

HAWK MV-4000 SMART CAMERA

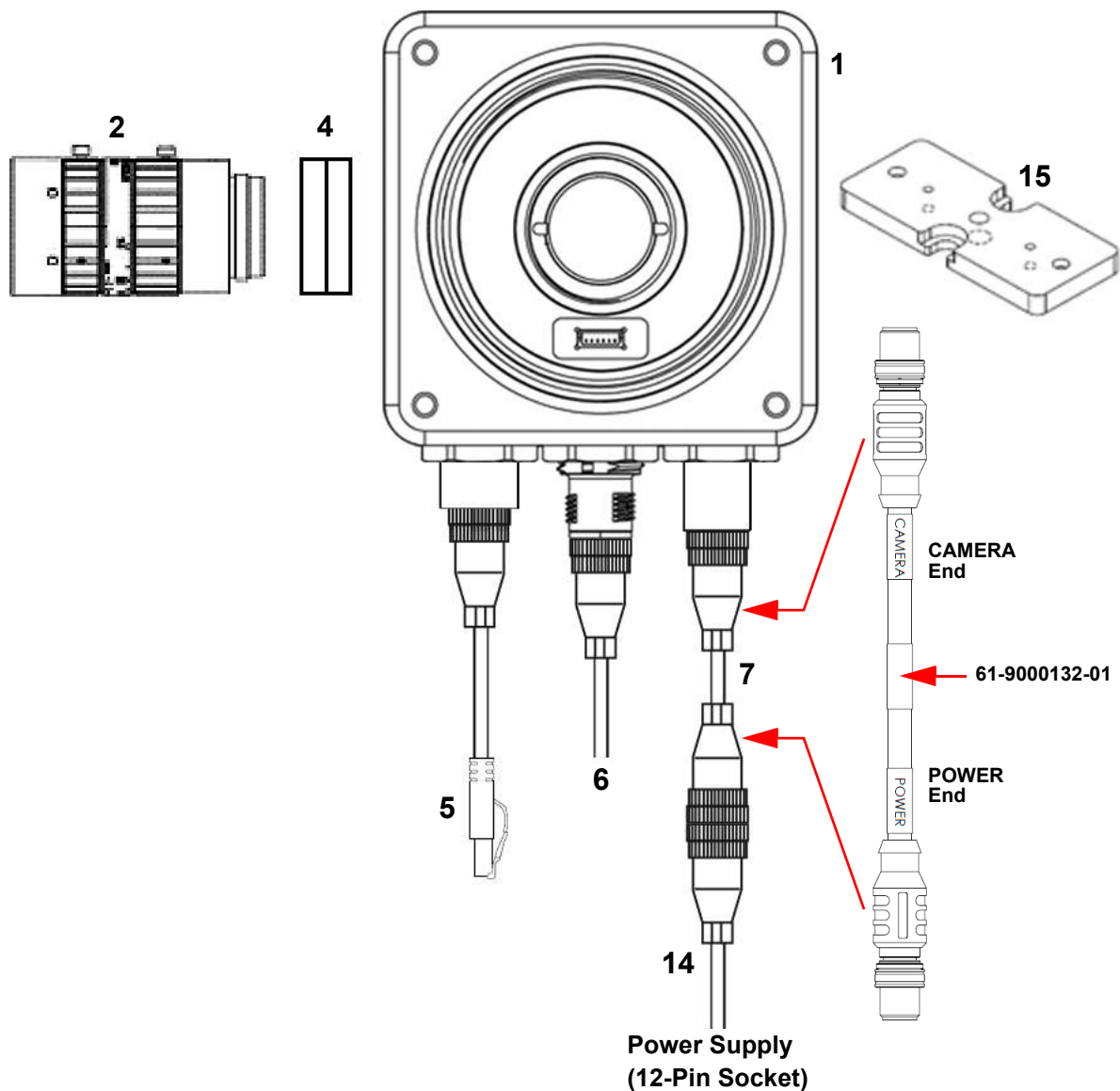
CONFIGURATION GUIDE

Hardware Required

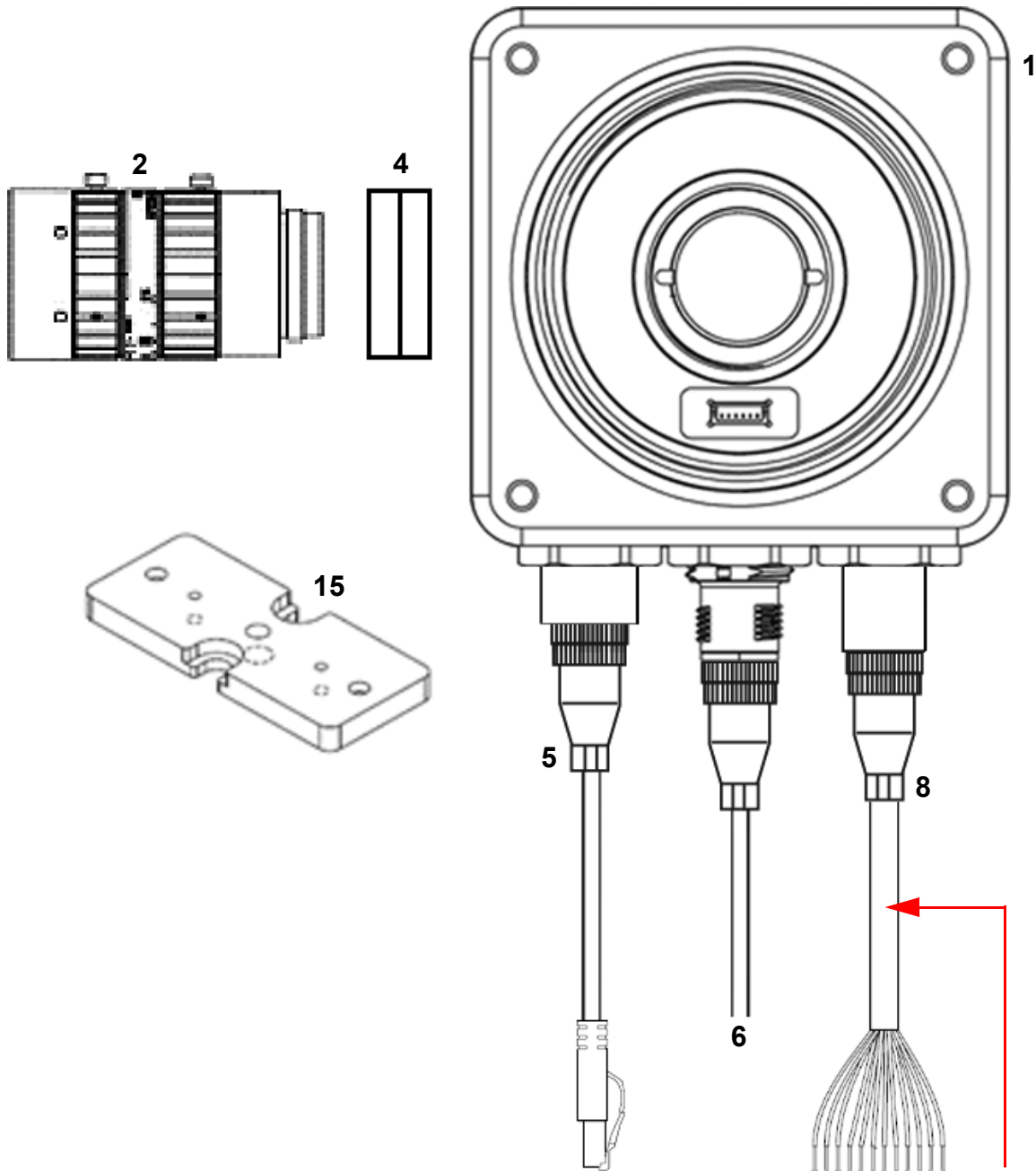
Item	Description	Part Number
1	HAWK MV-4000 Smart Camera	8X1X-XXX0-010X
2	Lens, C-Mount	98-90001XX-01
3	IP67 Lens Cover for HAWK MV-4000, 50 mm or 70 mm (not shown)	98-900015X-01
4	Lens Extension Tube Set, 0.5 mm, 1 mm, 5 mm, 10 mm, 20 mm, 40 mm	98-CO206
5	Cable, HAWK MV-4000 Ethernet, X-CODE / RJ45 CAT 6A, 1 m, 3 m, or 5 m	61-9000134-0X
6	Cable, HAWK MV-4000 M12 to USB Socket or VGA / USB, 1 m	61-900014X-01
7	Cable, Adapter, HAWK MV-4000 to Accessory Cables / Power Supply (supplied with camera)	61-9000132-01
8	Cable, HAWK MV-4000 M12 to Flying Leads, 3 m (no adapter required)	61-9000151-01
9	QX Cordset, HAWK MV-4000 Adapter to QX-1 M12 Plug (Screw-On), 1 m or 3 m	61-0001XX-02
10	QX-1 Interface Device	98-000103-02
11	QX Photo Sensor, M12 4-Pin Plug, NPN, Dark On or Dark Off, 2 m <i>or</i> Trigger Connector, 4-Pin Plug (Screw Terminal, Field-Wireable) (Self-Wiring)	99-000020-0X 20-610024-01
12	Y Cable, HAWK MV-4000 Adapter to Smart Series Illuminator and QX-1, Power <i>or</i> On/Off <i>or</i> Strobe, 1 m	61-900013X-01
13	Cable, QX-1 to Smart Series Illuminator, Continuous Power <i>or</i> On/Off <i>or</i> Strobe	61-0002XX-01
14	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	97-000012-01
15	Universal Mount, HAWK MV-4000	98-9000209-01

Note: See page 5 of this document for a full list of available accessories, numbered to correspond with this table and the diagrams below.

Standard Ethernet Configuration



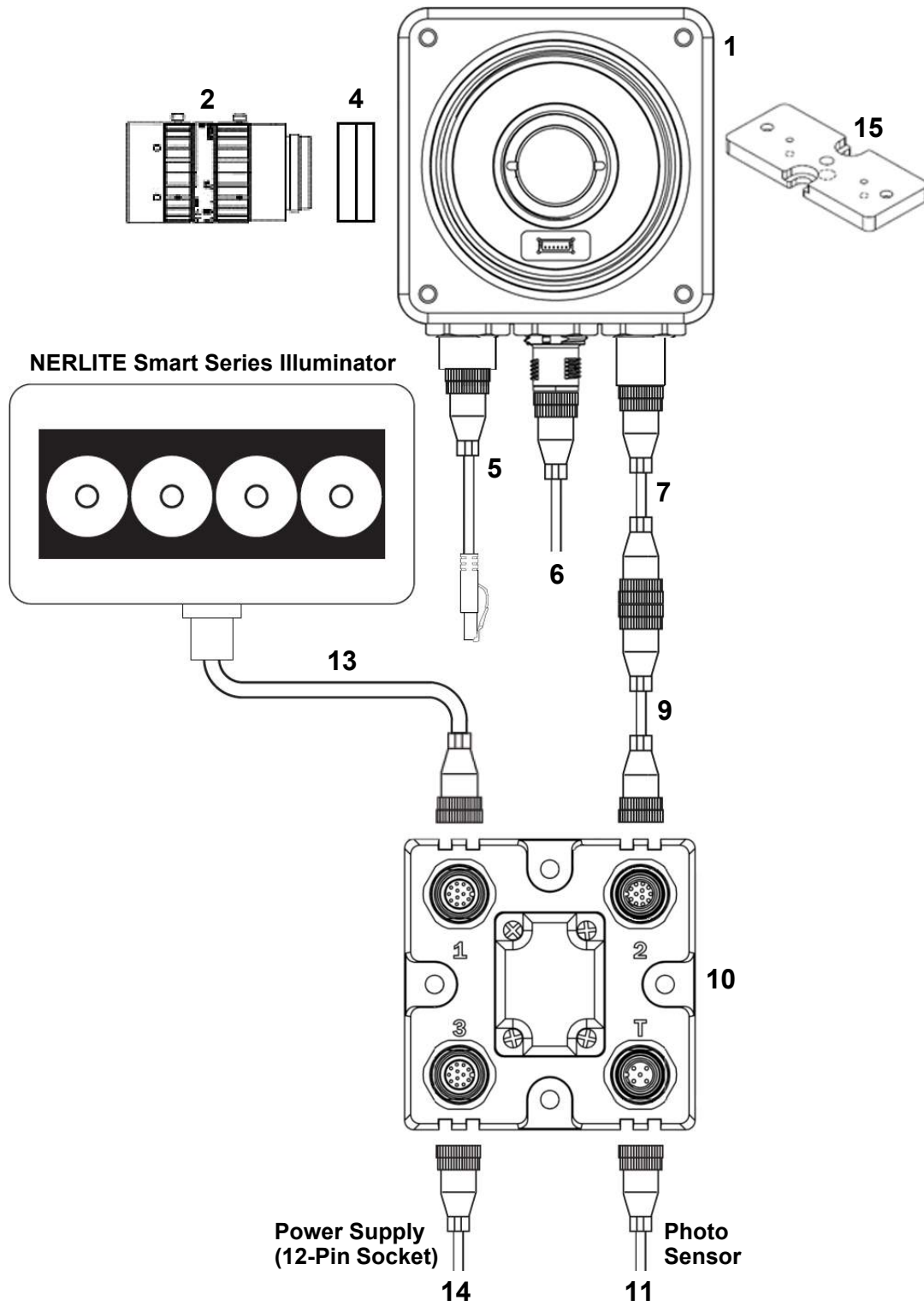
Ethernet Configuration with Flying Leads



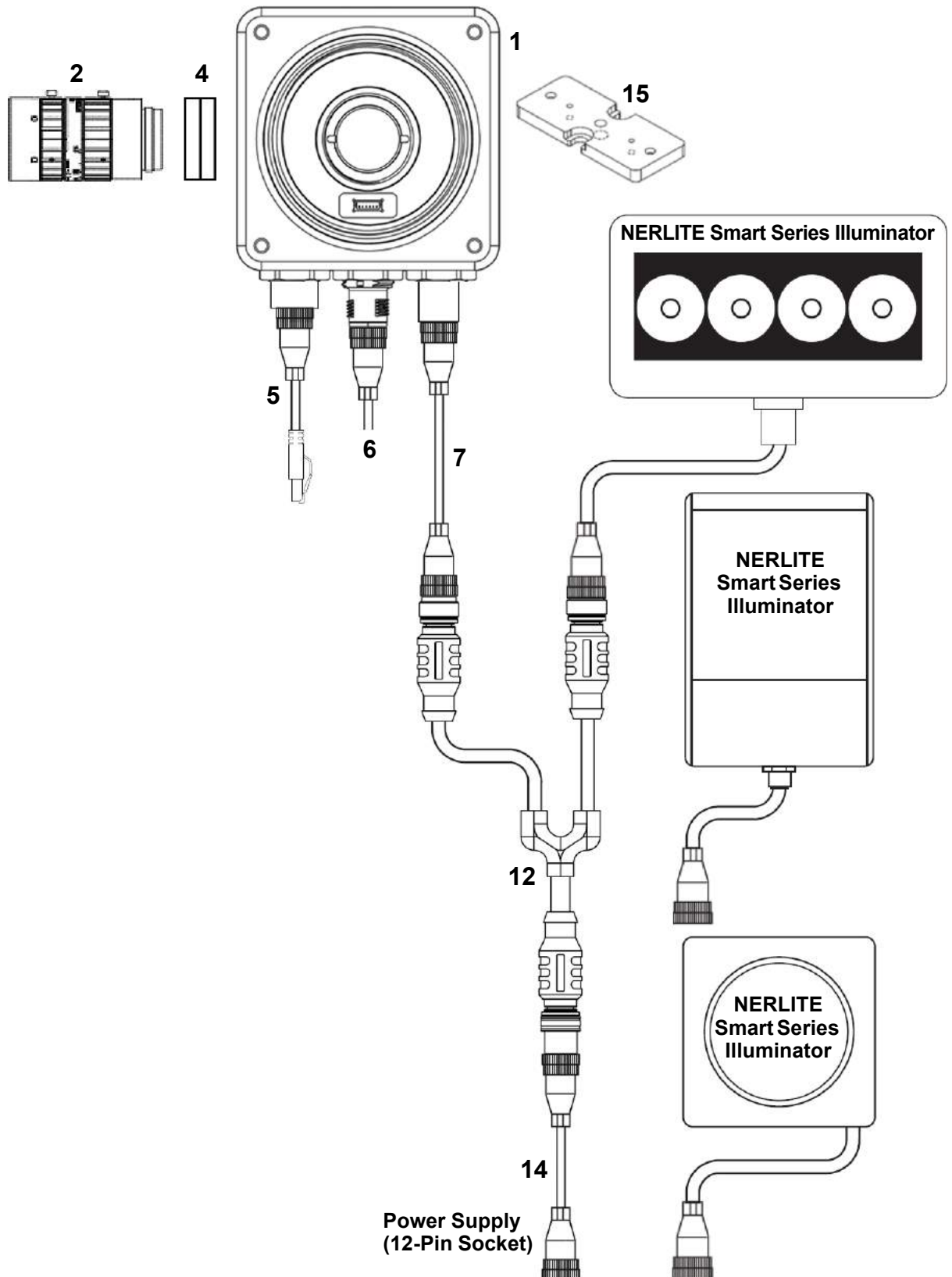
M12 to Flying Leads Cable, 3 m – 61-9000151-01

Pin	Signal	Wire Color
1	Output Common	Red/Blue
2	Analog Output	Black
3	Output 3	Pink
4	Power	Brown
5	Trigger	White
6	Input Common	Red
7	Input 2	Green
8	Input 3	Violet
9	Input 1	Yellow
10	Output 1	Gray
11	Ground	Blue
12	Output 2	Gray / Pink

Ethernet Configuration with QX-1 and NERLITE Smart Series Illuminator



Ethernet Configuration with Y Cable for Illuminator Control and Camera Power



HAWK MV-4000 Accessories

HAWK MV-4000 Smart Cameras (All cameras ship with an adapter cable.)	
0.3 Megapixel Mono	
8011-0000-0100	HAWK MV-4000-03, 0.3 Megapixel (640 x 480), Mono, AutoVISION Sensor
8011-0000-0101	HAWK MV-4000-03, 0.3 Megapixel (640 x 480), Mono, AutoVISION
8011-0000-0102	HAWK MV-4000-03, 0.3 Megapixel (640 x 480), Mono, AutoVISION + Visionscape
8011-0000-0103	HAWK MV-4000-03, 0.3 Megapixel (640 x 480), Mono, AutoVISION + Verification / OCV
8011-0000-0104	HAWK MV-4000-03, 0.3 Megapixel (640 x 480), Mono, AutoVISION + Visionscape + Verification / OCV
1.3 Megapixel Mono	
8012-0000-0100	HAWK MV-4000-13, 1.3 Megapixel (1280 x 1024), Mono, AutoVISION Sensor
8012-0000-0101	HAWK MV-4000-13, 1.3 Megapixel (1280 x 1024), Mono, AutoVISION
8012-0000-0102	HAWK MV-4000-13, 1.3 Megapixel (1280 x 1024), Mono, AutoVISION + Visionscape
8012-0000-0103	HAWK MV-4000-13, 1.3 Megapixel (1280 x 1024), Mono, AutoVISION + Verification / OCV
8012-0000-0104	HAWK MV-4000-13, 1.3 Megapixel (1280 x 1024), Mono, AutoVISION + Visionscape + Verification / OCV
2.0 Megapixel Mono	
8013-0000-0100	HAWK MV-4000-20, 2.0 Megapixel (1920 x 1200), Mono, AutoVISION Sensor
8013-0000-0101	HAWK MV-4000-20, 2.0 Megapixel (1920 x 1200), Mono, AutoVISION
8013-0000-0102	HAWK MV-4000-20, 2.0 Megapixel (1920 x 1200), Mono, AutoVISION + Visionscape
8013-0000-0103	HAWK MV-4000-20, 2.0 Megapixel (1920 x 1200), Mono, AutoVISION + Verification / OCV
8013-0000-0104	HAWK MV-4000-20, 2.0 Megapixel (1920 x 1200), Mono, AutoVISION + Visionscape + Verification / OCV
5.0 Megapixel Mono	
8014-0000-0100	HAWK MV-4000-50, 5.0 Megapixel (2592 x 2048), Mono, AutoVISION Sensor
8014-0000-0101	HAWK MV-4000-50, 5.0 Megapixel (2592 x 2048), Mono, AutoVISION
8014-0000-0102	HAWK MV-4000-50, 5.0 Megapixel (2592 x 2048), Mono, AutoVISION + Visionscape
8014-0000-0103	HAWK MV-4000-50, 5.0 Megapixel (2592 x 2048), Mono, AutoVISION + Verification / OCV
8014-0000-0104	HAWK MV-4000-50, 5.0 Megapixel (2592 x 2048), Mono, AutoVISION + Visionscape + Verification / OCV
0.3 Megapixel Color	
8015-0000-0100	HAWK MV-4000-03C, 0.3 Megapixel (640 x 480), Color, AutoVISION Sensor
8015-0000-0101	HAWK MV-4000-03C, 0.3 Megapixel (640 x 480), Color, AutoVISION
8015-0000-0102	HAWK MV-4000-03C, 0.3 Megapixel (640 x 480), Color, AutoVISION + Visionscape
8015-0000-0103	HAWK MV-4000-03C, 0.3 Megapixel (640 x 480), Color, AutoVISION + Verification / OCV
8015-0000-0104	HAWK MV-4000-03C, 0.3 Megapixel (640 x 480), Color, AutoVISION + Visionscape + Verification / OCV
1.3 Megapixel Color	
8016-0000-0100	HAWK MV-4000-13C, 1.3 Megapixel (1280 x 1024), Color, AutoVISION Sensor
8016-0000-0101	HAWK MV-4000-13C, 1.3 Megapixel (1280 x 1024), Color, AutoVISION
8016-0000-0102	HAWK MV-4000-13C, 1.3 Megapixel (1280 x 1024), Color, AutoVISION + Visionscape
8016-0000-0103	HAWK MV-4000-13C, 1.3 Megapixel (1280 x 1024), Color, AutoVISION + Verification / OCV
8016-0000-0104	HAWK MV-4000-13C, 1.3 Megapixel (1280 x 1024), Color, AutoVISION + Visionscape + Verification / OCV
2.0 Megapixel Color	
8017-0000-0100	HAWK MV-4000-20C, 2.0 Megapixel (1920 x 1200), Color, AutoVISION Sensor
8017-0000-0101	HAWK MV-4000-20C, 2.0 Megapixel (1920 x 1200), Color, AutoVISION
8017-0000-0102	HAWK MV-4000-20C, 2.0 Megapixel (1920 x 1200), Color, AutoVISION + Visionscape
8017-0000-0103	HAWK MV-4000-20C, 2.0 Megapixel (1920 x 1200), Color, AutoVISION + Verification / OCV
8017-0000-0104	HAWK MV-4000-20C, 2.0 Megapixel (1920 x 1200), Color, AutoVISION + Visionscape + Verification / OCV
5.0 Megapixel Color	
8018-0000-0100	HAWK MV-4000-50C, 5.0 Megapixel (2592 x 2048), Color, AutoVISION Sensor
8018-0000-0101	HAWK MV-4000-50C, 5.0 Megapixel (2592 x 2048), Color, AutoVISION
8018-0000-0102	HAWK MV-4000-50C, 5.0 Megapixel (2592 x 2048), Color, AutoVISION + Visionscape
8018-0000-0103	HAWK MV-4000-50C, 5.0 Megapixel (2592 x 2048), Color, AutoVISION + Verification / OCV
8018-0000-0104	HAWK MV-4000-50C, 5.0 Megapixel (2592 x 2048), Color, AutoVISION + Visionscape + Verification / OCV

1

HAWK MV-4000 Configuration Guide

	HAWK MV-4000 Lenses and Lens Caps	
	Standard Resolution for 2/3" Sensors (General Inspection, Reading, Some Verification)	
	98-9000167-01	Lens, C-Mount, 6 mm, Standard Resolution, 2/3" Sensor
	98-9000168-01	Lens, C-Mount, 9 mm, Standard Resolution, 2/3" Sensor
	98-9000169-01	Lens, C-Mount, 12.5 mm, Standard Resolution, 2/3" Sensor
	98-9000170-01	Lens, C-Mount, 16 mm, Standard Resolution, 2/3" Sensor
	98-9000171-01	Lens, C-Mount, 25 mm, Standard Resolution, 2/3" Sensor
	98-9000172-01	Lens, C-Mount, 35 mm, Standard Resolution, 2/3" Sensor
	High Resolution for 2/3" Sensors (Gauging, Verification)	
	98-9000192-01	Lens, C-Mount, 6 mm, High Resolution, 2/3" Sensor
	98-9000165-01	Lens, C-Mount, 8 mm, High Resolution, 2/3" Sensor
2	98-9000166-01	Lens, C-Mount, 12 mm, High Resolution, 2/3" Sensor
	98-9000154-01	Lens, C-Mount, 16 mm, High Resolution, 2/3" Sensor
	98-9000164-01	Lens, C-Mount, 25 mm, High Resolution, 2/3" Sensor
	98-9000163-01	Lens, C-Mount, 35 mm, High Resolution, 2/3" Sensor
	High Resolution for 1" Sensors (All applications. Required for 1" 5 Megapixel Sensor)	
	98-9000174-01	Lens, C-Mount, 12.5 mm, High Resolution, 1" Sensor
	98-9000175-01	Lens, C-Mount, 16 mm, High Resolution, 1" Sensor
	98-9000176-01	Lens, C-Mount, 25 mm, High Resolution, 1" Sensor
	98-9000177-01	Lens, C-Mount, 35 mm, High Resolution, 1" Sensor
	C-Mount Liquid Lens	
	98-9000179-01	Lens, Liquid, C-Mount, F2.8/16 mm, 2/3" Sensor, I2C Interface
	98-9000178-01	Lens, Liquid, C-Mount, F4/25 mm, 2/3" Sensor, I2C Interface
3	Lens Accessories	
	98-9000155-01	IP67 Lens Cover for HAWK MV-4000, 50 mm Length
	98-9000156-01	IP67 Lens Cover HAWK MV-4000, 70 mm Length
4	98-CO206	Lens Extension Tube Set, 0.5 mm, 1 mm, 5 mm, 10 mm, 20 mm, 40 mm
5	HAWK MV-4000 Cables, Smart Series Illuminator Control Cable, and Power Supply	
	HAWK MV-4000 X-CODE Ethernet Port Cables	
	61-9000134-01	Cable, HAWK MV-4000 Ethernet, X-CODE / RJ45 CAT 6A, 1 m
	61-9000134-02	Cable, HAWK MV-4000 Ethernet, X-CODE / RJ45 CAT 6A, 3 m
	61-9000134-03	Cable, HAWK MV-4000 Ethernet, X-CODE / RJ45 CAT 6A, 5 m
6	HAWK MV-4000 VGA / USB Port Connector Cables	
	61-9000143-01	Cable, HAWK MV-4000 M12 to USB Socket, 1 m
	61-9000147-01	Cable, HAWK MV-4000 M12 to VGA and USB, 1 m
7	HAWK MV-4000 Digital I/O Port Connector Cables	
	61-9000132-01	Cable, Adapter, HAWK MV-4000 to Accessory Cables / Power Supply (Supplied with camera)
8	61-9000151-01	Cable, HAWK MV-4000 M12 to Flying Leads, 3 m (No Adapter Required)
9	QX-1 Interface Cables and Accessories	
	61-000162-02	QX Cordset, HAWK MV-4000 Adapter to QX-1 M12 Plug (Screw-On), 1 m
	61-000148-02	QX Cordset, HAWK MV-4000 Adapter to QX-1 M12 Plug (Screw-On), 3 m
10	98-000103-02	QX-1 Interface Device
11	99-000020-02	QX Photo Sensor, M12 4-Pin Plug, NPN, Dark On, 2 m
	99-000020-01	QX Photo Sensor, M12 4-Pin Plug, NPN, Dark Off, 2 m
	20-610024-01	Trigger Connector, 4-Pin Plug (Screw Terminal, Field-Wireable) (Self-Wiring)
13	12 Smart Series Illuminator Control Cables	
	61-9000135-01	Y Cable, HAWK MV-4000 Adapter to Smart Series Illuminator and QX-1, Power, 1 m
	61-9000137-01	Y Cable, HAWK MV-4000 Adapter to Smart Series Illuminator and QX-1, Strobe, 1 m
	61-000204-01	Cable, QX-1 to Smart Series Illuminator, Continuous Power
	61-000218-01*	Cable, QX-1 to Smart Series Illuminator, Strobe

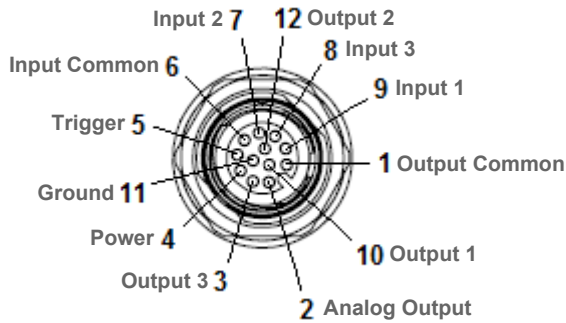
HAWK MV-4000 Configuration Guide

14	Power Supply	
	97-000012-01	Power Supply, 100-240VAC, +24VDC, M12 12-pin Socket
15	HAWK MV-4000 and Smart Series Illuminator Mount	
	Standard Mount	
	98-9000209-01	Universal Mount, HAWK MV-4000
	Smart Series Illuminator / HAWK MV-4000 Mounting Kits	
	98-9000120-01	Kit, Bracket, MAX 300 to HAWK MV-4000
	98-9000121-01	Kit, Bracket, DOAL to HAWK MV-4000
	98-9000122-01	Kit, Bracket, Ring 60 / 70 to HAWK MV-4000
	98-9000123-01	Kit, Bracket, Ring 100 to HAWK MV-4000
	98-9000137-01	Kit, Smart Series Pharamlite, HAWK MV-4000
	Licensing	
	HAWK MV-4000 License Upgrades	
	LIC-0700-003*	License, Machine Vision, AutoVISION
	LIC-0700-006*	License, Machine Vision, Visionscape
	LIC-0700-009*	License, Machine Vision, Verification / OCV
	LIC-0700-011*	License, Machine Vision, AutoVISION Sensor
	LIC-0700-325*	License, Machine Vision, Machine Vision Unlock
	Camera Kits with License, Lens, IP Cover, and Mount	
	0.3 Megapixel, Standard Lens	
	8211-1090-0102	HAWK MV-4000-03, AutoVISION + Visionscape, 9 mm Standard Lens, IP Cover, Universal Mount
	8111-1160-0102	HAWK MV-4000-03, AutoVISION + Visionscape, 16 mm Standard Lens, IP Cover, Universal Mount
	1.3 Megapixel, Standard Lens	
	8112-1120-0104	HAWK MV-4000-13, AutoVISION + Visionscape + Verification / OCV, 12.5 mm Std. Lens, IP Cover, Universal Mount
	8112-1250-0104	HAWK MV-4000-13, AutoVISION + Visionscape + Verification / OCV, 25 mm Std. Lens, IP Cover, Universal Mount
	1.3 Megapixel, High Resolution Lens	
	8212-2160-0104	HAWK MV-4000-13, AutoVISION + Visionscape + Ver. / OCV, 16 mm High Res. Lens, IP Cover, Universal Mount
	8212-2250-0104	HAWK MV-4000-13, AutoVISION + Visionscape + Ver. / OCV, 25 mm High Res. Lens, IP Cover, Universal Mount
	8212-2350-0104	HAWK MV-4000-13, AutoVISION + Visionscape + Ver. / OCV, 35 mm High Res. Lens, IP Cover, Universal Mount
	2.0 Megapixel, Standard Lens	
	8113-1160-0104	HAWK MV-4000-20, AutoVISION + Visionscape + Verification / OCV, 16 mm Std. Lens, IP Cover, Universal Mount
	8113-1350-0104	HAWK MV-4000-20, AutoVISION + Visionscape + Verification / OCV, 35 mm Std. Lens, IP Cover, Universal Mount
	2.0 Megapixel, High Resolution Lens	
	8213-2160-0104	HAWK MV-4000-20, AutoVISION + Visionscape + Ver. / OCV, 16 mm High Res. Lens, IP Cover, Universal Mount
	8213-2250-0104	HAWK MV-4000-20, AutoVISION + Visionscape + Ver. / OCV, 25 mm High Res. Lens, IP Cover, Universal Mount
	8213-2350-0104	HAWK MV-4000-20, AutoVISION + Visionscape + Ver. / OCV, 35 mm High Res. Lens, IP Cover, Universal Mount
	2.0 Color, Standard Lens	
	8117-1090-0102	HAWK MV-4000-20C, AutoVISION + Visionscape, 9 mm Standard Lens, IP Cover, Universal Mount
	8117-1160-0102	HAWK MV-4000-20C, AutoVISION + Visionscape, 16 mm Standard Lens, IP Cover, Universal Mount
	8117-1350-0102	HAWK MV-4000-20C, AutoVISION + Visionscape, 35 mm Standard Lens, IP Cover, Universal Mount
	5.0 Megapixel, 1" Lens	
	8014-3160-0104	HAWK MV-4000-50, AutoVISION + Visionscape + Verification / OCV, 16 mm 1" Lens, No Cover, Universal Mount
	8214-3250-0104	HAWK MV-4000-50, AutoVISION + Visionscape + Verification / OCV, 25 mm 1" Lens, IP Cover, Universal Mount
	8214-3350-0104	HAWK MV-4000-50, AutoVISION + Visionscape + Verification / OCV, 35 mm 1" Lens, IP Cover, Universal Mount

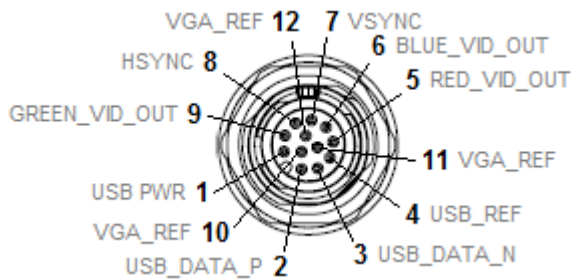
Electrical Specifications

HAWK MV-4000-03, -03C, -13, -13C, -20, -20C, -50, -50C	
Operating Voltage for the HAWK MV-4000 under Testing Conditions	24V
Rated Current	600 mA
Operating Voltage Tolerance	±10%

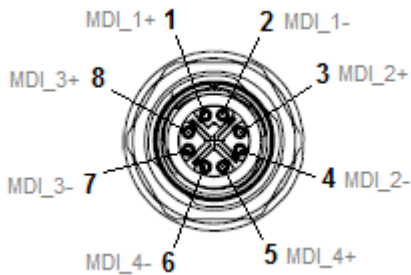
See the *HAWK MV-4000 Smart Camera Guide* for full electrical specifications.



Digital I/O and Power Connector
M12 12-Pin Socket

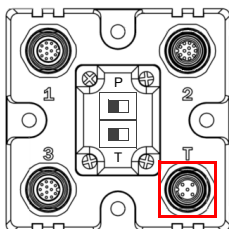


VGA/USB Connector
M12 12-Pin Plug



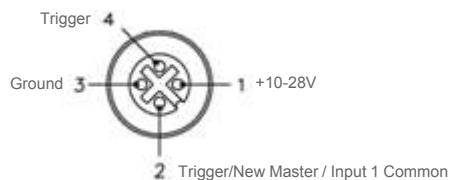
10/1000 Base-T Connector
M12 8-Pin X-Coded Socket

QX-1 Interface Device – for use with the HAWK MV-4000 (Top View)



Connector T on the QX-1 Interface Device is the trigger connector.

Connectors 1, 2, and 3 can be used to bus power and data as required by the application.



QX-1 Trigger Connector (T) 4-pin Socket

HAWK MV-4000 Part Number Structure

HAWK MV-4000 part numbers follow the format **8ABS-LFFA-LPPP**.

8 = HAWK MV-4000 Smart Camera

(A) Enclosure

- 0 = No Lens Cover
- 1 = 50 mm Lens Cover
- 2 = 70 mm Lens Cover

(B) Software = 1 (Machine Vision)

(S) Sensor Type

- 1 = VGA, Mono
- 2 = 1.3 Megapixel, Mono
- 3 = 2 Megapixel, Mono
- 4 = 5 Megapixel, Mono
- 5 = VGA, Color
- 6 = 1.3 Megapixel, Color
- 7 = 2 Megapixel, Color
- 8 = 5 Megapixel, Color

(L) Lens (See table below)

- 0 = No Lens
- 1 = 2/3" Standard Def.
- 2 = 2/3" High Def.
- 3 = 1" High Def.

(FF) Lens Focal Length

- 00 = No Lens
- XX = Focal Length (mm) (See Lens table below.)

(A) Accessories = 0

(L) Lighting = 0

(PPP) License

- 100 = AutoVISION Sensor
- 101 = AutoVISION
- 102 = AutoVISION + Visionscape
- 103 = AutoVISION + Verification/OCV
- 104 = AutoVISION + Visionscape + Verification/OCV