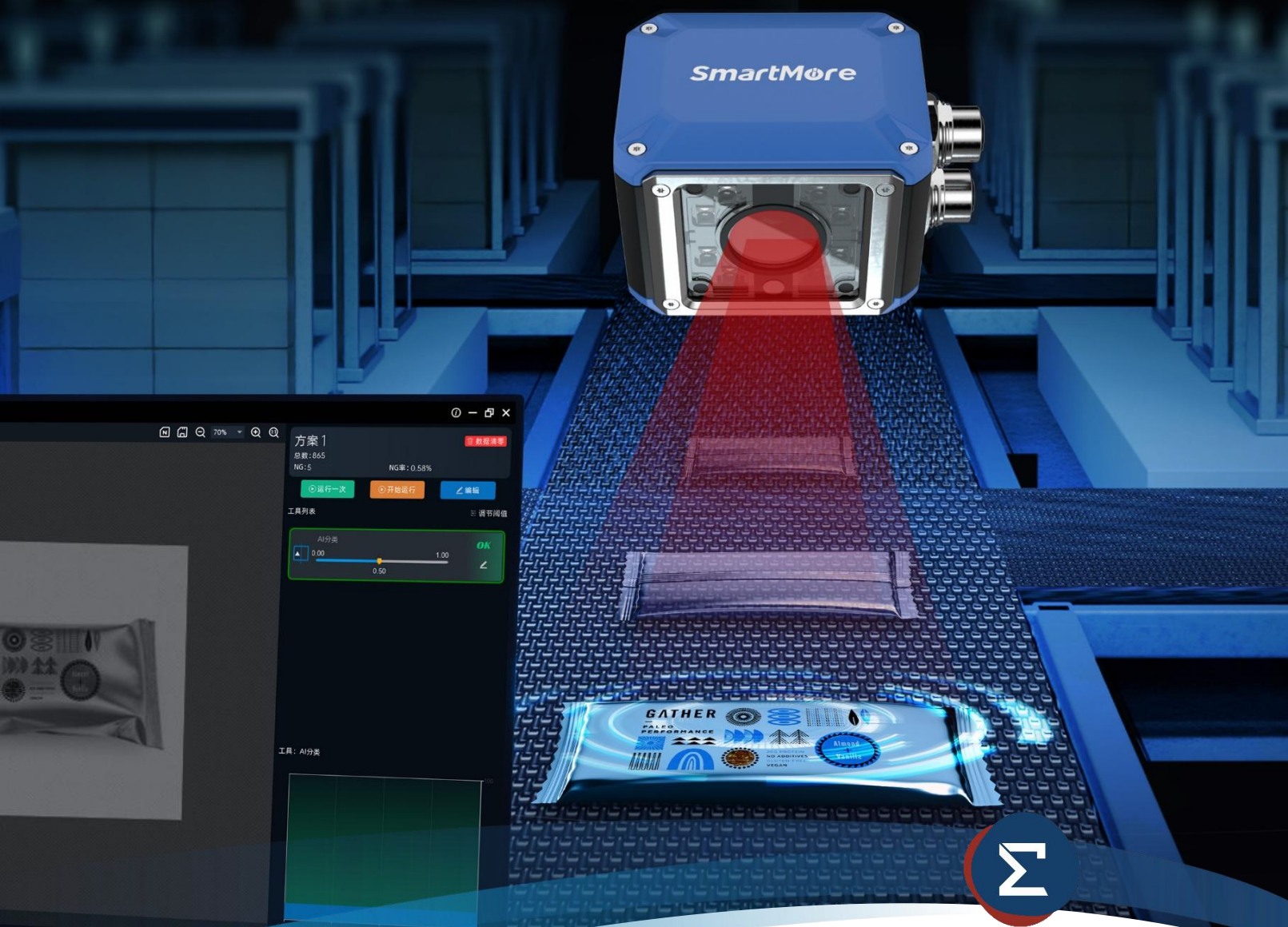


SMore Vision Sensor VN4000 Series



SMORE Vision Sensor

VN4000 Series

| Standard type industrial intelligent visual sensor |



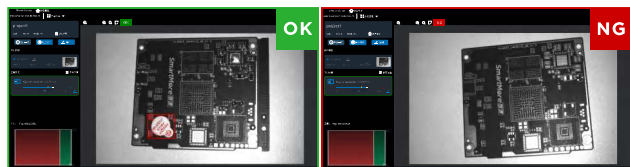
Product Features

- Integrates deep learning algorithms, requiring only a small number of samples for training, with no need for configuration and parameter adjustment, to meet visual inspection requirements.
- Supports working distances from 100mm to 1000mm, accommodating various installation space requirements.
- Supports one-key parameter adjustment, automatically completing functions such as focus, exposure, gain, and light source adjustment.
- Offers red/white dual light sources, with 4 groups of independently controlled light sources, providing 16 lighting schemes, including polarized light sources.
- Rich I/O interfaces enable real-time communication with other devices via I/O signals.
- Supports multiple communication modes for real-time data transmission, including TCP Server, TCP Client, ModBus TCP, MELSEC, SLMP, RS-232, and EtherNet/IP.

Rich Visual Inspection Tools

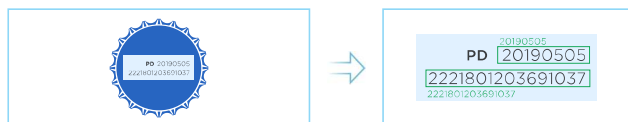
Built-in rich visual inspection tools and powerful edge AI support allow for flexible combination and adjustment to meet various scene requirements. Capable of presence/absence judgment, counting, both-side detection, binary classification, and OCR recognition.

Presence Detection



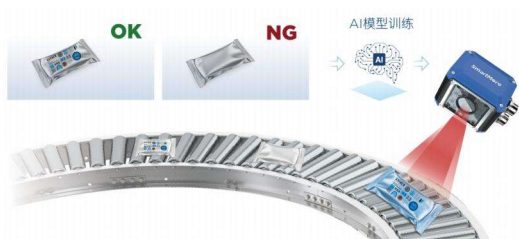
OCR Recognition

Integrates advanced AI technology for fast, accurate, and efficient character recognition, providing printing and date inspection solutions for industries such as food packaging.



Forward/reverse classification

Utilizes advanced pre-trained models, achieving good results through small sample learning.



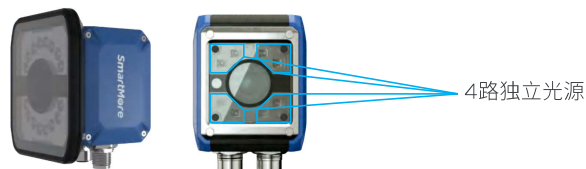
Codeless Configuration Solutions

The software is easy to use and requires no coding experience for quick setup. For different scenarios, configuration and modification can be completed in just 4 steps.



Multiple Optional Optical Imaging Configurations

Offers optional color/black-and-white cameras; optional red/white light sources; controllable LED light source design, supporting up to 4 independent light source controls; provides options for polarized/nonpolarized light. Configurations can be selected and adjusted based on actual field applications to optimize imaging effects.

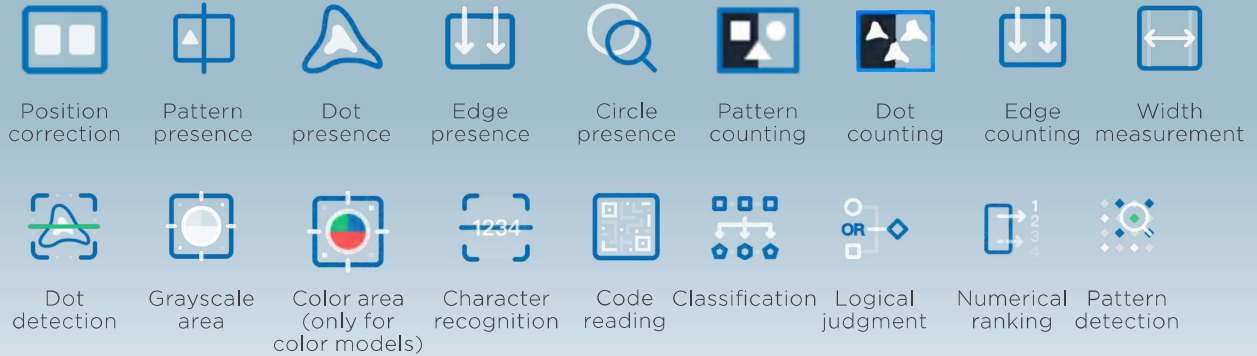


High Stability and Reliability

IP67 protection rating, tested for high temperature, low temperature, and aging, supporting various installation positions and environmental conditions.



Visual Tools

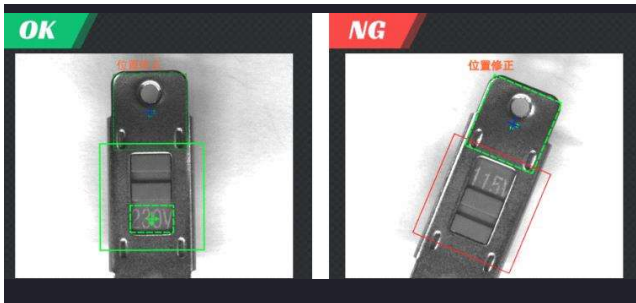


Applications

3C Electronics • Switch recognition



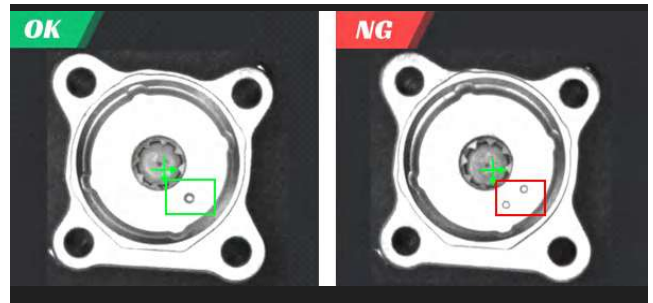
Position correction for locating targets, identifying specific patterns, and determining switch status.



Automotive • Preventing mixed materials



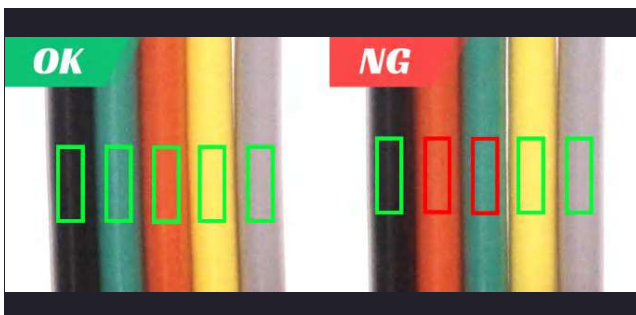
Detecting the number of marks on automotive components to differentiate part types.



Automotive Assembly • Terminal wiring sequence



Use multiple color areas to verify if the sorting order is correct



Food and Pharmaceutical • Presence of three dates



Detecting the area of character color within the printing zone to identify the presence or absence of three dates.



Application scenarios

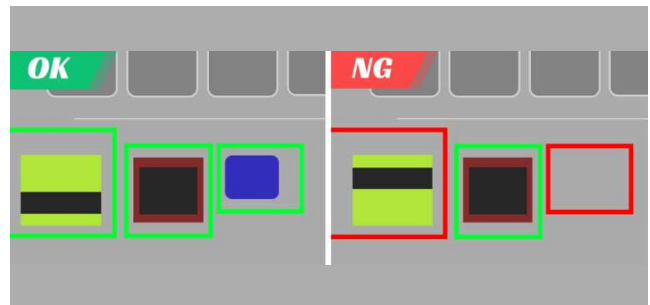
Food and Pharmaceutical • Presence of three dates

Recognize printed production dates or batch number information on food packaging



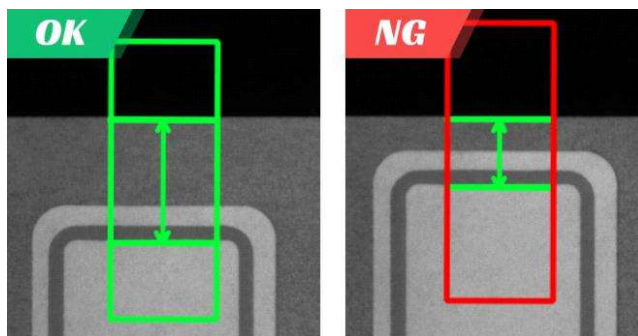
3C Electronics • Stickers' presence and orientation

Check for the presence of stickers on the C-side of the laptop and verify if their orientation is correct.



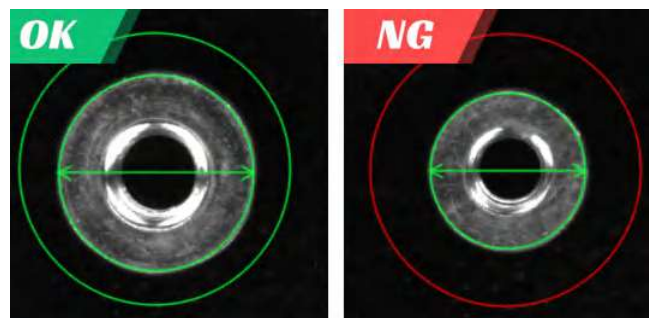
Packaging Industry • Label position assessment

Use width detection to determine if the label position is misaligned



Traditional Manufacturing • Prevent specification errors

Use circle presence tools to determine if the screw specifications are correct



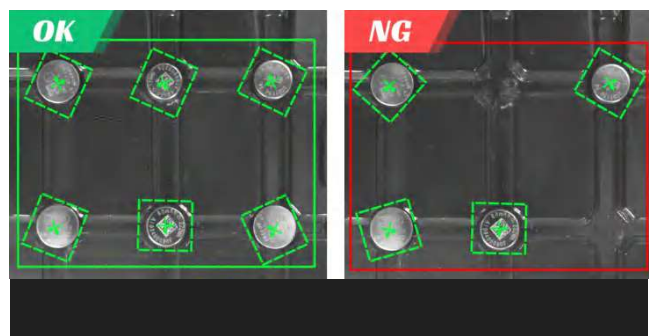
Traditional Manufacturing • Sandpaper's front & back

Distinguishing the front and back of sandpaper by detecting dark-colored grains.



Lithium Battery • Check the number of batteries in the tray

Use pattern counting tools to detect the number of batteries in the tray



Applications

Automotive assembly

New energy

3C

Semiconductor

Logistics & Warehousing

Food packaging

Medical/Pharmaceutical

Fastmoving consumer goods

Electronic components

Physical Structure

Standard light source

Used for image acquisition lighting, optional red/white light available

Positioning light

Indicates the center of the image, facilitating target aiming

Len

Used to capture images

Standar Light Type

High-brightness Light Type

High-brightness light source

Used for image acquisition lighting, optional red/TRIG key white light available

Positioning light

Indicates the center of the image, facilitating target aiming

Len

Used to capture images

M12-12PIN interface

Provides power supply, serialport, and I/O functions

M12-8PIN interface

Provides network transmission functionality

POWER indicator light

Device operating normally: green light

TRIG indicator light

Green light for successful trigger, green light after pressing the button

OK/NG indicator light

Green light for successful detection, red light for detection failure

TRIG key

Trigger key

TUNE key

Quick parameters adjustment key

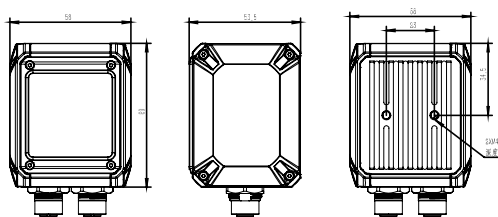
LINK network indicator light

Green light for normal communication, flashing light for data transmission

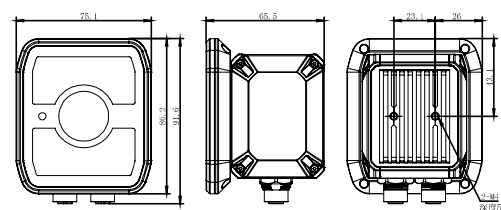
Error indicator light

Default is no light, red light for device malfunction

Dimensions



Standar Light Type



High-brightness Light Type

Unit:mm

Accessories

Cable

Db15 connection cable



Network cable

M12-8PIN-3M connection cable



Power

24V power adapter



L-shape Mounting Bracket

L-shape mounting bracket + screws (M4)



Technical parameters

Product model Reading parameters	VN4000 1MP Series	VN4000 2MP Series	VN4000CL 5MP Series
Resolution (HxV)	1280 x 800	1920 x 1200	2600 x 1952
Frame rate (fps)	60		30
Colors/Black & white	Black & white		Colors
Shutter	Global		Rolling
Exposure time	20 μ s - 1s		20 μ s - 100ms
Pixel size	3 μ m x 3 μ m		2.2 μ m x 2.2 μ m
Target size	1/4"	1/2.6"	1/2.5"
Focusing method	Manual		
Focal length	8mm,12mm,16mm		
Working distance	100-1000mm		100-2000mm
Algorithm/tool	Positioning: position correction Presence: pattern presence, spot presence, edge presence, circle presence Counting: pattern counting, spot counting, edge counting Detection: width detection, spot detection, grayscale area Recognition: character recognition, code reading, classification Logic: logical judgment, numerical ranking		Positioning: position correction Presence: pattern presence, spot presence, edge presence, circle presence Counting: pattern counting, spot counting, edge counting Detection: width detection, spot detection, grayscale area Recognition: character recognition, code reading,classification Logic: logical judgment, numerical ranking

Structure

Position indicator	A green light spot indicates the center of the detection area.		
Status indicator	Five status LEDs and a buzzer		
Polarizer	Provide non-polarized and semi-polarized.		
Light source	Standard light source (8 LEDs), providing red/white light options.	Standard light source (8 LEDs) / high-brightness light source (16 LEDs) available, white light	

Communication Control & Electrical Parameters

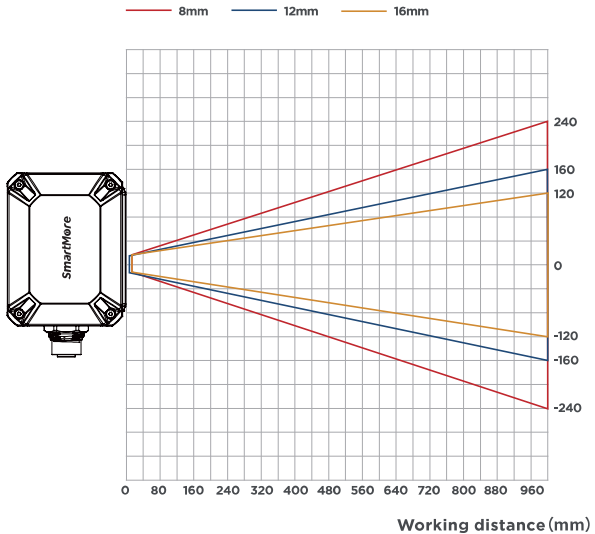
Input control	Two-channel input control, opto-isolated - supports NPN and PNP types.
Output control	Three-channel output control, opto-isolated.
Communication interface	RS232, Ethernet
Communication protocol	TCP Server, TCP Client, ModBus TCP, ModBus RTU, Profinet, Ethernet/IP, MELSEC/SLMP, Serial
Power input	24 VDC
Power consumption	15W

Dimensions & Environmental Parameters

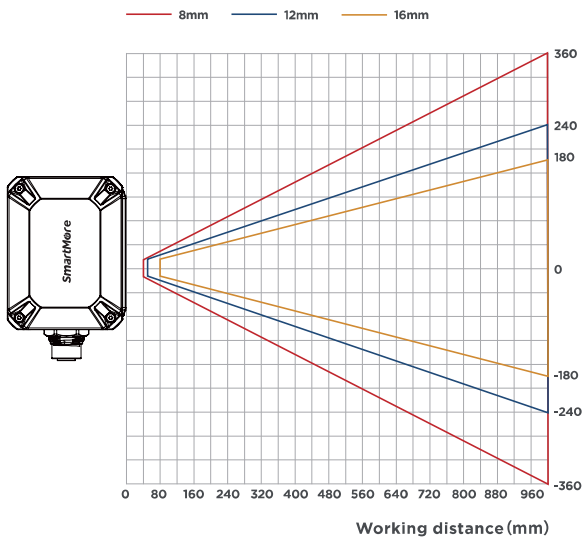
External dimensions	58*53.5*69mm	75.1*65.5*91.6mm (High-brightness light type)
Weight	About 295g	About 380g (High-brightness light type)
Working tempeprature	0~45°C	
Storage tempeprature	-20~70°C	
Humidity	5%~95%RH (Non-condensing)	
Protection level	IP67	

Reading parameters

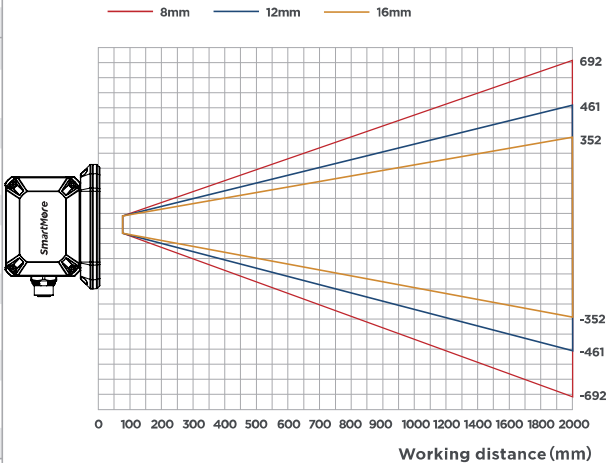
VN4000 1MP Series

Focal length (mm)	Working distance (mm)	Horizontal (mm)	Vertical (mm)	Lateral view indication
8	100	48	30	
	200	96	60	
	300	144	90	
	400	192	120	
	500	240	150	
	600	288	180	
	700	336	210	
	800	384	240	
	900	432	270	
	1000	480	300	
12	100	32	20	
	200	64	40	
	300	96	60	
	400	128	80	
	500	160	100	
	600	193	121	
	700	224	140	
	800	256	160	
	900	288	180	
	1000	320	200	
16	100	24	15	
	200	48	30	
	300	72	45	
	400	96	60	
	500	120	75	
	600	144	90	
	700	168	105	
	800	192	120	
	900	216	135	
	1000	240	150	

VN4000 2.3MP

Focal length (mm)	Working distance (mm)	Horizontal (mm)	Vertical (mm)	Lateral view indication
8	100	72	45	
	200	144	90	
	300	216	135	
	400	288	180	
	500	360	225	
	600	432	270	
	700	504	315	
	800	576	360	
	900	648	405	
	1000	720	450	
12	100	48	30	
	200	96	60	
	300	144	90	
	400	192	120	
	500	240	150	
	600	288	180	
	700	336	210	
	800	384	240	
	900	432	270	
	1000	480	300	
16	100	36	23	
	200	72	45	
	300	108	68	
	400	144	90	
	500	180	113	
	600	216	135	
	700	252	158	
	800	288	180	
	900	324	202	
	1000	360	225	

VN4000CL 5MP

Focal length (mm)	Working distance (mm)	Horizontal (mm)	Vertical (mm)	Lateral view indication
8	100	77	58	
	200	146	110	
	400	284	213	
	600	421	316	
	800	559	420	
	1000	697	523	
	1200	835	627	
	1400	972	730	
	1600	1110	834	
	1800	1248	937	
	2000	1358	1041	
12	100	46	35	
	200	92	71	
	400	185	141	
	600	277	212	
	800	369	282	
	1000	462	353	
	1200	554	423	
	1400	646	494	
	1600	739	564	
	1800	831	635	
	2000	923	705	
16	100	35	26	
	200	71	53	
	400	141	105	
	600	212	158	
	800	282	211	
	1000	353	263	
	1200	423	316	
	1400	494	369	
	1600	564	421	
	1800	635	474	
	2000	705	527	

Product Selection Catalog

VN4000 Smore Vision Sensor Series



Product model	Light	Colors	Focal length	Polarization	Pixels	Focusing method	Status
VN4000-101-021	Red	Black & white	8mm	Non-polarized	1MP(1280*800)	Manual	Available
VN4000-102-021	Red	Black & white	12mm	Non-polarized	1MP(1280*800)	Manual	Available
VN4000-103-021	Red	Black & white	16mm	Non-polarized	1MP(1280*800)	Manual	Available
VN4000-101-022	Red	Black & white	8mm	Semi-polarized	1MP(1280*800)	Manual	Available
VN4000-102-022	Red	Black & white	12mm	Semi-polarized	1MP(1280*800)	Manual	Available
VN4000-103-022	Red	Black & white	16mm	Semi-polarized	1MP(1280*800)	Manual	Available
VN4000-101-020	White	Black & white	8mm	Non-polarized	1MP(1280*800)	Manual	Available
VN4000-102-020	White	Black & white	12mm	Non-polarized	1MP(1280*800)	Manual	Available
VN4000-103-020	White	Black & white	16mm	Non-polarized	1MP(1280*800)	Manual	Available
VN4000-101-023	White	Black & white	8mm	Semi-polarized	1MP(1280*800)	Manual	Available
VN4000-102-023	White	Black & white	12mm	Semi-polarized	1MP(1280*800)	Manual	Available
VN4000-103-023	White	Black & white	16mm	Semi-polarized	1MP(1280*800)	Manual	Available
VN4000-201-021	Red	Black & white	8mm	Non-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-202-021	Red	Black & white	12mm	Non-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-203-021	Red	Black & white	16mm	Non-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-201-022	Red	Black & white	8mm	Semi-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-202-022	Red	Black & white	12mm	Semi-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-203-022	Red	Black & white	16mm	Semi-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-201-020	White	Black & white	8mm	Non-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-202-020	White	Black & white	12mm	Non-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-203-020	White	Black & white	16mm	Non-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-201-023	White	Black & white	8mm	Semi-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-202-023	White	Black & white	12mm	Semi-polarized	2.3MP(1920*1200)	Manual	Available
VN4000-203-023	White	Black & white	16mm	Semi-polarized	2.3MP(1920*1200)	Manual	Available

VN4000 Smore Vision Sensor Series



Product mode	Light Source	Color type	Focal length	Polarization	Pixels	Focusing method	Status
VN4000CL-501-CL26	White/high-brightness	Colors	8mm	Non-polarized	5MP(2600*1952)	Manual	Available
VN4000CL-502-CL26	White/high-brightness	Colors	12mm	Non-polarized	5MP(2600*1952)	Manual	Available
VN4000CL-503-CL26	White/high-brightness	Colors	16mm	Non-polarized	5MP(2600*1952)	Manual	Available
VN4000CL-501-CL2B	White/high-brightness	Colors	8mm	Semi-polarized	5MP(2600*1952)	Manual	Available
VN4000CL-502-CL2B	White/high-brightness	Colors	12mm	Semi-polarized	5MP(2600*1952)	Manual	Available
VN4000CL-503-CL2B	White/high-brightness	Colors	16mm	Semi-polarized	5MP(2600*1952)	Manual	Available

Product Selection Catalog

Cable		
Product model	Type	Length
M12-8PIN-3M	Dedicated network cable	3 m
M12-8PIN-5M	Dedicated network cable	5m
M12-8PIN-10M	Dedicated network cable	10 m
M12-12PIN-3M	Dedicated data cable	3 m
M12-12PIN-5M	Dedicated data cable	5m
M12-12PIN-10M	Dedicated data cable	10 m

Note: One VN4000 series vision sensor requires one dedicated cable and one dedicated data cable for connection and power supply to the camera.

Power adapter (optional)

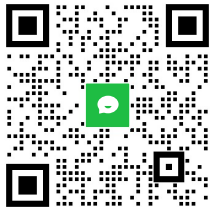
Power adapter	220V to 24V
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Note: The power adapter is an optional accessory. Without the power adapter, the VN4000 series products also support power supply using loose wiring at 24V.

Service and Support

To get support You can get support through the following channels

 www.smartmore.com  400-688-9660  market@smartmore.com



Online customer service

For more business inquiries

China Mainland

sales@smartmore.com

Overseas

global@smartmore.com

Media

pr@smartmore.com

Office addresses

Shenzhen

Address: 20F-22F, Block T2, Qianhai Kerry Center, Qianwan 1st Road, Nanshan Street, Qianhai Shenzhen-Hong Kong Cooperation Zone, Shenzhen

Phone: +86 0755 8654 5740

Beijing

Address: 5th Floor, Building C, Zhongguancun Science and Technology Service Building, No. 2 Courtyard, Building 1, Guanzhuang Road, Chaoyang District, Beijing

Phone: +86 010 5360 0603

Shanghai

Address: Room 604, Building T1, 277 Longlan Road, Xuhui District, Shanghai

Phone: +86 021 64281935

Suzhou

Address: 14th Floor, Yuefeng Building, No. 101 Tayuan Road, Wujiang District, Suzhou

Phone: +86 0512 6856 6967

Hangzhou

Address: Building 2, JWK JUCAI Building, 308 Binkang Road, Binjiang District, Hangzhou

Hongkong

Address: Unit 307-312, 3/F Wireless Centre (Building 3E) No.3 Science Park East Avenue, Hong Kong Science Park, Shatin, N.T., HK

Phone: +852 3111 6886

Japan

Address 104-0031 東京都中央区京橋1-13-1 WORK VILLA KYOBASHI 9F

Phone 03 6263 0586

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Phone: +65 9048 4057
