

# MicroHAWK F320-F

## Smart Camera


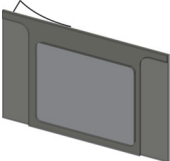
### Compact smart camera.

- Simple configuration with AutoVISION.
- 5 megapixel sensor available.
- Smallest in class.
- IP40.
- Single snap-in RJ50 connector and cable.
- RS-232, Ethernet via USB.

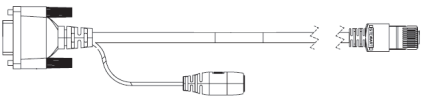
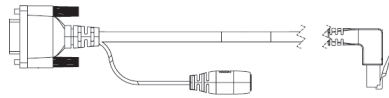

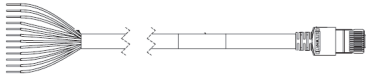
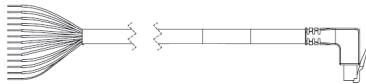


## MicroHAWK F320-F

### Optics Options

Appearance	Type	Part Number
	Diffuser Kit – Peel and Stick Accessory. Exterior to unit.	<b>V330-AF1</b>
	Polarizer Kit – Peel and Stick Accessory. Exterior to unit.	<b>V330-AF2</b>

### Direct Wiring Options

Appearance	Type	Length	Part Number
	RJ50 to RS-232 and External Power Straight	2 Meters	<b>V320-WRX-2M</b>
	RJ50 to RS-232 and External Power Right Angle	2 Meters	<b>V320-WRXLR-2M</b>
	Power Supply for V320-WRX-2M and V320-WRXLR-2M	2 Meters	<b>97-9000006-01</b>
	RJ50 to Flying Leads Straight	3 Meters	<b>V320-W8-3M</b>
	RJ50 to Flying Leads Right Angle to the Right*	3 Meters	<b>V320-W8LR-3M</b>

## Wiring Options using V420-F Accessories

Appearance	Category	Length	Part Number
	Adapter V/F320-F to all V420-F Cable accessories RJ50 to DB-15	1 Meter	<b>V320-WR-1M</b>
	Adapter V/F320-F to all V420-F Cable accessories Right Angle to the Right* RJ50 to DB-15	1 Meter	<b>V320-WRLR-1M</b>
	USB Breakout Cable	1 Meter	<b>V420-WUB-1M</b>
	Cable - USB Breakout With External Power Input	1 Meter	<b>V420-WUX-1M</b>
	Power Supply	2 Meters	<b>97-9000006-01</b>
	Kit – Cable and Power Supply		<b>V420-AC1</b>
	Cable – RS-232 Breakout (DB-15) and External Power Input	1 Meter	<b>V420-WRX-1M</b>
	Power Supply	2 Meters	<b>97-9000006-01</b>
	Kit – Cable and Power Supply		<b>V420-AC0</b>
	Cable – USB, IO, and Power Breakout	1 Meter	<b>V420-WU8X-1M</b>
	Power Supply	2 Meters	<b>97-000011-02</b>
	Kit – Cable and Power Supply		<b>V420-AC2</b>
	Cable – RS-232, USB, IO, and Power Breakout	1 Meter	<b>V420-WRU8X-1M</b>
	Power Supply	2 Meters	<b>97-000011-02</b>

\* Right angle cables.

Right angle to the right



## Verification Options

Appearance	Type	Part Number
	AutoVISION Verification Calibration Card with NIST-Traceable Measurement Report	<b>98-000265-01</b>
	AutoVISION Verification Calibration Card	<b>98-000265-02</b>

## F320-F Part Number Structure

Use this legend when defining product part numbers. Please note that not all combinations of parameters are valid. For instance, fixed focus distance of 50 mm is not available with Narrow Lens. When ordering, use valid part numbers from the tables in the Ordering Information section only.

### F320-F[XXX][Y][ZZZ]-NN[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
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 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
		N	Narrow Field of View – 16 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
		50C	2592 x 1944 (5 MP) Pixel, Color Sensor, Rolling Shutter
L	Light Type	N	No Outer Light
C	Light Color	N	No Outer Light
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 Number:

- F320-F050W50C-NNA: Fixed Focus at 50 mm, Wide Lens, 5 MP Color, No Light, AutoVISION (Vision and Code Reading / Verification Toolsets)

### F320-F Valid Product Matrix

Model	Category	Focus Type	Sensor	Lens	Focus Distance (mm)	Light	License
F320-F	Monochrome	Fixed Focus	03M, 12M	W, M	50, 64, 81, 102, 133, 190, 300	None	S, A, V
	Color	Fixed Focus	50C	W, M	50, 64, 81, 102, 133, 190, 300	None	S, A, V
	Monochrome	Fixed Focus	03M, 12M	N	64, 81, 102, 133, 190, 300	None	S, A, V
	Color	Fixed Focus	50C	N	64, 81, 102, 133, 190, 300	None	S, A, V

## F320-F Ordering Information

### Categories:

#### 1. Fixed Focus Cameras

- F320-F Monochrome and Color Fixed Focus Camera with Standard Lens
- F320-F Monochrome and Color Fixed Focus Camera with Narrow Lens

#### 1a) F320-F Mono and Color Camera with Standard Lens: Valid Combinations

### F320-F[XXX][Y][ZZZ]-NN[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
		133	Fixed Focus at 133 mm
		190	Fixed Focus at 190 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
		50C	2592 x 1944 (5 MP) Pixel, Color Sensor, Rolling Shutter
P	Software License	S	AutoVISION Sensor (Vision Toolset Only)
		A	AutoVISION (Vision and Code Reading / Verification Toolsets)
		V	Visionscape (Full AutoVISION and Visionscape Toolsets)

## F320-F

### 1b) F320-F Mono and Color Camera with Narrow Lens: Valid Combinations

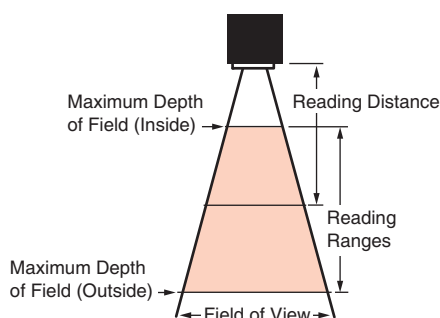
Note: 50 mm Fixed Focus option not available with Narrow Lens.

#### F320-F[XXX]N[ZZZ]-NN[P]

Key	Classification	Code	Meaning
XXX	Focus Distance (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
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
P	Software License	S	AutoVISION Sensor (Vision Toolset Only)
		A	AutoVISION (Vision and Code Reading / Verification Toolsets)
		V	Visionscape (Full AutoVISION and Visionscape Toolsets)

## 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

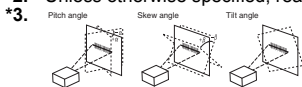
# F320-F

## Ratings and Specifications

F320-F		F320-F□□□□03M-□□□□	F320-F□□□□12M-□□□□	F320-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:	None	None
	Reading Distance / Field of View	Refer to <i>Read Ranges</i> section for detail.		
	Pitch Angle ( $\alpha$ ) *3	$\pm 30^\circ$		
	Skew Angle ( $\beta$ ) *3	$\pm 30^\circ$		
Tilt Angle ( $\gamma$ ) *3	$\pm 180^\circ$			
Vision Tools		Locate, Decode, Optical Character Recognition (OCR), Count, Presence/Absence, Measure, Match String, String Format, Logic, Optical Character Verification (OCV), Symbol Quality Verification, Color Identification, Color Match		
Image Capture	Focus	Fixed Focus (Wide = 5.2 mm, Medium = 7.7 mm, Narrow = 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	60 fps	42 fps	5 fps
	Exposure	50 to 66,667 $\mu$ s	50 to 58,825 $\mu$ s	50 to 66,667 $\mu$ s
Image Logging		FTP		
Trigger		External Trigger (Edge or Level), Communication Trigger (Ethernet, RS-232C)		
I/O Specifications	Input Signals	Trigger Input: 5-28V rated (0.16 mA @ 5 VDC); Default: 3.3 V rated (0 mA @ 3.3 V)		
	Output Signals	One Signal (Strobe): 5 V TTL-compatible, can sink 10 mA and source 10 mA		
Communication	Connectivity	USB 2.0 Full-Speed (Ethernet over USB and HID), RS-232		
	Ethernet Specifications	100BASE-TX / 10BASE-T		
Indicator LEDs		PASS (Green), PWR (Green)		
Power Supply Voltage		5 VDC +/- 5%		
Current Consumption		450 mA at 5 VDC (max.)		
Environmental Immunity *4	Ambient Temperature Range	Operating: 0 to 40° 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)	Oscillation Frequency: 10 to 150 Hz, Half Amplitude: 0.35 mm, Vibration Direction: X/Y/Z, Sweep Time: 8 minute/count, Sweep Count: 10 times		
	Shock Resistance (Destructive)	Impact Force: 150 m/s <sup>2</sup> , Test Direction: 6 directions, three times each (up/down, front/back, left/right)		
	Degree of Protection	IEC 60529 IP40		
Weight	Main Body Only	59 g		
	Packaging Weight	Approx. 166 g (including packing)		
Dimensions	Main Body Dimensions	52 (W) x 39 (D) x 24 (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 FCC Part 15, Subpart B (Class B) UL60950-1 RCM, KC, EAC Pending		
Materials	Case	Aluminum Diecast, Alumite (Black)		
	Reading Window	Acrylic		
Software		AutoVISION, Visionscape FrontRunner		

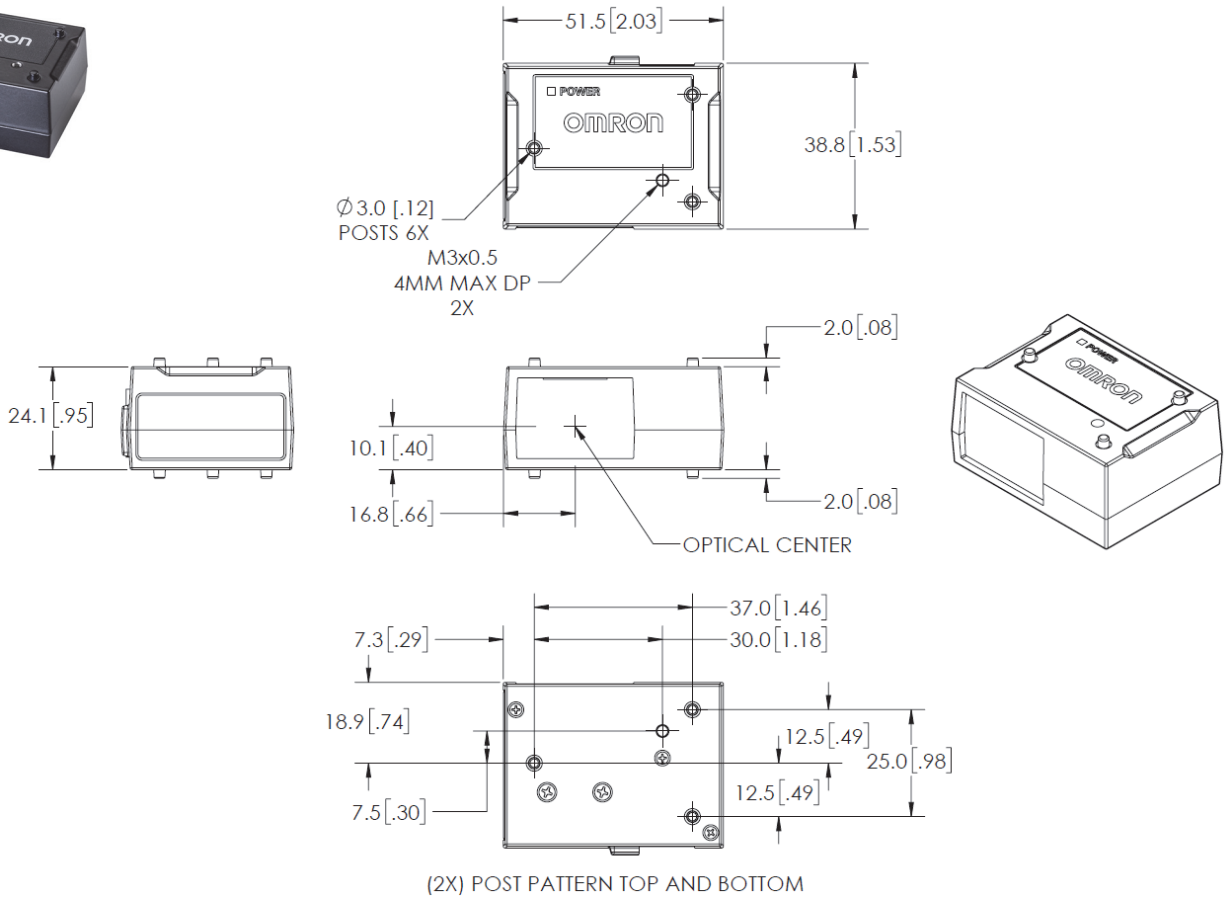
\*1. These symbolologies are supported based on Omron's read capability validation standard. Omron recommends that validation be performed for each application.

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



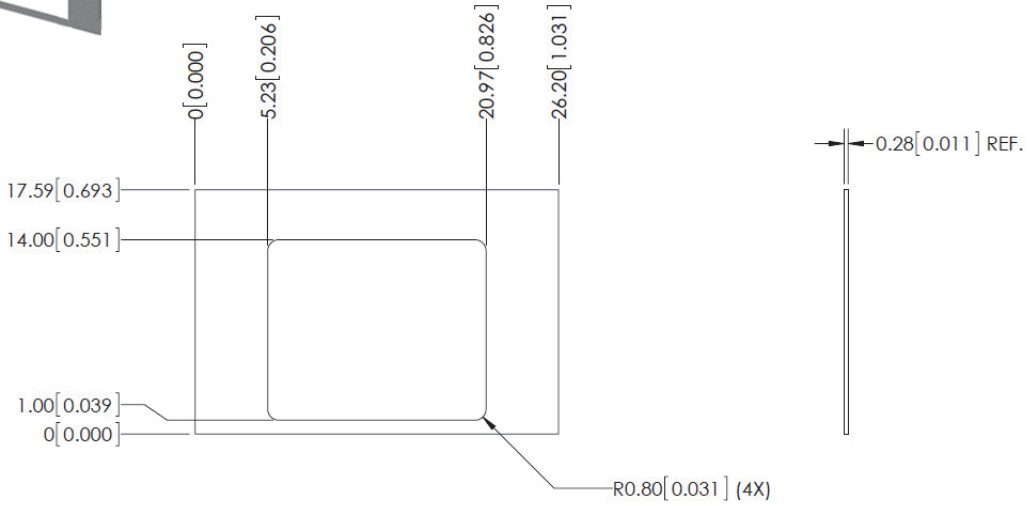
\*4. In an electrically noisy environment, use only the F430-F in combination with a noise filter cable (V430-W□F-□M) to ensure proper operation.

# Dimensions

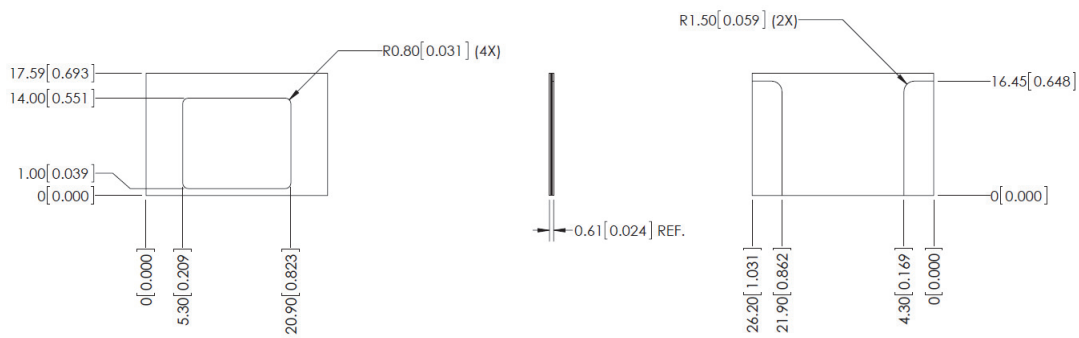
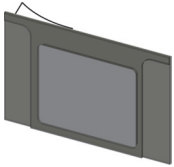


# F320-F

## Diffuser Kit – Peel and Stick Accessory. Exterior to unit. V330-AF1

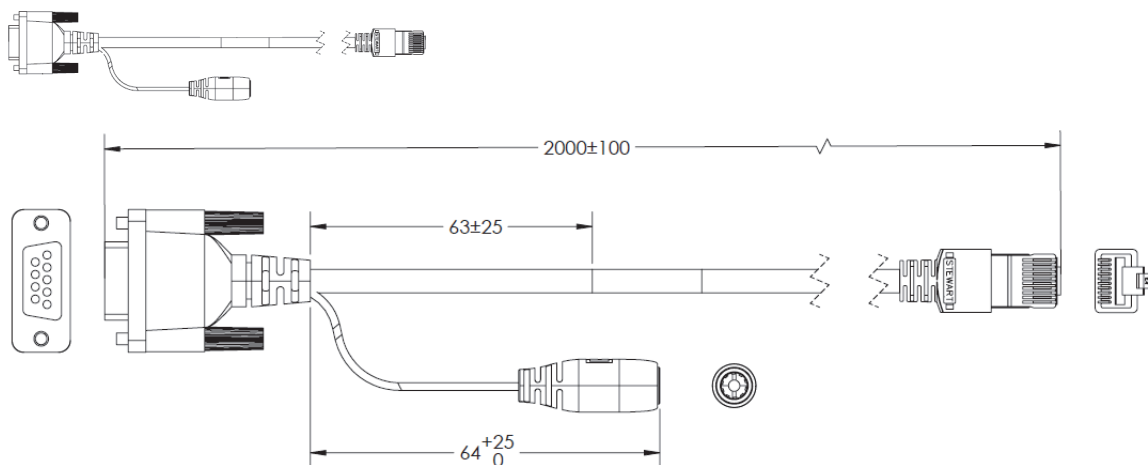


## Polarizer Kit – Peel and Stick Accessory. Exterior to unit. V330-AF2

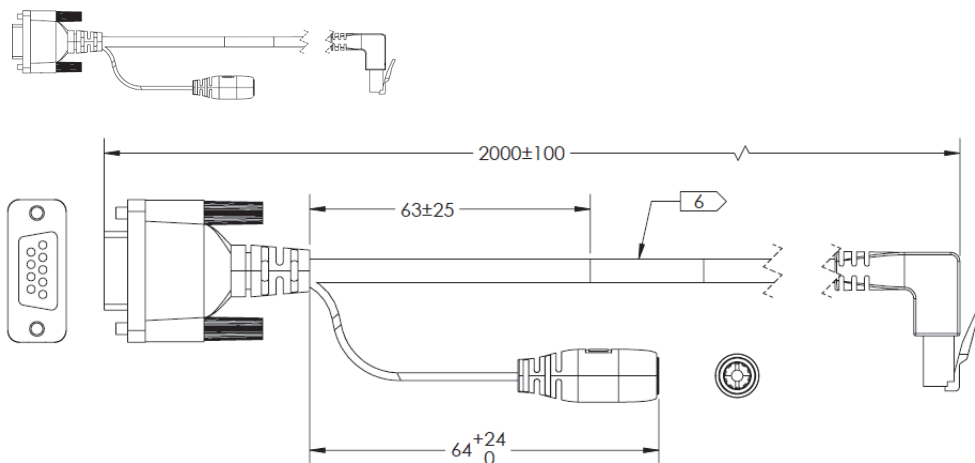




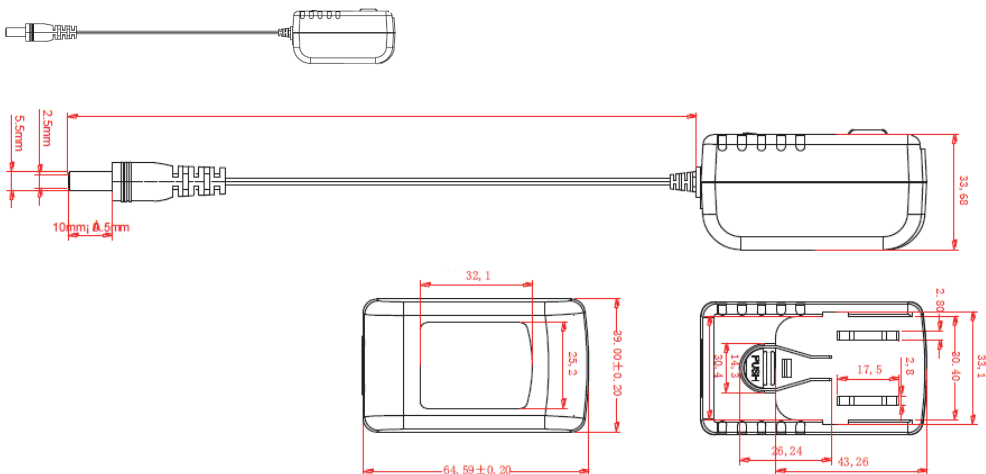
**RJ50 to RS-232 and External Power, Straight – 2 Meters**  
**V320-WRX-2M**



**RJ50 to RS-232 and External Power, Right Angle – 2 Meters**  
**V320-WRXLR-2M**

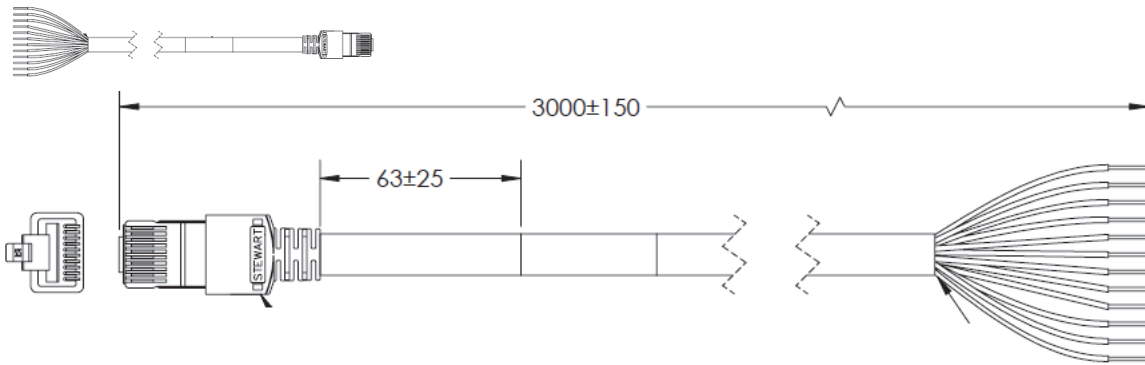


**Power Supply for V320-WRX-2M and V320-WRXLR-2M – 2 Meters**  
**97-900006-01**

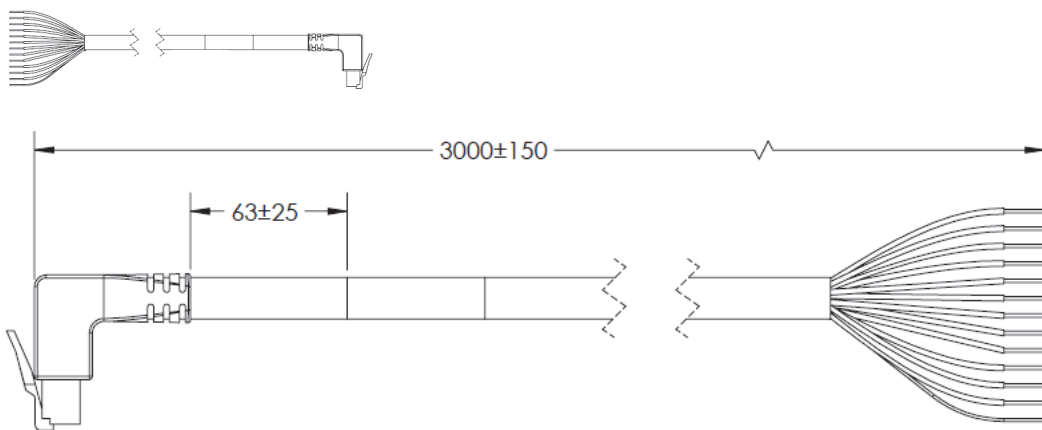


# F320-F

## RJ50 to Flying Leads, Straight – 3 Meters V320-W8-3M



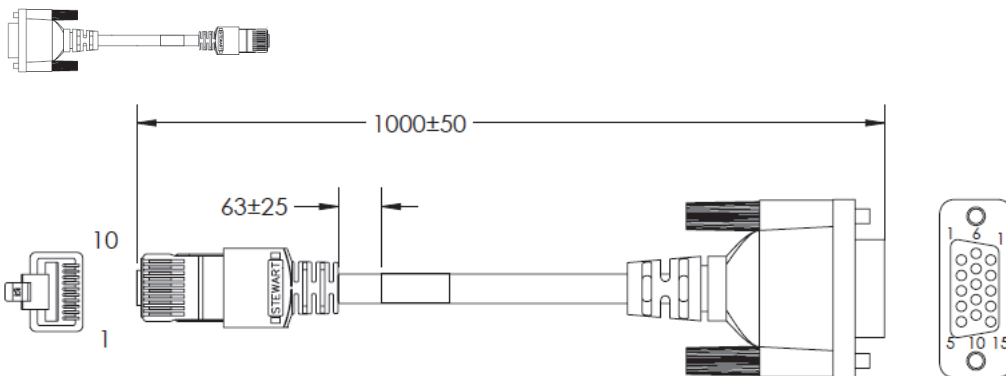
## RJ50 to Flying Leads, Right Angle to the Right – 3 Meters V320-W8LR-3M



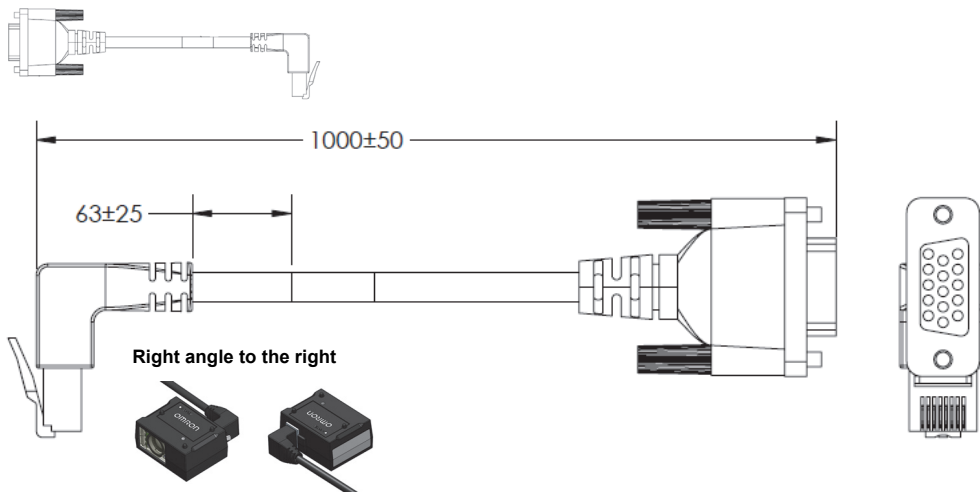
Right angle to the right



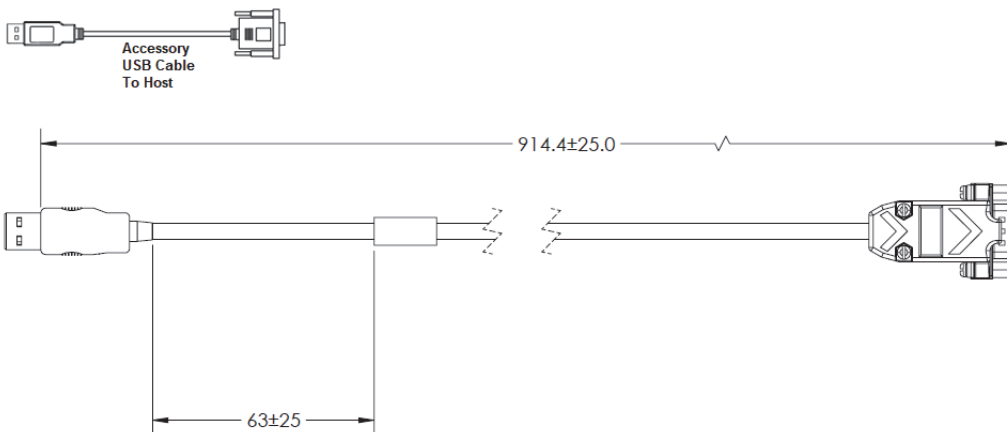
## Adapter V/F320-F to all V420-F Cable Accessories, RJ50 to DB-15 – 1 Meter V320-WR-1M



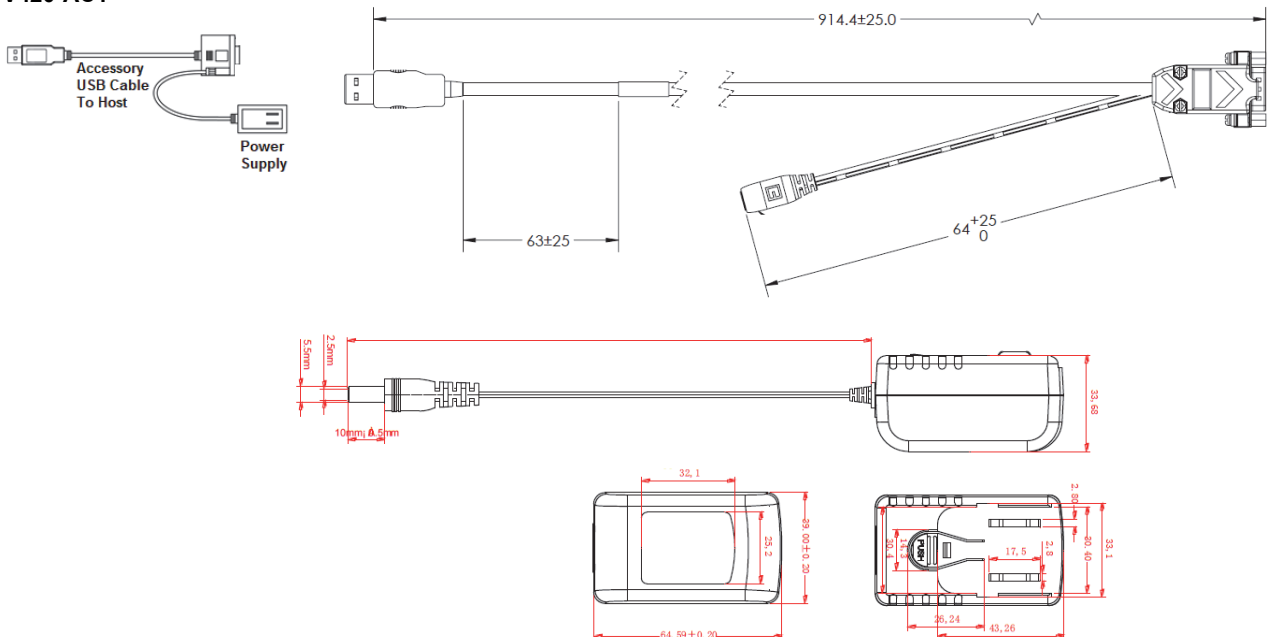
**Adapter V/F320-F to all V420-F Cable Accessories, Right Angle to the Right, RJ50 to DB-15 – 1 Meter  
V320-WRLR-1M**



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

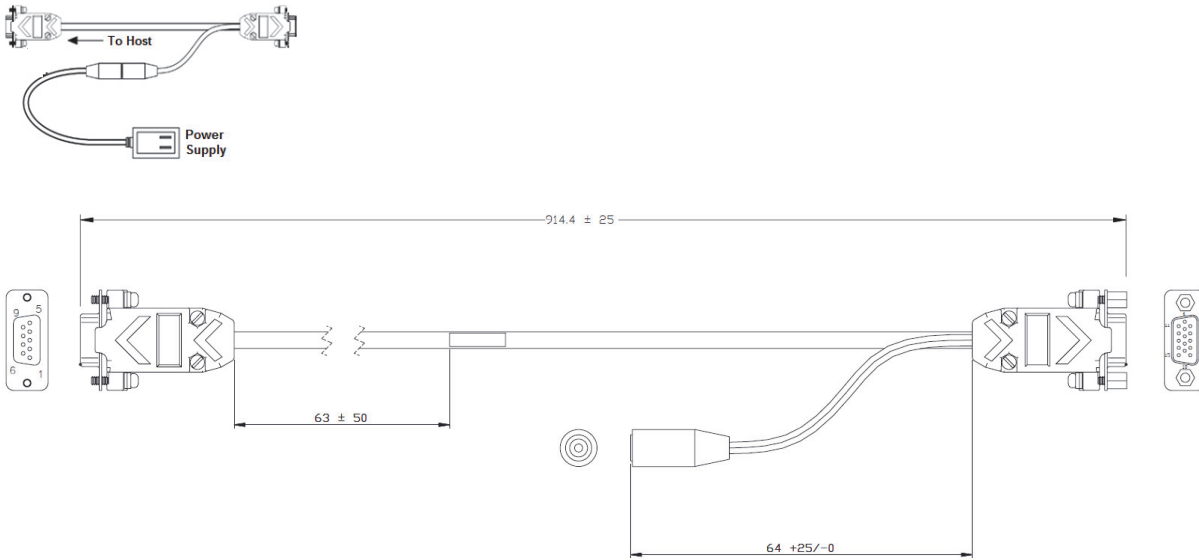


**Kit – USB Breakout Cable with External Power Input (1 Meter) and Power Supply (2 Meters)  
V420-AC1**

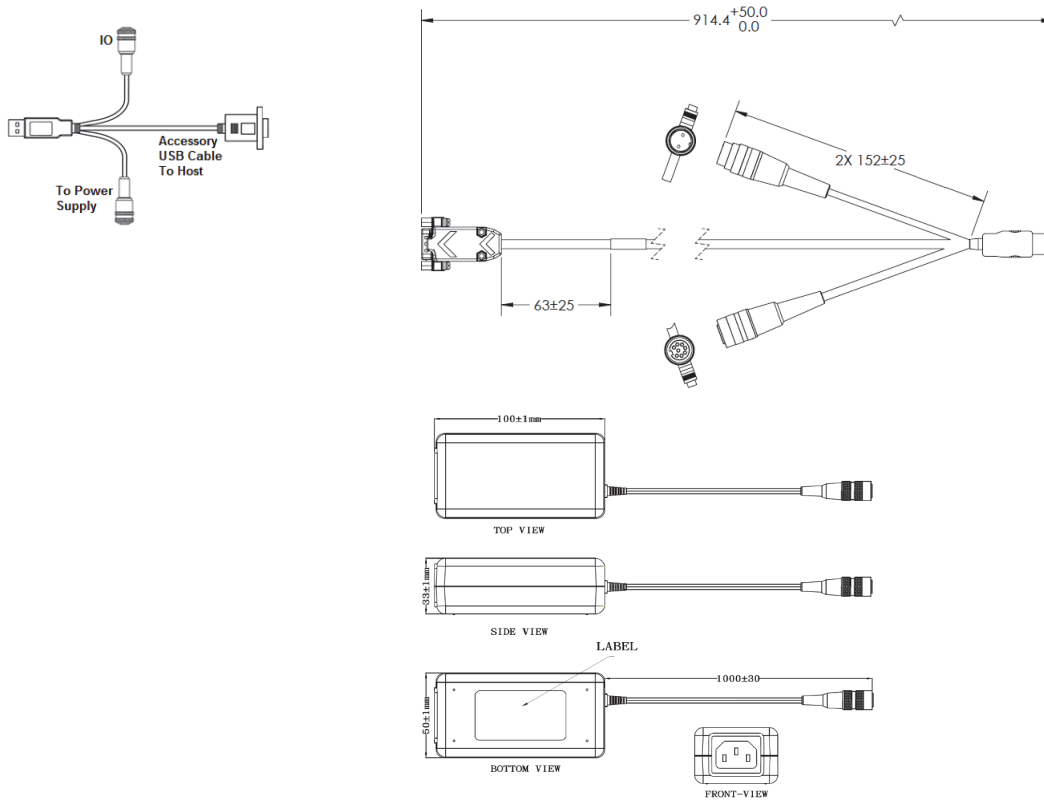


# F320-F

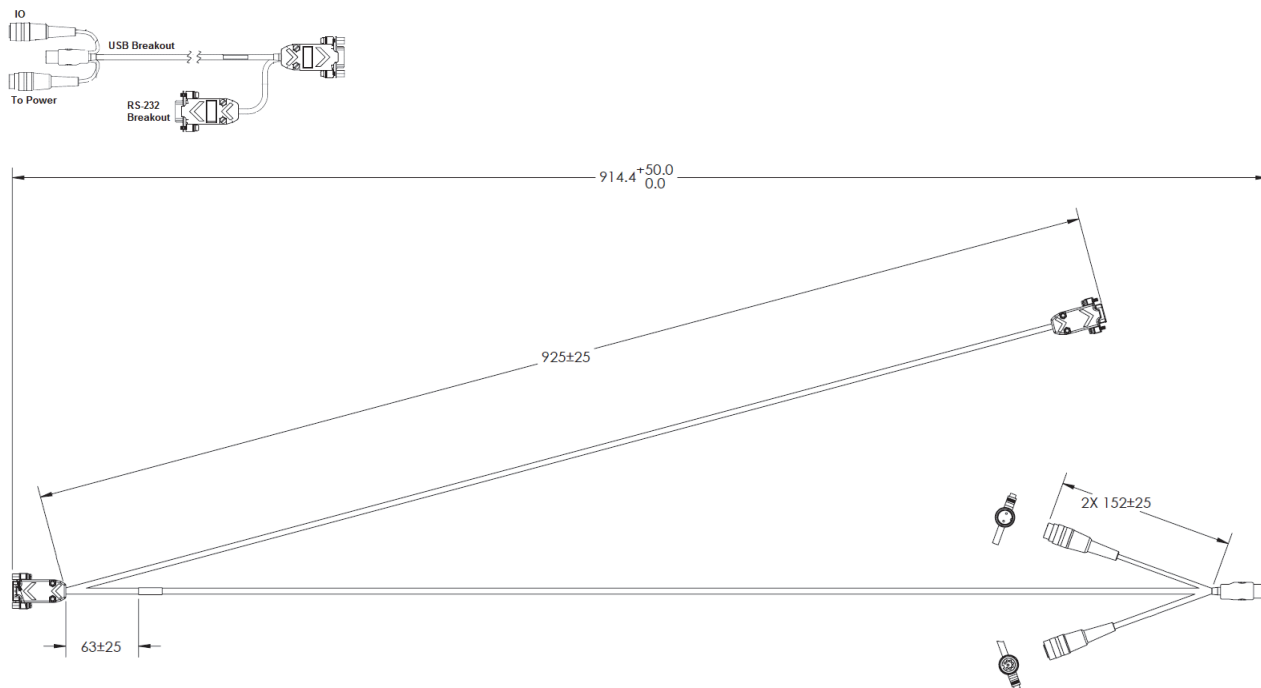
## Kit – RS-232 Breakout Cable (DB-15) with External Power Input (1 Meter) and Power Supply (2 Meters) V420-AC0



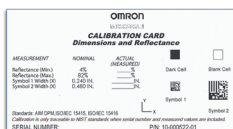
## Kit – USB, IO, and Power Breakout Cable (1 Meters) and Power Supply (2 Meters) V420-AC2



**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**  
MICROHAWK

**CALIBRATION CARD**  
*Dimensions and Reflectance*

MEASUREMENT	NOMINAL	ACTUAL (MEASURED)		
Reflectance (Min.)	4%	____%	Dark Cell	Blank Cell
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 (84-9000402-02)	F320-F, F330-F, F420-F, F430-F	MicroHAWK F320-F / F330-F / F420-F / F430-F User Manual

# Terms and Conditions Agreement

## Read and understand this catalog.

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## OMRON Corporation Industrial Automation Company

Kyoto, JAPAN

Contact: [www.ia.omron.com](http://www.ia.omron.com)

### Regional Headquarters

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