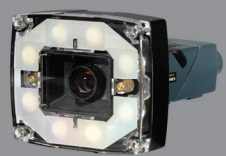


Mitsubishi Vision Sensor



Product Lineup

Items			
	VS80	VS70	VS20
Image	Monochrome	Monochrome	Monochrome/Color
Lighting & Filter	—	Integrated	Integrated
Protective structure	IP40	IP67	IP65
Auto focus	—	●	—
PoE	●	—	—
Presence / Absence Judgement	●	●	●
Measurement	●	●	● ^{*1}
Positioning	●	●	—
OCR	●	●	—
Code Reading	●	●	—
Counting	●	●	—

*1 VS20M-13F410 and VS20C-13F410 only.

VS80

- PatMax, PatMax Redline
- Super compact
- Saving wiring
- PoE (Power over Ethernet)

VS70

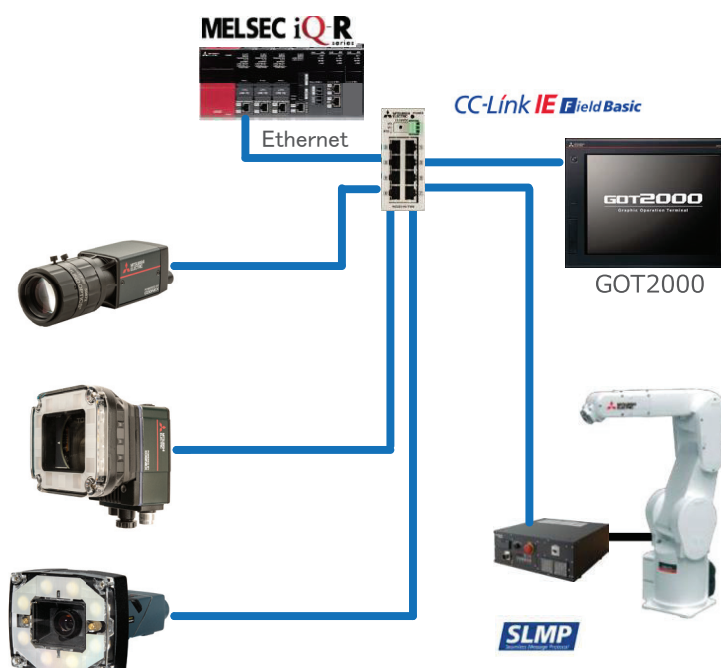
- PatMax, PatMax Redline
- Customizable flexibly
- SD Card
- IP67

VS20

- Simple presence/absence inspection
- Easy to set-up

เชื่อมต่อกับผลิตภัณฑ์ FA ของ Mitsubishi ได้อย่างง่ายดาย

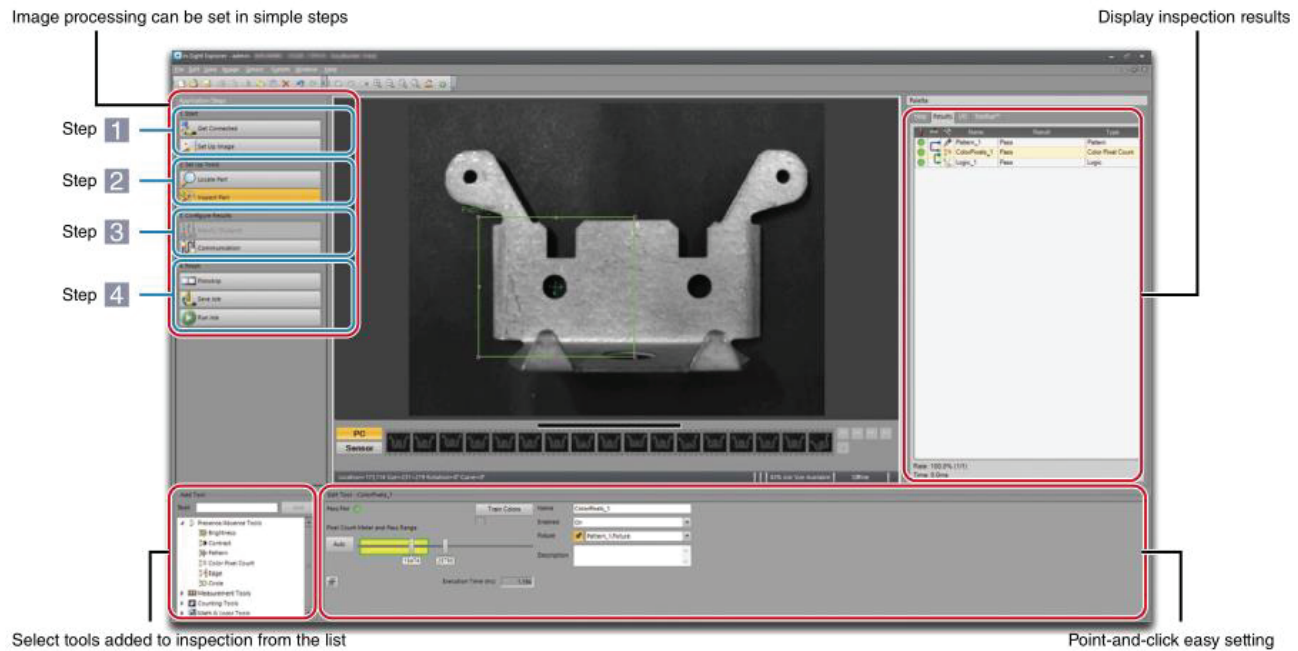
- ✓ สามารถควบคุม / ตรวจสอบผลลัพธ์ / รับข้อมูล / ของเซ็นเซอร์ด้วย PLC ได้
- ✓ รองรับ SLMP
เชื่อมต่อกับผลิตภัณฑ์ FA ของ Mitsubishi ที่รองรับ SLMP (Robot, Motion) ได้อย่างง่ายดาย
- ✓ สามารถส่งข้อมูลจากเซ็นเซอร์ไปยัง GOT ผ่าน FTP เพื่อตรวจสอบภาพและผลลัพธ์ย้อนหลังได้
- ✓ รองรับ CC-Link IE Field Basic



Easy Setup ไม่ว่าจะเป็น MELSENSOR รุ่นไหนก็สามารถ ใช้ Program เดียวกัน

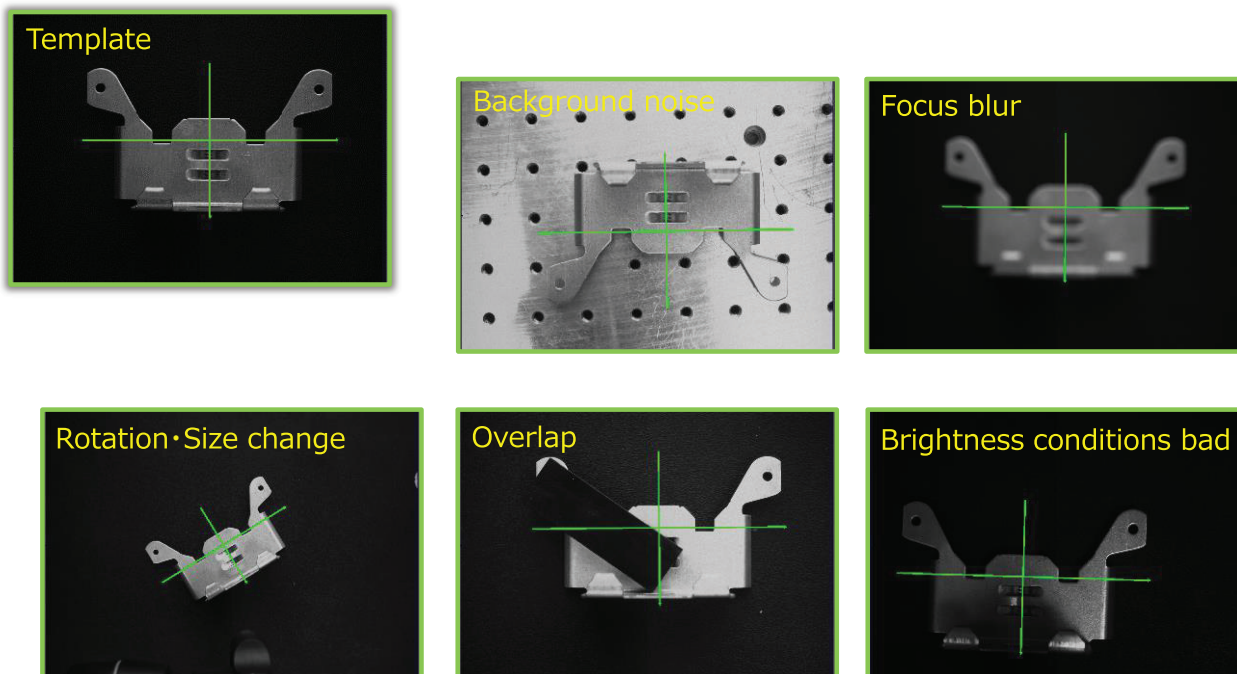
- ✓ In-Sight Explorer EasyBuilder สามารถตั้งค่าแอปพลิเคชันได้อย่างรวดเร็วแม้จะเป็นผู้เริ่มต้นใช้งาน

In-Sight Explorer for MELSENSOR Vision^{*1}



- *1) Download Free (<https://support.cognex.com/en-th/downloads/291>)
Offline programming key (<https://support.cognex.com/en-th/InsightEmulatorKey>)

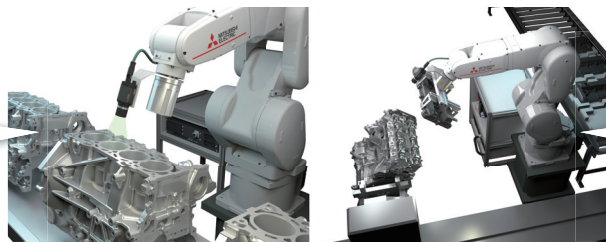
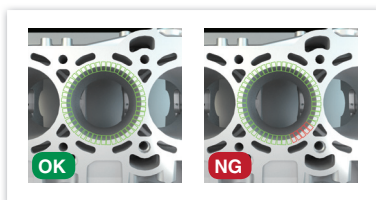
PatMax: Cognex Pattern Matching Technology



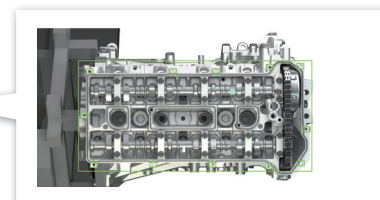
ตัวอย่างการใช้งาน

กลุ่มอุตสาหกรรมยานยนต์

■ การตรวจสอบบริเวณปากกระบอกสูบ

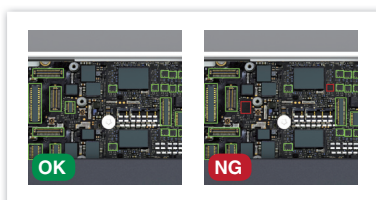


■ การกำหนดตำแหน่งของหัวกระบอกสูบ

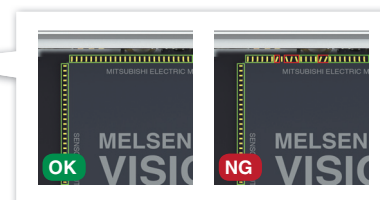


กลุ่มเครื่องใช้ไฟฟ้าและอิเล็กทรอนิกส์

■ การตรวจสอบว่ามีชิ้นส่วนอยู่หรือไม่



■ การตรวจสอบชิ้นส่วน IC



กลุ่มอาหาร

■ การตรวจสอบฉลาก

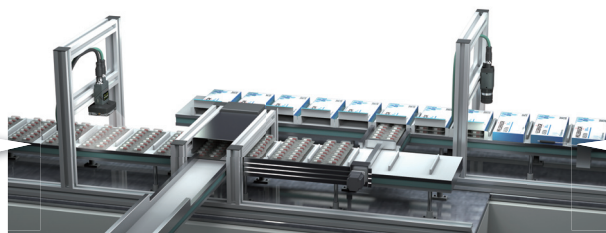
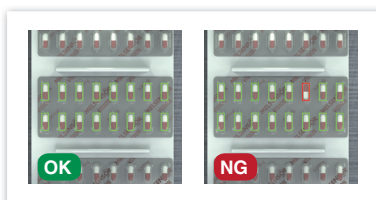


■ การตรวจสอบปริมาณบรรจุวันที่เสื่อมสภาพ ฝาปิด



กลุ่มเวชภัณฑ์

■ การตรวจสอบบรรจุภัณฑ์แบบบลิสเตอร์แพ็คสำหรับเวชภัณฑ์



■ การอ่านโค้ด



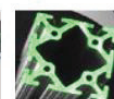
VS80



I/O Connector

Ethernet Connector

PatMax Redline

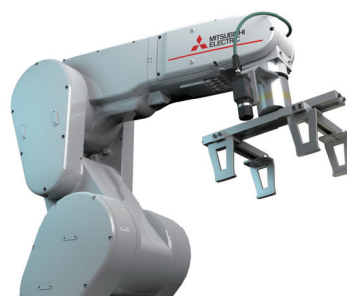

PatMax
AutoTune

Perspective
patMax

Multi-model
PatMax

Super Compact (31mm x 31mm x 75mm)

& Saving Wiring

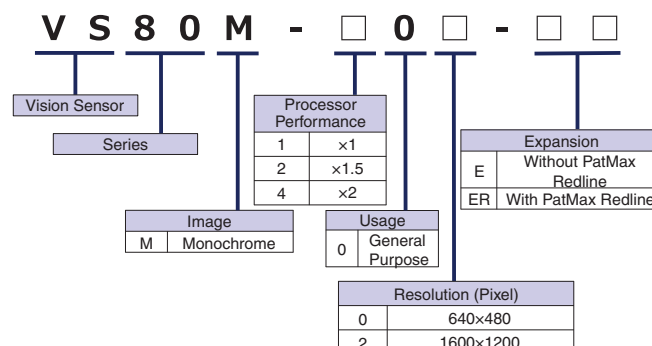
- PoE (Connection by only an Ethernet Cable)
- Highly compatible with Mitsubishi Electric products
(With SLMP, the vision sensor can be easily connected with Mitsubishi Electric FA products.)



VS80 (9 models)

Items		VS80M-100-E	VS80M-200-E(ER)	VS80M-400-E(ER)	VS80M-202-E(ER)	VS80M-402-E(ER)
Image		Monochrome	Monochrome	Monochrome	Monochrome	Monochrome
Resolution (Pixels)	640 x 480	●	●	●	—	—
	1600 x 1200	—	—	—	●	●
Frames per second		217			53	
Processor performance ^{*1}		1	1.5	2	1.5	2
PatMax Redline		—	—(●)	—(●)	—(●)	—(●)
Location tools		●	●	●	●	●
Presence/absence tools		●	●	●	●	●
Measurement tools		●	●	●	●	●
Counting tools		●	●	●	●	●
Identification tools		●	●	●	●	●
Geometry tools		●	●	●	●	●
Math & Logic tools		●	●	●	●	●
Plot tools		●	●	●	●	●
Image Filter tools		●	●	●	●	●
Defect Detection tools		●	●	●	●	●
Calibration tools		●	●	●	●	●
Communication		CC-Link IE Field Basic, SLMP Scanner, SLMP, MODBUS [®] /TCP, TCP/IP, UDP, FTP, Telnet (Native Mode)				
I/O		Opto-isolate image acquisition trigger input 1 point, opto-isolated general output 2 points				

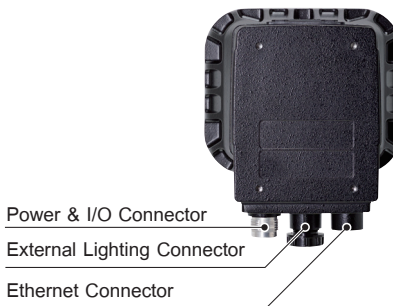
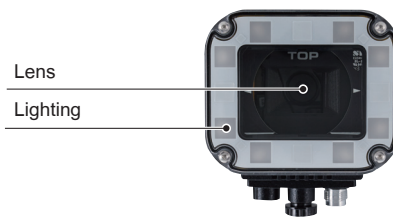
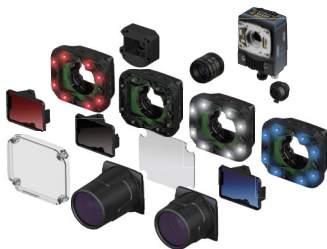
*1 Considering VS80M-100-E as 1.



VS70



Various options



LED Indicator



- [Integrated LED Lighting \(Option\)](#)

- [Various options](#)

- LED Lighting
- Auto focus module
- Lens cover

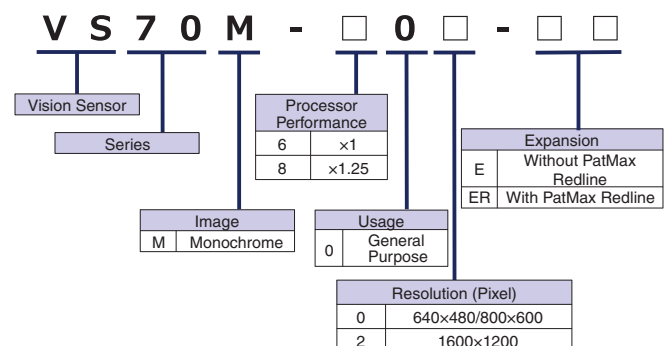
- [IP67](#)

- [PatMax Redline](#)

VS70 (6 models)

Items		VS70M-600-E(ER)	VS70M-800-E(ER)	VS70M-802-E(ER)
Image		Monochrome	Monochrome	Monochrome
Resolution (Pixels)	640 x 480	●	●	—
	800 x 600	●	●	—
	1600 x 1200	—	—	●
Frames per second		640 x 480 mode: 217 800 x 600 mode: 165		53
Processor performance ^{*1}		1	1.25	1.25
PatMax Redline		—(●)	—(●)	—(●)
Location tools		●	●	●
Presence/absence tools		●	●	●
Measurement tools		●	●	●
Counting tools		●	●	●
Identification tools		●	●	●
Geometry tools		●	●	●
Math & Logic tools		●	●	●
Plot tools		●	●	●
Image Filter tools		●	●	●
Defect Detection tools		●	●	●
Calibration tools		●	●	●
Communication		CC-Link IE Field Basic, SLMP Scanner, SLMP, MODBUS [®] /TCP, TCP/IP, UDP, FTP, Telnet (Native Mode)		
I/O		Opto-isolate image acquisition trigger input 1 point, Input Common 3 points, High Speed Output 4 points		

*1 Considering VS70M-600-E(ER) as 1.



VS20

Compact! Integrated lighting & filter



LED ความสว่างสูง

เปลี่ยนเลนส์ได้



3.6mm, 6mm, 8mm, 12mm, 16mm, 25mm

สามารถปรับองศาให้เหมาะสมกับพื้นที่ที่ติดตั้งได้

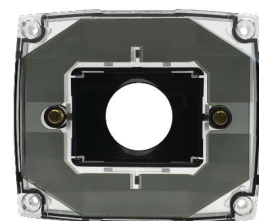


Bracket



เปลี่ยน LED ได้

(ขาว/ฟ้า/แดง/อินฟราเรด)



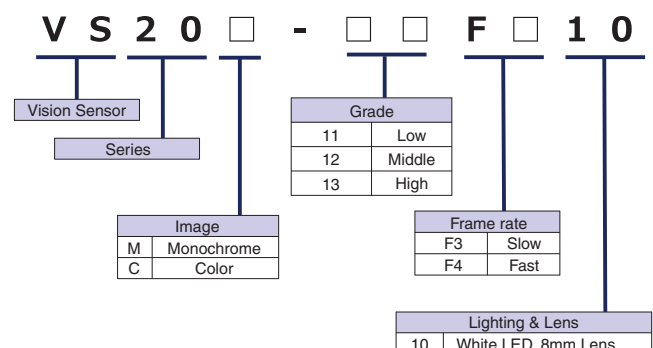
Polarizer

VS20 (5 models)

Items		VS20M-11F310	VS20M-12F410	VS20C-12F410	VS20M-13F410	VS20C-13F410
Image		Monochrome	Monochrome	Color	Monochrome	Color
Image resolution (pixel)	640 x 480 (standard)	●	●	●	●	●
	640 x 480 (2 x image magnification)	—	●	●	●	●
	800 x 600 (2 x image magnification)	—	—	—	●	●
Maximum image acquisition speed [frame/s]		40	75	55	75	55
Processor performance ^{*1} [Times]		1	2	2	2	2
Location tools	Pattern	●	●	●	●	●
	Edge, edge intersection, and circle ^{*2}	—	—	—	●	●
Presence/absence tools	Pattern	●	●	●	●	●
	Color pixel count, brightness, contrast	—	●	●	●	●
	Edge, circle	—	—	—	●	●
Measurement tools	Distance, angle, and diameter of circle	—	—	—	●	●
Counting tools	Pattern, edge	—	—	—	●	●
Communication		CC-Link IE Field Basic, SLMP scanner, SLMP, MODBUS [®] /TCP, TCP/IP, UDP, FTP, Telnet (Native Mode), RS-232				
I/O		Opto-isolated image acquisition trigger input 1 point, opto-isolated general input 1 point, Opto-isolated high-speed output 4 point				

*1 Considering VS20M-11F310 as 1.

*2 Location information detected can be used for inspection by other tools.



Option

VS80^{*1}

Product name	Model	Description
Lens		
C-mount lens	LM5JCM-V	5mm, F2.8/F4/F5.6/F8, JCM-V Series,Ruggedized Lens
	LM8JCM-V	8mm, F1.4/F4/F8/F16, JCM-V Series,Ruggedized Lens
	LM12JCM-V	12mm, F1.4/F4/F8/F16, JCM-V Series,Ruggedized Lens
	LM16JCM-V	16mm, F1.4/F4/F8/F16, JCM-V Series,Ruggedized Lens
	LM25JCM-V	25mm, F1.4/F4/F8/F16, JCM-V Series,Ruggedized Lens
	LM35JCM-V	35mm, F2/F4/F8/F16, JCM-V Series,Ruggedized Lens
	LM50JCM-V	50mm, F2.8/F4/F8/F16, JCM-V Series,Ruggedized Lens
Cable		
Ethernet cable	CCB-84901-2001-02	Ethernet cable, 2m
	CCB-84901-2001-05	Ethernet cable, 5m
	CCB-84901-2001-10	Ethernet cable, 10m
	CCB-84901-2001-15	Ethernet cable, 15m
	CCB-84901-2001-30	Ethernet cable, 30m
Breakout cable	CCB-M8IO-05	Breakout cable, 5m
	CCB-M8IO-10	Breakout cable, 10m
	CCB-M8IO-15	Breakout cable, 15m
PoE switching hub		
PoE adapter	CPS-AC-POE1A-JP	PSE PoE Pwr Supply AC - Japan
Mounting kit		
Mounting kit	BKT-IS8K-01	Bracket for In-Sight8000, VS80
I/O module		
I/O module	CIO-MICRO	IS, VS IO module (Ethernet, M8DSIO)
I/O module cable	CCB-M8DSIO-02	IO Module cable, 2m, for VS80
	CCB-M8DSIO-05	IO Module cable, 5m, for VS80
	CCB-M8DSIO-10	IO Module cable, 10m, for VS80
	CCB-M8DSIO-15	IO Module cable, 15m, for VS80

*1 Regarding the lens, C mounting lens (VS70 optional product or market product) is usable.

VS70

Product name	Model	Description
Lens		
S-mount/M12 lens	LM12-06-01	Lens, S-Mount M12 6mm f/2 (fixed aperture) ^{*2}
	LM12-12-01-F2.3	Lens, S-Mount M12 12mm f/2.3 (fixed aperture) ^{*2}
	LM12-16-01	Lens, S-Mount M12 16mm f/2.5 (fixed aperture) ^{*2}
	LM12-25-01	Lens, S-Mount M12 25mm f/2 (fixed aperture) ^{*2}
C-mount lens	LFC-9F1B	Fujinon 2/3" 9mm Lens F/1.4
	LFC-12.5F	Fujinon 2/3" 12.5mm Lens F/1.4
	LFC-16F1	Fujinon 2/3" 16mm Lens F/1.4
	LFC-25F1	Fujinon 2/3" 25mm Lens F/1.4
	LFC-35F1	Fujinon 2/3" 35mm Lens F/1.6
	LFC-50F1	Fujinon 2/3" 50 mm Lens F/2.3 ^{*3}
Autofocus module	ISAF-7000-8MM	8mm F2.2 Lens included
Tool kit		
Installation tool kit	ISLN-7000-SMNT	S-Mount M12 installation toolkit
Lens cover		
Standard lens cover	COV-7000-CMNT	Standard C Mount Lens Cover
Extended lens cover	COV-7000-CMNT-EX	Extended C Mount Lens Cover

*2 The accessories and illumination accessories can be used when using an autofocus module as well as when using other modules.

VS70

Product name	Model	Description
Light cover		
Light cover set including illumination with LED ring light	ISLM-7000-WHI	IS7000, VS70 GII Illumination accessory with pre-installed white light.*1
Light cover for LED ring light	COV-7000-CLR	Clear Light cover*1
	COV-7000-PL-Full	Polarized Light cover*1
Light		
LED ring light	ISL-7000-RD	Red, Used with the light cover for LED ring light attached.*1
	ISL-7000-IR	Infrared light, Used with the light cover for LED ring light attached.*1
	ISL-7000-BL	Blue, Used with the light cover for LED ring light attached.*1
	ISL-7000-WHI	White, Used with the light cover for LED ring light attached.*1
Bandpass filter	ISF-7000-RDBP605	Red*1
	ISF-7000-IRBP815	Infrared light*1
	ISF-7000-BLBP435	Blue*1
Cable		
Breakout cable	CCB-PWRIO-05	CCB-PWRIO-05(R) Power&IO cable, 5m (Right-angle)
	CCB-PWRIO-10	CCB-PWRIO-10(R) Power&IO cable, 10m (Right-angle)
	CCB-PWRIO-15	CCB-PWRIO-15(R) Power&IO cable, 15m (Right-angle)
Ethernet cable	CCB-84901-2001-02	Ethernet cable, 2m
	CCB-84901-2001-05	Ethernet cable, 5m
	CCB-84901-2001-10	Ethernet cable, 10m
	CCB-84901-2001-15	Ethernet cable, 15m
	CCB-84901-2001-30	Ethernet cable, 30m
	CCB-84901-2002-02	Cable length 2 m, M12 connector⇄RJ-45 connector, right-angle
	CCB-84901-2002-05	Cable length 5 m, M12 connector⇄RJ-45 connector, right-angle
	CCB-84901-2002-10	Cable length 10 m, M12 connector⇄RJ-45 connector, right-angle
I/O module		
I/O module	CIO-MICRO	IS, VS IO module (Ethernet, M8DSIO)
	CIO-1400	IS, VS IO module (CCB-PWRIO-MOD)
I/O module cable	CCB-PWRIO-MOD-02	IO Module cable, 2m, for VS20, VS70
	CCB-PWRIO-MOD-05	IO Module cable, 5m for VS20, VS70
Mounting bracket		
Mounting bracket	ISB-7000-7K	Bracket for In-Sight7000, VS70

*1 The accessories and illumination accessories can be used when using an autofocus module as well as when using other modules.

VS20

Product name	Model	Description
Lens		
S-mount (M12) lens	LM12-03-01	3.6 mm F2.0 fixed aperture lens
	LM12-06-01	6 mm F2 fixed aperture lens
	LM12-08-01-F25	8 mm F2.5 fixed aperture lens
	LM12-12-01	12 mm F1.9 fixed aperture lens
	LM12-16-01	16 mm F2.5 fixed aperture lens
	LM12-25-01	25 mm F2 fixed aperture lens
Spacer		
Lens spacer (M12)	LM12-SPACER-16-01	Use together with 16 mm lens
	LM12-SPACER-25-01	Use together with 25 mm lens
Filter and light cover		
Polarizer	IMPF-2000-POLAR2	Polarization plate
Filter	IMRF-2000-BP635	Red bandpass filter
	IMBF-2000-BP470	Blue bandpass filter
	IMIF-2000-BP850	IR bandpass filter
Light cover	IFS-2000-HBRING-CV	Replacement ring light cover
Light		
LED ring light	IFS-2000-HBRING-RD	High-intensity red
	IFS-2000-HBRING-WH	High-intensity white
	IFS-2000-HBRING-BL	High-intensity blue
	IFS-2000-HBRING-IR	High-intensity near infrared
Cable		
Ethernet cable	CCB-84901-2001-02	Cable length 2 m, M12 connector⇄RJ-45 connector, in-line
	CCB-84901-2001-05	Cable length 5 m, M12 connector⇄RJ-45 connector, in-line
	CCB-84901-2001-10	Cable length 10 m, M12 connector⇄RJ-45 connector, in-line
	CCB-84901-2001-15	Cable length 15 m, M12 connector⇄RJ-45 connector, in-line
	CCB-84901-2001-30	Cable length 30 m, M12 connector⇄RJ-45 connector, in-line
	CCB-84901-2002-02	Cable length 2 m, M12 connector⇄RJ-45 connector, right-angle
	CCB-84901-2002-05	Cable length 5 m, M12 connector⇄RJ-45 connector, right-angle
	CCB-84901-2002-10	Cable length 10 m, M12 connector⇄RJ-45 connector, right-angle
Breakout cable	CCB-PWRIO-05(R)	Power&IO cable, 5m (Right-angle)
	CCB-PWRIO-10(R)	Power&IO cable, 10m (Right-angle)
	CCB-PWRIO-15(R)	Power&IO cable, 15m (Right-angle)
Mounting bracket		
Plate adapter	BKT-2000-ADAPT-00	Flat surface mounting plate adapter
I/O module		
I/O module	CIO-1400	I/O extension module
I/O module cable	CCB-PWRIO-MOD-02	Cable length 2 m, M12 connector⇄15pin connector (DB15)
	CCB-PWRIO-MOD-05	Cable length 5 m, M12 connector⇄15pin connector (DB15)

SPECIFICATIONS

General Specifications

Items	VS80	VS70	VS20
Ambient operating temperature	0 to 35°C (case temperature is 50°C or below)	0 to 40°C (case temperature is 50°C or below)	0 to 40°C
Ambient storage temperature	-20 to 80°C		-10 to 60°C
Maximum humidity	Less than 80% RH, no condensation		Less than 95% RH, non-condensing
Vibration resistance	IEC 60068-2-6: A vibration of 10 G (10 to 500 Hz at 100 m/s ² with 15 mm width) was applied to each X, Y, and Z direction for 2 hours. (VS70: with cables/cable plugs and appropriate lens cover attached)		
Shock resistance	IEC 60068-2-27: 18 half sinusoidal shocks (3 shocks for each X, Y, and Z direction) with 80 G (800 m/s ² at 11 ms) were applied. (VS70: with cables/cable plugs and appropriate lens cover attached)		IEC 60068-2-27: 1000 half sinusoidal shocks with 11 G in 10 ms were applied.
Operating atmosphere	There is no danger of corrosive or flammable gas and strong alkaline substances to adhere.		
Protective structure	IP40 (with cables connected and appropriate lens attached)	IP67 (with cables connected and appropriate lens attached)	IP65 (when all connectors are attached to cables or shielded by a sealing cap)

Performance Specifications

VS80

Specifications	VS80M-100-E	VS80M-202-E VS80M-202-ER	VS80M-400-E VS80M-400-ER	0M-202-E VS80M-202-ER	VS80M-402-E VS80M-402-ER
Memory	512 MB flash memory Unlimited storage when storing in the remote network device Image processing: 512 MB SDRAM				
Imager type	1/1.8 inch CMOS, global shutter, 3.6 mm diagonal, 4.5 × 4.5 μm square pixels			1/1.8 inch CMOS, global shutter, 9 mm diagonal, 4.5 × 4.5 μm square pixels	
Lens	C-mount				
Image resolution (pixels)	640 × 480			1600 × 1200	
Bit depth	256 gray levels (8 bits/pixel).				
Electronic shutter speed	14μs to 520ms			20μs to 940ms	
Maximum image acquisition speed*1	217 full frames per second			53 full frames per second	
Power consumption	Max. 6.49 W (supplied with PoE (class 2))				
Trigger	Opto-isolated image acquisition trigger input × 1, Remote software commands via Ethernet				
Discrete inputs	N/A, General-purpose input × 8: Available when connecting a CIO-MICRO I/O module				
Discrete outputs	Opto-isolated NPN/PNP high-speed output × 2, General-purpose input × 8: Available when connecting a CIO-MICRO I/O module				
Network communication	CC-Link IE Field Network Basic, SLMP scanners, SLMP, MODBUS®/TCP, TCP/IP, UDP, FTP, Telnet (native mode), DHCP (default at shipment from the factory), fixed and link local IP address setting				
Material	Zinc die-cast housing				
Mounting	M3 screw hole × 4				
Dimensions	31.0 mm × 31.2 mm × 75.1 mm				
Weight	132.2 g				

^{*1} The number of image sensor rows can be set in In-Sight Explorer. Decreasing the number of rows will increase the number of frames per second acquired by a vision sensor. For details, refer to the help of In-Sight Explorer.

VS70

Specifications	VS70M-600-E VS70M-600-ER	VS70M-800-E VS70M-800-ER	VS70M-802-E VS70M-802-ER
Memory	7.2 GB flash memory, Unlimited storage when storing in the remote network device, Image processing: 512 MB SDRAM		
Imager type	1/1.8 inch CMOS, global shutter, 4.5 mm diagonal, 4.5 × 4.5 μm square pixels		1/1.8 inch CMOS, global shutter, 9 mm diagonal, 4.5 × 4.5 μm square pixels
Lens	C-mount, S-mount/M12, autofocus		
Image resolution (pixels)	800 × 600 ^{*1} , 640 × 480		1600 × 1200
Bit depth	256 gray levels (8 bits/pixel)		
Electronic shutter speed	14 μs to 550 ms, 14 μs to 520 ms ^{*2}		20 μs to 940ms
Maximum image acquisition speed ^{*3}	165 frames/sec. , 217 frames/sec. ^{*4}		53 frames/sec.
SD memory card	Micro SD memory card slot for saving jobs or image files × 1, Micro SD memory card: SDHC standard, maximum capacity 8 GB		
Power consumption	24 V DC ± 10 %, 36 W (1.5 A) maximum		
Power output	24 V DC/750 mA maximum to an external light		
Trigger	Opto-isolated image acquisition trigger input × 1, Remote software commands via Ethernet		
Discrete inputs	General-purpose input × 3: Available when connected with a breakout cable ^{*5} , General-purpose input × 8: Available when connecting a CIO-MICRO I/O module, General-purpose input × 7: Available when connecting a CIO-1400 I/O module		
Discrete outputs	High-speed output × 4: Available when connected with a breakout cable ^{*5} High-speed output × 2, general-purpose output × 8: Available when connecting a CIO-MICRO I/O module High-speed output × 2, general-purpose output × 6: Available when connecting a CIO-1400 I/O module		
Network communication	CC-Link IE Field Network Basic, SLMP scanners, SLMP, MODBUS [®] /TCP, TCP/IP, UDP, FTP, Telnet (native mode), DHCP (default at shipment from the factory), fixed and link local IP address setting		
Material	Die-cast and extruded aluminum housing		
Mounting	M3 screw holes × 4		
Dimensions	35.7 mm × 60.5 mm × 90.0 mm		
Weight	240 g		

^{*1} The default resolution is 800 × 600 pixels. The resolution can be set as 640 × 480 pixels in In-Sight Explorer. For details, refer to the help of In-Sight Explorer.

^{*2} When the image resolution is set as 640 × 480, it will be 14 μs to 520 ms, and when it is set as 800 × 600, it will be 14 μs to 550 ms.

^{*3} The number of image sensor rows can be set in In-Sight Explorer. Decreasing the number of rows will increase the number of frames per second acquired by a vision sensor. For details, refer to the help of In-Sight Explorer.

^{*4} When the image resolution is set as 640 × 480, it will be 217 frames/second, and when it is set as 800 × 600, it will be 165 frames/second.

^{*5} 'High-speed output 2/Input 2' and 'High-speed output 3/Input 3' of a breakout cable can be used as a high-speed output or a general-purpose input by changing the setting in In-Sight Explorer. These lines are set as output (high-speed output) by default.

Performance Specifications

VS20

Specifications	VS20M-11F310	VS20M-12F410	VS20C-12F410	VS20M-13F410	VS20C-13F410
Memory	32 MB flash memory, Unlimited storage when storing in the remote network device, Image processing: 128 MB SDRAM				
Imager type	1/3-inch CMOS, 4.80 mm×3.60 mm (W×H), 3.75 μm sq. pixels				
Imaging	Monochrome	Monochrome	Color	Monochrome	Color
Lens	S-mount/M12, 8 mm (standard), Options: 3.6 mm, 6 mm, 12 mm, 16 mm, 25 mm				
Image resolution (pixels)	640 × 480 (standard)	640 × 480 (standard), 640 × 480 (2 × image magnification mode)		640 × 480 (standard), 640 × 480 (2 × image magnification mode), 800 × 600 (2 × image magnification mode)* ¹	
Bit depth	256 gray levels (8 bits/pixel).		24-bit color	256 gray levels (8 bits/pixel)	24-bit color
Lighting	Standard equipment: LED Ring Light (White), Option: LED Ring Light (Red,Blue,NIR)				
Electronic shutter speed	1 μs to 1000 ms				
Maximum image acquisition speed* ²	40 full frames per second	75 full frames per second	55 full frames per second	75 full frames per second	55 full frames per second
Power consumption	24 V DC ± 10%, 48 W (2.0 A) maximum when the illumination is ON.				
Trigger	Opto-isolated image acquisition trigger input × 1, Remote software commands via Ethernet				
	Voltage	ON: 15 to 24 V DC (standard 24 V DC), OFF: 0 to 5 V DC (standard 0 V DC)			
	Current	3.6 mA/12 V DC, 7.5 mA/24 V DC, Resistance: Max. 5.48 kΩ			
Discrete inputs	Opto-isolated general-purpose input × 1, General-purpose input × 7: Available when connecting a CIO-1400 I/O module* ³				
	Voltage	ON: 15 to 24 V DC (standard 24 V DC), OFF: 0 to 5 V DC (standard 0 V DC)			
	Current	3.6 mA/12 V DC, 7.5 mA/24 V DC, Resistance: Max. 5.48 kΩ			
Discrete outputs	Opto-isolated high-speed output ×4, High-speed output × 2, general-purpose output × 6: Available when connecting a CIO-1400 I/O module* ³				
	Voltage	28 VDC maximum through external load			
	Current* ³	ON status: Max. 50 mA (sink or source), Leakage current in OFF status: Max. 100 μA, External load resistance: 240 Ω to 10 kΩ, Each line is rated at a maximum 50 mA and protected against over-current, short circuits, and transients from switching inductive loads. A protection diode is required for a high inductive load.			
Network communication	CC-Link IE Field Network Basic, SLMP scanners, SLMP, MODBUS®/TCP, TCP/IP, UDP, FTP, Telnet (native mode), DHCP (default at shipment from the factory), fixed and link local IP address setting				
Other communications	RS-232 (Rx/D, Tx/D (TIA/EIA-232-F reference))				
Material	Aluminum housing				
Mounting	M3 screw holes × 4				
Dimensions	Straight configuration: 92 mm × 60 mm × 52 mm, When shaping right angle : 62 mm × 60 mm × 67 mm				
Weight	200g				

*1 The resolutions of VS20M-13F410 and VS20C-13F410 are 640×480 pixels. The resolutions can be set as 800×600 pixels in In-Sight Explorer. For details, refer to the help of In-Sight Explorer.

*2 The maximum frame rate when all of the following conditions are applied.

- Minimum exposure
- No connection with In-Sight Explorer
- Image resolution: 640 × 480 (2 × image magnification mode for VS20M-12F410 and VS20M-13F410 models).

*3 When an I/O module is connected, the high speed output is only sink type up to 50 mA, and the general-purpose output is sink type or source type up to 100 mA which can be set by users.

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