

Supports verification
for a wide range of codes.



Compact 1D and 2D Code Reader

that enables stable reading of difficult codes

Black resin

Metal

PCB

Scratched

Misaligned

Curved surface

A New Algorithm Developed for **Capture & Process** that Enables Stable Reading

Our original corrective capture and process techniques provide the best-in-its-class reading capability even for difficult-to-read codes.



A newly developed algorithm automatically selects the optimal settings from as many as 250000 correction patterns.



Capture

Automatically selects optimal reading conditions such as brightness and filters to clarify codes as much as possible before reading.

Process

A newly developed processing method ensures accurate black/white reproduction even for irregular codes.

Best in its class

Reading Capability

A newly developed algorithm provides best-in-its-class reading capability. Difficult codes can also be scanned stably, including those directly marked on uneven workpieces.



Easy Tuning

The SR-750 is just as easy to operate as any other SR Series so that anyone can enjoy its excellent reading performance. In addition, the optimal settings can be obtained in three simple steps through automatic tuning.

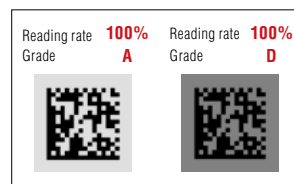


First in its class

Predictive Maintenance

Image quality can be judged based on industrial standards.

It is also possible to output judgement results as signals, so that you can understand clearly when maintenance is required in the printing process.



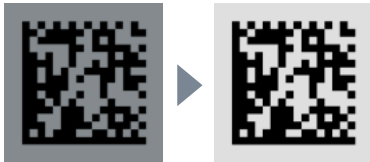
A New Algorithm Provides Best-in-its-class Reading Capability

Captures Codes Clearly

Corrects codes that are difficult to read due to print density or other conditions so that they can be captured clearly. The optimal capture settings are automatically selected according to code conditions.

Capture Brightness Correction

Corrects the brightness by automatically selecting the optimal settings for capture from 129 levels of brightness.



Examples of codes to be highly affected



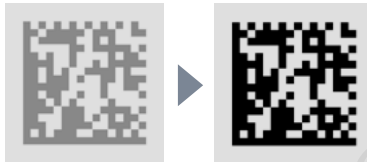
Black resin

PCB

Brass

Contrast Threshold Correction

Automatically corrects black/white classification thresholds and optimises the contrast between code and background.



Examples of codes to be highly affected



Nylon resin

Low contrast

Ceramic

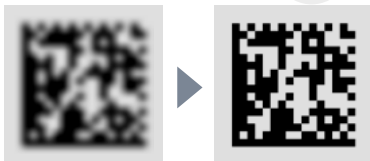
Image Reduction & Correction

Reduces the image size to one that is ideal for decoding the code that is captured in the field of view.



Correction through Filters

Automatically selects the best filter and filtering intensity for the captured image to correct it.



Examples of codes to be highly affected



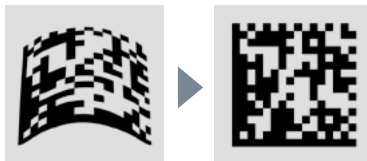
Bleeding

Thick printing

Thin printing

Geometric Correction

Corrects distortion, such as that found on cylinders.



Examples of codes to be highly affected



Parallel distortion

Trapezoidal distortion

Tread barrel distortion

Examples of codes to be highly affected



Primary noise

Dot printing

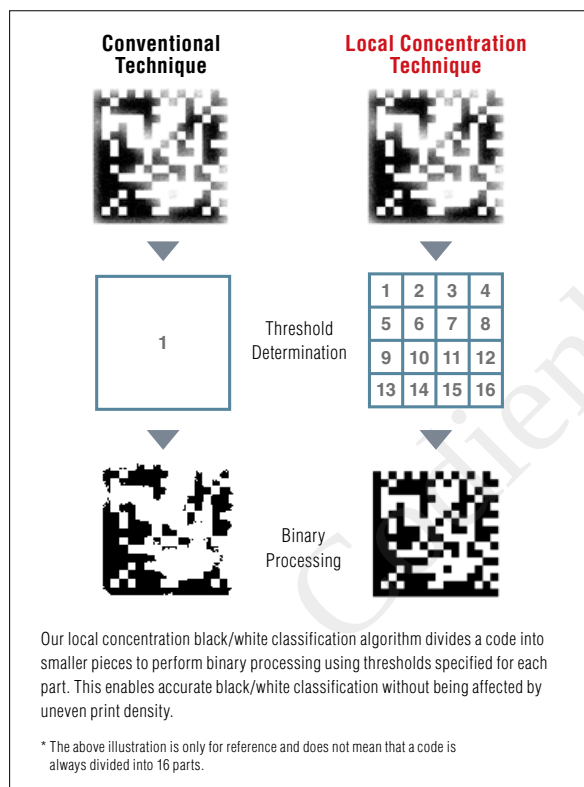
Stray dots

Processes Captured Codes

Thanks to condition-based processing, read errors are reduced even if codes on captured images are difficult to read.

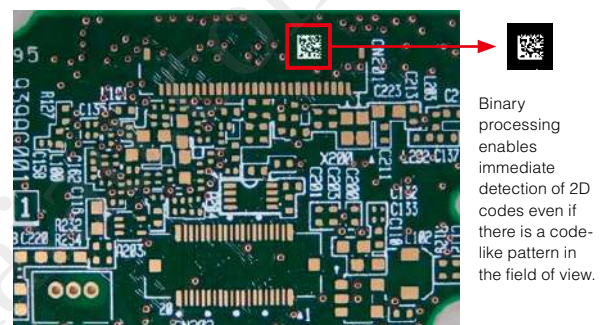
Local Concentration Black/White Classification Algorithm

Conventionally, black/white thresholds are set for the "entire" code, which makes it difficult to detect unevenly printed codes. To solve this problem, we have developed a new algorithm, called local concentration black/white classification algorithm, to allow thresholds to be set for "each part" of a code. This algorithm enables highly accurate black/white classification even for DPM codes, on which uneven print density often occurs.



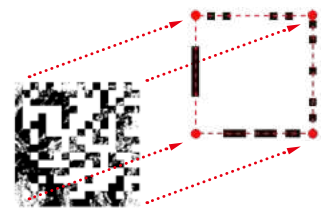
2D Code Search in Captured Images

A newly developed WHS (High Speed & High Stability) search programme can detect a 2D code in the field of view immediately so that high-speed, stable search is ensured even when the code position changes or there are several 2D code-like patterns in the field of view.



Defective Code Positioning Programme

A newly developed defective code positioning programme can identify four corners of a 2D code based on a similar code detection pattern, leading to a significant improvement in code detection performance.



Examples of codes to be highly affected



High Performance with Easy Tuning

Simple Setting in Three Steps

Setup is completed through a simple procedure. Anyone can achieve advanced reading capability with easy tuning either from the setting software or the main unit.

From the setting software

SR-H7W

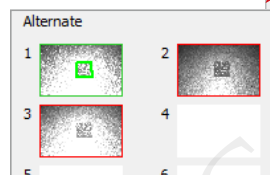


- 1 **Pointer**
Set the workpiece
- 2 **Monitor**
Check on the monitor
- 3 **Tuning**
Just click

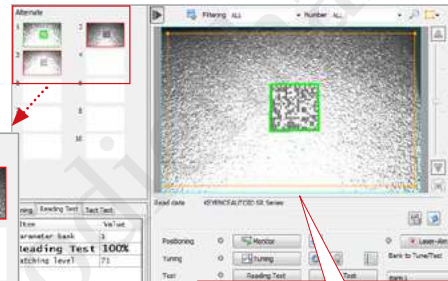


Reduces manhours for setup with the setting software's Live View

Reading tests can be easily executed. SR-750 Series checks reading ratio, cycle time, and banks that are used for reading.

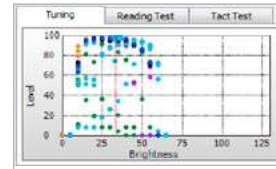


It also checks the preset codes.
[→ Parameter bank function See P. 9]



SR-750 Series checks real-time images while tuning.

Automatic selection of optimal settings



Automatically selects the optimal settings from various combinations of correction patterns, such as filters, and brightness levels.

From the main unit



**TUNE button/
TEST button**

Activates tuning mode or test mode

Multi-LED display

Displays reading stability and bank numbers

1 POSITIONING

Use the laser pointer to position the code in the reading area



Push!

Positioning
Lights up the pointer

2 TUNING

Automatically determines the optimal reading conditions



Push!

Searches reading conditions
Reading test

3 BANK REGISTRATION

Registers reading conditions to the main unit



Push!

Selects bank number
Bank registration

Stable Operation with the Preventive Maintenance Function

Image Quality Check by Code Reader

The SR-750 Series is the first product in this class that is capable of judging the image quality of a scanned code. This enables you to identify image deterioration before an error occurs, thus ensuring stable operation.

Matching Level Judging Function

Enables safety factors of scanning to be compared

After a code is scanned successfully, it can be determined how easily the SR-750 Series has scanned it. This information can be used to check the safety factor of scanning or as a correlation index for the parameter bank during tuning.

Two codes, which both have a reading rate of 100%, can still be distinguished by a safety factor

Reading rate 100%
Matching level 75

Reading rate 100%
Matching level 43



The above shows that the left code has a higher safety factor than the right one.

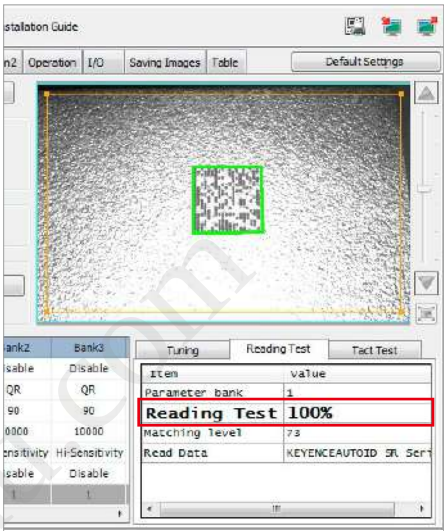


Image Verification Function

Verification based on image quality standards

Total grades can be judged based on output verification result data or preset thresholds and then output as signals. This function is designed for 2D codes (QR, DataMatrix, GS1 Composite, PDF417).

Output data **AD-ERMT-55841:B**

Total grade judgement

Judgement can also be performed for each character



Supported Standards	● ISO/IEC 15415	● ISO/IEC TR 29158 (AIM DPM-1-2006)
	● ISO/IEC 16022	● SAE AS9132 ● SEMI T10-0701

The multi-I/O function outputs image verification results

Various operating conditions can be assigned to two input terminals and three output terminals.

Sample outputs of image verification results

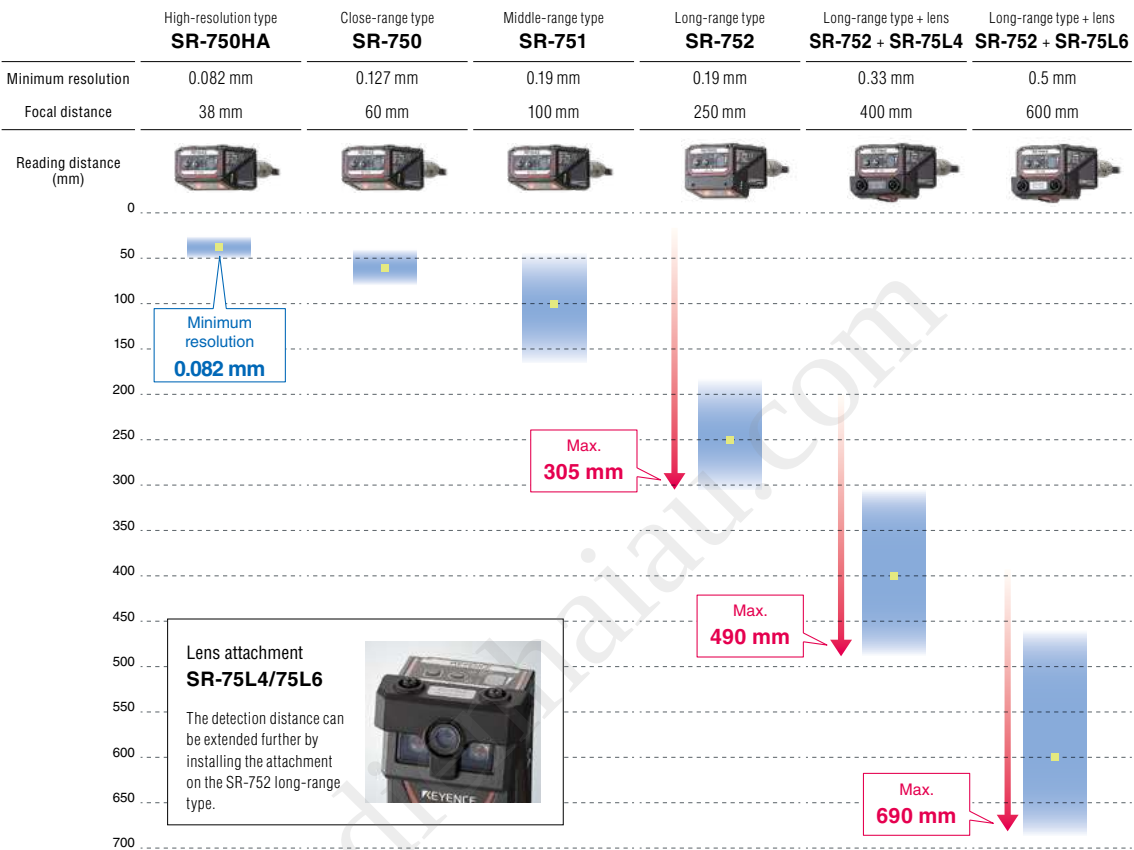
OUT1: Stable read output (STABLE)
OUT2: Unstable read output (UNSTABLE)
OUT3: Read error output (ERROR)

Any thresholds can be set for STABLE and UNSTABLE.

Compatible with a Wide Variety of Applications

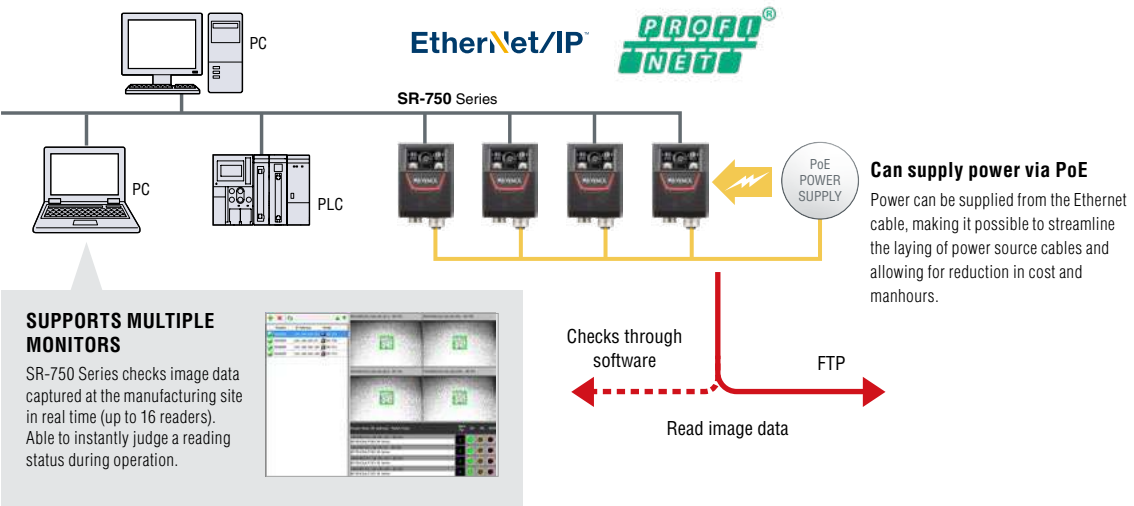
Four Models and Dedicated Lens Attachments to Support Various Reading Conditions

The four models of the SR-750 Series cover a wide range of applications from reading tiny codes printed on very small parts to reading codes from a long distance. In addition, KEYENCE's Parameter Bank function enables stable reading even if the size or shape of the parts changes.



Supports Ethernet (TCP/IP, FTP, EtherNet/IP™, PROFINET) + PoE

In addition to data, it can also transfer captured images in real time and quickly check reading status or read error images. Through the use of the standard Ethernet connection, it can be easily integrated into most multi-vendor network environments.



Master/Slave Function for Using Multiple Readers Effectively

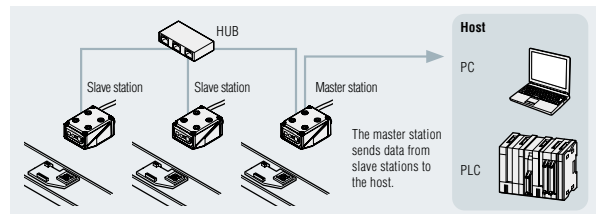
This function reduces the programming load on the host computer drastically when multiple SR-750 readers are used.

Two modes are available: multi-drop link mode and multi-head mode.

(The SR-1000 Series can also be used in combination.)

Multi-drop link mode

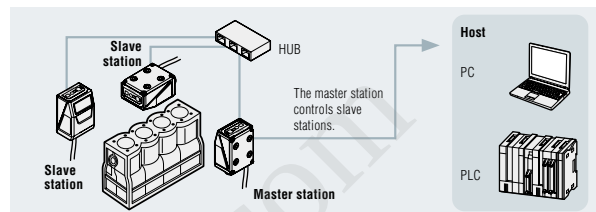
In this mode, data read by multiple SR-750 Series readers (up to 32) working for different purposes are sent collectively by a single master to the host. This eliminates the need for the host to control communication among multiple readers, simplifying programmes in the system.



Multi-head mode

This mode allows multiple SR-750 Series readers (up to 8) to be handled as a single device. As a result, the host does not need to consider control over multiple devices, leading to simpler programmes.

*Communication and control via EtherNet/IP™ and PROFINET are also possible.

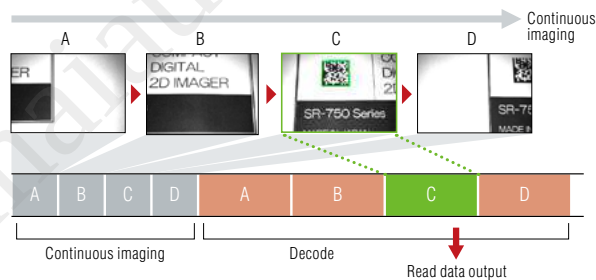


Powerful on Fast-Moving Workpieces

Burst read function: Acquires up to 8 consecutive images. The decoding process is performed after continuous imaging, allowing for higher speed code detection.

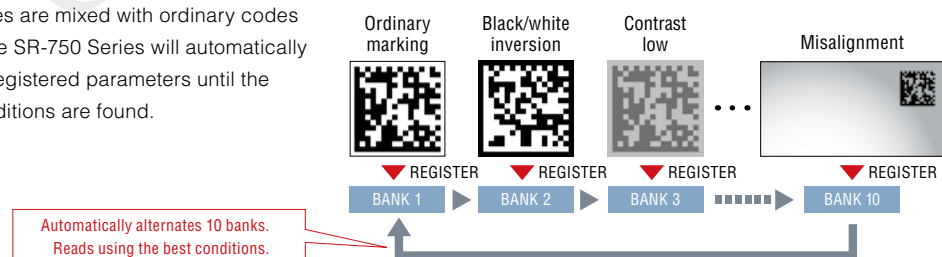
High-speed image capture performance:

The built-in ultra-high-intensity LED, bright enough even in a short exposure time, and high-speed digital signal processor (DSP) can capture moving objects effectively. (Reference: Max. 170 m/min with a KEYENCE test label)



Automatic Selection of Optimal Reading Conditions (Parameter Bank Function)

Even if difficult codes are mixed with ordinary codes on the same line, the SR-750 Series will automatically alternate between registered parameters until the proper reading conditions are found.



Data Edit Function

Output data and FTP image file names can be edited, leading to a reduction in data processing on the host.

PLC Link Function

Read data is written directly into the PLC data memory, reducing man-hours for programming.

Supported protocols	KEYENCE KV Series (KV STUDIO mode) Mitsubishi Electric MELSEC Series (MC protocol form 5) OMRON SYSMAC Series (SYSWAY* RS-232C only)
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PRODUCT LINEUP

MAIN UNIT



High-resolution type
SR-750HA



Close-range type
SR-750



Middle-range type
SR-751



Long-range type
SR-752

LENS ATTACHMENT



400 mm lens: **SR-75L4**
600 mm lens: **SR-75L6**

CABLE



Control cable
2 m: **OP-87224**
5 m: **OP-87225**
10 m: **OP-87226**



NCPA79 compliant control cable
(D-sub 9-pin)
2 m: **OP-87527**
5 m: **OP-87528**
10 m: **OP-87529**



NCPA79 compliant Ethernet cable
2 m: **OP-87359**
5 m: **OP-87360**
10 m: **OP-87361**

NCPA79 compliant control cable
2 m: **OP-87353**
5 m: **OP-87354**
10 m: **OP-87355**

SETTING SOFTWARE



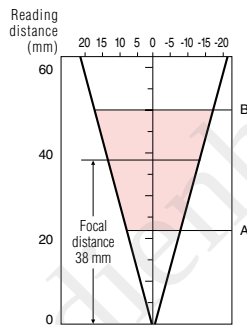
Software
SR-H7W

READING RANGE CHARACTERISTICS [TYPICAL]

Unit: mm

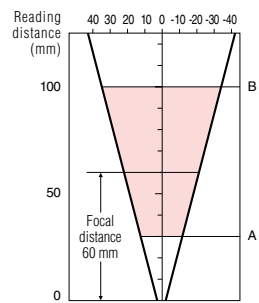
SR-750HA: High-resolution type

Code type	Cell size	A	B
DataMatrix QR	0.08	31	39
	0.127	27	42
	0.25	22	50



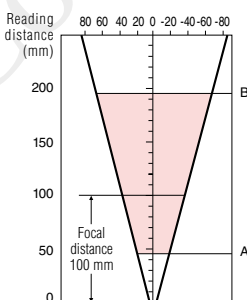
SR-750: Close-range type

Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.127	50	70
	0.25	40	80
Code39	0.127	46	74
	0.33	30	100
Code128	0.25	34	90



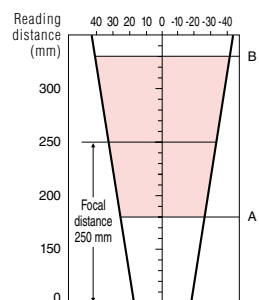
SR-751: Middle-range type

Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.25	65	130
	0.5	45	165
	0.127	75	110
Code39	0.5	45	195
Code128	0.25	50	150



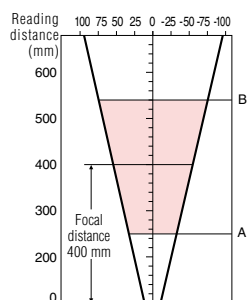
SR-752: Long-range type

Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.19	220	260
	0.25	210	270
	0.33	200	280
	0.5	180	305
Code39	0.17	220	260
	0.5	180	330
Code128	0.25	195	275



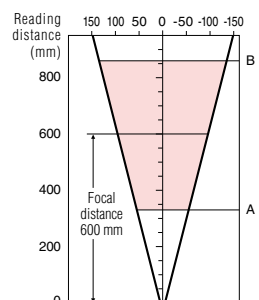
SR-752 + SR-75L4 (400 mm lens)

Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.33	350	450
	0.5	300	490
Code39	0.22	370	440
	0.5	250	540
Code128	0.25	350	450



SR-752 + SR-75L6 (600 mm lens)

Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.5	460	690
	1	330	860
Code39	0.33	500	690
	0.5	400	760
Code128	0.33	500	690

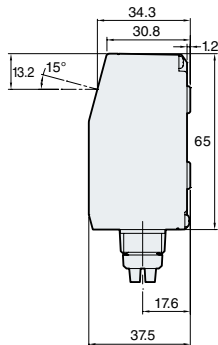


DIMENSIONS

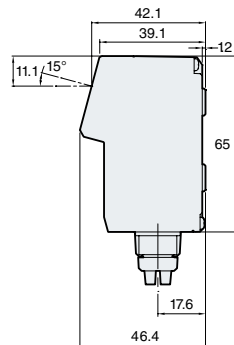
Unit: mm

Main unit

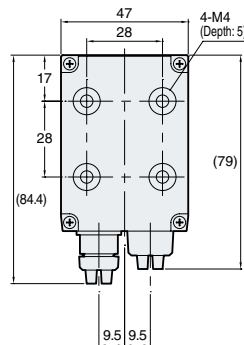
SR-750/751/750HA



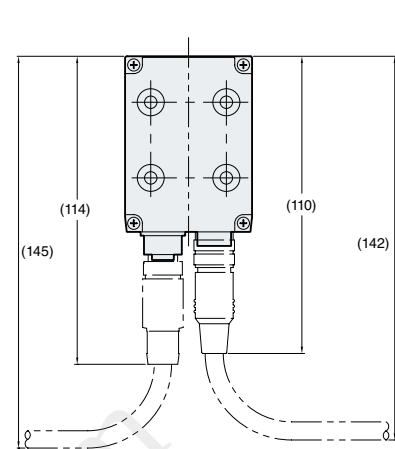
SR-752



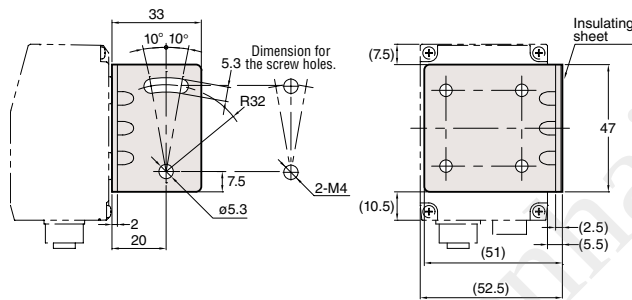
With port cover



With cable

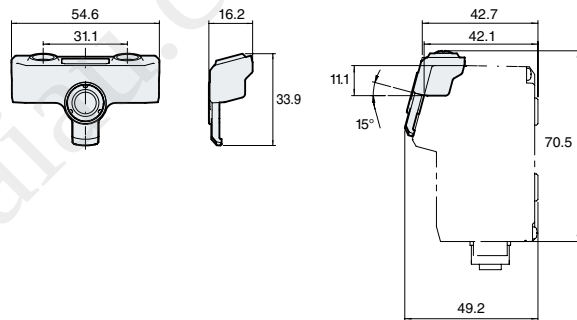


Mounting bracket

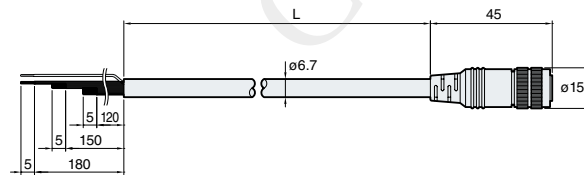


Long-focal distance lens

SR-75L4/75L6

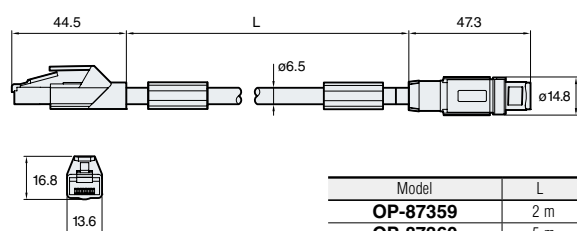


Control cable



Model	L
OP-87224/87353	2 m
OP-87225/87354	5 m
OP-87226/87355	10 m

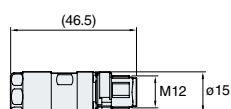
NFPA79 compliant Ethernet cable



Model	L
OP-87359	2 m
OP-87360	5 m
OP-87361	10 m

Ethernet plug assembly

OP-87362



SPECIFICATIONS (MAIN UNIT)

Model			SR-750HA	SR-750	SR-751	SR-752	SR-752 + SR-75L4	SR-752 + SR-75L6
Type			High-resolution type	Close-range type	Middle-range type	Long-range type	With 400 mm lens	With 600 mm lens
Receiver	Sensor	CMOS Image Sensor						
	Number of pixels	752 × 480 pixels						
Lighting	Light source	Red LED						
Laser pointer	Light source	Visible semiconductor laser, Wavelength 660 nm						
	Output	60 μW						
	Pulse duration	200 μs						
	Laser class	Class 1 Laser Product (IEC60825-1, FDA (CDRH) Part 1040.10 ^{*2})						
Reading specifications	Supported symbol	2D	QR, MicroQR, DataMatrix (ECC200), GS1 DataMatrix, PDF417, MicroPDF417, GS1 Composite (CC-A/CC-B/CC-C)					
		Barcode	*1	CODE39, ITF, 2of5 (Industrial 2of5), COOP 2of5, NW-7 (Codabar), CODE128, GS1-128, GS1 DataBar, CODE93, JAN/EAN/UPC, Trioptic CODE39, CODE39 Full ASCII				
	Minimum resolution	2D	0.082 mm	0.127 mm	0.19 mm	0.19 mm	0.33 mm	0.5 mm
		Barcode	—	0.127 mm	0.127 mm	0.17 mm	0.22 mm	0.33 mm
	Reading distance (typical examples)	DataMatrix QR	22 to 50 mm (Cell size = 0.25 mm)	40 to 80 mm (Cell size = 0.25 mm)	45 to 165 mm (Cell size = 0.5 mm)	180 to 305 mm (Cell size = 0.5 mm)	300 to 490 mm (Cell size = 0.5 mm)	460 to 690 mm (Cell size = 0.5 mm)
		Barcode	—	30 to 100 mm (Narrow bar width = 0.33 mm)	45 to 195 mm (Narrow bar width = 0.5 mm)	180 to 330 mm (Narrow bar width = 0.5 mm)	250 to 540 mm (Narrow bar width = 0.5 mm)	400 to 760 mm (Narrow bar width = 0.5 mm)
	Focal distance		38 mm	60 mm	100 mm	250 mm	400 mm	600 mm
	Field of view (at focal distance)		26 mm × 17 mm	42 mm × 27 mm	70 mm × 45 mm	65 mm × 41 mm	108 mm × 69 mm	165 mm × 106 mm
	I/O specifications	Control input	Number of inputs	2				
Input type			Bidirectional voltage input					
Maximum rating			26.4 VDC					
Minimum ON voltage			15 VDC					
Maximum OFF current			0.2 mA or less					
Control output		Number of outputs	3					
		Output type	Photo MOS relay output					
		Maximum rating	30 VDC					
		Maximum load current	1 output: 50 mA or less, Total of 3 outputs: 100 mA or less					
		Leakage current when OFF	0.1 mA or less					
Ethernet		Residual voltage when ON	1 V or less					
		Communication standard	10BASE-T/100BASE-TX					
		Supported protocol	TCP/IP, FTP, SNTP, BOOTP, MC protocol, KV STUDIO, EtherNet/IP™, PROFINET					
Serial communication		Communication standard	RS-232C compliant					
		Transmission speed	9600, 19200, 38400, 57600, 115200 bps					
	Supported protocol	No-protocol, MC protocol, SYSWAY, KV STUDIO						
Environmental resistance	Enclosure rating	IP65						
	Ambient temperature	0 to 45°C						
	Ambient storage temperature	-10 to +50°C						
	Relative humidity	35 to 95% RH (No condensation)						
	Storage ambient humidity	35 to 95% RH (No condensation)						
	Ambient luminance	Sunlight: 10000 lux, Incandescent lamp: 6000 lux, Fluorescent lamp: 2000 lux						
	Operating environment	No dust or corrosive gas present						
	Vibration	10 to 55 Hz Double amplitude 1.5 mm/55 to 500 Hz: Acceleration 5G, 3 hours each in X, Y and Z directions						
Rating	Power voltage ^{*3}	Control port: 24 VDC ±10% or Ethernet port: PoE TypeA/B 36 to 57 V (Cannot supply at the same time)						
	Current consumption	Control port: 220 mA (When 24 VDC power supply is used) Ethernet port: PoE Power Class 2 ^{*4}						
Weight		Approx. 160 g			Approx. 175 g		Approx. 185 g	

*1 Barcodes fitted into the visual field range in size can be read.

*2 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice.

*3 To comply with CSA No.61010-1/UL61010-1/IEC61010-1, use the following power supply.

- one that provides Class 2 output as defined in the CEC and NEC, or
- one that has been evaluated as a Limited Power Source as defined in CAN/CSA-C22.2 No.60950-1/UL60950-1/IEC60950-1.

*4 Peak operating current for PoE Power Class 2: 210 mA maximum.

* PROFINET is a trademark or registered trademark of PROFIBUS International.

* EtherNet/IP™ is a trademark or registered trademark of ODVA.

SETUP SOFTWARE (AUTOID NETWORK NAVIGATOR)

Model	SR-H7W
Supported OS	Windows 10 Professional or later, 32 bit/64 bit Windows 8 Professional or later, 32 bit/64 bit (Except for Windows RT) Windows 7 Professional or later, 32 bit/64 bit
Running environment	Processor 2.0 GHz or higher, Memory 8 GB or more, Required free space on hard disk 1 GB or more (space is also required for saving SR Management Tool data) DVD-ROM drive required for installation, Screen resolution 1440 × 1080 or higher

• .NET Framework 4.6.1 or higher is installed.

• Microsoft Visual C++ redistributable packages (x86) for Visual Studio 2015, 2017, and 2019 are installed.

• Windows, Visual Studio, Microsoft Edge, Internet Explorer, and Excel are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

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BRAZIL +55-11-3045-4011	FRANCE +33 1 56 37 78 00	INDIA +91-44-4963-0900	KOREA +82-31-789-4300	PHILIPPINES +63-(0)2-8981-5000	SLOVAKIA +421 (0)2 5939 6461	THAILAND +66-2-078-1090	
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