www.microscan.com/quality](http://www.microscan.com/quality)



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

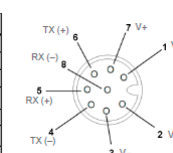
#### CONNECTOR A M12 12-Pin Plug:

| Pin | Function      |
|-----|---------------|
| 9   | Host Rx/D     |
| 10  | Host Tx/D     |
| 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   | Reserved   |
| 2   | Terminated |
| 3   | Reserved   |
| 4   | TX (-)     |
| 5   | RX (+)     |
| 6   | TX (-)     |
| 7   | Terminated |
| 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](http://www.microscan.com/warranty).

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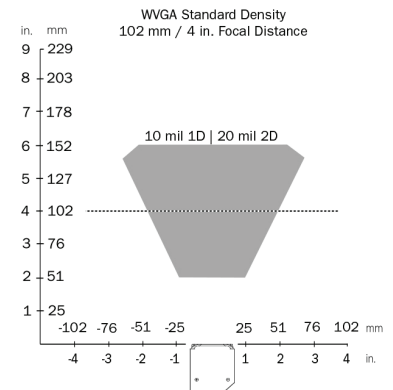
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# MICROHAWK® ID-40 FIELD OF VIEW AND READ RANGE CHARTS

## WVGA Sensor 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  | 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              |
| 2.5            | 64  | 1.5               | 38  | 7.5                 | 55                  | 73      | 5                | 2.2                   | 55  | 10                  | 49                  | 78      | 7.5              |
| 3.2            | 81  | 1.9               | 49  | 10                  | 65                  | 97      | 7.5              | 2.8                   | 70  | 15                  | 56                  | 106     | 10               |
| 4.0            | 102 | 2.6               | 65  | 10                  | 83                  | 121     | 10               | 3.7                   | 94  | 20                  | 52                  | 152     | 15               |
| 5.2            | 133 | 3.1               | 80  | 15                  | 90                  | 176     | 10               | 4.5                   | 115 | 20                  | 78                  | 187     | 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               |

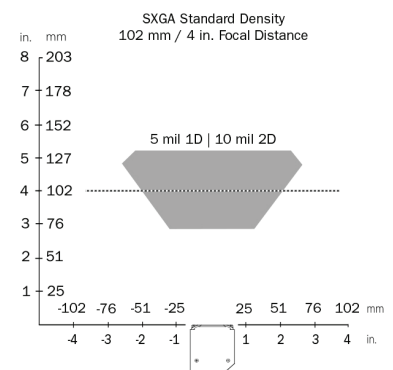
### Example Read Range:



## SXGA Sensor 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  | 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                |
| 2.5            | 64  | 1.6               | 41  | 5                   | 58                  | 70      | 3.3              | 2.3                   | 59  | 7.5                 | 49                  | 78      | 5                |
| 3.2            | 81  | 2.0               | 52  | 7.5                 | 70                  | 92      | 5                | 2.9                   | 75  | 7.5                 | 60                  | 102     | 7.5              |
| 4.0            | 102 | 2.7               | 69  | 7.5                 | 88                  | 116     | 5                | 3.9                   | 100 | 10                  | 74                  | 131     | 7.5              |
| 5.2            | 133 | 3.4               | 85  | 10                  | 107                 | 159     | 7.5              | 4.8                   | 123 | 10                  | 88                  | 161     | 10               |
| 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               |

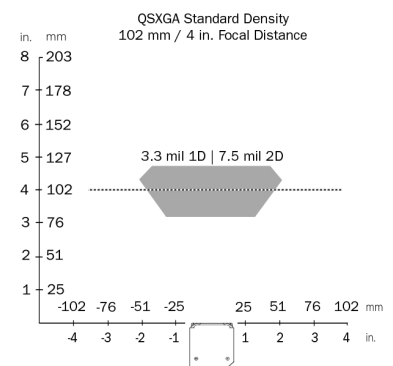
### Example Read Range:



## QXSGA Sensor 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  | 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              |
| 2.5            | 64  | 1.5                | 39  | 5                   | 59                  | 68      | 3.3              | 2.2                    | 57  | 5                   | 55                  | 72      | 3.3              |
| 3.2            | 81  | 2.0                | 50  | 5                   | 74                  | 87      | 3.3              | 2.8                    | 72  | 5                   | 69                  | 92      | 5                |
| 4.0            | 102 | 2.6                | 66  | 5                   | 94                  | 110     | 3.3              | 3.8                    | 96  | 7.5                 | 80                  | 124     | 5                |
| 5.2            | 133 | 3.2                | 81  | 7.5                 | 112                 | 153     | 5                | 4.6                    | 117 | 7.5                 | 107                 | 159     | 7.5              |
| 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:



## UHD Fixed Focus

| SXGA UHD - 64 MM |                     |         |               |       |
|------------------|---------------------|---------|---------------|-------|
| Min. 1D Element  | Depth of Field (mm) |         | Field of View |       |
| mil size         | 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 |       |
| mil size          | 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® ID-40 FIELD OF VIEW AND READ RANGE CHARTS

## Autofocus Read Ranges

| Object Distance<br>Std Models |     | WVGA HIGH-DENSITY AUTOFOCUS |       |                        |       |
|-------------------------------|-----|-----------------------------|-------|------------------------|-------|
|                               |     | Horizontal Field of View    |       | Vertical Field of View |       |
|                               |     | 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 |

| Symbol Size | WVGA High-Density Read Range Testings |     |         |     |
|-------------|---------------------------------------|-----|---------|-----|
| (mils)      | 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 |

| Object Distance<br>Std Models |     | WVGA STANDARD DENSITY AUTOFOCUS |       |                        |       |
|-------------------------------|-----|---------------------------------|-------|------------------------|-------|
|                               |     | Horizontal Field of View        |       | Vertical Field of View |       |
|                               |     | 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 | WVGA Standard Density Read Range Testings |     |         |     |
|-------------|-------------------------------------------|-----|---------|-----|
| (mils)      | 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   |

| Object Distance<br>Std Models |     | SXGA HIGH-DENSITY AUTOFOCUS |       |                        |       |
|-------------------------------|-----|-----------------------------|-------|------------------------|-------|
|                               |     | Horizontal Field of View    |       | Vertical Field of View |       |
|                               |     | 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 |

| Symbol Size | SXGA High-Density Read Range Testings |      |         |     |
|-------------|---------------------------------------|------|---------|-----|
| (mils)      | 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   |

| Object Distance<br>Std Models |     | SXGA STANDARD DENSITY AUTOFOCUS |       |                        |       |
|-------------------------------|-----|---------------------------------|-------|------------------------|-------|
|                               |     | Horizontal Field of View        |       | Vertical Field of View |       |
|                               |     | 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 | SXGA Standard Density Read Range Testings |      |         |     |
|-------------|-------------------------------------------|------|---------|-----|
| (mils)      | 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 UHD AUTOFOCUS |                               |         |                 |
|--------------------|-------------------------------|---------|-----------------|
| Min. 2D Element    | Horizontal Field of View (mm) |         | Read Range (mm) |
| mil size           | Inside                        | Outside | Autofocus       |
| 2                  | 10                            | 24      | 40 - 104        |
| 3.3                | 10                            | 36      | 40 - 146        |
| 5                  | 10                            | 39      | 40 - 150        |

