

# MicroHAWK F420-F

## Smart Camera

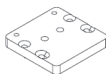
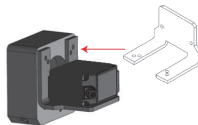
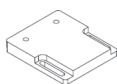
### World's smallest fully-integrated vision system.

- Simple configuration with AutoVISION.
- 5 megapixel sensor available.
- Autofocus available.
- Serial RS-232, USB, or Ethernet over USB.
- IP54.
- Corner-exit cable.

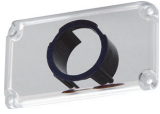
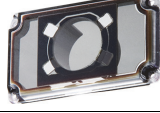
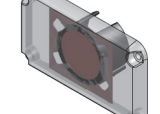
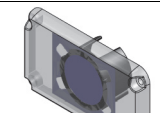


## MicroHAWK F420-F

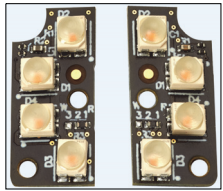
### Mounting Options

| Appearance                                                                                                                   | Type                                                     | Part Number |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------|
|                                            | L Bracket Adjustable Angle Mounting Kit                  | V430-AM0    |
|                                           | 1/4-20 Camera Mounting Block Kit                         | V430-AM1    |
|  | 4" (102 mm) Ram Mount Stand                              | V430-AM2    |
|                                           | APG Pan and Tilt Camera Mount                            | V430-AM3    |
|                                           | Nylon Screw and Washer Electrical Isolation Mounting Kit | V430-AM4    |
|                                           | MS-4 / MINI to V/F4XX-F Adapter Plate                    | V430-AM5    |
|                                           | Smart Ring Light to V/F4XX-F Mounting Bracket            | V430-AM6    |
|                                           | QX / Vision HAWK to V/F4XX-F Adapter Plate               | V430-AM7    |

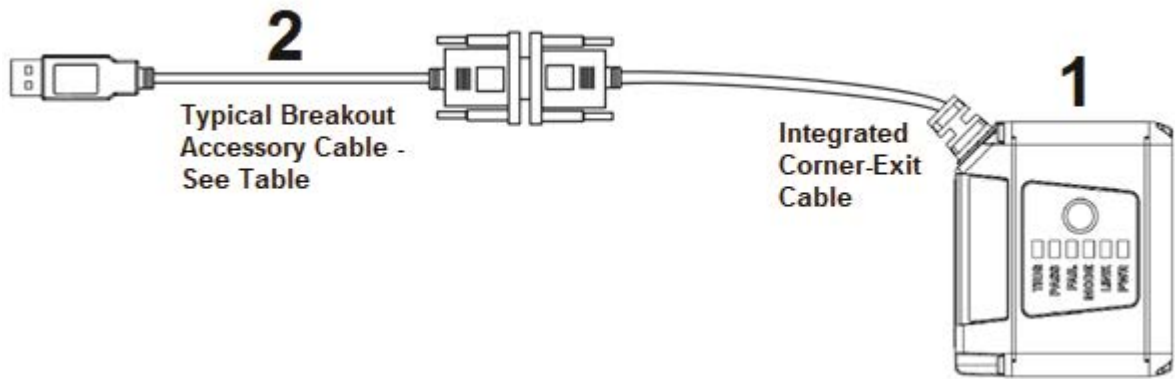
## Optics Options

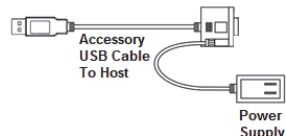
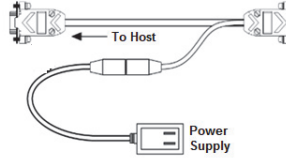
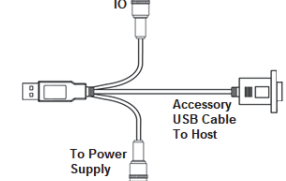
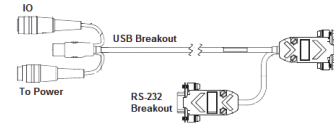
| Appearance                                                                          | Type                                  | Part Number |
|-------------------------------------------------------------------------------------|---------------------------------------|-------------|
|    | Front Window - Installation Kit       | V430-AF0    |
|    | Diffuser – Installation Kit           | V430-AF1    |
|    | Polarizer – Installation Kit          | V430-AF2    |
|    | Right Angle Mirror - Installation Kit | V430-AF3    |
|    | YAG Filter - Installation Kit         | V430-AF4    |
|   | ESD-Safe Window - Installation Kit    | V430-AF5    |
|  | Red Filter - Installation Kit         | V430-AF6    |
|  | Blue Filter - Installation Kit        | V430-AF7    |

## Lighting Options

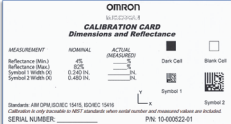
| Appearance                                                                          | Type                           | Part Number |
|-------------------------------------------------------------------------------------|--------------------------------|-------------|
|  | Red Light - Installation Kit   | V430-ALR    |
|                                                                                     | White Light - Installation Kit | V430-ALW    |
|                                                                                     | Blue Light - Installation Kit  | V430-ALB    |
|                                                                                     | IR Light - Installation Kit    | V430-ALI    |

Wiring Options



| Drawing Reference | Appearance                                                                          | Category                                                 | Length / Spec | Part Number   |
|-------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------|---------------|---------------|
| 2                 |    | USB Breakout Cable                                       | 1 Meter       | V420-WUB-1M   |
|                   |   | Cable - USB Breakout With External Power Input           | 1 Meter       | V420-WUX-1M   |
|                   |                                                                                     | Power Supply                                             | 2 Meters      | 97-9000006-01 |
|                   |                                                                                     | Kit – Cable and Power Supply                             |               | V420-AC1      |
|                   |  | Cable – RS-232 Breakout (DB-15) and External Power Input | 1 Meter       | V420-WRX-1M   |
|                   |                                                                                     | Power Supply                                             | 2 Meters      | 97-9000006-01 |
|                   |                                                                                     | Kit – Cable and Power Supply                             |               | V420-AC0      |
|                   |  | Cable – USB, IO, and Power Breakout                      | 1 Meter       | V420-WU8X-1M  |
|                   |                                                                                     | Power Supply                                             | 2 Meters      | 97-000011-02  |
|                   |                                                                                     | Kit – Cable and Power Supply                             |               | V420-AC2      |
|                   |  | Cable – RS-232, USB, IO, and Power Breakout              | 1 Meter       | V420-WRU8X-1M |
|                   |                                                                                     | Power Supply                                             | 2 Meters      | 97-000011-02  |

Verification Options

| Appearance                                                                          | Type                                                                            | Part Number  |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------|
|  | AutoVISION Verification Calibration Card with NIST-Traceable Measurement Report | 98-000265-01 |
|                                                                                     | AutoVISION Verification Calibration Card                                        | 98-000265-02 |

## F420-F

### F420-F Part Number Structure

Use this legend when defining product part numbers. Please note that not all combinations of parameters are valid. For instance, color cameras are only available with white lighting, and 400 mm fixed focus is only available with UHD lenses. When ordering, use valid part numbers from the tables in the Ordering Information section only.

#### F420-F[XXX][Y][ZZZ]-[L][C][P]

| Key | Classification      | Code | Meaning                                                      |
|-----|---------------------|------|--------------------------------------------------------------|
| XXX | Focus Distance (mm) | 000  | Autofocus – Variable Distance                                |
|     |                     | 050  | Fixed Focus at 50 mm                                         |
|     |                     | 064  | Fixed Focus at 64 mm                                         |
|     |                     | 081  | Fixed Focus at 81 mm                                         |
|     |                     | 102  | Fixed Focus at 102 mm                                        |
|     |                     | 133  | Fixed Focus at 133 mm                                        |
|     |                     | 190  | Fixed Focus at 190 mm                                        |
|     |                     | 300  | Fixed Focus at 300 mm                                        |
|     |                     | 400  | Fixed Focus at 400 mm                                        |
| Y   | Lens                | W    | Wide Field of View – 5.2 mm Focal Length Lens                |
|     |                     | M    | Medium Field of View – 7.7 mm Focal Length Lens              |
|     |                     | N    | Narrow Field of View – 16 mm Focal Length Lens               |
|     |                     | L    | Narrow 16 mm Lens – Autofocus to 1160 mm                     |
| ZZZ | Sensor              | 03M  | 752 x 480 (0.3 MP) Pixel, Mono Sensor, Global Shutter        |
|     |                     | 12M  | 1280 x 960 (1.2 MP) Pixel, Mono Sensor, Global Shutter       |
|     |                     | 50C  | 2592 x 1944 (5 MP) Pixel, Color Sensor, Rolling Shutter      |
| L   | Light Type          | N    | No Outer Light                                               |
|     |                     | S    | Standard Outer Light                                         |
| C   | Light Color         | N    | No Outer Light                                               |
|     |                     | R    | Red                                                          |
|     |                     | W    | White                                                        |
| P   | Software License    | S    | AutoVISION Sensor (Vision Toolset Only)                      |
|     |                     | A    | AutoVISION (Vision and Code Reading / Verification Toolsets) |
|     |                     | V    | Visionscape (Full AutoVISION and Visionscape Toolsets)       |

#### Example Part Numbers:

- F420-F081W03M-NNS: Fixed Focus at 81 mm, Wide Lens, 0.3 MP Monochrome Sensor, No Outer Light, AutoVISION Sensor
- F420-F000L50C-SWA: Autofocus, Long Range Lens, 5 MP Color, Standard Light, White, (Vision and Code Reading / Verification Toolsets)

### F420-F Valid Product Matrix

| Model  | Category   | Focus Type           | Sensor   | Lens    | Focus Distance (mm)                           | Light            | License |
|--------|------------|----------------------|----------|---------|-----------------------------------------------|------------------|---------|
| F420-F | Monochrome | Fixed Focus          | 03M, 12M | W, M    | 50, 64, 81, 102, 133, 190, 300                | None, Red, White | S, A, V |
|        |            |                      | 12M      | N       | 64, 400                                       | None, Red, White | S, A, V |
|        |            | Autofocus            | 03M      | W, M    | 50 <-> 300 Autofocus                          | None, Red, White | S, A, V |
|        |            |                      | 12M      | W, M, N | 50 <-> 300 (W, M)<br>40 <-> 150 (N) Autofocus | None, Red, White | S, A, V |
|        | Color      | Fixed Focus          | 50C      | W, M    | 50, 64, 81, 102, 133, 190, 300                | None, White      | S, A, V |
|        |            | Autofocus            | 50C      | W, M    | 50 <-> 300 Autofocus                          | None, White      | S, A, V |
|        | Specialty  | Long Range Autofocus | 12M      | L       | 75 <-> 1160 Autofocus                         | None, Red, White | S, A, V |

## F420-F Ordering Information

### Categories:

#### 1. Fixed Focus Camera

- a.) F420-F Monochrome Fixed Focus Camera
- b.) F420-F Color Fixed Focus Camera
- c.) F420-F 1.2 MP Monochrome Fixed Focus Camera with Narrow Lens

#### 2. Autofocus Camera

- a.) F420-F 0.3 MP Monochrome Autofocus Camera (50 – 300 mm)
- b.) F420-F 1.2 MP Monochrome Autofocus Camera (50 – 300 mm for Wide and Medium Lens, 40 – 150 mm for Narrow Lens)
- c.) F420-F Color Autofocus Camera (50 - 300 mm)
- d.) F420-F 1.2 MP Monochrome Long Range Autofocus Camera (75 - 1160 mm)

### 1a) F420-F Monochrome Fixed Focus Camera: Valid Combinations

F420-F[XXX][Y][ZZZ]-[L][C][P]

| Key | Classification      | Code | Meaning                                                      |
|-----|---------------------|------|--------------------------------------------------------------|
| XXX | Focus Distance (mm) | 050  | Fixed Focus at 50 mm                                         |
|     |                     | 064  | Fixed Focus at 64 mm                                         |
|     |                     | 081  | Fixed Focus at 81 mm                                         |
|     |                     | 102  | Fixed Focus at 102 mm                                        |
|     |                     | 300  | Fixed Focus at 300 mm                                        |
| Y   | Lens                | W    | Wide Field of View - 5.2 mm Focal Length Lens                |
|     |                     | M    | Medium Field of View – 7.7 mm Focal Length Lens              |
| ZZZ | Sensor              | 03M  | 752 x 480 (0.3 MP) Pixel, Mono Sensor, Global Shutter        |
|     |                     | 12M  | 1280 x 960 (1.2 MP) Pixel, Mono Sensor, Global Shutter       |
| L   | Light Type          | N    | No Outer Light                                               |
|     |                     | S    | Standard Outer Light                                         |
| C   | Light Color         | N    | No Outer Light                                               |
|     |                     | R    | Red                                                          |
|     |                     | W    | White                                                        |
| P   | Software License    | S    | AutoVISION Sensor (Vision Toolset Only)                      |
|     |                     | A    | AutoVISION (Vision and Code Reading / Verification Toolsets) |
|     |                     | V    | Visionscape (Full AutoVISION and Visionscape Toolsets)       |

### 1b) F420-F 5.0 MP Color Fixed Focus Camera: Valid Combinations

**Note:** 5 MP Color cameras are available with No or White light options only.

F420-F[XXX][Y]50C-[L][C][P]

| Key | Classification      | Code | Meaning                                                      |
|-----|---------------------|------|--------------------------------------------------------------|
| XXX | Focus Distance (mm) | 050  | Fixed Focus at 50 mm                                         |
|     |                     | 064  | Fixed Focus at 64 mm                                         |
|     |                     | 081  | Fixed Focus at 81 mm                                         |
|     |                     | 102  | Fixed Focus at 102 mm                                        |
|     |                     | 300  | Fixed Focus at 300 mm                                        |
| Y   | Lens                | W    | Wide Field of View - 5.2 mm Focal Length Lens                |
|     |                     | M    | Medium Field of View – 7.7 mm Focal Length Lens              |
| L   | Light Type          | N    | No Outer Light                                               |
|     |                     | S    | Standard Outer Light                                         |
| C   | Light Color         | N    | No Outer Light                                               |
|     |                     | W    | White                                                        |
| P   | Software License    | S    | AutoVISION Sensor (Vision Toolset Only)                      |
|     |                     | A    | AutoVISION (Vision and Code Reading / Verification Toolsets) |
|     |                     | V    | Visionscape (Full AutoVISION and Visionscape Toolsets)       |

## F420-F

### 1c) F420-F 1.2 MP Monochrome Fixed Focus Camera with Narrow Lens: Valid Combinations

**Note:** Fixed Focus Narrow lens option available for 1.2 MP Mono camera only.

#### F420-F[XXX]N12M-[L][C][P]

| Key | Classification      | Code | Meaning                                                      |
|-----|---------------------|------|--------------------------------------------------------------|
| XXX | Focus Distance (mm) | 064  | Fixed Focus at 64 mm                                         |
|     |                     | 400  | Fixed Focus at 400 mm                                        |
| L   | Light Type          | N    | No Outer Light                                               |
|     |                     | S    | Standard Outer Light                                         |
| C   | Light Color         | N    | No Outer Light                                               |
|     |                     | R    | Red                                                          |
|     |                     | W    | White                                                        |
| P   | Software License    | S    | AutoVISION Sensor (Vision Toolset Only)                      |
|     |                     | A    | AutoVISION (Vision and Code Reading / Verification Toolsets) |
|     |                     | V    | Visionscape (Full AutoVISION and Visionscape Toolsets)       |

### 2a) F420-F 0.3 MP Monochrome Autofocus Cameras (50 – 300 mm): Valid Combinations

#### F420-F000[Y]03M-[L][C][P]

| Key | Classification   | Code | Meaning                                                      |
|-----|------------------|------|--------------------------------------------------------------|
| Y   | Lens             | W    | Wide Field of View - 5.2 mm Focal Length Lens                |
|     |                  | M    | Medium Field of View – 7.7 mm Focal Length Lens              |
| ZZZ | Sensor           | 03M  | 752 x 480 (0.3 MP) Pixel, Mono Sensor, Global Shutter        |
|     |                  | 12M  | 1280 x 960 (1.2 MP) Pixel, Mono Sensor, Global Shutter       |
| L   | Light Type       | N    | No Outer Light                                               |
|     |                  | S    | Standard Outer Light                                         |
| C   | Light Color      | N    | No Outer Light                                               |
|     |                  | R    | Red                                                          |
|     |                  | W    | White                                                        |
| P   | Software License | S    | AutoVISION Sensor (Vision Toolset Only)                      |
|     |                  | A    | AutoVISION (Vision and Code Reading / Verification Toolsets) |
|     |                  | V    | Visionscape (Full AutoVISION and Visionscape Toolsets)       |

### 2b) F420-F 1.2 MP Monochrome Autofocus Camera (50 – 300 mm for Wide and Medium, 40 – 150 mm for Narrow): Valid Combinations

#### F420-F000[Y]12M-[L][C][P]

| Key | Classification   | Code | Meaning                                                      |
|-----|------------------|------|--------------------------------------------------------------|
| Y   | Lens             | W    | Wide Field of View - 5.2 mm Focal Length Lens                |
|     |                  | M    | Medium Field of View – 7.7 mm Focal Length Lens              |
|     |                  | N    | Narrow Field of View – 16 mm Focal Length Lens               |
| L   | Light Type       | N    | No Outer Light                                               |
|     |                  | S    | Standard Outer Light                                         |
| C   | Light Color      | N    | No Outer Light                                               |
|     |                  | R    | Red                                                          |
|     |                  | W    | White                                                        |
| P   | Software License | S    | AutoVISION Sensor (Vision Toolset Only)                      |
|     |                  | A    | AutoVISION (Vision and Code Reading / Verification Toolsets) |
|     |                  | V    | Visionscape (Full AutoVISION and Visionscape Toolsets)       |

**2c) F420-F 5.0 MP Color Autofocus Camera (50 - 300 mm): Valid Combinations**

**Note:** Narrow Autofocus lens option not available for color camera.

**F420-F000[Y]50C-[L][C][P]**

| Key | Classification   | Code | Meaning                                                      |
|-----|------------------|------|--------------------------------------------------------------|
| Y   | Lens             | W    | Wide Field of View - 5.2 mm Focal Length Lens                |
|     |                  | M    | Medium Field of View – 7.7 mm Focal Length Lens              |
| L   | Light Type       | N    | No Outer Light                                               |
|     |                  | S    | Standard Outer Light                                         |
| C   | Light Color      | N    | No Outer Light                                               |
|     |                  | W    | White                                                        |
| P   | Software License | S    | AutoVISION Sensor (Vision Toolset Only)                      |
|     |                  | A    | AutoVISION (Vision and Code Reading / Verification Toolsets) |
|     |                  | V    | Visionscape (Full AutoVISION and Visionscape Toolsets)       |

**2d) F420-F 1.2 MP Monochrome Long Range Autofocus Camera (75 - 1160 mm): Valid Combinations**

**Note:** Autofocus Long Range lens option available for 1.2 MP Monochrome camera only.

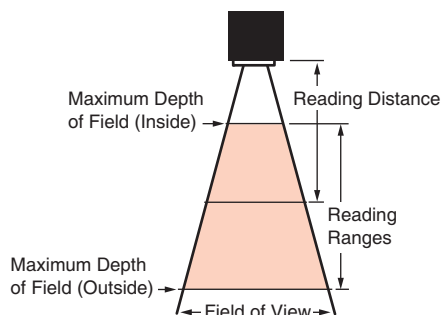
**F420-F000L12M-[L][C][P]**

| Key | Classification   | Code | Meaning                                                      |
|-----|------------------|------|--------------------------------------------------------------|
| L   | Light Type       | N    | No Outer Light                                               |
|     |                  | S    | Standard Outer Light                                         |
| C   | Light Color      | N    | No Outer Light                                               |
|     |                  | R    | Red                                                          |
|     |                  | W    | White                                                        |
| P   | Software License | S    | AutoVISION Sensor (Vision Toolset Only)                      |
|     |                  | A    | AutoVISION (Vision and Code Reading / Verification Toolsets) |
|     |                  | V    | Visionscape (Full AutoVISION and Visionscape Toolsets)       |

## F420-F

### Read Ranges

Read range specifications are subject to change.



#### Fixed Focus Field of View (mm) - Wide Lens

| Distance (mm) | 0.3 MP |        | 1.2 MP |        | 5 MP  |        |
|---------------|--------|--------|--------|--------|-------|--------|
|               | Width  | Height | Width  | Height | Width | Height |
| 50            | 49     | 32     | 53     | 39     | 50    | 38     |
| 64            | 62     | 39     | 66     | 49     | 63    | 47     |
| 81            | 76     | 49     | 81     | 61     | 78    | 58     |
| 102           | 95     | 60     | 101    | 75     | 96    | 72     |
| 133           | 121    | 78     | 129    | 97     | 124   | 92     |
| 190           | 171    | 109    | 182    | 136    | 174   | 130    |
| 300           | 266    | 170    | 283    | 213    | 271   | 202    |
| 400           | 353    | 225    | 376    | 282    | 359   | 268    |

#### Fixed Focus Field of View (mm) - Medium Lens

| Distance (mm) | 0.3 MP |        | 1.2 MP |        | 5 MP  |        |
|---------------|--------|--------|--------|--------|-------|--------|
|               | Width  | Height | Width  | Height | Width | Height |
| 50            | 34     | 22     | 36     | 27     | 35    | 26     |
| 64            | 43     | 27     | 45     | 34     | 43    | 32     |
| 81            | 53     | 34     | 56     | 42     | 54    | 40     |
| 102           | 66     | 42     | 70     | 52     | 67    | 50     |
| 133           | 84     | 54     | 90     | 67     | 86    | 64     |
| 190           | 119    | 76     | 126    | 95     | 121   | 90     |
| 300           | 185    | 118    | 196    | 147    | 188   | 140    |
| 400           | 245    | 156    | 260    | 195    | 249   | 186    |

#### Fixed Focus Field of View (mm) - Narrow Lens

| Distance (mm) | 0.3 MP |        | 1.2 MP |        | 5 MP  |        |
|---------------|--------|--------|--------|--------|-------|--------|
|               | Width  | Height | Width  | Height | Width | Height |
| 50            | 15     | 10     | 16     | 12     | 16    | 12     |
| 64            | 19     | 12     | 21     | 15     | 20    | 15     |
| 81            | 24     | 15     | 25     | 19     | 24    | 18     |
| 102           | 30     | 19     | 32     | 24     | 30    | 22     |
| 133           | 38     | 24     | 40     | 30     | 39    | 29     |
| 190           | 54     | 34     | 57     | 43     | 54    | 41     |
| 300           | 83     | 53     | 89     | 67     | 85    | 63     |
| 400           | 111    | 71     | 118    | 88     | 113   | 84     |



## Autofocus Field of View (mm) - Wide Lens

| Distance (mm) | 0.3 MP |        | 1.2 MP |        | 5 MP  |        |
|---------------|--------|--------|--------|--------|-------|--------|
|               | Width  | Height | Width  | Height | Width | Height |
| 50            | 51     | 33     | 55     | 41     | 52    | 39     |
| 100           | 97     | 62     | 103    | 77     | 98    | 73     |
| 150           | 142    | 90     | 151    | 113    | 144   | 107    |
| 200           | 187    | 119    | 199    | 149    | 190   | 142    |
| 250           | 232    | 148    | 247    | 185    | 236   | 176    |
| 300           | 277    | 177    | 295    | 221    | 282   | 210    |

## Autofocus Field of View (mm) - Medium Lens

| Distance (mm) | 0.3 MP |        | 1.2 MP |        | 5 MP  |        |
|---------------|--------|--------|--------|--------|-------|--------|
|               | Width  | Height | Width  | Height | Width | Height |
| 50            | 33     | 21     | 36     | 27     | 34    | 25     |
| 100           | 63     | 40     | 67     | 50     | 64    | 48     |
| 150           | 92     | 59     | 98     | 73     | 94    | 70     |
| 200           | 121    | 77     | 129    | 97     | 123   | 92     |
| 250           | 151    | 96     | 160    | 120    | 153   | 114    |
| 300           | 180    | 115    | 191    | 144    | 183   | 136    |

## Autofocus Field of View (mm) - Narrow Lens

| Distance (mm) | 0.3 MP |        | 1.2 MP |        | 5 MP  |        |
|---------------|--------|--------|--------|--------|-------|--------|
|               | Width  | Height | Width  | Height | Width | Height |
| 50            | 15     | 10     | 16     | 12     | 16    | 12     |
| 100           | 29     | 19     | 31     | 23     | 30    | 22     |
| 150           | 43     | 27     | 45     | 34     | 43    | 32     |

## Long Range Autofocus Field of View (mm)

| Distance (mm) | 0.3 MP |        | 1.2 MP |        | 5 MP  |        |
|---------------|--------|--------|--------|--------|-------|--------|
|               | Width  | Height | Width  | Height | Width | Height |
| 75            | 22     | 14     | 24     | 18     | 23    | 17     |
| 100           | 29     | 19     | 31     | 23     | 30    | 22     |
| 200           | 56     | 36     | 60     | 45     | 57    | 43     |
| 300           | 83     | 53     | 89     | 67     | 85    | 63     |
| 400           | 111    | 71     | 118    | 88     | 113   | 84     |
| 500           | 138    | 88     | 147    | 110    | 140   | 105    |
| 600           | 165    | 105    | 176    | 132    | 168   | 125    |
| 700           | 192    | 123    | 204    | 153    | 196   | 146    |
| 800           | 219    | 140    | 233    | 175    | 223   | 166    |
| 900           | 247    | 157    | 262    | 197    | 251   | 187    |
| 1000          | 274    | 175    | 291    | 218    | 279   | 208    |
| 1200          | 328    | 209    | 349    | 262    | 334   | 249    |
| 1300          | 355    | 227    | 378    | 283    | 362   | 270    |
| 1400          | 382    | 244    | 407    | 305    | 389   | 290    |
| 1500          | 410    | 261    | 436    | 327    | 417   | 311    |

# F420-F

## Ratings and Specifications

| F420-F                    |                                    | F420-F□□□□□03M-□□□□                                                                                                                                                                                                              | F420-F□□□□□12M-□□□□        | F420-F□□□□□50C-□□□□ |
|---------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------------------|
| Symbolologies *1          | 1D Symbolologies                   | Code 39, Code 128, BC412, Interleaved 2 of 5, UPC/EAN, Codabar, Code 93, Pharmacode, PLANET, Postnet, Japanese Post, Australian Post, Royal Mail, Intelligent Mail, KIX                                                          |                            |                     |
|                           | 2D Symbolologies                   | Data Matrix (ECC 0-200), QR Code, Micro QR Code, Aztec Code, DotCode                                                                                                                                                             |                            |                     |
|                           | Stacked Symbolologies              | PDF417, MicroPDF417, GS1 Databar (Composite and Stacked)                                                                                                                                                                         |                            |                     |
| Reading Performance *2    | Number of Reading Digits           | No Upper Limit (depending on bar width and reading distance)                                                                                                                                                                     |                            |                     |
|                           | Aiming Light                       | Two Blue LEDs                                                                                                                                                                                                                    |                            |                     |
|                           | Illumination                       | Inner LEDs: Four White and Four Red (Wavelength: 625 nm)                                                                                                                                                                         |                            |                     |
|                           |                                    | Outer LEDs: 8 Red or White                                                                                                                                                                                                       | Outer LEDs: 8 Red or White | Outer LEDs: 8 White |
|                           | Reading Distance / Field of View   | Refer to <i>Read Ranges</i> section for detail.                                                                                                                                                                                  |                            |                     |
|                           | Pitch Angle (α) *3                 | ±30°                                                                                                                                                                                                                             |                            |                     |
|                           | Skew Angle (β) *3                  | ±30°                                                                                                                                                                                                                             |                            |                     |
|                           | Tilt Angle (γ) *3                  | ±180°                                                                                                                                                                                                                            |                            |                     |
| Vision Tools              |                                    | Locate, Decode, Optical Character Recognition (OCR), Count, Presence/Absence, Measure, Match Strings, String Format, Logic, Optical Character Verification (OCV), Symbol Quality Verification, Color Identification, Color Match |                            |                     |
| Image Capture             | Focus                              | Liquid Lens Autofocus or Fixed Focus (Wide = 5.2 mm, Medium = 7.7 mm, Narrow = 16 mm, L = 16 mm)                                                                                                                                 |                            |                     |
|                           | Resolution                         | 752 (H) x 480 (V)                                                                                                                                                                                                                | 1280 (H) x 960 (V)         | 2592 (H) x 1944 (V) |
|                           | Color / Monochrome                 | Monochrome CMOS                                                                                                                                                                                                                  | Monochrome CMOS            | Color CMOS          |
|                           | Shutter                            | Global Shutter                                                                                                                                                                                                                   | Global Shutter             | Rolling Shutter     |
|                           | Frames per Second                  | 52 fps                                                                                                                                                                                                                           | 40 fps                     | 5 fps               |
|                           | Exposure                           | 50 to 66,667 μs                                                                                                                                                                                                                  | 50 to 58,825 μs            | 50 to 66,667 μs     |
| Image Logging             |                                    | FTP                                                                                                                                                                                                                              |                            |                     |
| Trigger                   |                                    | External Trigger (Edge or Level), Communication Trigger (Ethernet, RS-232C)                                                                                                                                                      |                            |                     |
| I/O Specifications        | Input Signals                      | Trigger Input: 5-28 V rated (0.16 mA @ 5 VDC); New Master: 5 to 28 V rated (0.16 mA @ 5 VDC); Default: 3.3 V rated (0 mA @ 3.3 V)                                                                                                |                            |                     |
|                           | Output Signals                     | 3 Signals : 5 V TTL-compatible, can sink 10 mA and source 10 mA                                                                                                                                                                  |                            |                     |
| Communication             | Connectivity                       | RS-232C, USB 2.0 High Speed, Ethernet over USB/HID                                                                                                                                                                               |                            |                     |
|                           | Ethernet Specifications            | 100BASE-TX / 10BASE-T                                                                                                                                                                                                            |                            |                     |
| Indicator LEDs            |                                    | PASS (Green), TRIG (Amber), MODE (Amber), LINK (Amber), FAIL (Red), PWR (Green)                                                                                                                                                  |                            |                     |
| Power Supply Voltage      |                                    | 5 VDC +/- 5%                                                                                                                                                                                                                     |                            |                     |
| Current Consumption       |                                    | 650 mA at 5 VDC (max.)                                                                                                                                                                                                           |                            |                     |
| Environmental Immunity *4 | Ambient Temperature Range          | Operating: 0 to 45° C Storage: -50 to 75° C (No Icing or Condensation)                                                                                                                                                           |                            |                     |
|                           | Ambient Humidity Range             | Operating and storage: 5% to 95% (Non-Condensing)                                                                                                                                                                                |                            |                     |
|                           | Ambient Atmosphere                 | No Corrosive Gases                                                                                                                                                                                                               |                            |                     |
|                           | Vibration Resistance (Destructive) | Sine Vibration: 10 Hz to 55 Hz, 0.35mm displacement, 20 cycles/axis. Random Vibration: 20 Hz to 2000 Hz, 6.295 Grms, 30 min/axis                                                                                                 |                            |                     |
|                           | Shock Resistance (Destructive)     | 50 G, 11 ms, sawtooth profile. 3X in each X, Y, Z axis.                                                                                                                                                                          |                            |                     |
|                           | Degree of Protection               | IEC 60529 IP54                                                                                                                                                                                                                   |                            |                     |
| Weight                    | Main Body Only                     | 120 g                                                                                                                                                                                                                            |                            |                     |
|                           | Packaging Weight                   | Approx. 230 g (including packing)                                                                                                                                                                                                |                            |                     |
| Dimensions                | Main Body Dimensions               | 44.5 (W) x 38.1 (D) x 25.4 (H) mm                                                                                                                                                                                                |                            |                     |
|                           | Packaging Dimensions               | 170 (W) x 117 (D) x 86 (H) mm                                                                                                                                                                                                    |                            |                     |
| Accessories               |                                    | ReadMeFirst, CE Compliance Sheet                                                                                                                                                                                                 |                            |                     |
| LED Safety Standard       |                                    | IEC 62471-1: 2006 Risk-Exempt Group                                                                                                                                                                                              |                            |                     |
| Safety Standards          |                                    | EN 61326-1:2013<br>FCC Part 15, Subpart B (Class B) UL60950-1<br>RCM, KC, EAC Pending                                                                                                                                            |                            |                     |
| Materials                 | Case                               | Aluminum Diecast, Alumite (Black)                                                                                                                                                                                                |                            |                     |
|                           | Reading Window                     | Acrylic                                                                                                                                                                                                                          |                            |                     |
| Software                  |                                    | AutoVISION, Visionscape FrontRunner                                                                                                                                                                                              |                            |                     |

\*1. These symbolologies are supported based on Omron's read capability validation standard. Omron recommends that validation be performed for each application.

\*2. Unless otherwise specified, reading performance is defined with center of field of view, angle R=∞.



\*4. In an electrically noisy environment, use only the F430-F in combination with a noise filter cable (V430-W□F-□M) to ensure proper operation.

Technical drawing of the Omron E6B2-AC100 photoelectric sensor, showing dimensions in millimeters (mm).

**Top View Dimensions:**

- Width: 38.1 mm
- Height: 25.4 mm

**Side View Dimensions:**

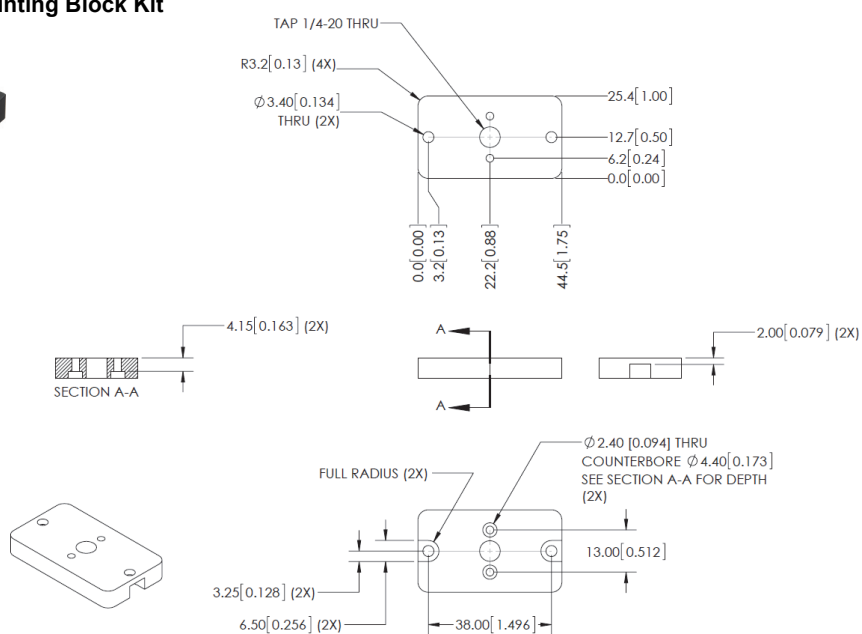
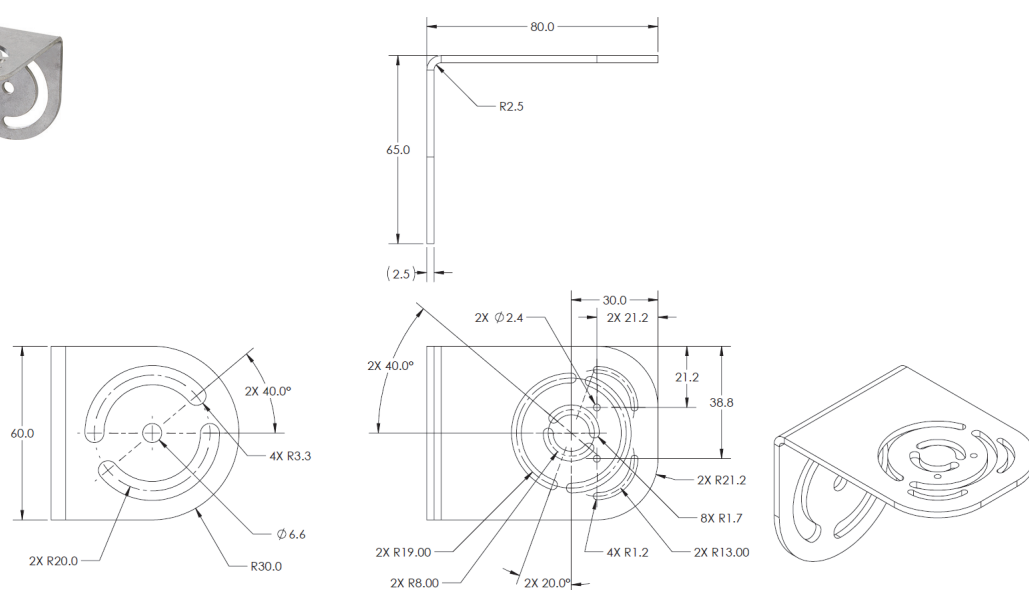
- Depth: 44.5 mm
- Mounting Hole Diameter: 12.9 mm

**Bottom View Dimensions:**

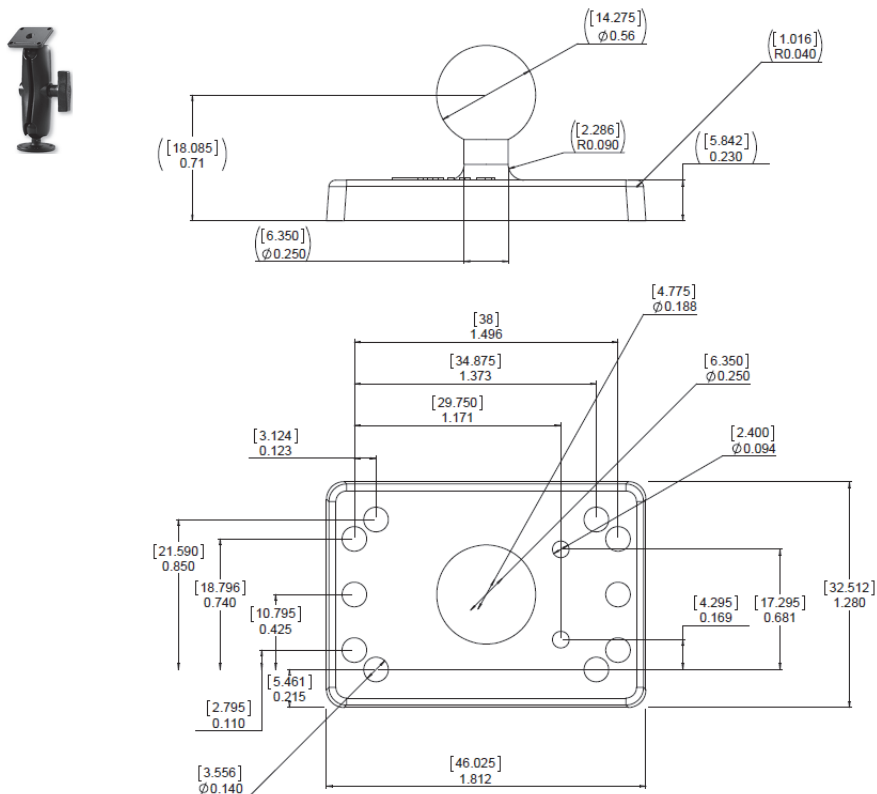
- Width: 38.0 mm
- Depth: 16.0 mm

**Mounting Holes:**

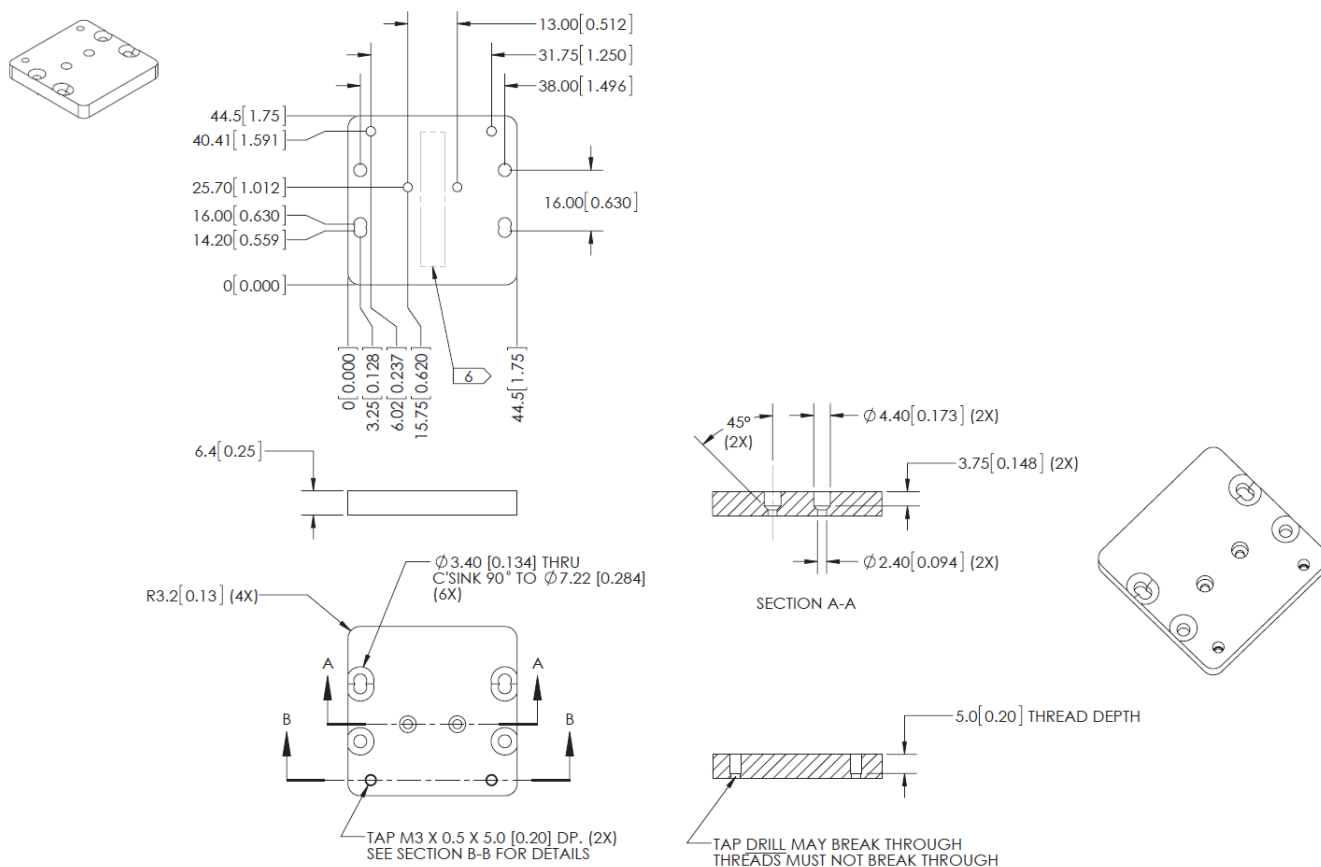
- Size: M3 X 0.5
- Depth: 5.0 mm DEEP MAX
- Quantity: 2 PLACES



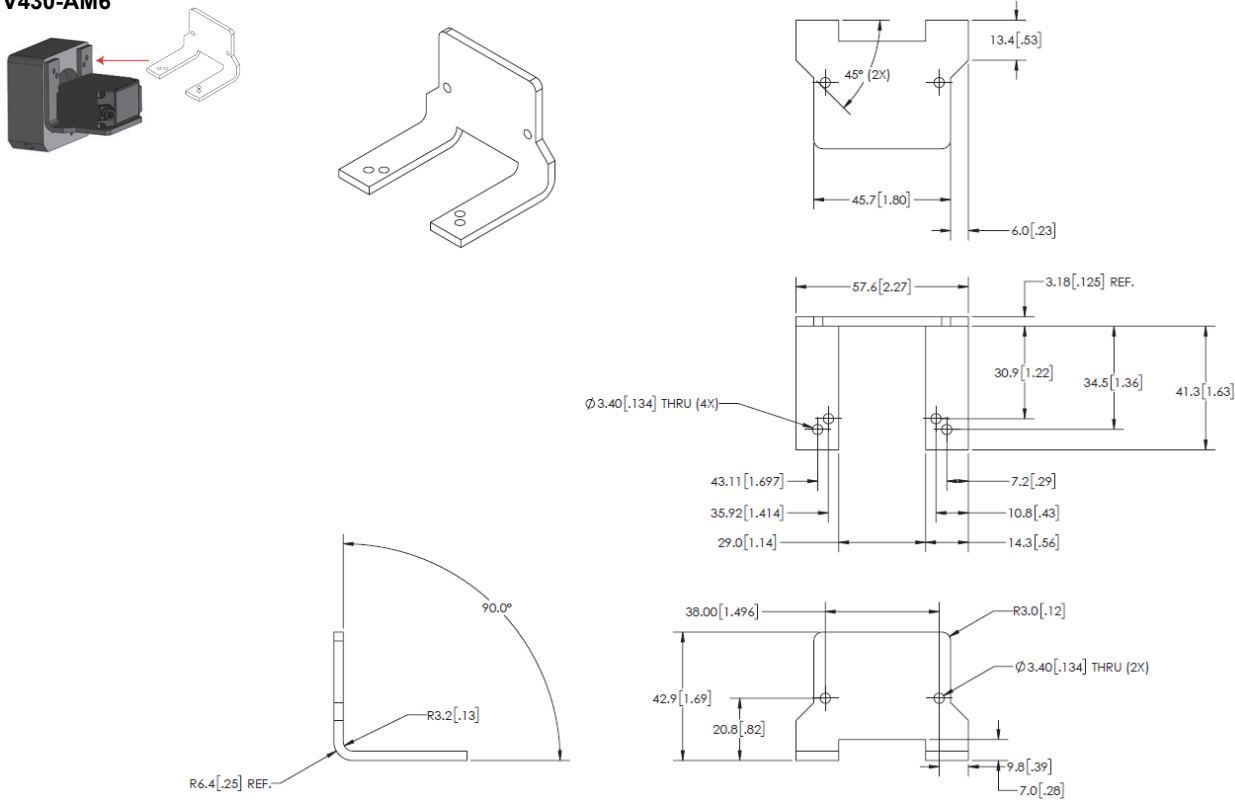
## 4" (102 mm) Ram Mount Stand V430-AM2



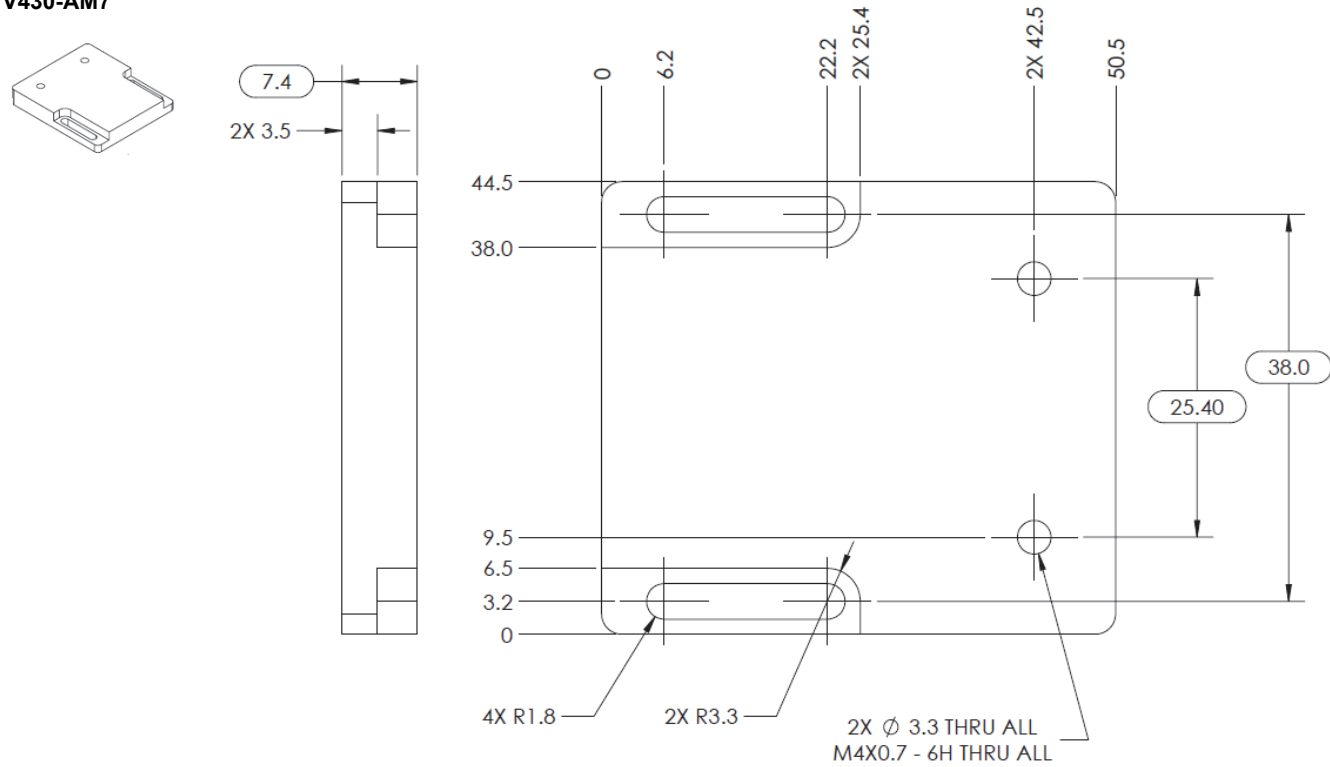
## MS-4 / MINI to V/F4XX-F Adapter Plate V430-AM5



Smart Ring Light to V/F4XX-F Mounting Bracket  
V430-AM6



QX / Vision HAWK to V/F4XX-F Adapter Plate  
V430-AM7



# F420-F

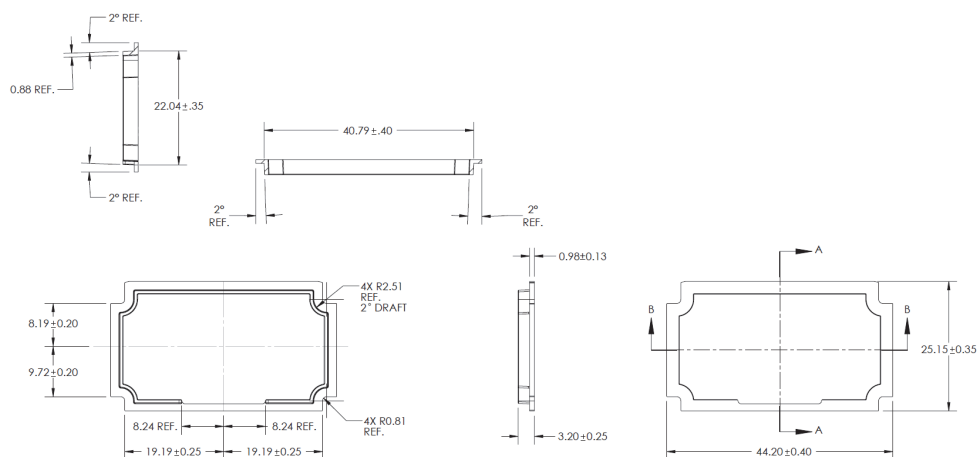
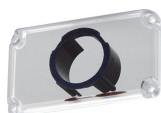
## Front Window Installation Kit V430-AF0

## Diffuser Installation Kit V430-AF1

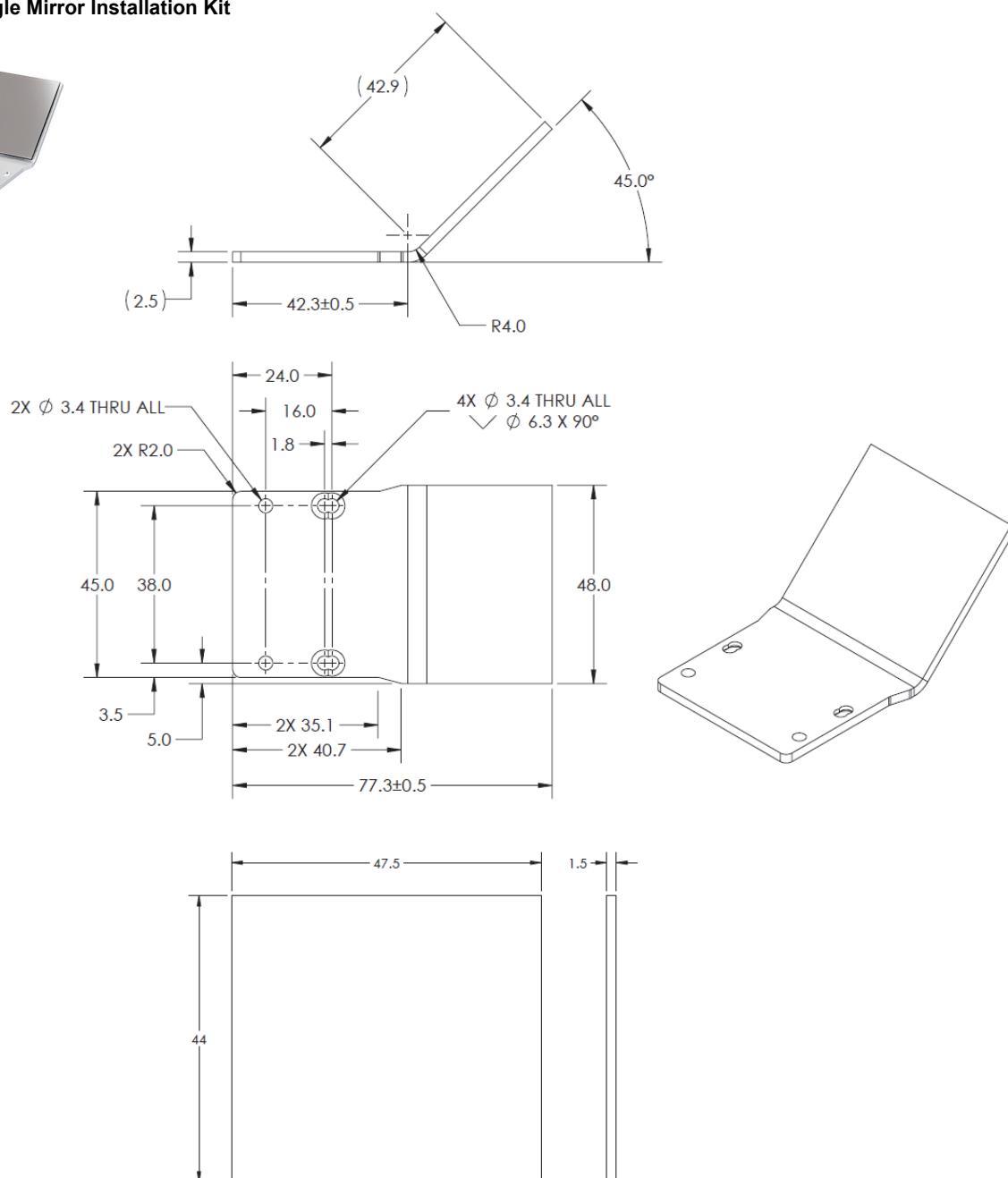
## Polarizer Installation Kit V430-AF2

## YAG Filter Installation Kit V430-AF4

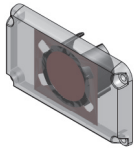
## ESD-Safe Window Installation Kit V430-AF5



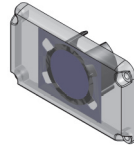
## Right Angle Mirror Installation Kit V430-AF3



**Red Filter Installation Kit  
V430-AF6**



**Blue Filter Installation Kit  
V430-AF7**

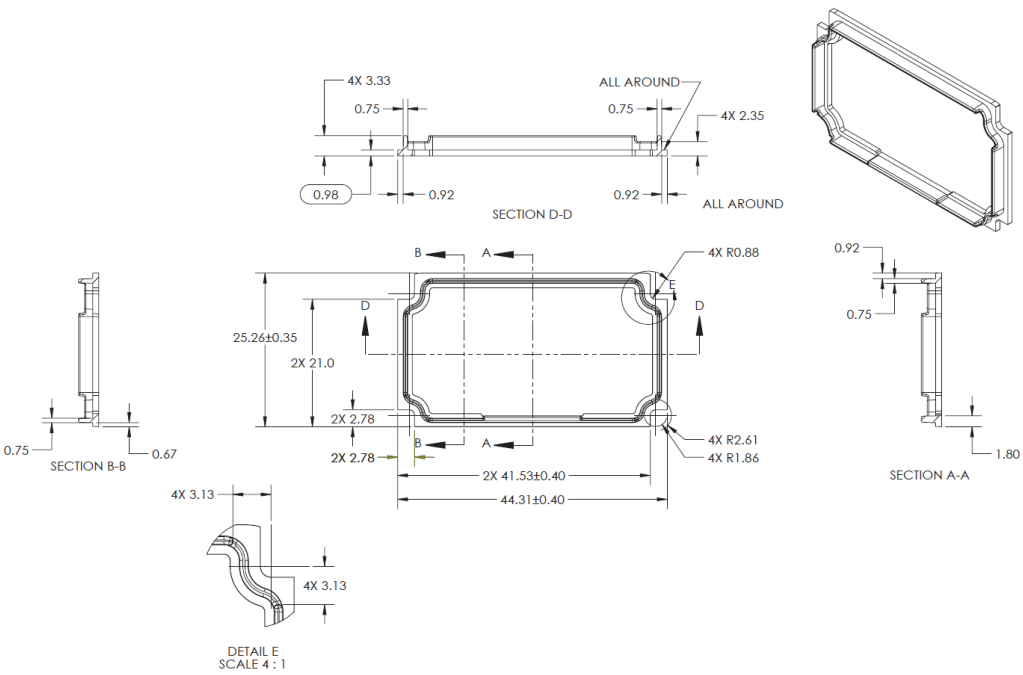
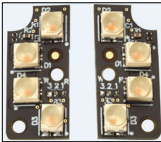


**Red Light Installation Kit  
V430-ALR**

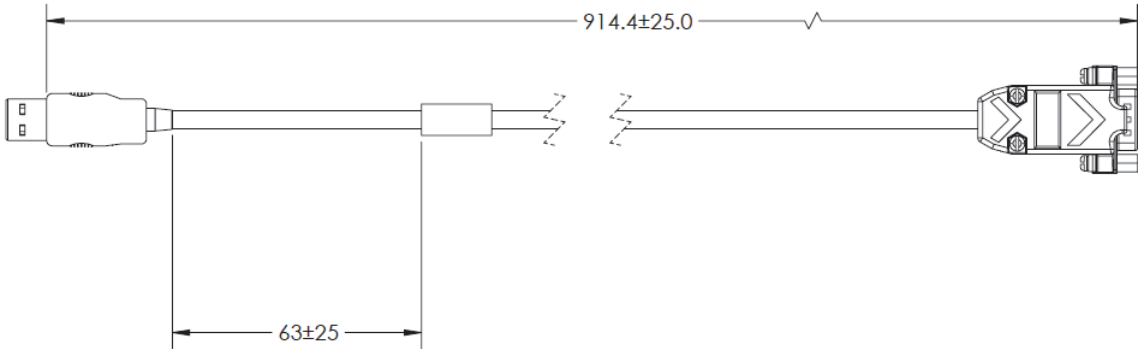
**White Light Installation Kit  
V430-ALW**

**Blue Light Installation Kit  
V430-ALB**

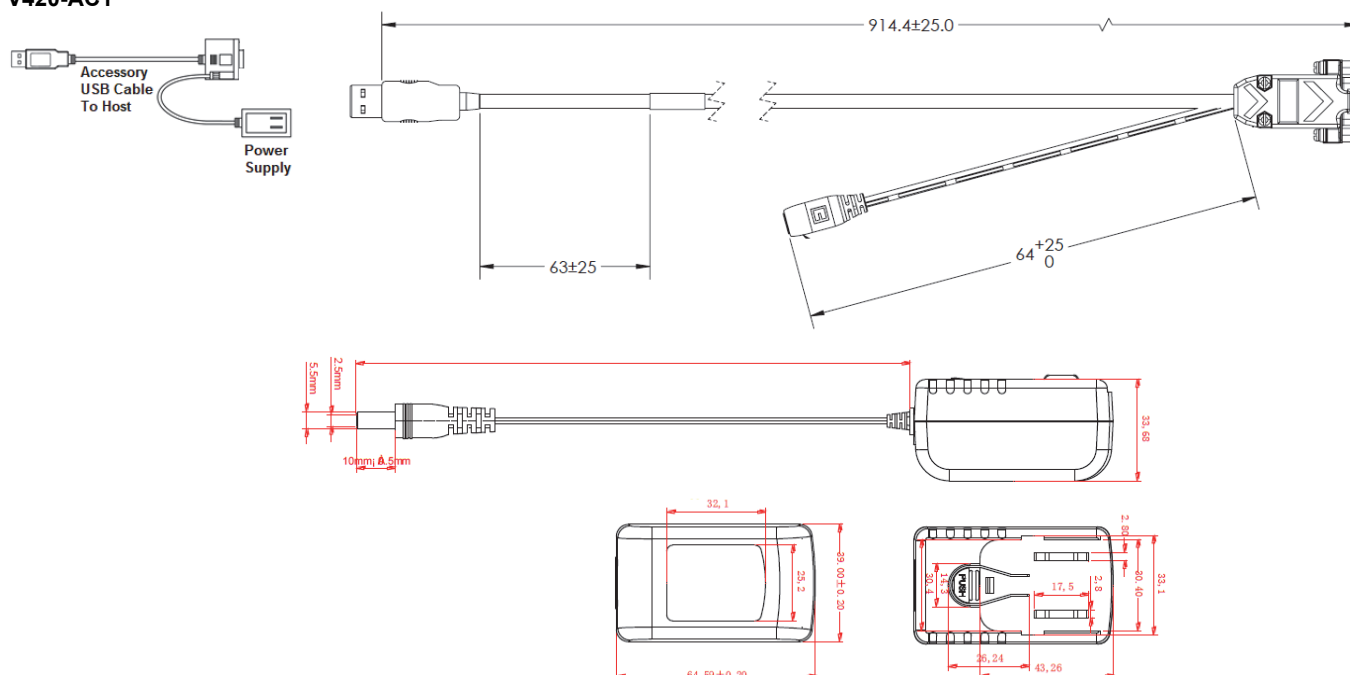
**IR Light Installation Kit  
V430-ALI**



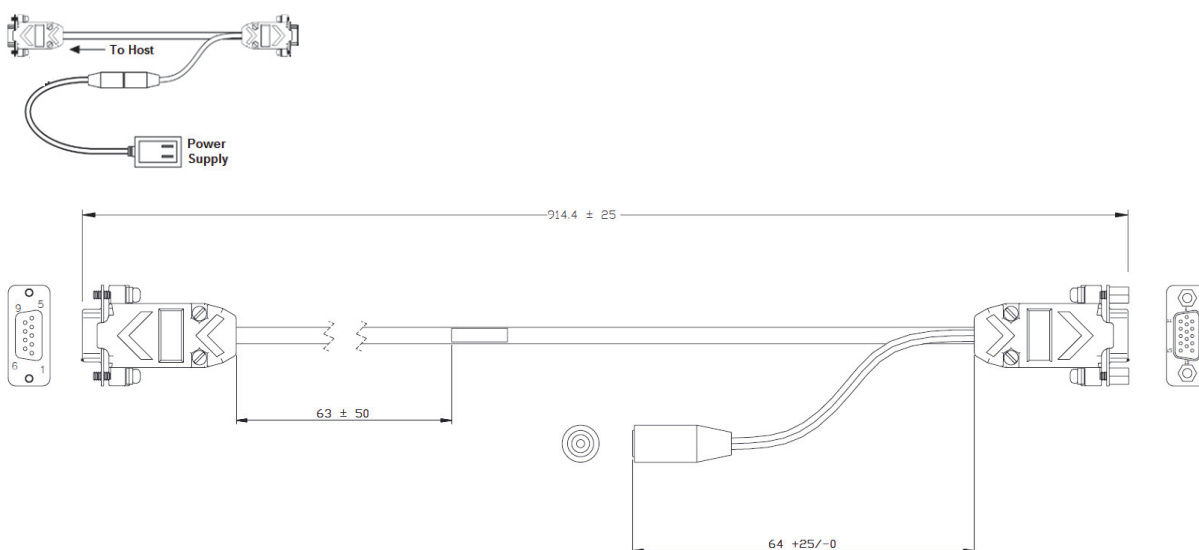
**USB Breakout Cable – 1 Meter  
V420-WUB-1M**



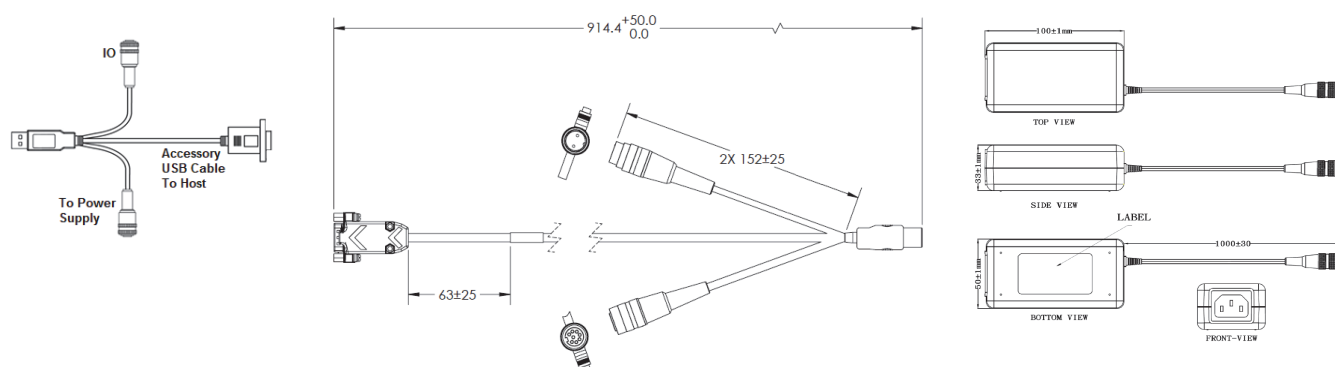
## Kit – USB Breakout Cable with External Power Input (1 Meter) and Power Supply (2 Meters) V420-AC1



## Kit – RS-232 Breakout Cable (DB-15) with External Power Input (1 Meter) and Power Supply (2 Meters) V420-AC0

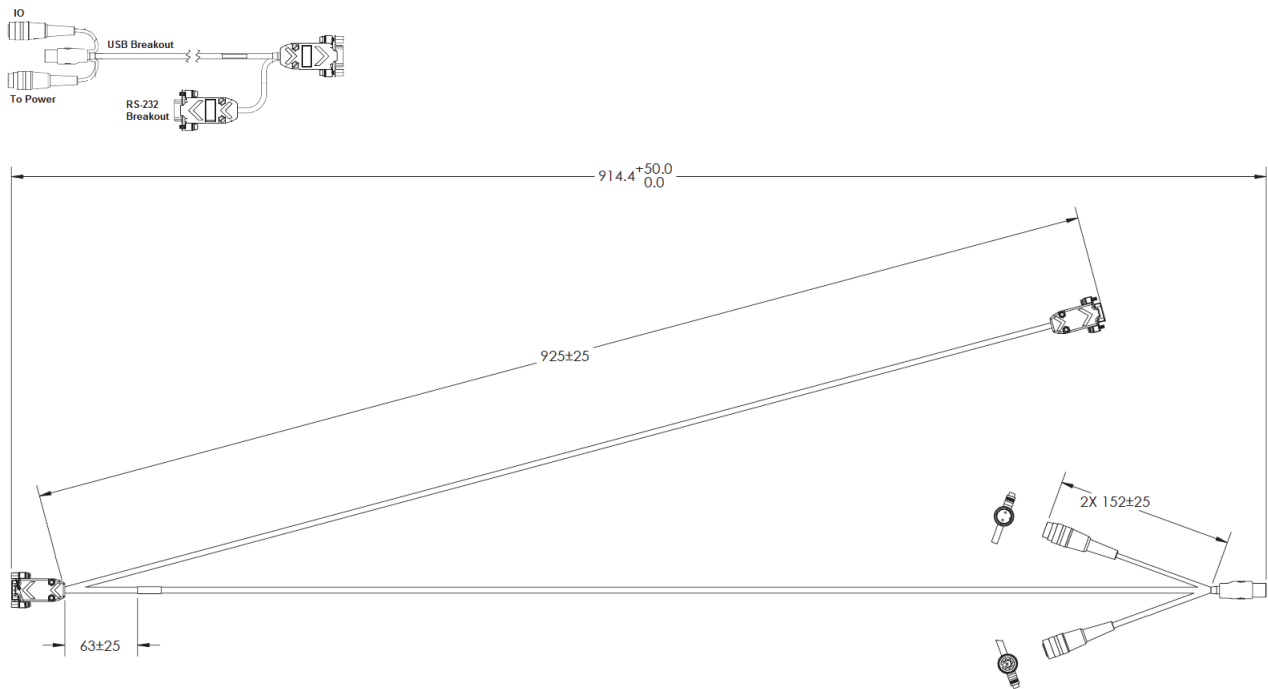


## Kit – USB, IO, and Power Breakout Cable (1 Meters) and Power Supply (2 Meters) V420-AC2

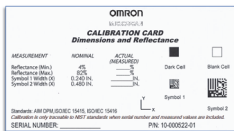




Cable – RS-232, USB, IO, and Power Breakout – 1 Meter  
V420-WRU8X-1M



AutoVISION Verification Calibration Card with NIST-Traceable Measurement Report  
98-000265-01  
98-000265-02



**OMRON**  
N/A  
**CALIBRATION CARD**  
*Dimensions and Reflectance*

| MEASUREMENT        | NOMINAL   | ACTUAL (MEASURED) |
|--------------------|-----------|-------------------|
| Reflectance (Min.) | 4%        | ____%             |
| Reflectance (Max.) | 82%       | ____%             |
| Symbol 1 Width (X) | 0.240 IN. | ____IN.           |
| Symbol 2 Width (X) | 0.480 IN. | ____IN.           |

Standards: AIM DPM, ISO/IEC 15415, ISO/IEC 15416  
Calibration is only traceable to NIST standards when serial number and measured values are included.  
SERIAL NUMBER: \_\_\_\_\_ P/N: 10-000522-01

Related Manuals

| Man.No. | Model                          | Manual                                                  |
|---------|--------------------------------|---------------------------------------------------------|
| Z433    | F320-F, F330-F, F420-F, F430-F | MicroHAWK F320-F / F330-F / F420-F / F430-F User Manual |

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