

MicroHAWK F320-F Smart Camera


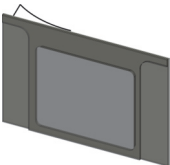
Compact smart camera.

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

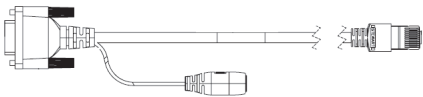
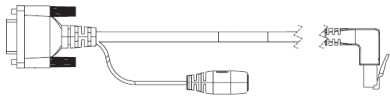

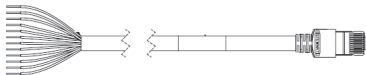
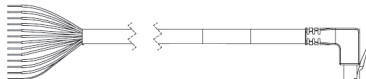


MicroHAWK F320-F

Optics Options

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

Direct Wiring Options

Appearance	Type	Length	Part Number
	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	97-9000006-01
	RJ50 to Flying Leads Straight	3 Meters	V320-W8-3M
	RJ50 to Flying Leads Right Angle to the Right*	3 Meters	V320-W8LR-3M

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	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
	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
	Cable – Trigger, IO, and Power Breakout	900 MM	61-000151-01

* Right angle cables.

Right angle to the right



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

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-NNV: Fixed Focus at 50 mm, Wide Lens, 5 MP Color, No Light, Visionscape (Full AutoVISION and Visionscape 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

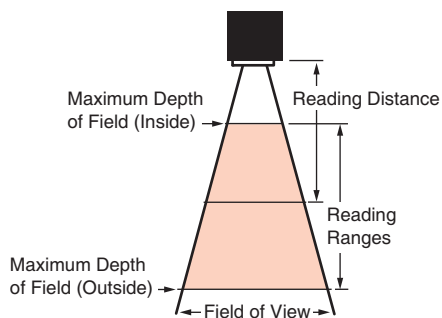
Note: 50 mm Fixed Focus option not available with Narrow Lens.

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)

Field of View Charts

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
81	76	49	81	61	78	58
102	95	60	101	75	96	72
190	171	109	182	136	174	130
300	266	170	283	213	271	202

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
81	53	34	56	42	54	40
102	66	42	70	52	67	50
190	119	76	126	95	121	90
300	185	118	196	147	188	140

Fixed Focus Field of View (mm) - Narrow Lens

Distance (mm)	1.2 MP	
	Width	Height
64	21	15
400	118	88

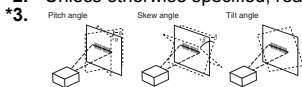
F320-F

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, DMRE		
	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>Field of View Charts</i> for details.		
	Pitch Angle (α) *3	$\pm 30^\circ$		
	Skew Angle (β) *3	$\pm 30^\circ$		
Tilt Angle (γ) *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 μ s	50 to 58,825 μ s	50 to 66,667 μ 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), 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 ² , 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		
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.

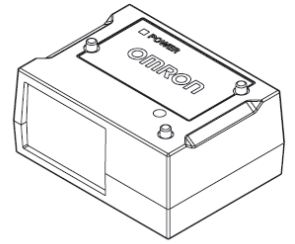
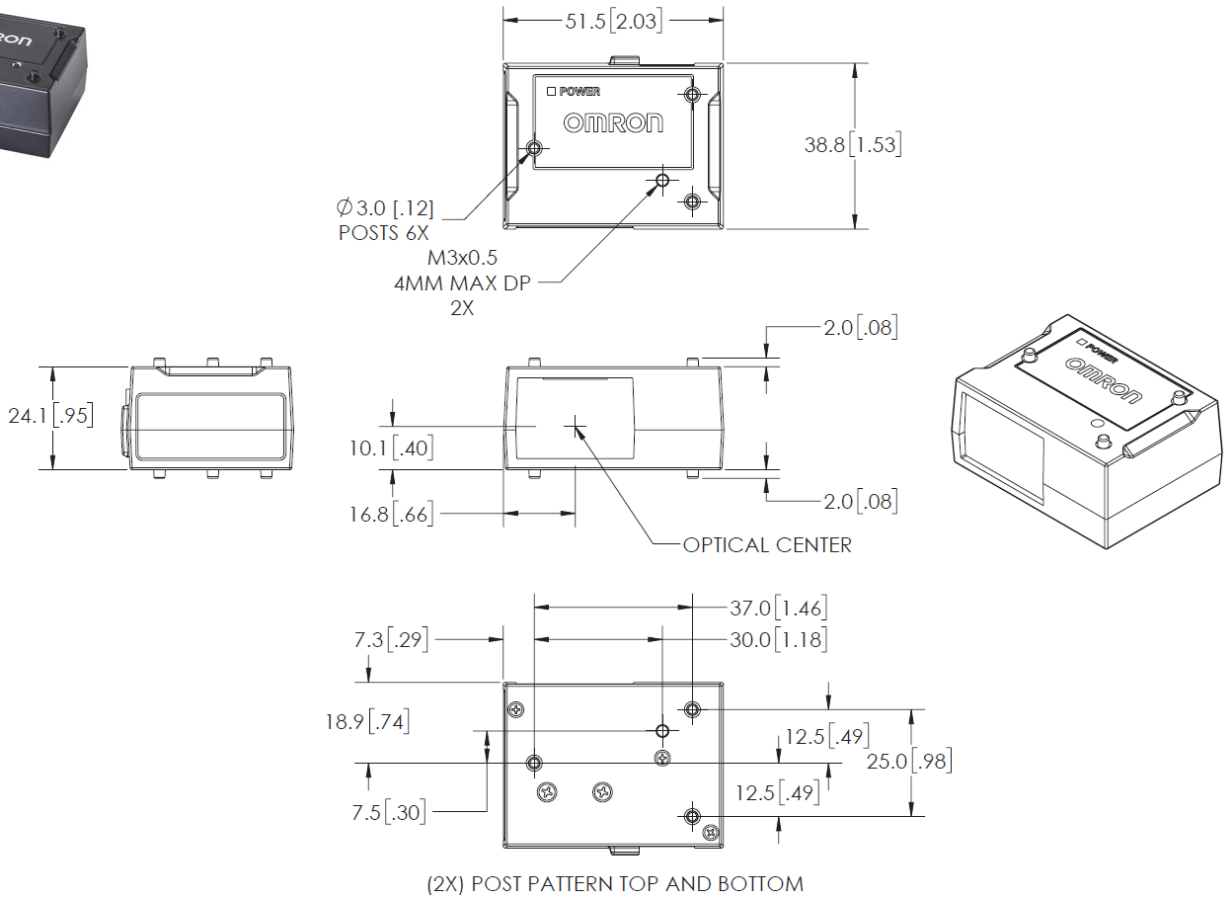
*2. Unless otherwise specified, reading performance is defined with center of field of view, angle $R = \infty$.



*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.

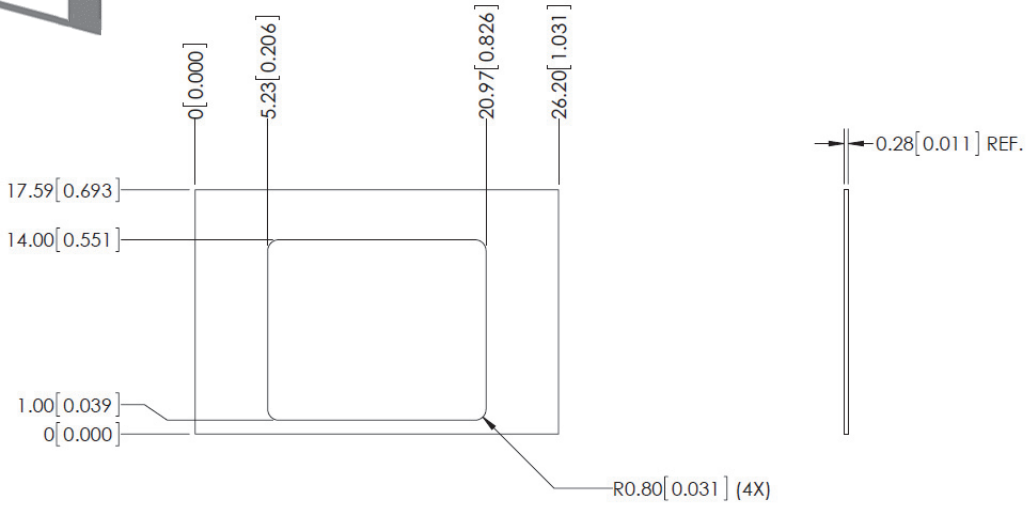
Dimensions

(Unit: mm)

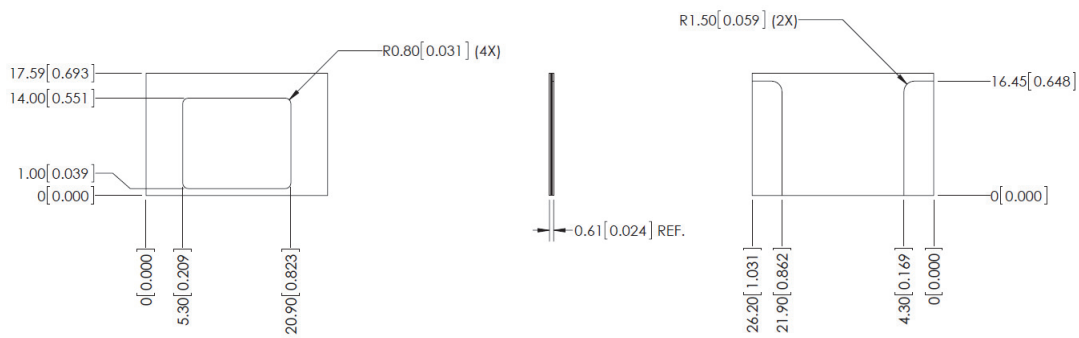
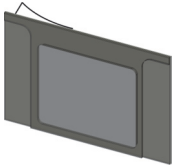


F320-F

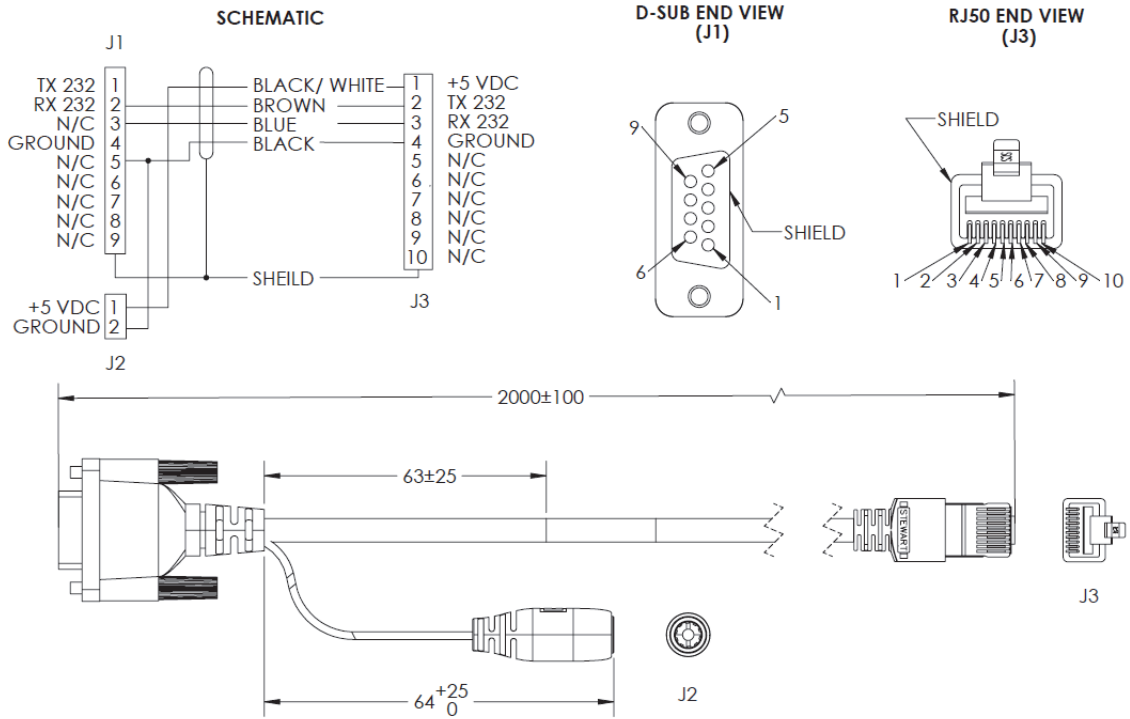
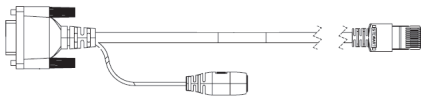
Diffuser Kit – Peel and Stick Accessory. Exterior to unit. V330-AF1



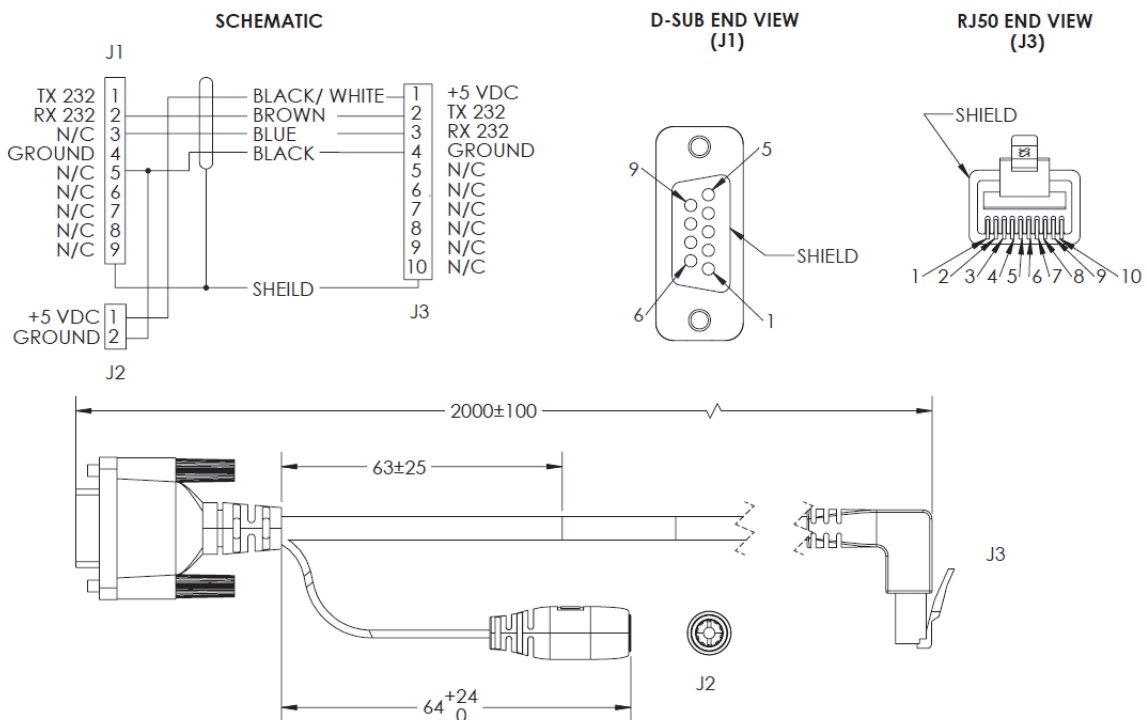
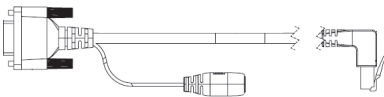
Polarizer Kit – Peel and Stick Accessory. Exterior to unit. V330-AF2



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

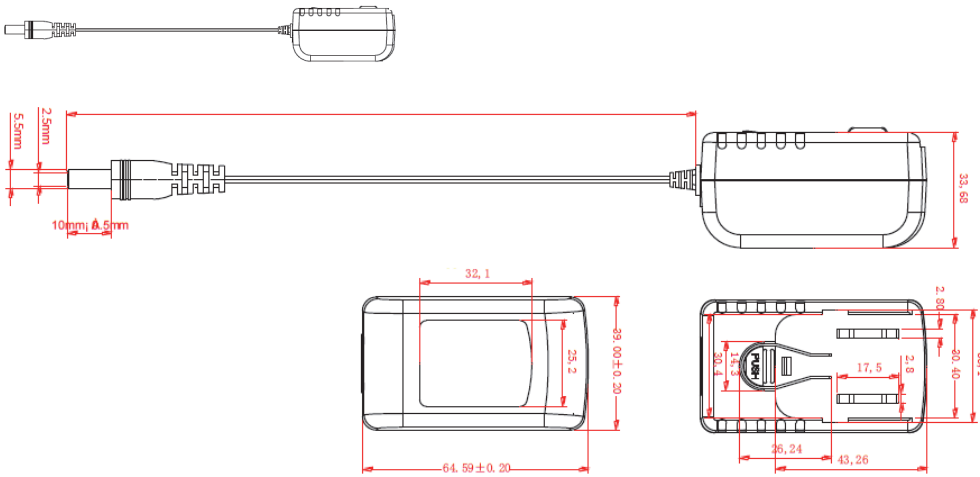


RJ50 to RS-232 and External Power, Right Angle – 2 Meters
V320-WRXLR-2M

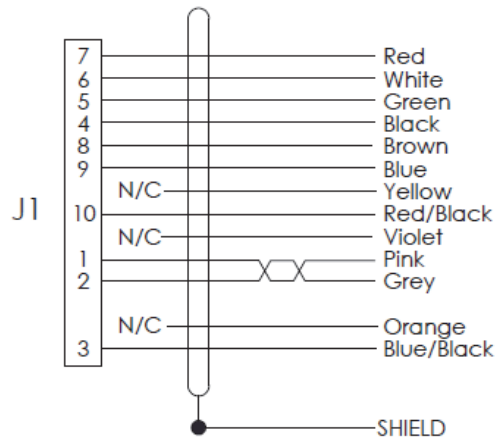
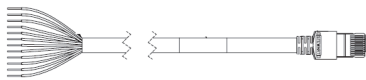


F320-F

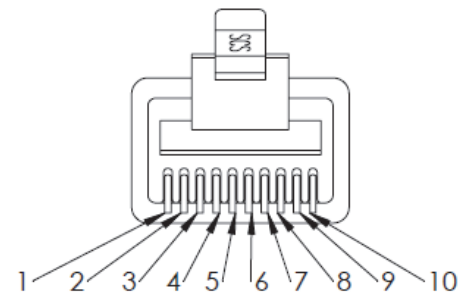
Power Supply for V320-WRX-2M and V320-WRXLR-2M – 2 Meters 97-9000006-01



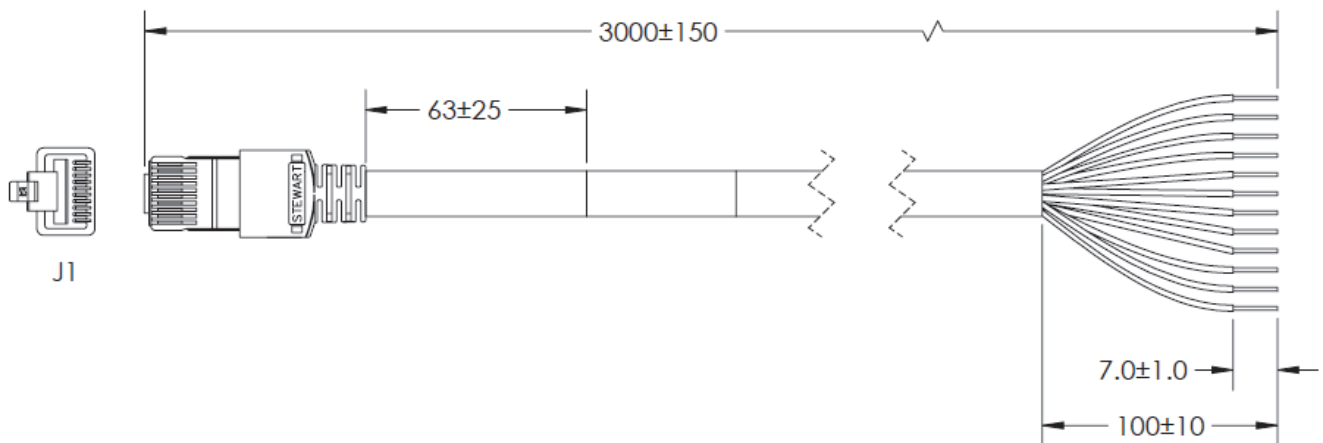
RJ50 to Flying Leads, Straight – 3 Meters V320-W8-3M



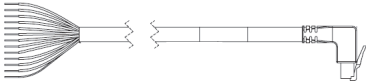
RJ50 END VIEW (J1)



SCHEMATIC



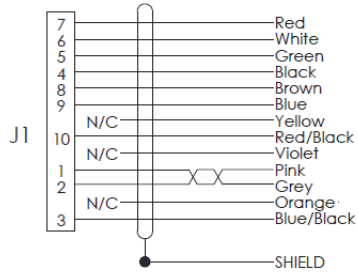
RJ50 to Flying Leads, Right Angle to the Right – 3 Meters
V320-W8LR-3M



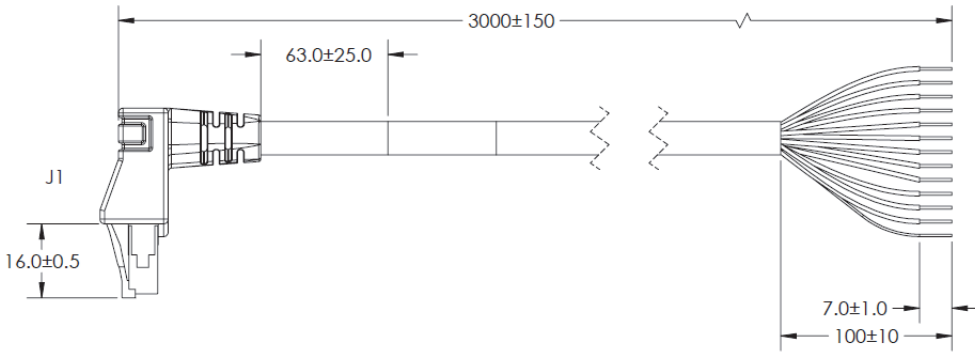
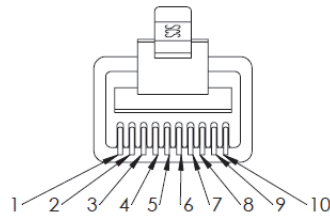
Right angle to the right



SCHEMATIC



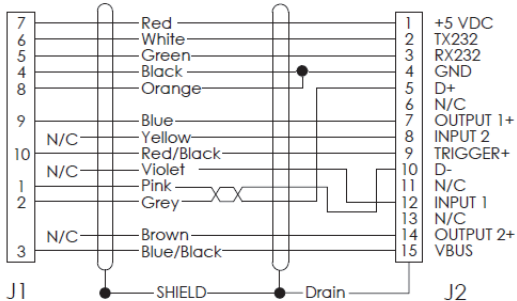
RJ50 END VIEW (J1)



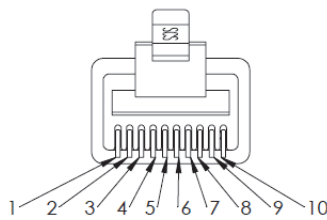
Adapter V/F320-F to all F420-F Cable Accessories, RJ50 to DB-15 – 1 Meter
V320-WR-1M



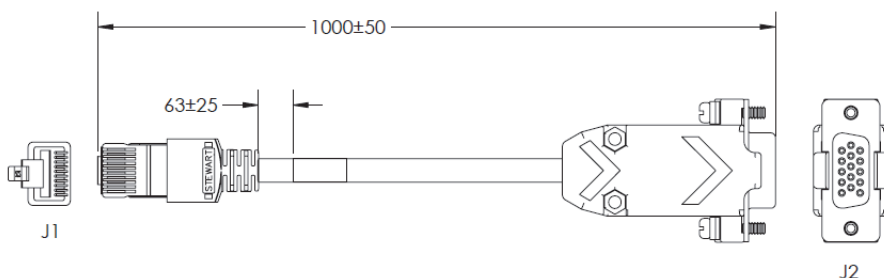
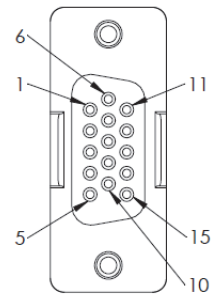
SCHEMATIC



RJ50 END VIEW (J1)



DSUB END VIEW (J2)



F320-F

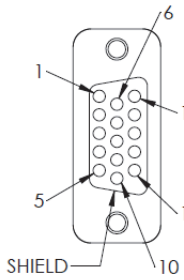
Adapter V/F320-F to all F420-F Cable Accessories, Right Angle to the Right, RJ50 to DB-15 – 1 Meter V320-WRLR-1M



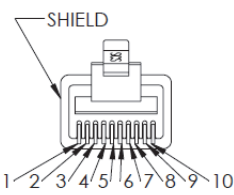
Right angle to the right



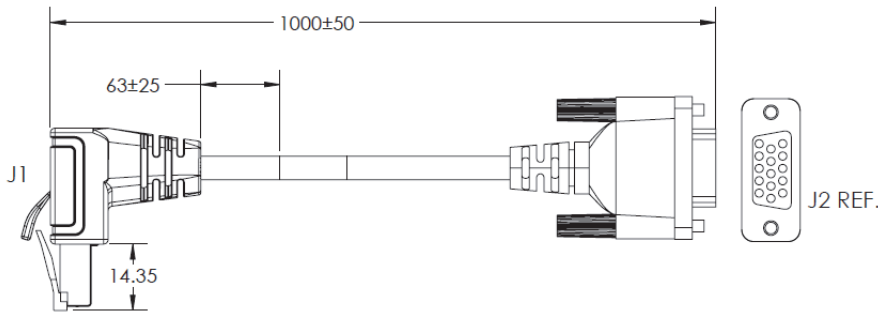
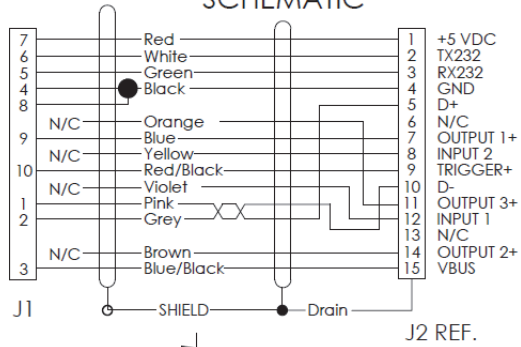
D-SUB END VIEW (J2)



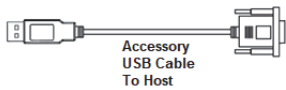
RJ50 END VIEW (J1)



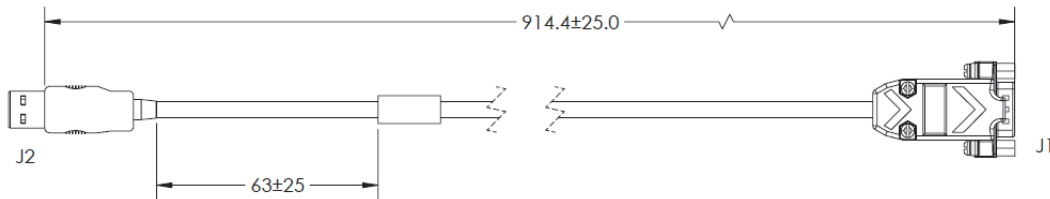
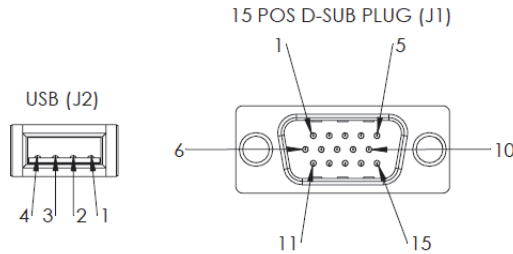
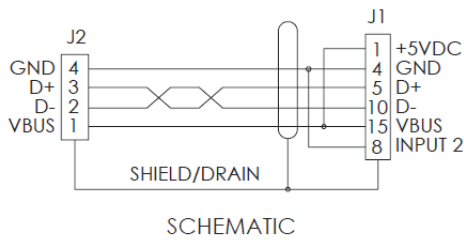
SCHEMATIC



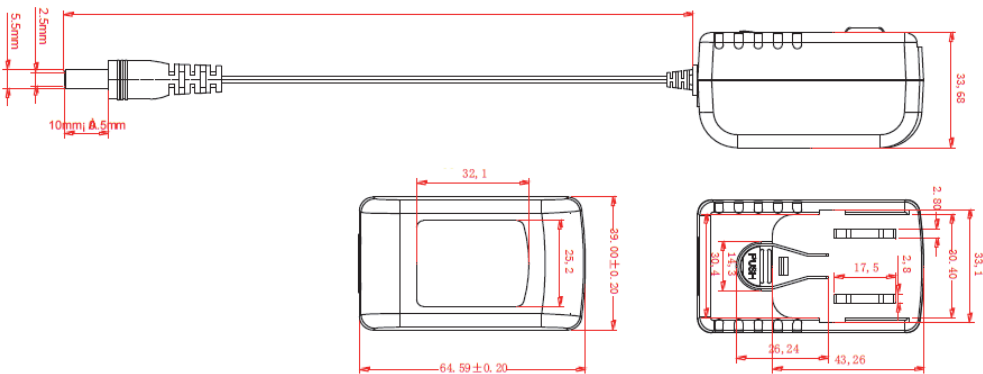
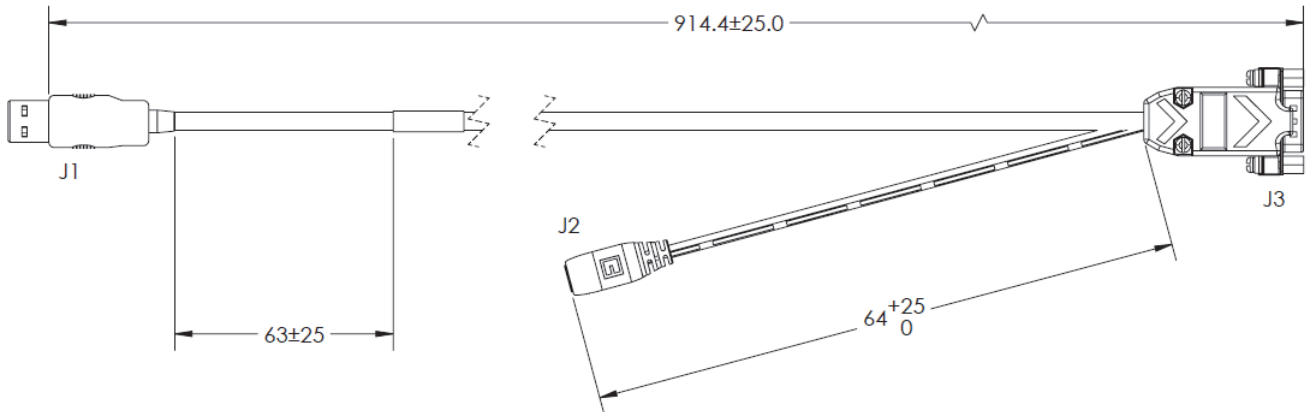
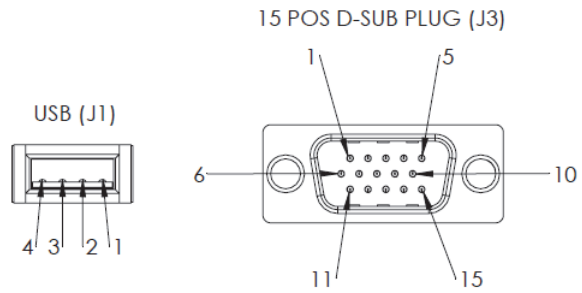
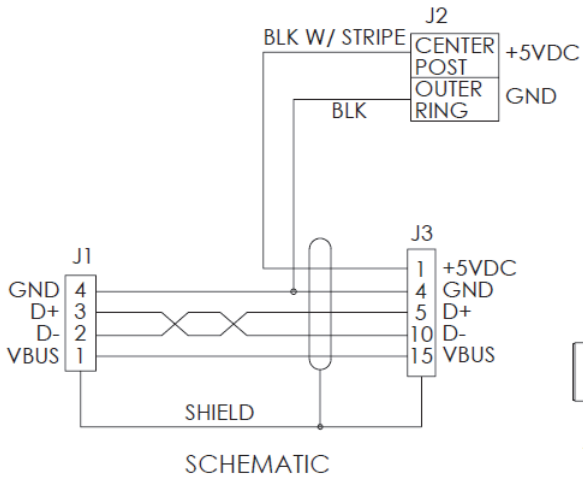
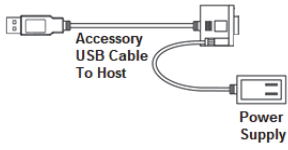
USB Breakout Cable – 1 Meter V420-WUB-1M



Accessory USB Cable To Host

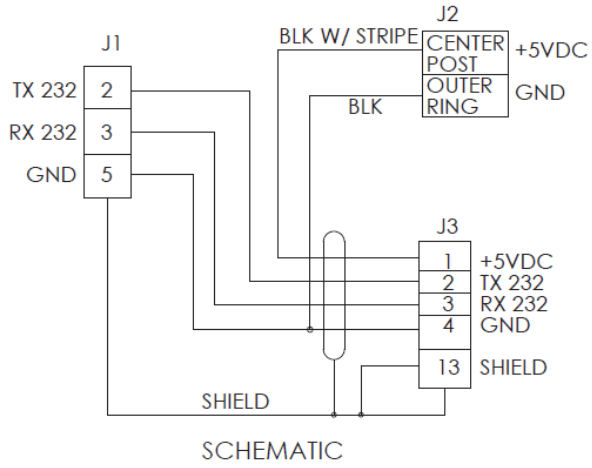
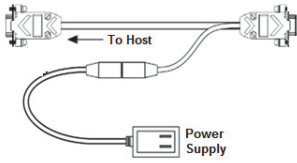


**Kit – USB Breakout Cable with External Power Input (1 Meter) and Power Supply (1 Meter)
V420-AC1**

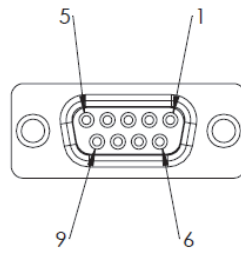


F320-F

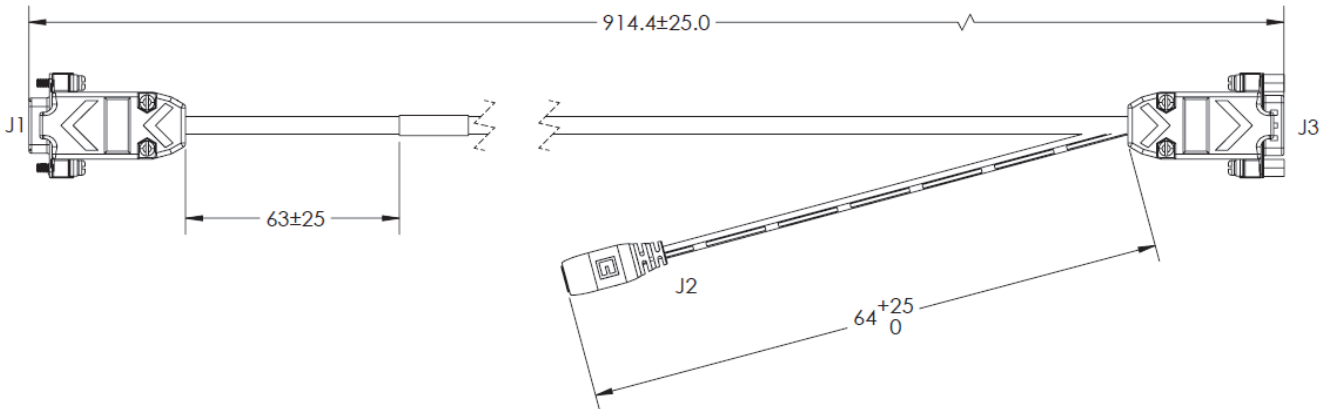
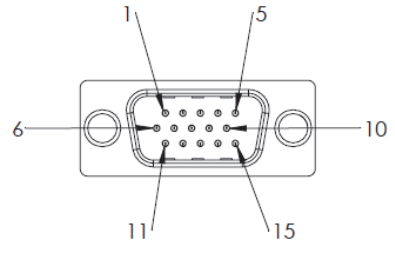
Kit – RS-232 Breakout Cable (DB-15) with External Power Input (1 Meter) and Power Supply (1 Meter) V420-AC0



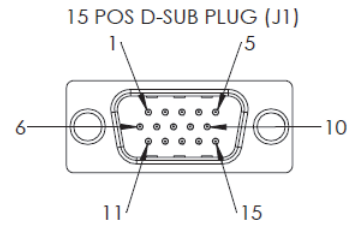
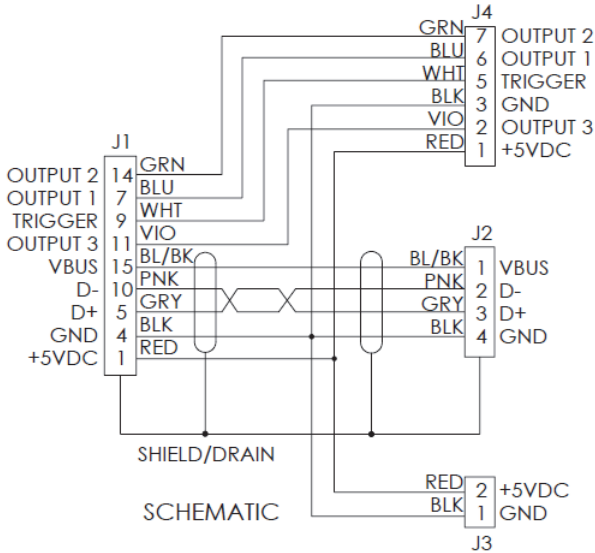
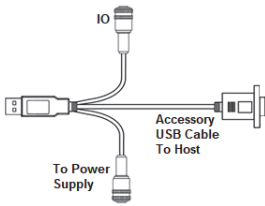
9 POS D-SUB SOCKET (J1)



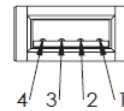
15 POS D-SUB PLUG (J3)



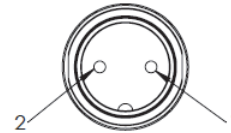
Kit – USB, IO, and Power Breakout Cable (1 Meter) and Power Supply (1 Meter)
V420-AC2



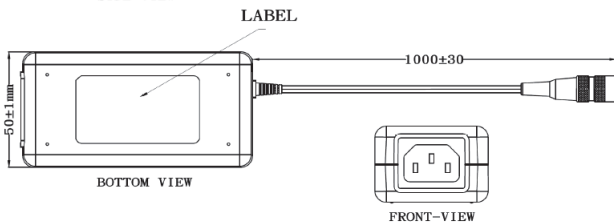
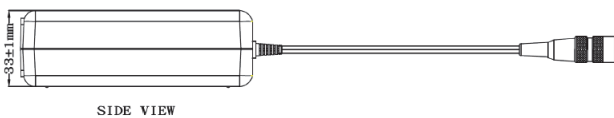
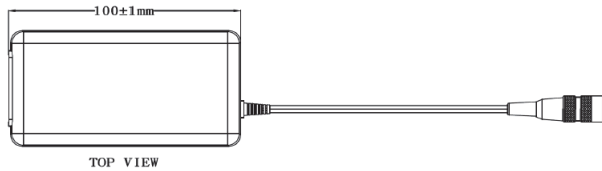
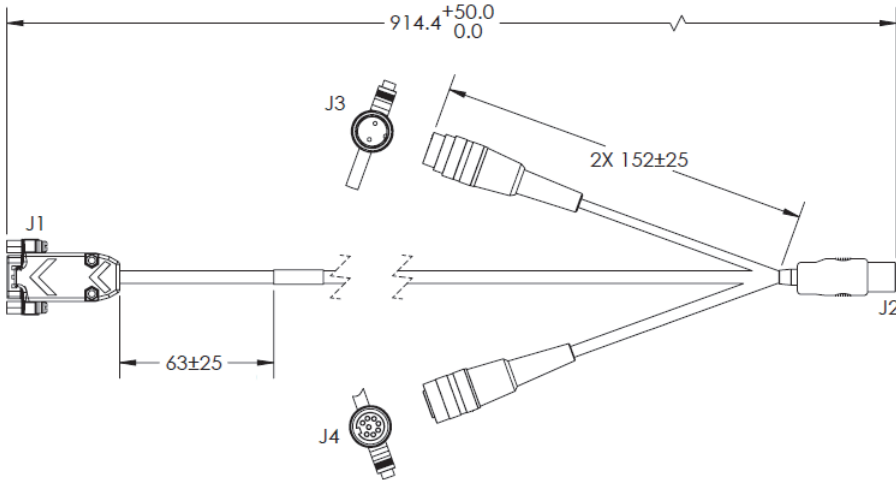
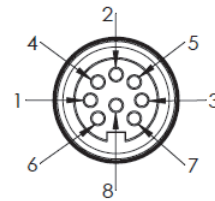
USB (J2)



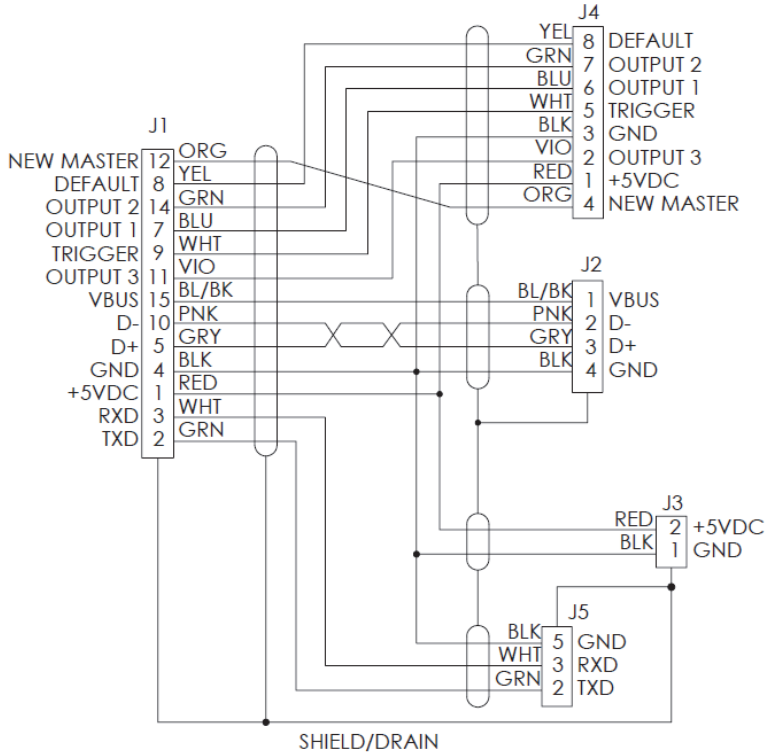
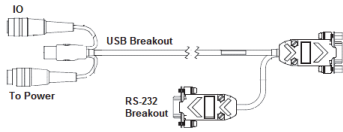
2 POS DIN PLUG (J3)



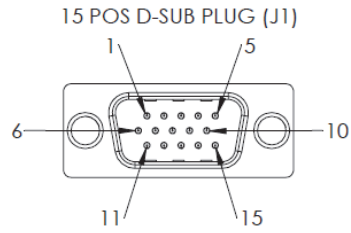
8 POS DIN SOCKET (J4)



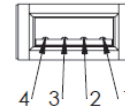
Cable – RS-232, USB, IO, and Power Breakout – 1 Meter V420-WRU8X-1M



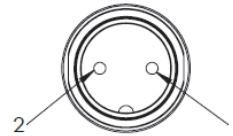
SCHEMATIC



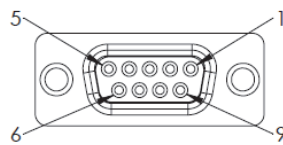
USB (J2)



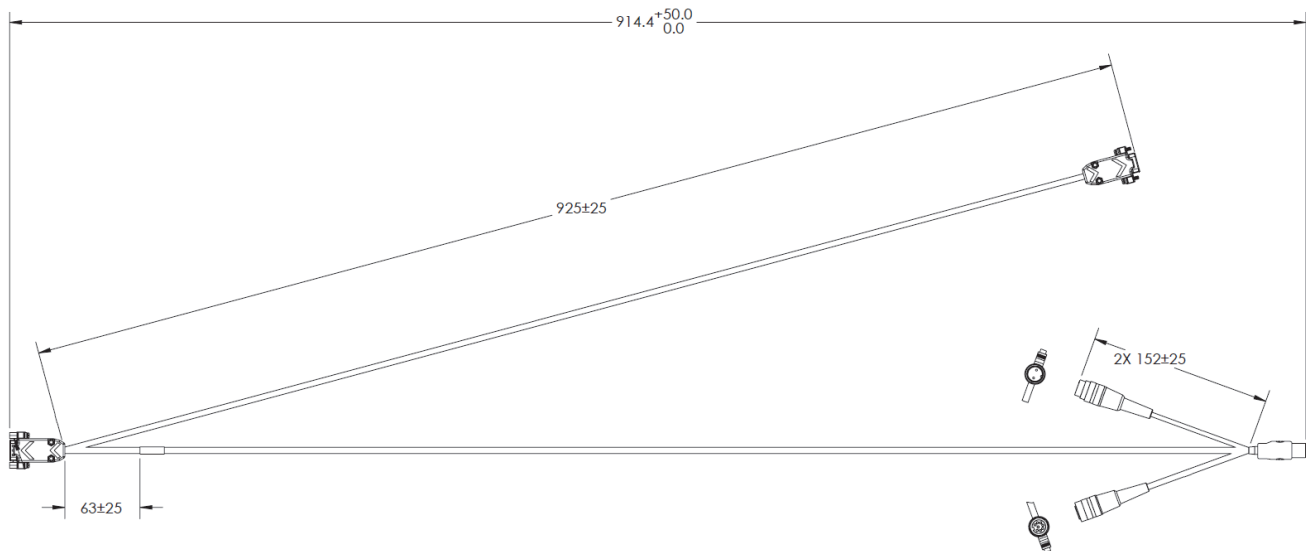
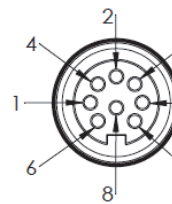
2 POS DIN PLUG (J3)



9 POS D-SUB SOCKET (J5)

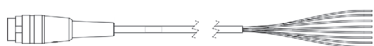


8 POS DIN SOCKET (J4)



**Cable – Trigger, IO, and Power Breakout – 900 MM
61-000151-01**

Plugs into the IO connector on the V420-WU8X-1M and V420-WRU8X-1M cables.

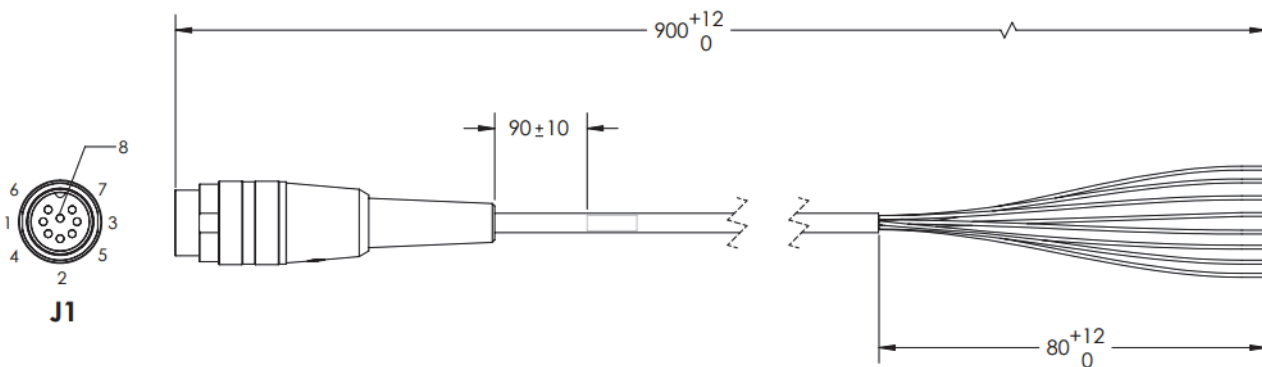


+5 VDC	1	RED
OUTPUT 3	2	WHITE
GND	3	BLACK
NEWMASTER	4	ORANGE
TRIGGER	5	GREEN
OUTPUT 1	6	BLUE
OUTPUT 2	7	BROWN
DEFAULT	8	YELLOW

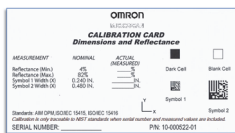
CABLE SPECIFICATIONS

8 CONDUCTOR STRANDED 22AWG
UL LISTED
PVC JACKET - BLACK OR GREY

J1



**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

OMRON AUTOMATION AMERICAS HEADQUARTERS • Chicago, IL USA • 847.843.7900 • 800.556.6766 • automation.omron.com

OMRON CANADA, INC. • HEAD OFFICE

Toronto, ON, Canada • 416.286.6465 • 866.986.6766 • automation.omron.com

OMRON ELECTRONICS DE MEXICO • HEAD OFFICE

Ciudad de México • 52.55.5901.4300 • 01.800.386.6766 • mela@omron.com

OMRON ELECTRONICS DE MEXICO • SALES OFFICE

San Pedro Garza García, N.L. • 81.12.53.7392 • 01.800.386.6766 • mela@omron.com

OMRON ELECTRONICS DE MEXICO • SALES OFFICE

Eugenio Garza Sada, León, Gto • 01.800.386.6766 • mela@omron.com

OMRON ELETRÔNICA DO BRASIL LTDA • HEAD OFFICE

São Paulo, SP, Brasil • 55 11 5171-8920 • automation.omron.com

OMRON ARGENTINA • SALES OFFICE

Buenos Aires, Argentina • +54.11.4521.8630 • +54.11.4523.8483
mela@omron.com

OTHER OMRON LATIN AMERICA SALES

+54.11.4521.8630 • +54.11.4523.8483 • mela@omron.com

Authorized Distributor:



Controllers & I/O

- Machine Automation Controllers (MAC) • Motion Controllers
- Programmable Logic Controllers (PLC) • Temperature Controllers • Remote I/O

Robotics

- Industrial Robots • Mobile Robots

Operator Interfaces

- Human Machine Interface (HMI)

Motion & Drives

- Machine Automation Controllers (MAC) • Motion Controllers • Servo Systems
- Frequency Inverters

Vision, Measurement & Identification

- Vision Sensors & Systems • Measurement Sensors • Auto Identification Systems

Sensing

- Photoelectric Sensors • Fiber-Optic Sensors • Proximity Sensors
- Rotary Encoders • Ultrasonic Sensors

Safety

- Safety Light Curtains • Safety Laser Scanners • Programmable Safety Systems
- Safety Mats and Edges • Safety Door Switches • Emergency Stop Devices
- Safety Switches & Operator Controls • Safety Monitoring/Force-guided Relays

Control Components

- Power Supplies • Timers • Counters • Programmable Relays
- Digital Panel Meters • Monitoring Products

Switches & Relays

- Limit Switches • Pushbutton Switches • Electromechanical Relays
- Solid State Relays

Software

- Programming & Configuration • Runtime