KEYENCE

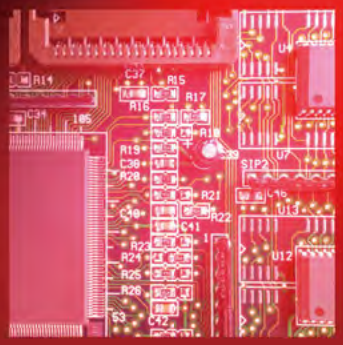
Code Reader General Catalog

Barcode Readers
2D Code Readers
Handheld Readers
Handheld Mobile Computers

BARCODE READING SOLUTIONS

Best for performance, best for ease of use.

Introducing KEYENCE code readers.



Code readers are used in a wide range of industries.

Performance requirements are ever-changing. For example, in the automotive industry, the ability to read a barcode printed on metalwork from a long range is necessary. In the electrical and electronic device industry, multiple codes on a PCB must be read all at once. In the food and pharmaceutical industries, it is necessary to easily read codes from goods in motion on a conveyor belt. In the logistics industry, the ability to reliably read boxes of differing heights and widths is essential.

KEYENCE has the capability to meet all of these demands.

BARCODE READING SOLUTIONS

Fixed-Type Readers / Camera Type

1D/2D Code Reader
SR-2000 Series

Autofocus
SR-1000 Series

EtherNet/IP™+PoE
SR-750 Series

Ultra Compact
SR-700 Series

Fixed-Type Readers / Laser · CCD Type

Digital, Laser Type
BL-1300 Series

Long-Range, Laser Type
BL-700 Series

Ultra Compact, CCD Type
BL-180 Series

Handheld-Type Readers

DPM Code Model
SR-G100 Series

1D and 2D Code Model
HR-100 Series

Barcode Model
BL-N70 Series

Peripheral Equipment

Dedicated Power Supply/Communication Units
N-R2/R4/UB/L20

AutoID Data Controller
DV-90 Series

RS-485 Master Unit
N-410K Series

Handheld Mobile Computers

Handheld Mobile Computers
BT-W100/W80/W70 Series

A company that can achieve high-level production site visibility will gain a strong competitive edge.

Seamlessly acquire data

Receiving/ transporting materials

Processing/ Assembly

Inspections

‘Industry 4.0’, ‘IoT’, ‘Traceability’.

A superior code reader is essential to achieving these.

Companies that have realized this are starting to introduce them.

At KEYENCE, we offer the most suitable code readers for sites and applications, whether automated or semi-automated, to build stable data acquisition systems.

Transporting/ Shipping

Logistics

Sales

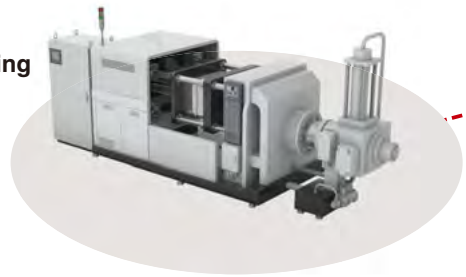
If you've ever thought

“How can I....”, start by asking KEYENCE.

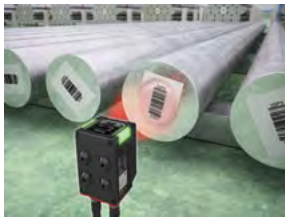
We offer products tailored to every manufacturing site and process.

Automotive and Automotive Parts Industry

Casting



Processing

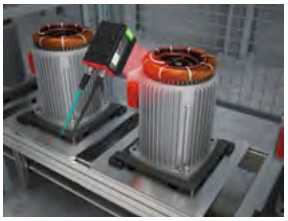


Lot recording of metal billets

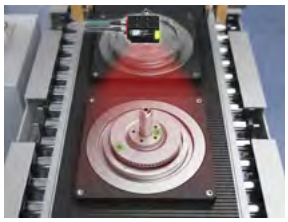
Error-proofing patterns for sand mold casting

Reading codes on the cast surface of a crankshaft

Traceability during the adjustment process



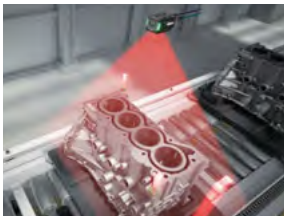
Data matrix marking verification for EV motors



Reading codes in variable positions on discs

Reading engine parts during conveyance on a gantry loader

Managing injector serial numbers

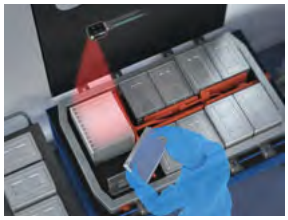


Linking carrier pallet and engine serial number data

Assembly

Reading instructions during hanger conveyance

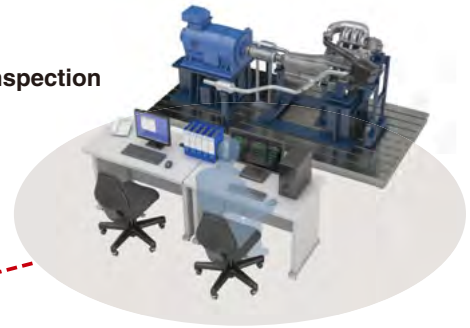
Reading during robotic arm transfer



Batch reading while laminating EV battery packs

Reading codes without interfering with work

Inspection



Reading multiple codes on the back of a headlight

Reading work instruction numbers

Error-proofing designation of left and right door parts

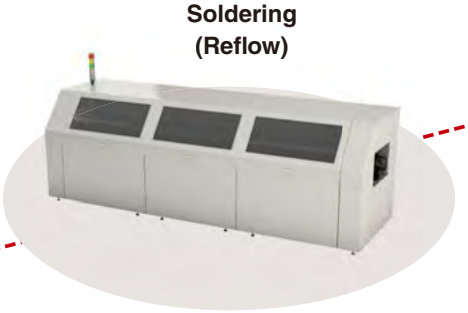
Recording the insertion of re-inspected products

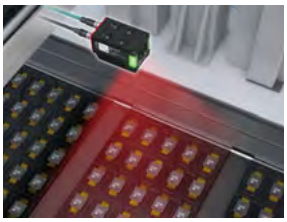
Checking airbag models

Electrical and Electronic Device Industry

Parts mounting

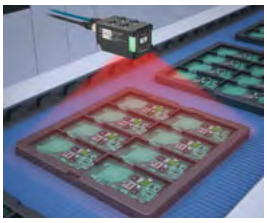
Soldering (Reflow)





Batch reading trays of IC parts

Reading multiple codes from chip reels

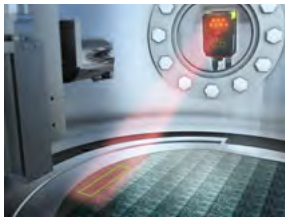


Reading multiple PCBs at once

Reading codes built into mounting arms

Reading codes on LED chip white PCBs

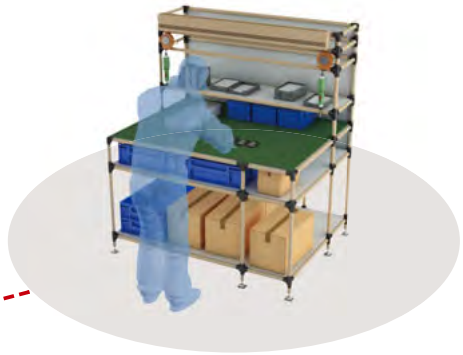
Reading codes from both sides of multilayer PCBs



Reading codes through glass windows

Reading codes on lead frames

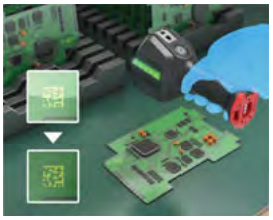
Equipment assembly/Inspection/Shipping



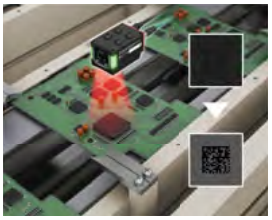
PCB inspection

Reading difficult-to-read code on wireless charging coils

Reading tiny codes on flexible printed circuits (FPCs)

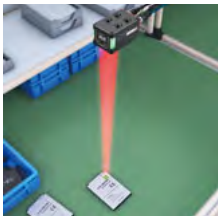


Reading codes from PCBs after fluxing

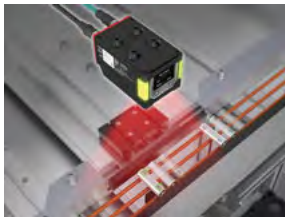


Reading low-contrast codes on black resin

Reading low-contrast codes



Reading even tiny codes from long range



Reading codes from lithium-ion batteries during conveyance

Reading a held-out inspection instruction sheet

Reading codes from 3 stacked boxes

Checking enclosures of individually-packaged units

Food, Pharmaceutical and Cosmetics Industry

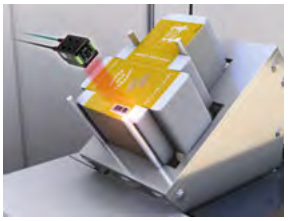
Processing/Packing Raw Materials

Error-proofing product types in filling machines

High-speed code reading

Reading products in laminated packaging

Packaging



Preventing wrong products being packaged by cartoner

Checking printing during the packaging process

Indicating product types for the weight checker

Transporting/Shipping

Sorting during conveyance

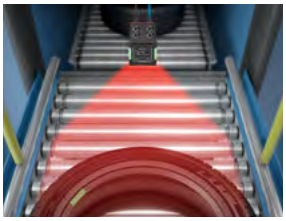
Reading worn barcodes on cardboard

Reading with minimal operation by just holding out a code

Transport and Logistics Industry

Reading labels in variable positions on a gantry

Reading codes through shrink wrapping



Reading tire codes of differing size and thickness

LCD/Semiconductor/HDD Industries

Reading codes on carrier cassettes

Reading FOUP codes

Reading HDD codes

Biochemical Analysis/Medical Device Industries

Reading test tube codes within biochemical analysis equipment

Reading carrier pallets during conveyance

Traceability in the surgical instrument sterilization process

Coordinate everything from code selection to data management.
This is KEYENCE Barcode Consulting.

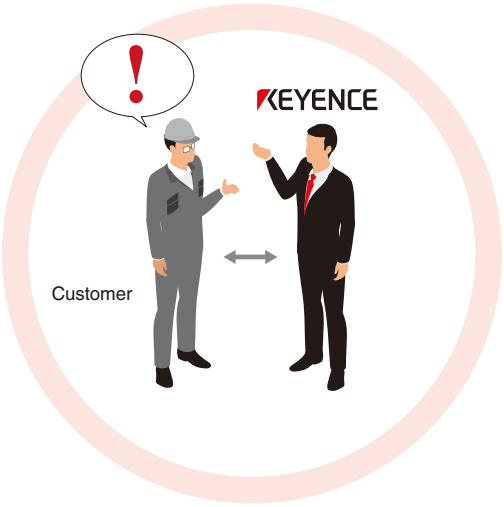
Barcodes and 2D codes are deeply embedded in everyday life. You might have an understanding of how barcodes work, but it can still be a concern for the on-site personnel when it comes to actually deploying them. In times like these, ask KEYENCE.
We offer not just useful products, but also the knowledge and expertise for you to run your business with stability and peace of mind.

KEYENCE can provide both printing and reading as a one-stop service.

Both printing and reading conditions must be optimal to achieve stable operation.
KEYENCE has the combined know-how to fully support you every step of the way.

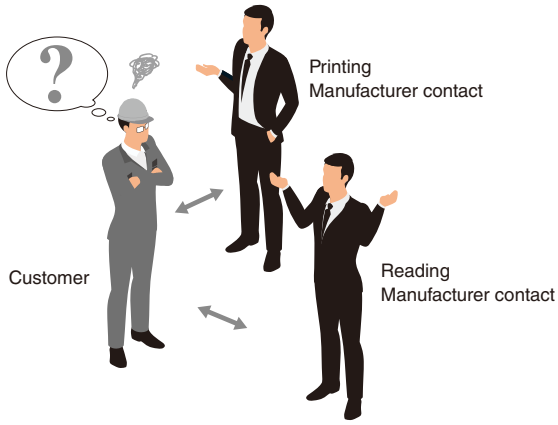
● With KEYENCE

With KEYENCE, simply speak directly with us to consult on issues or iron out problems.



● Without a one-stop service

You will need to consult with two different manufacturers on all kinds of matters. This not only generates a lot of work, but also often impacts on the solution.



All about KEYENCE

KEYENCE is one of the few manufacturers in the world to be involved with the development and sales of both printing and reading. We have the expertise to be one step ahead in optimizing operations as well.

Reading

Printing

SR Series Code Reader

Reading stability values are quantified using the Matching Level Judgment Function. The optimal conditions can be determined not just from appearance, but also from the numerical data.

MD Series Laser Marker

Uses the sample marking function to batch print with multiple marking conditions according to the materials. Simply and quickly completes condition setting without the need for a knowledgeable and experienced operator.

Providing Solutions for Customers at Every Stage

Case 1 | Recommending a Code

First, tell us about the makeup of your operations, the applicable products and manufacturing processes.
We make easy-to-understand recommendations about code types, data points, code size, etc. based on how the code will be used. The possible reading distance and possible field of view range will also vary depending on the marking conditions.

E.g. Even with the same number of data points, it is possible to change the shape depending on the marking space.

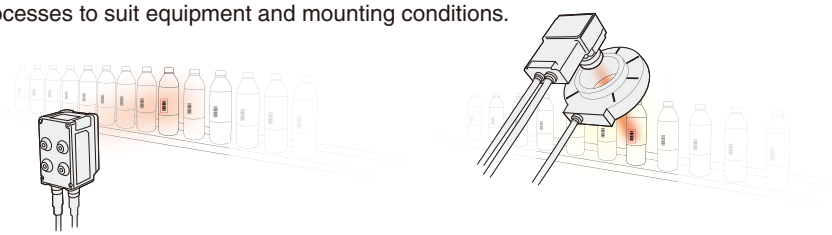
Case 2 | Recommending Optimal Marking Conditions

Recommendations for marking conditions are made according to the materials and reading environment.
Of course, productivity should be considered and marking takt is also an important point.

Pattern A | Pattern B | Pattern C | Pattern D

Case 3 | Recommending Productivity Improvements

We also make recommendations for improving productivity, in addition to recommending operational processes to suit equipment and mounting conditions.



For example, taking maintainability into account, we make recommendations for improvements in processing time, such as recommending no external lighting, batch-reading of multiple codes, etc.

Case 4 | Recommending Predictive Maintenance

We also make recommendations on predictive maintenance measures for operational stability and peace of mind.
Even with the same 100% reading rate, the reading stability can be checked with the matching level.
When it falls short of certain criteria, a signal is output before reading is no longer possible.

Reading rate	Matching level
100%	43

Reading rate	Matching level
100%	75

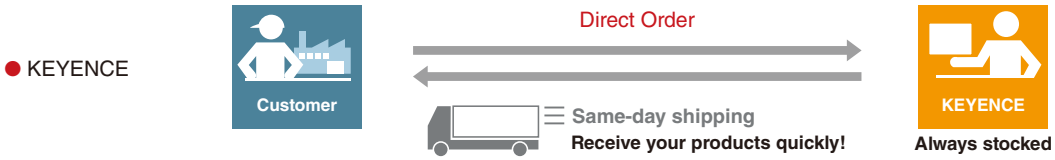
Sales Engineers assigned to your company will provide dedicated support.

KEYENCE offers a complete support system, both pre- and post-installation.

Nowadays, events that occur – such as those on the production line – require rapid support on a global scale.
We are dedicated to providing flexible and beneficial support to meet such changes.

1 Same-Day Shipping on All Products

Orders placed in the morning will be shipped within the same day. As we offer nationwide shipping with all orders, regardless of volume, urgent and unforeseen specification changes can be handled with confidence.



Not only does it take time, but also your request may not be communicated properly.

2 Free Trial Unit Service

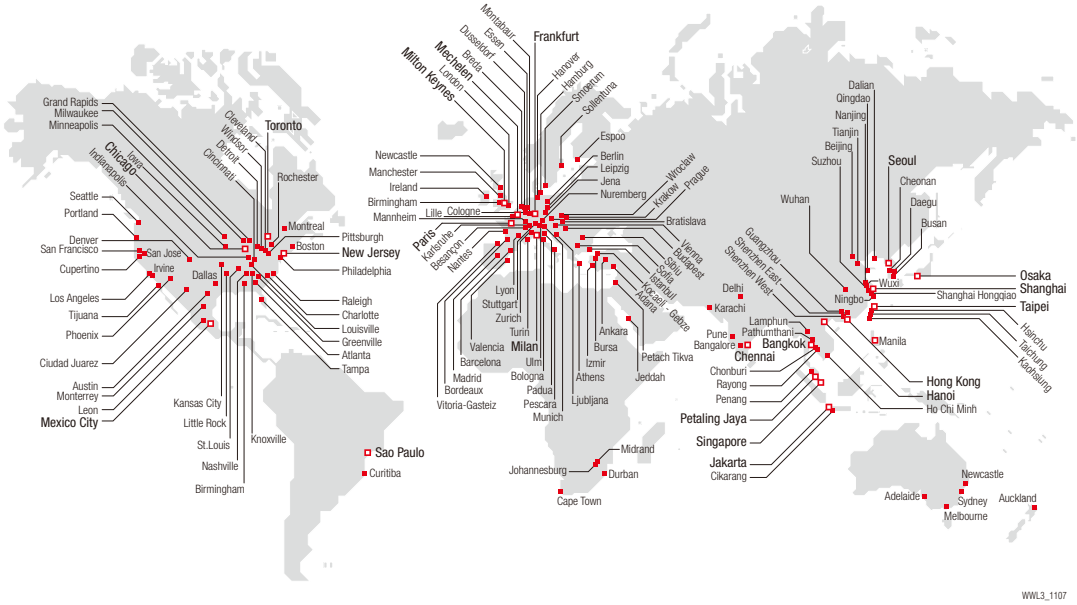
The free trial unit service allows you to take the time to evaluate the performance, ease of use, and reliability of KEYENCE products. If you're thinking “I want to see the actual product” or “I want to see the real results from installing it on the production line”, feel free to make use of our service.

3 Same-Day Shipping on Replacements

In the unlikely event that equipment failure occurs or issues arise, you can apply for our temporary replacement unit lending service, with fast delivery to suit your needs.

4 KEYENCE has 200 Locations in 45 Countries

KEYENCE shares information across borders to meet our customers' requirements.
We provide a worldwide direct sales service.



5 We Offer a Dedicated User Support Site

www.barcodereader.com

Catalog

Technical documents

CAD

Manual

We provide
- Easy setup guides
- Manuals
- Sample programs
- Software and drivers

1D/2D Code Reader

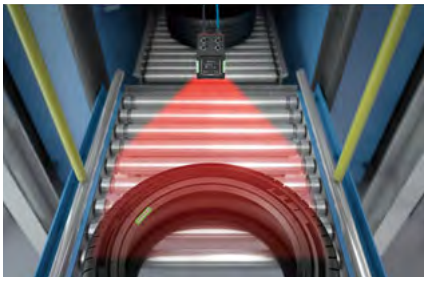
SR-2000 Series

Designed to read all types of codes in all types of conditions

2× greater than conventional models

Ultra-wide field of view

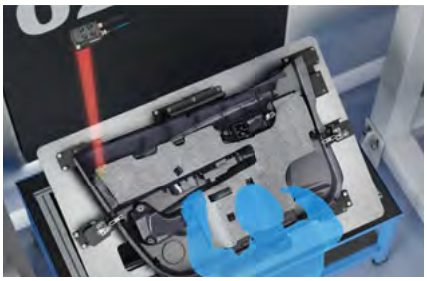
- No need to check code positions
- Read multiple codes all at once



2× greater than conventional models

Greater depth of field at longer ranges

- No code position controllers or tooling changes required
- Read minute codes at long distances



2× greater than conventional models

High-speed code reading

- Read codes without having to stop the target
- Read codes on rotating targets without trouble

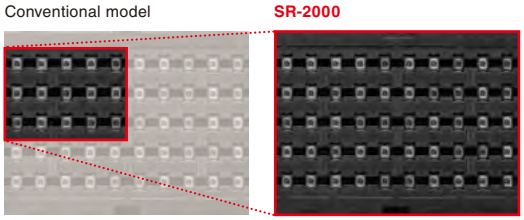
Fully automatic calibration

- Designed for ease of use
- No expert imaging knowledge required, and no need to select additional external equipment (lenses, lighting, etc.)

Ultra-wide field of view

Best-in-class 3.1 megapixel CMOS

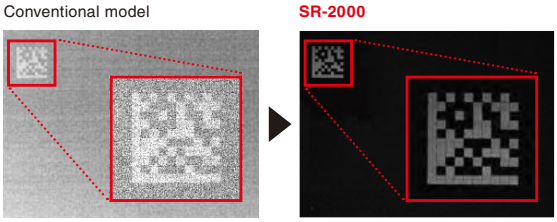
Ultra-wide field of view through high-resolution imaging



Read all of the electronic components on a single tray all at once.

Low-noise, high-sensitivity CMOS sensor

Obtain bright images with low noise over an even wider field of view



Achieve stable reading while keeping noise to a minimum.

Greater depth of field at longer ranges

Newly designed lens with greater depth of field

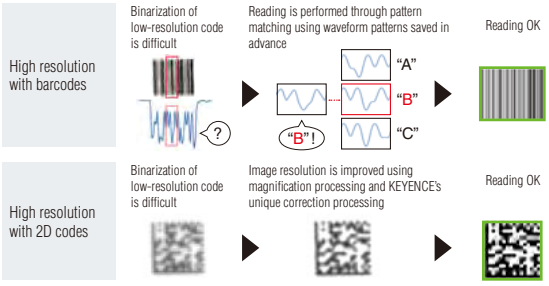
Newly-developed lens has a deeper focus range designed for code readers

Image capture example with a 700 mm 27.56" focus position

Reading distance	500 mm 19.69" (-200 mm -7.87")	700 mm 27.56" (focus position)	900 mm 35.43" (+200 mm +7.87")
Conventional model	ERR Cell size =0.50mm	OK Cell size =0.50mm	ERR Cell size =0.50mm
SR-2000	OK Cell size =0.50mm	OK Cell size =0.50mm	OK Cell size =0.50mm

High-resolution algorithm

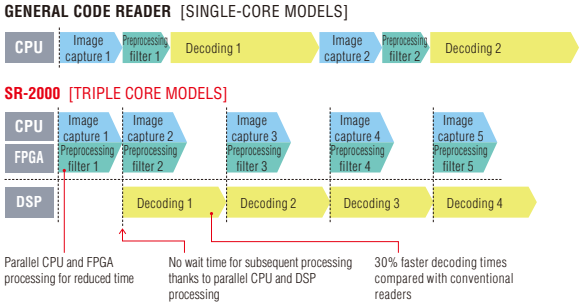
Can even read low-resolution codes from long range



Read objects on the move

Triple core high-speed processing

Higher speeds through parallel CPU, DSP, and FPGA processing



Faster image transfers

Twice as fast compared with conventional models

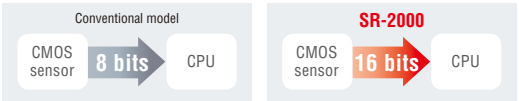


Image transfer time

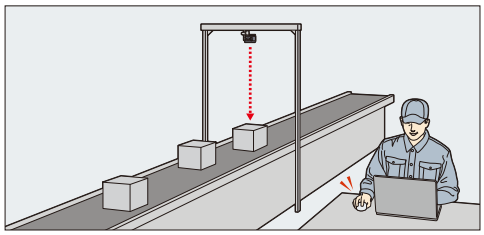
Number of pixels	1280 × 1024 pixels 1.3 million pixels	2048 × 1536 pixels 3.1 million pixels
Conventional model	20 ms	–
SR-2000	14 ms	20 ms

Fully Automatic Tuning

Optimal reading conditions can be set with the touch of a button.
Auto-focus + Glare removal + sensitivity (brightness) adjustment + image processing filter

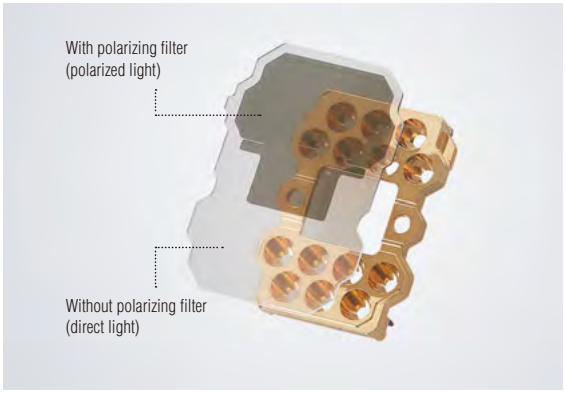
Auto-focus function

No adjustment of focus or aperture is required, and no selection of C-mount lenses is necessary

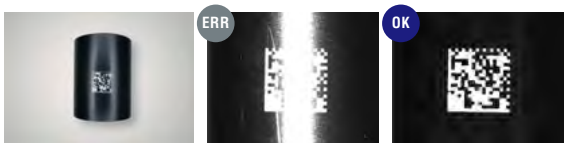


Automatic polarization control function

Polarizing filter for glare removal

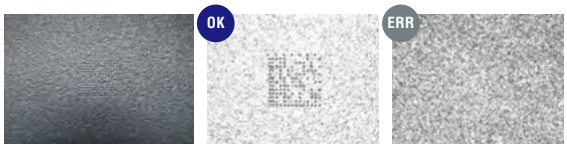


[Black resin] Cylinder



Without polarizing filter | With polarizing filter

[Metal] DPM on cast surface

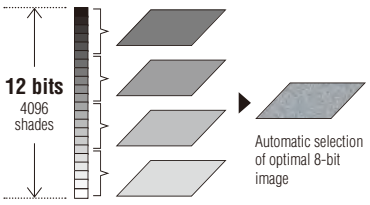


Without polarizing filter | With polarizing filter

Automatic tuning

Achieves optimal settings from approximately 1.5 million parameter variations

Dynamic range correction



Reading Codes of Varying Heights (HDR)

- The widened range of captured light prevents blown out highlights and shadows.

Normal | HDR

Reading low contrast codes (contrast zoom)

- Amplifies the contrast in places where there is little difference between light and dark.

Dark codes

Distorted codes

Thin/thick printing

Capture brightness correction

Automatically configures various combinations of exposure time, dynamic range, and gain by utilizing 186 steps of brightness in order to achieve optimal brightness.

Black resin | PCB

Geometric correction

Corrects distorted codes, such as those on cylinders and other round surfaces or when the reader is mounted at an angle.

Parallel distortion | Trapezoidal distortion

Filter correction

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

Bleeding | Thick printing

SYSTEM CONFIGURATION DIAGRAM

SR-2000 Series

Full-range model **SR-2000**

Ultra-wide field of view model **SR-2000W**

Option

Mounting bracket **OP-87866**

Adjustable bracket **OP-88002**

Lighting attachment **SR-20AL**

Polarizing filter (for full lighting) **OP-88256**

High-resolution lens attachment **SR-20AH**

Polarizing filter (spare)* **OP-88176**

* The OP-88176 is offered as a spare for damaged/lost items included with the SR-2000 Series.

Cable

	Control cable			NFPA79-compliant Ethernet cable	USB cable (USB-A to Mini-B)
	–	NFPA79-compliant control cable	NFPA79-compliant control cable with D-sub 9-pin connector		
2 m 6.6'	OP-87224	OP-87353	OP-87527	OP-87230	OP-51580
5 m 16.4'	OP-87225	OP-87354	OP-87528	OP-87231	OP-86941
10 m 32.8'	OP-87226	OP-87355	OP-87529	OP-87232	–

24 VDC

RS-232C
Serial communication
PLC link

I/O terminal

Ethernet
TCP/IP, FTP, PLC link
EtherNet/IP™
PROFINET

USB
For setup

Power supply

24 VDC power supply

Host

PC/Panel PC/ Board PC

PLC

HMI [Touch panel]

PC

PC for setup

AutoID Network Navigator
SR-H6W

- AutoID Network Navigator
- AutoID Keyboard Wedge
- AutoID Terminal
- MultiMonitor
- FileView
- Various driver files
- EDS/GSDML files
- Sample Windows programs

Functions for Increased Useability

Several reading and data processing functions make setup even easier.

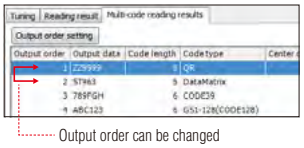
Data edit function

As the output format of the read data can be customized, there is no need to use an editing program on the host side (PC, PLC, etc.)

Always-lit function

Achieves increased productivity through minimal operation, as codes can be read by simply holding them out

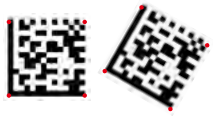
▮ Multiple code data output sequence control



Output order can be changed

▮ Extraction of specific data

▮ Output signal control

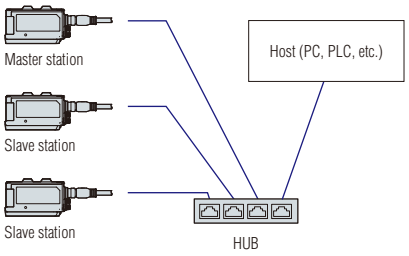


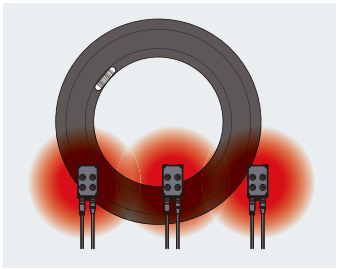
OK/NG output based on vortex coordinates of code

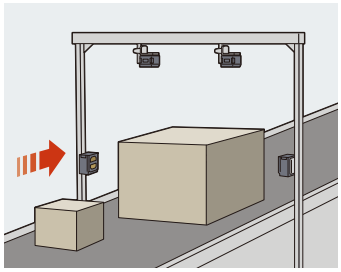
OK NG

Advanced Multi-Head Function

Expand the field of view or read from multiple surfaces with several readers as if they were a single unit



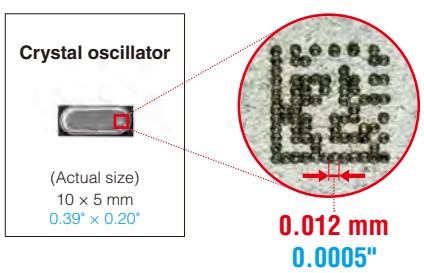


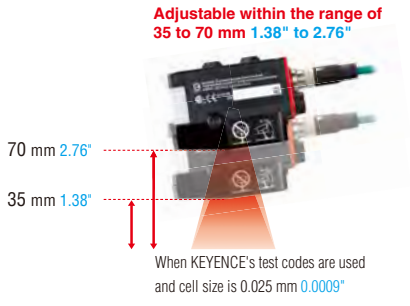


High Resolution Lens Attachment SR-20AH

Able to read tiny codes with a cell size as small as 0.012 mm 0.0004"

SR-20AH



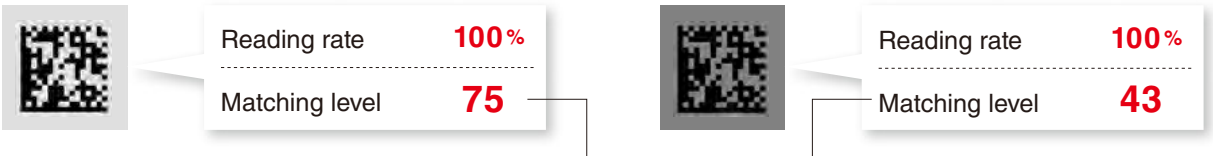


When KEYENCE's test codes are used and cell size is 0.025 mm 0.0009"

Increase stable reading by reducing troubles from reading errors.

Matching Level Judgment Function

Reading stability values can be checked via numerical values. Predictive maintenance can be applied to reading errors arising from print quality, etc.



Use the matching level to distinguish between codes with 100% reading rates

Code Verification Function

Verifies marking quality standards in accordance with set standards

▮ Barcode

▮ 2D codes

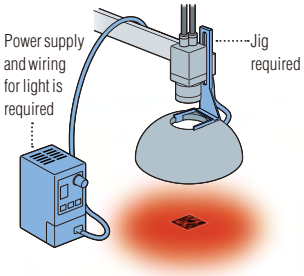
[Supported standards]
● ISO/IEC 15416 ● ISO/IEC 15415 ● ISO/IEC TR 29158 (AIM-DPM-1-2006) ● ISO/IEC 16022 ● SAE AS9132 ● SEMI T10-0701

Reflector Attachment

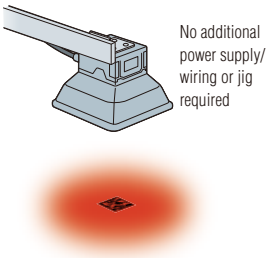
No power source required, and can be installed at the touch of a button.
Provides more stable lighting.

Lighting attachment **SR-20AL**

With general external lighting

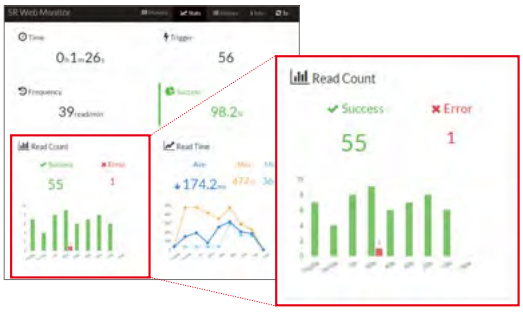


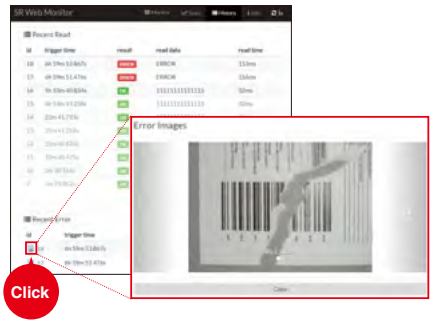
With the SR-20AL



SR WEB Monitor

Reading statistics can be monitored from a web browser.
Users can also check error image history.





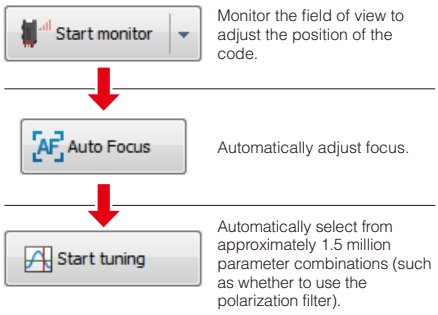
Supported browsers Google Chrome 57 or later, Internet Explorer 11 or later, Microsoft Edge 14 or later, Safari 10 or later

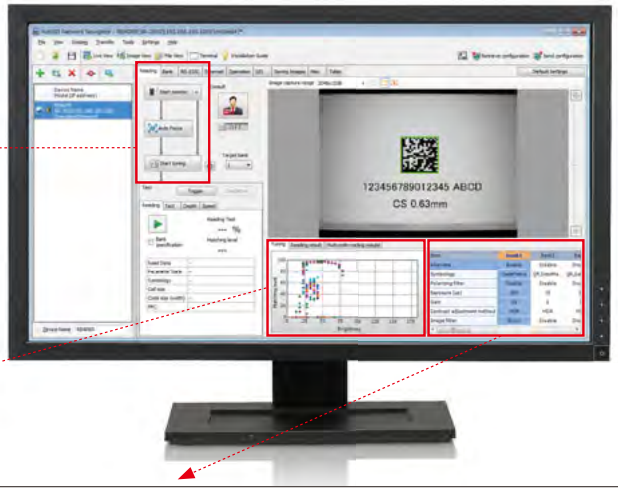
Simple setup software

NEW
SR-H6W

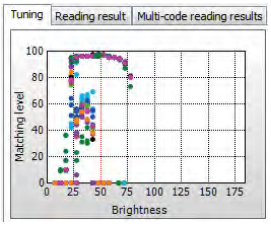
High-performance imaging is possible, regardless of the user

The software not only helps reader setup but also improves functionality to reduce effort required for preliminary tests.





Tuning monitor

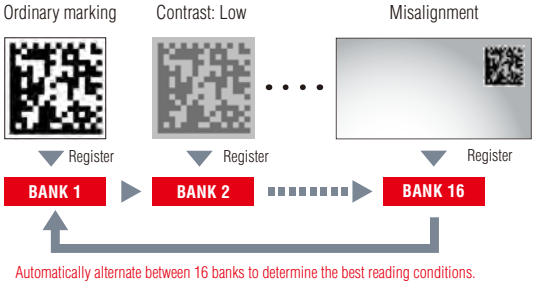


The optimum settings are automatically determined from multiple combinations including image processing filters and brightness levels.

Parameter bank function

AUTOMATIC SELECTION OF OPTIMAL READING CONDITIONS

The reader will automatically alternate between registered parameter banks until the proper reading conditions are determined.



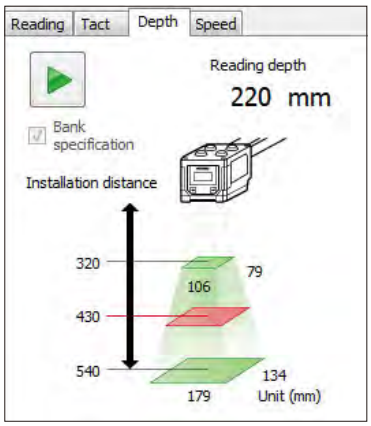
Automatically alternate between 16 banks to determine the best reading conditions.

Five test modes

Verify reading stability before line or equipment installation

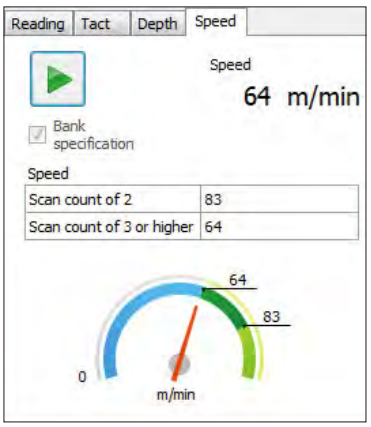
Depth of field measurement test

Determination of installation distance, read depth, and field of view size



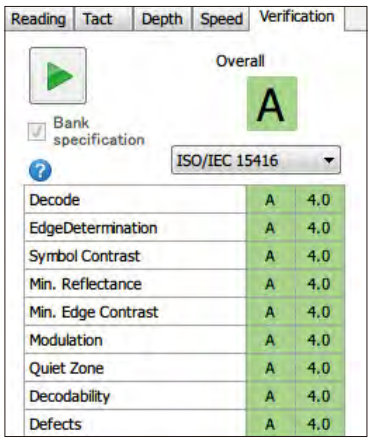
NEW
Speed measurement test

Determination of estimated trackable line speed and resulting margin



NEW
Code verification test

Determination of code readability with results displayed in a list



Reading rate measurement test

Determination of read success rate*1

Tact measurement test

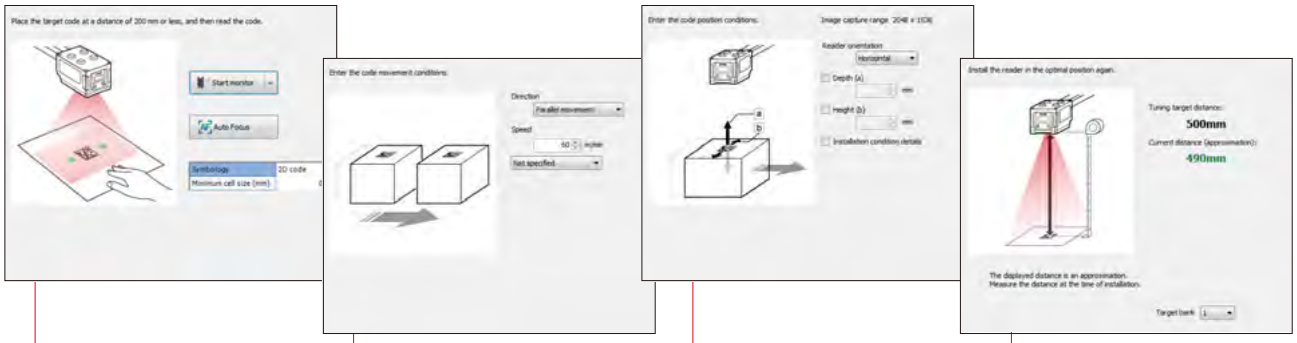
Determination of read time*2 (tact)

*1: The ratio of successful reads per 10 scans.
*2: Time from when the timing trigger is turned on until reading is complete.

NEW

Tuning Consultant

Enter multiple criteria to discover the optimum reading and mounting conditions



STEP 1
Code information
The code is read, allowing code information to be obtained automatically.

STEP 2
Moving conditions
Conditions of how the code will be moving are entered.

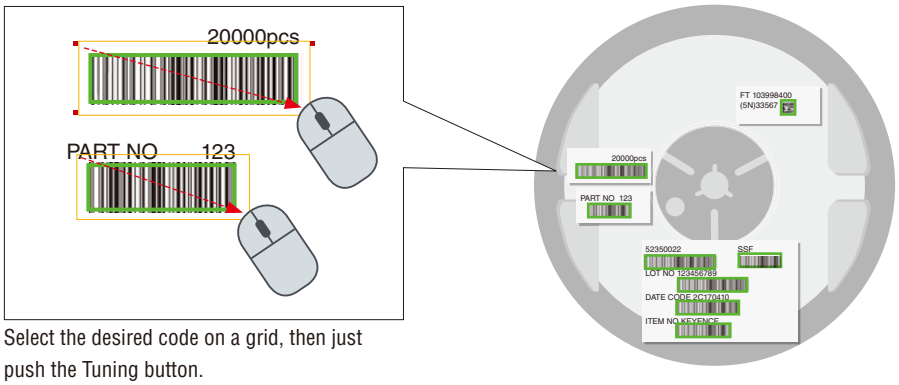
STEP 3
Code position conditions
The variations in code position are entered.

STEP 4
Tuning
Tuning is completed once the target is placed at the displayed tuning distance.

NEW

Advanced Tuning for Reading Multiple Codes

Intuitive operation that involves simply creating a frame around the codes and pressing a button



Select the desired code on a grid, then just push the Tuning button.

ETHERNET COMMUNICATION WIZARD

Setup can be completed in just four steps with a question-answer form including visual explanations.

STEP 1 **TRIGGER SETTINGS** (I/O input, command input)

STEP 2 **DESTINATION FOR READ DATA** (Field network, PC)

STEP 3 **COMMUNICATION PROTOCOL** (EtherNet/IP™, PROFINET, TCP, UDP, or PLC link)

STEP 4 **ADVANCED SETTINGS** (Detailed setting for each protocol)

Autofocus 1D and 2D Code Reader

SR-1000 Series

Revolutionizing how difficult codes are read

Easy Configuration with the Press of a Button

Simple configuration that anyone can do with a single press of a button

PRESS THE BUTTON

1 AUTOFOCUS

The reader can be mounted at any distance and maintain a clear image.(1000 mm max.)

2 AUTOMATIC TUNING

Determines optimal settings for exposure time, image processing filter, etc. [About 750000 combinations]

3 AUTOMATIC POLARIZATION

Glare can be eliminated. Reader angle adjustment or external lighting is unnecessary.

SETTING COMPLETE

SYSTEM CONFIGURATION DIAGRAM

SR-1000 Series

Standard type
SR-1000

Wide-field type
SR-1000W

Mounting bracket
OP-87866

Adjustable bracket
OP-88002

High resolution lens attachment
SR-10AH

* SR-1000 only

Reflector attachment
SR-10AR

Cable

USB CABLE

USB cable plugA-miniB
2 m 6.56': **OP-51580**

CONTROL CABLE

NFPA79 compliant control cable
2 m 6.56': **OP-87353**
5 m 16.4': **OP-87354**
10 m 32.8': **OP-87355**

NFPA79 compliant control cable with D-sub 9-pin
2 m 6.56': **OP-87527**
5 m 16.4': **OP-87528**
10 m 32.8': **OP-87529**

ETHERNET CABLE

NFPA79 compliant Ethernet cable
2 m 6.56': **OP-87230**
5 m 16.4': **OP-87231**
10 m 32.8': **OP-87232**

For setup

USB

Ethernet

24 VDC

RS-232C

Serial communication,
PLC link

I/O terminal

Ethernet

EtherNet/IP™

PROFINET®

TCP/IP, FTP, PLC link

PC

PC for setup

Setup software **SR-H6W**

- AutoID Network Navigator
- AutoID Keyboard Wedge
- AutoID Terminal
- MultiMonitor
- FileView
- Various driver files
- EDS/GSDML files
- Sample Windows programs

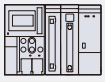
POWER SUPPLY

24 VDC power supply

HOST

PC/Panel PC/Board PC

PLC



HMI [Touch panel]

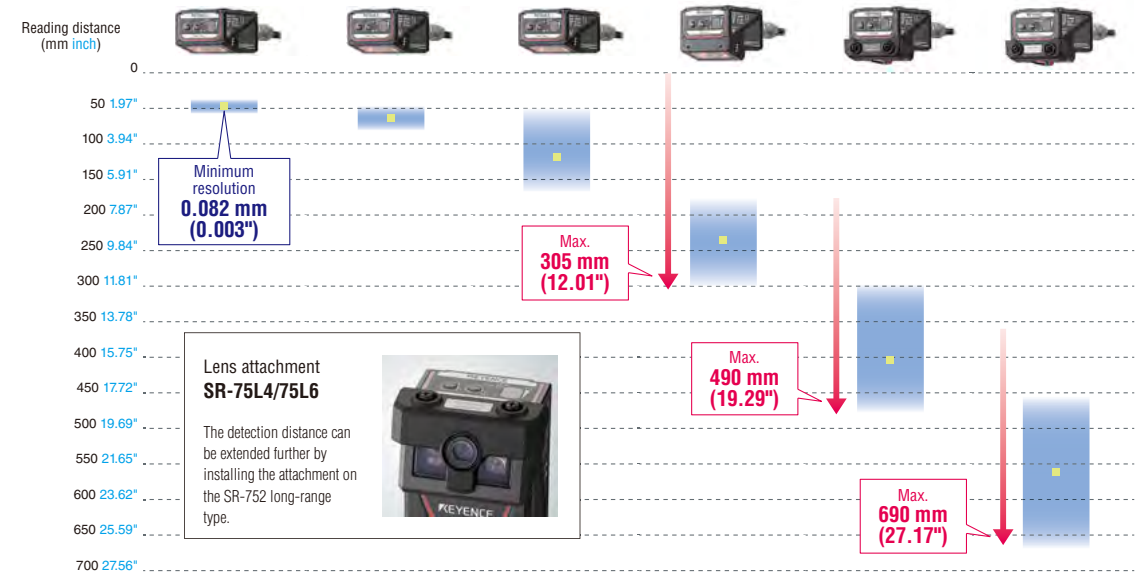
PoE & Compact 1D and 2D Code Reader

SR-750 Series

High performance reading of both small codes and codes at long distances

Four models and dedicated lens attachments support various reading conditions

	High-resolution type **SR-750HA**	Close-range type **SR-750**	Middle-range type **SR-751**	Long-range type **SR-752**	Long-range type + lens **SR-752 + SR-75L4**	Long-range type + lens **SR-752 + SR-75L6**
Minimum resolution	0.082 mm 0.003"	0.127 mm 0.005"	0.19 mm 0.007"	0.19 mm 0.007"	0.33 mm 0.013"	0.5 mm 0.02"
Focal distance	38 mm 1.50"	60 mm 2.36"	100 mm 3.94"	250 mm 9.84"	400 mm 15.75"	600 mm 23.62"



The reading range above is a value measured with a KEYENCE test label. Max. 305 mm 12.01", 490 mm 19.29", and 690 mm 27.17" are for DataMatrix (cell size 0.5 mm 0.02").

CABLES

NFPA79 compliant Control cable

2 m 6.56' : **OP-87353**
5 m 16.4' : **OP-87354**
10 m 32.8' : **OP-87355**

NFPA79 compliant Control cable w/connector

2 m 6.56' : **OP-87527**
5 m 16.4' : **OP-87528**
10 m 32.8' : **OP-87529**

NFPA79 compliant Ethernet cable

2 m 6.56' : **OP-87359**
5 m 16.4' : **OP-87360**
10 m 32.8' : **OP-87361**

OPTIONS

Setup software
SR-H6W

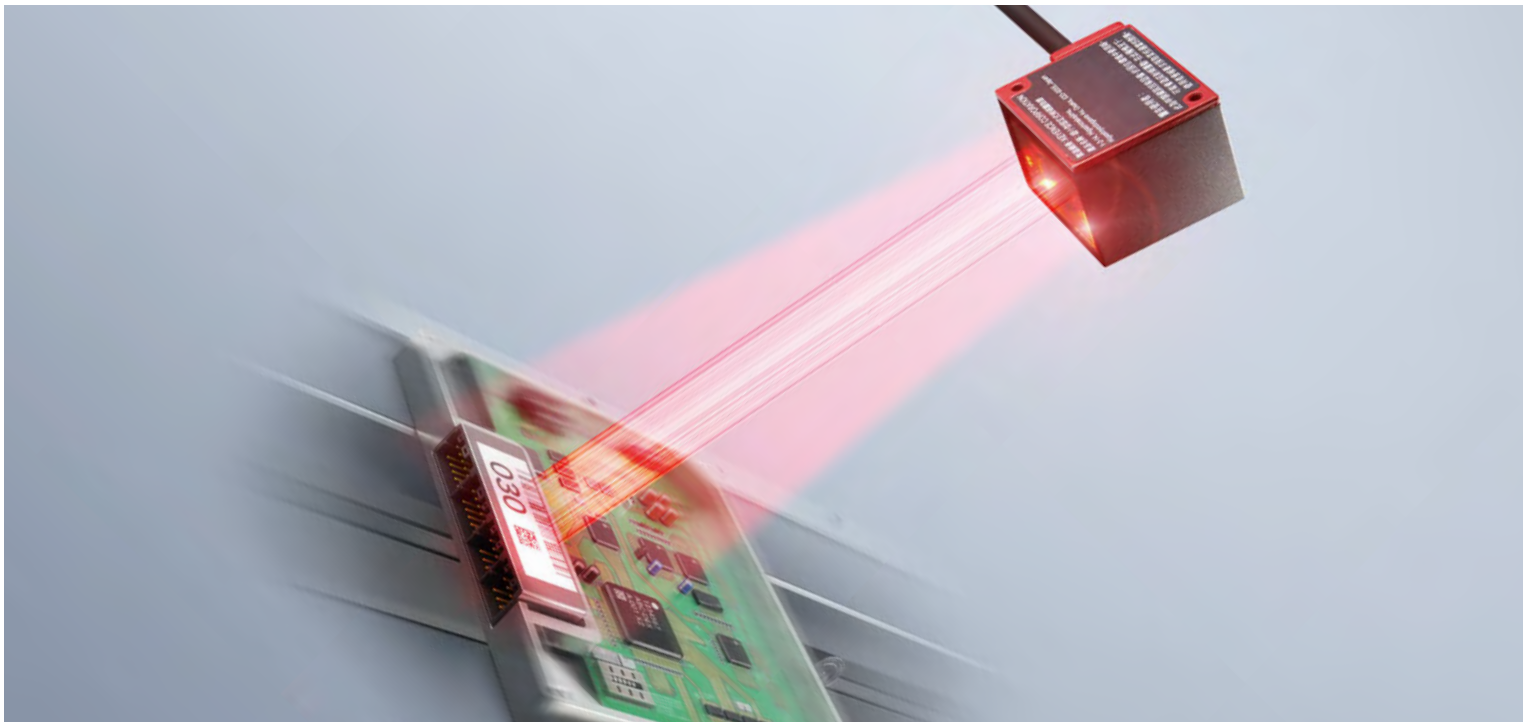
Lens attachment
400 mm 15.75" lens: **SR-75L4**
600 mm 23.62" lens: **SR-75L6**

Ethernet Assembly Plug
OP-87362

Ultra-compact 1D and 2D code reader

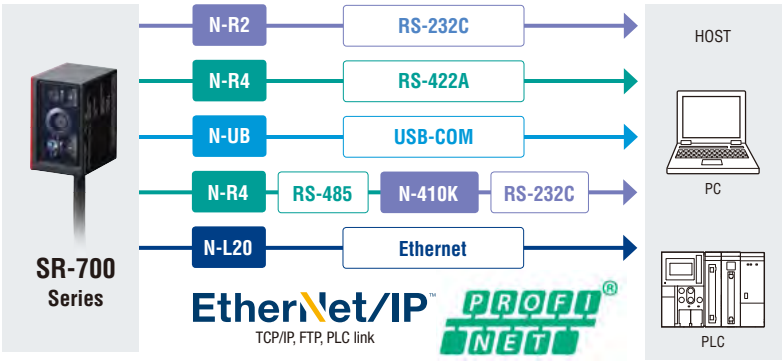
SR-700 Series

Compact body with high reading performance

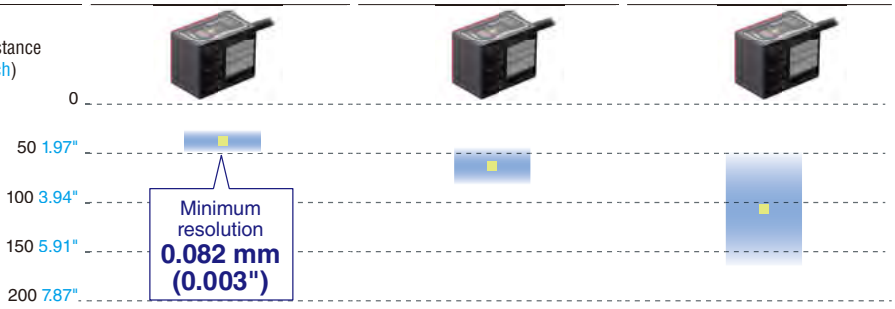


A powerful communication interface supports all connection types

SYSTEM CONFIGURATION DIAGRAM



	SR-700HA High-Resolution	SR-700 Close-Range	SR-710 Middle-Range
Minimum resolution	0.082 mm 0.003"	0.127 mm 0.005"	0.19 mm 0.008"
Focal distance	38 mm 1.50"	60 mm 2.36"	100 mm 3.94"



OPTIONS

Setup software
SR-H6W

Extension cable
NX-C03R (3 m 9.8')
NX-C05R (5 m 16.4')

Ultra-Compact Digital Barcode Reader

BL-1300 Series

Speed, High resolution and High Performance First-in-Class Digital Processing Engine

HI-SPEED

100% decode rate at 1300 scans/sec is unmatched by conventional barcode readers

New high-speed motor (2.6 times faster than previous model) and high-speed processing engine (HPPE*).

* HPPE = Hi-Speed Parallel Processing Engine

HI-RESOLUTION

Minimum readable narrow bar width : 0.08 mm 0.003"

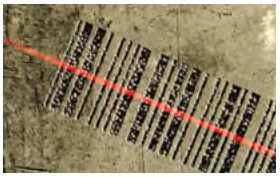
Digital processing guarantees stable decoding of barcodes with incredibly small margins. This allows codes to be printed smaller without the worry of noise affecting the reader.

CODE39:16 digits

HI-PERFORMANCE

New digital processing reads very low quality codes

A new edge detection process accurately extracts the points of alternation between bars and spaces in even the most difficult-to-read barcodes, while digital compensation makes it possible to read varying narrow/wide ratios.



NEW HIGH-SPEED MOTOR AND RECEIVER LENS

BL-1300 Series models have a high-speed motor 2.6 times faster than previous models, enabling performance of 1300 scans and 1300 decodes per second. KEYENCE has also developed a new aspherical lens that has doubled the intensity of the received beam (the read source), reducing noise and increasing the effective label reading distance.

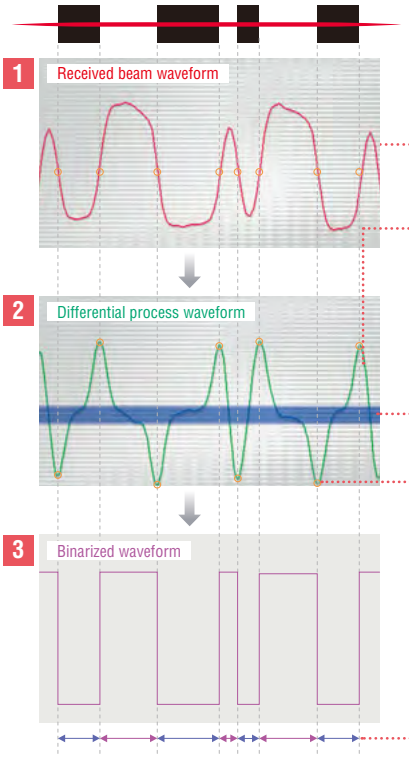
HIGH-SPEED PROCESSING CIRCUIT

The new HPPE* in BL-1300 Series models provides about 100 times the information processing capacity of previous models, providing reading performance that combines high speed and high precision.

* HPPE···Hi-Speed Parallel Processing Engine

New Decoding Process that Produces the Best Readings

Scans barcode



1 Converts to easily decodable information

AGC

Controls the waveform of the received beam to set its amplitude to a level suitable for reading.

2 Accurately detects the points of alternation between bars and spaces

Differential Processing

Acquires the received beam waveform in 10-bit gradations and applies differentiation (shown in waveform diagram on left).

Noise Reduction

Removes the noise components—signals not relevant to the code information such as faint printing and background patterns.

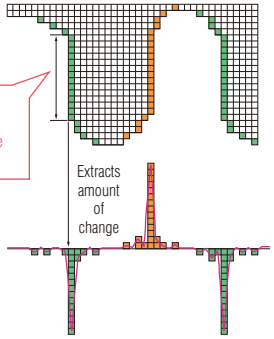
Edge Detection

Detects the points of alternation between bars and spaces (edges).

The received beam waveform is converted to a 10-bit digital waveform.

The amount of change increases at the point of alternation between space and bar.

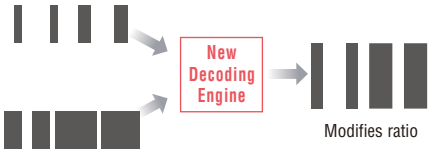
Creates emphasized waveform at point of alternation.



3 Modifies the narrow/wide ratio to enable accurate decoding

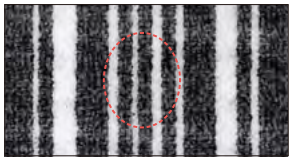
New Decoding Engine

Identifies bars and spaces from extracted edges. New Decoding Engine adjusts the narrow/ wide ratio to eliminate the negative impact of running print ink and reader mounting angle.



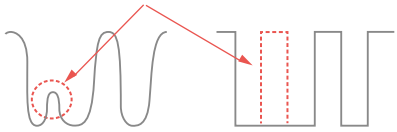
3Hi-DIGITAL MODELS SOLVE TYPICAL READING PROBLEMS

Thick print lines

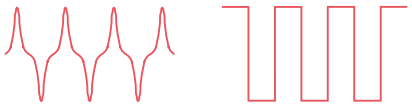


Problem: Spaces are extremely narrow

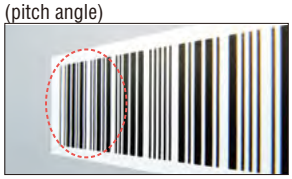
PREVIOUS MODELS — Thick print lines prevented adequate space between bars, forcing the reader to move to the next bar without obtaining the proper amplitude.



SOLUTION — BL-1300 Series use noise reduction and edge detection to recognize the difference between spaces and faint printing, enabling accurate decoding.

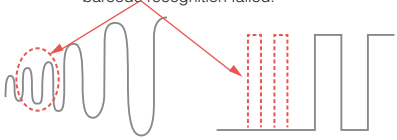


Reading from diagonal orientation (pitch angle)

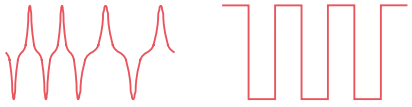


Problem: Drop in received beam intensity, bar ratio variations

PREVIOUS MODELS — When reading from an angle, previous models couldn't receive adequate beam intensity, and barcode recognition failed.



SOLUTION — BL-1300 Series reliably detect edges to recognize barcodes, and use New Decoding Engine to compensate for bar width ratio variations created by tilted orientations.



MODEL LINEUP

	Front Type			Side Type
	Standard Range	High Accuracy	Long Range	High Accuracy
Single Line	**BL-1300**	**BL-1300HA**	**BL-1370**	**BL-1350HA**
Raster	**BL-1301**	**BL-1301HA**	**BL-1371**	**BL-1351HA**

OPTIONS

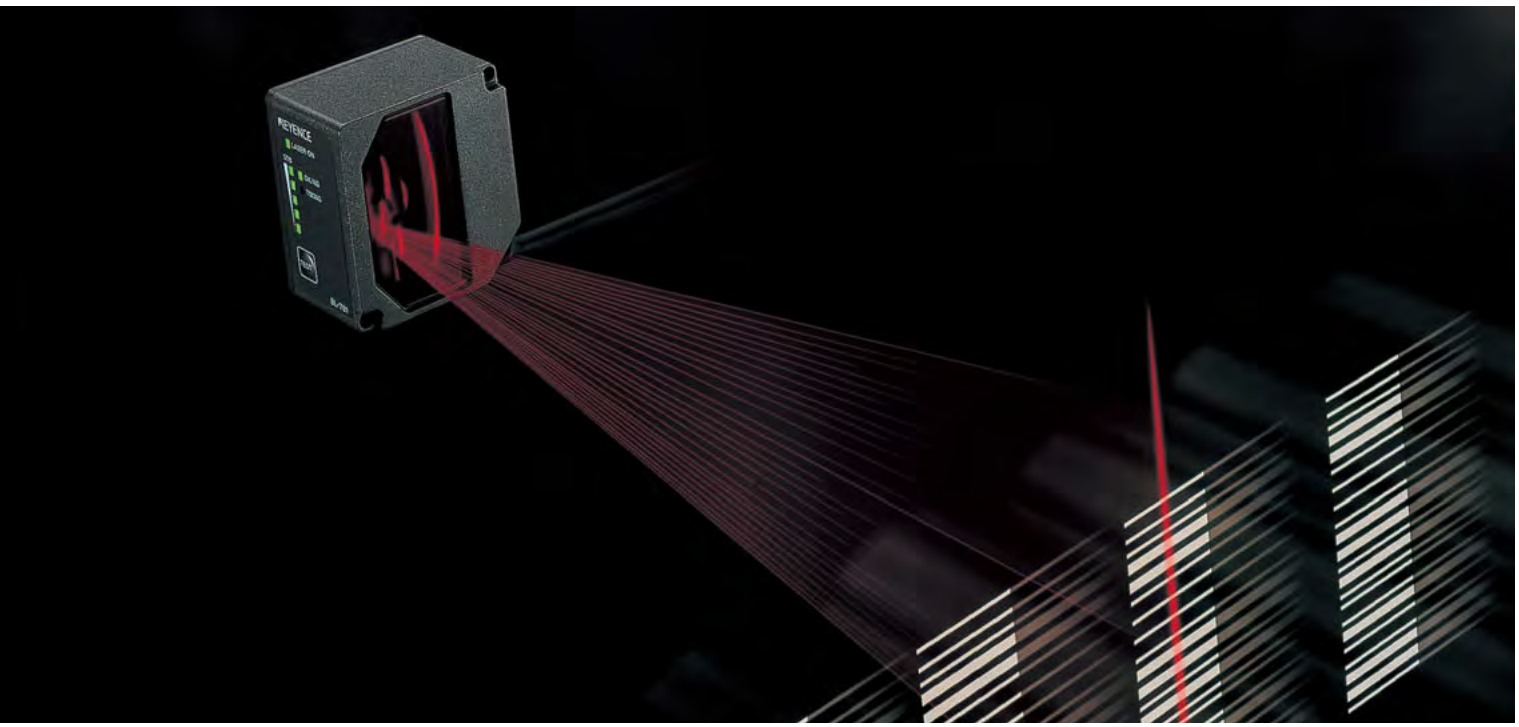
Setup software
SR-H6W

Extension cable
NX-CO3R (3 m 9.8')
NX-CO5R (5 m 16.4')
NX-CO8R (8 m 26.2')

Long Distance Laser Barcode Reader

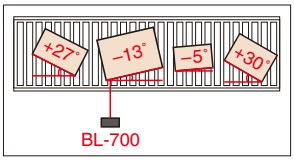
BL-700 Series

Industry-Leading Angle Characteristics and Ultra-Long Range Reading



SUPERIOR READING ANGLE CAPABILITIES

KEYENCE's original AGC (Auto Gain Control) provides superior angle reading capabilities. This revolutionary reading capability is outstanding compared to other models.
The BL-700 Series provides reliable reading regardless of the orientation or size of the labels.



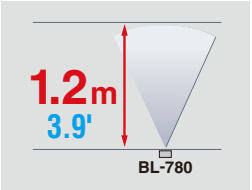
Reads labels within the range of -55 to +55° angles.

HIGH SPEED : 700 scans/s

With a 32-bit RISC CPU chip and KEYENCE's control technology, the BL-700 Series achieves 700 scans (700 decodes) per second. An ultra high-speed response that reliably reads barcodes moving at high speed on production lines.

LONGEST READING RANGE IN ITS CLASS : 1.2 m 3.9'

With KEYENCE's laser technology, the BL-700 Series allows an ultra-long distance read. Even if the target size varies, the AGC function ensures a reliable reading through an unparalleled reading depth.



SPACE-SAVING, SLANTED-CORNER DESIGN

The slanted corner of the housing allows the cable to be routed in any direction. Since the BL-700 Series requires no space for a connector, it can be neatly mounted anywhere, such as the side of a conveyor, in a space just as large as its body size.

Vertical mounting

Horizontal mounting

Direct wall mounting

PERIPHERAL EQUIPMENT

BL-R7 Sweep Raster Unit

An ultra-wide sweep width of up to 660 mm (25.98") is possible with one barcode reader

- Simple operation, with no need for positioning
- Significantly reduces tooling change workload
- Includes a function to change the sweep width

MODEL LINEUP

	High-resolution	Middle-range	Long-range
Single Line	**BL-700**	**BL-740**	**BL-780**
Raster	**BL-701**	**BL-741**	**BL-781**

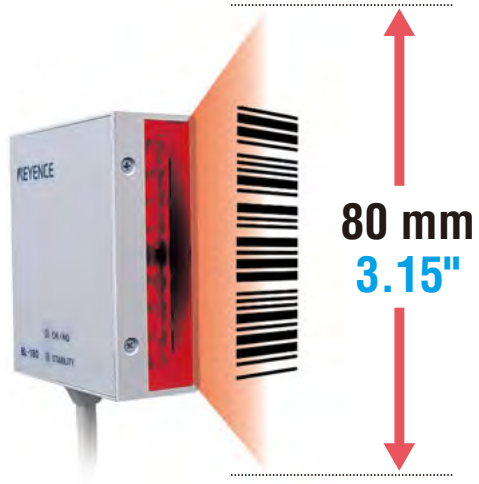
CCD Barcode Reader

BL-180 Series

Ultra-compact size can be integrated into all types of equipment

ULTRA-SMALL BODY
47 × 55 × 20 mm 1.85" × 2.17" × 0.79"
READS LABELS AS WIDE AS 80 mm 3.15"

The BL-180 Series ultra-small CCD barcode reader is easily mounted in any device, allowing the complete system to be downsized. Despite the small size, it features a built-in decoder and reads labels as wide as 80 mm 3.15".



READS BARS AS NARROW AS 0.125 mm 0.005"

The high-resolution of the BL-180 Series can read bars narrow as 0.125 mm 0.005".

STABILITY LED FOR EASY MOUNTING

The BL-180 Series features a highly visible STABILITY LED indicator. The optimal mounting position can be determined quickly and easily. Moreover, reading errors can be prevented by checking the reading performance rate or the decode count output.

The LED shows the performance rate with three colors: green, orange, and red.

EXCELLENT READING DEPTH OF ±10 mm ±0.39"

Reading can be performed even when there are vibrations or height variations in the targets. KEYENCE's original optical technology and high intensity LED ensure a reading depth of ±10 mm ±0.39". This enables stable reading.

▮ MODEL LINEUP

Front type
BL-180

Side type
BL-185

Ultimate Handheld Model with capability of handling
SR-G100

Unprecedented high-speed reading and easy operation

NEW ALGORITHM FOR
HANDHELD DPM CODE READER

Code correction algorithms, developed for the SR-1000 Series of fixed mount code readers, have been optimized specifically for use with handheld code readers. This allows an ideal balance between reading consistency and speed.


Distorted codes on curved surfaces


Codes marked on machined surfaces


Codes marked on surfaces with projections and depressions

BUILT-IN FUNCTION BUTTON
EASILY CUSTOMIZABLE SETTINGS

Automatic tuning is done simply by pushing the function button and reading a code. Use the device on site without the need to carry around a PC.

Assess stability of reading and communication
• Reading rate testing • Radio wave testing

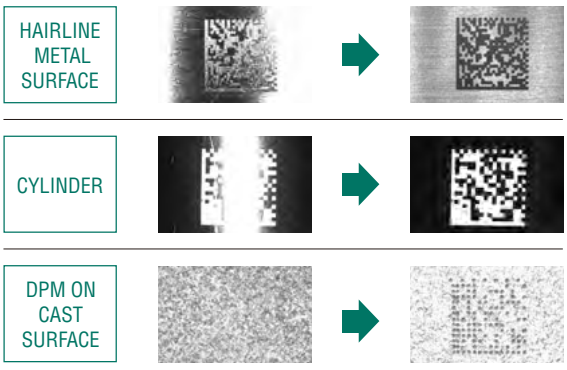
MULTI-LIGHTING CONTROL FUNCTION
AUTOMATIC SELECTION OF OPTIMAL LIGHTING

Polarizing illumination


Removes glare from metal, black resin, etc.

Multi-angle lights + partial lighting


Reads DPM codes on metals including cylinders and cast surfaces



CENTER-OF-GRAVITY DESIGN

ERGONOMIC SHAPE THAT REINFORCES OPTIMAL POSITIONING

By naturally inducing a flat position, the SR-G100 reduces the impact of variations between users as well as variations in code marking styles. This makes it possible for anyone to read codes consistently and stably.

SYSTEM CONFIGURATION

USB CONNECTION

Handheld DPM Code Reader
SR-G100

Communication unit (USB)
SR-UB1

USB
USB keyboard
USB COM

PC

RS-232C, ETHERNET CONNECTION

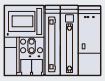
Handheld DPM Code Reader
SR-G100

Communication unit
(Ethernet & RS-232C)
SR-LR1

- 24 VDC
- AC adapter (OP-88020*)

OUT signal
RS-232C
Ethernet
EtherNet/IP™
PROFINET®
PLC link, TCP/IP, FTP

PLC



HMI [Touch panel]

PC

OPTION

Rechargeable battery pack
SR-B1

SR-G100 cable
SR-PU1
(Approx. 2.5 m 8.20')

AC adapter
OP-88020*
(Approx. 1.2 m 3.94')

4-in-line battery charging unit
SR-CG14*
(incl. OP-88020)

Holder
SR-HL1
Supports both flat and wall-mounted positions

USB cable
OP-51580
SR-G100/SR-LR1 for setup

Setup software
SR-H6W

* A separate AC cable is required with OP-88020 and SR-CG14 products.

■ AC CABLE LIST

OP-99022 (USA, Canada) **OP-99102** (Mexico) **OP-99062** (UK) **OP-99032** (Germany, France, Italy, Belgium)
OP-99042 (China) **OP-99112** (Thailand) **OP-99012** (Japan)

Handheld 1D and 2D Code Reader

HR-100 Series

Improved High-Speed Reading

EASY DETECTION

LARGER DETECTION AREA &

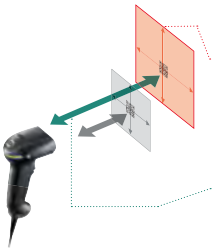
INSTANT DECODING

FASTER READING SPEED

Thanks to a wide field of view and a large depth of field, a code can be easily captured with just the push of a button. Furthermore, high reading speeds - faster than the conventional handheld readers - is possible.

READING CAPABILITIES

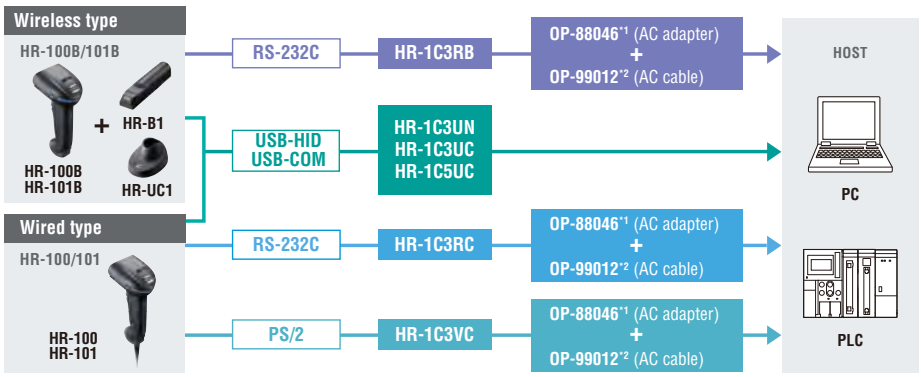
Type	Wireless	Wired
Standard	HR-100B	HR-100
Hi-Resolution	HR-101B	HR-101



WIDE AREA
265 × 195 mm
10.43" × 7.68"

FAR READING DEPTH
380 mm
14.96"

SYSTEM CONFIGURATION



*1. Use AC adapter OP-87530 except for U.S.A. and Canada. *2. Various types of AC cables are available for use in different countries and/or regions. Contact us for details.

Communication cable

Model	HR-1C3UN	HR-1C3UC	HR-1C5UC	HR-1C3RC*1	HR-1C3VC*1	HR-1C3RB*2
Appearance						
Cable type	Straight	Curled				
Cable length	Approx. 3 m 9.84'		Approx. 5 m 16.4'	Approx. 3 m 9.84'		
Interface	USB			RS-232C	PS/2 keyboard	RS-232C
Connector	USB (type A)			D-sub 9-pin (female)	Mini-DIN 6-pin	D-sub 9-pin (female)

*1. Only for use with HR-100/101 (wired type) *2. Only for use with HR-100B/101B (wireless type)

OPTION

OP-87531
(Holder)

OP-87532
(Flexible arm stand)

SETUP SOFTWARE

HR-H1WE

HR-100B/101B MODEL-SPECIFIC OPTIONS

HR-UC1
(Communication Unit)

HR-B1
(Battery pack)

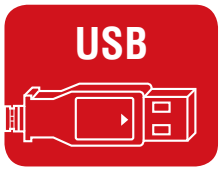
Laser Handheld Barcode Reader

BL-N70 Series

Easy to use barcode reader, with little setup required. Plug-and-play for most applications. Various communication models are available to connect with different PC or PLC systems. Easy setup codes can enable or disable different barcode types. Data output and communication settings can be changed to match existing systems.

4 CONNECTION TYPES DEPENDING ON APPLICATION

Transmitting bar code data is as easy as connecting the reader to a PC. There is no need for a special power supply or software.



▮ MODEL LINEUP

BL-N70UBE

USB Keyboard Interface Type

BL-N70VE

PS/2 Keyboard Input Type

BL-N70RE

RS-232C Communication for connection to serial devices including PCs or PLCs.
This runs on AC adapter.

BL-N70RKE

RS-232C type for connection to DV-90 or N-L20.
This runs on 5 VDC power supply on D-sub 9 connector.

▮ OPTION

Special holder for BL-N70 Series
OP-77470

OP-77470	Table top stand
OP-77466	Replacement cable for keyboard interface
OP-77467	Replacement cable for USB
OP-77468	Replacement cable for RS-232C
OP-77469	Replacement cable for RS-232C to KEYENCE

DEDICATED POWER SUPPLY/COMMUNICATION UNITS

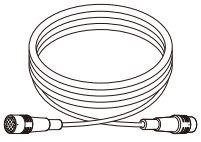
		Power Supply/Communication Units					
		N-R2	N-R4	N-UB	N-L20	BL-U1SO	
							
Applicable models	SR-700	✓	✓	✓	✓	✓*2	
	BL-700	✓*1		✓*1	✓*1	✓	
	BL-1300	✓	✓	✓	✓	✓*2	
	BL-180	✓*1		✓*1	✓*1	✓	
	HR-100	✓*5		✓*5	✓*5	✓*6	
	HR-100B				✓*7	✓*8	
	SR-1000						
	SR-750						
Code reader connector type		12 pin round connector				D-Sub 9 pin	
Power type	DC	✓	✓	✓	✓		
	AC					✓	
Interface	RS-232C	✓				✓	
	USB			✓			
	RS-422A		✓			✓	
	RS-485		✓*3			✓*3	
	Ethernet(TCP)				✓		
Field network	EtherNet/IP™				✓		
	PROFINET				✓		
Power supply/ Communication function Integrated model	SR-2000 SR-1000 SR-750	No power supply/communication unit necessary, as they are built into the unit (24 VDC drive) Interface : RS-232C : Ethernet (TCP/IP, FTP, EtherNet/IP™, PROFINET)					

OPTION

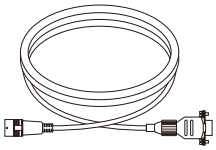
Model	Type
OP-80616	Round 12 pin connector - D-sub 9 pin Conversion connector (0.2 m 0.7')
NX-C03R	Extension Cable (3 m 9.8') for Round 12 pin connector
NX-C05R	Extension Cable (5 m 16.4') for Round 12 pin connector
NX-C08R	Extension Cable (8 m 26.2') for Round 12 pin connector
NX-CD2M	D-sub 9 pin connector - Round 12 pin Conversion Connector
OP-35331	USB cable (3 m 9.8')
OP-84114	Serial to USB Converter

Model	Type
OP-22149	D-sub 25 pin cross connector
OP-27937	D-sub 9 pin - D-sub 9 pin cross cable (2 m 6.6')
OP-29859	D-sub 9 pin - D-sub 9 pin straight cable (1.5 m 4.9')
OP-29860	D-sub 25 pin - D-sub 9 pin straight cable (1.5 m 4.9')
OP-25057	D-sub 9 pin - D-sub 25 pin Conversion Connector
OP-88081	D-sub 9 pin cross connector (without 9 pin)
OP-87533	D-sub 9 pin cross connector

OP-80616



NX-C03R

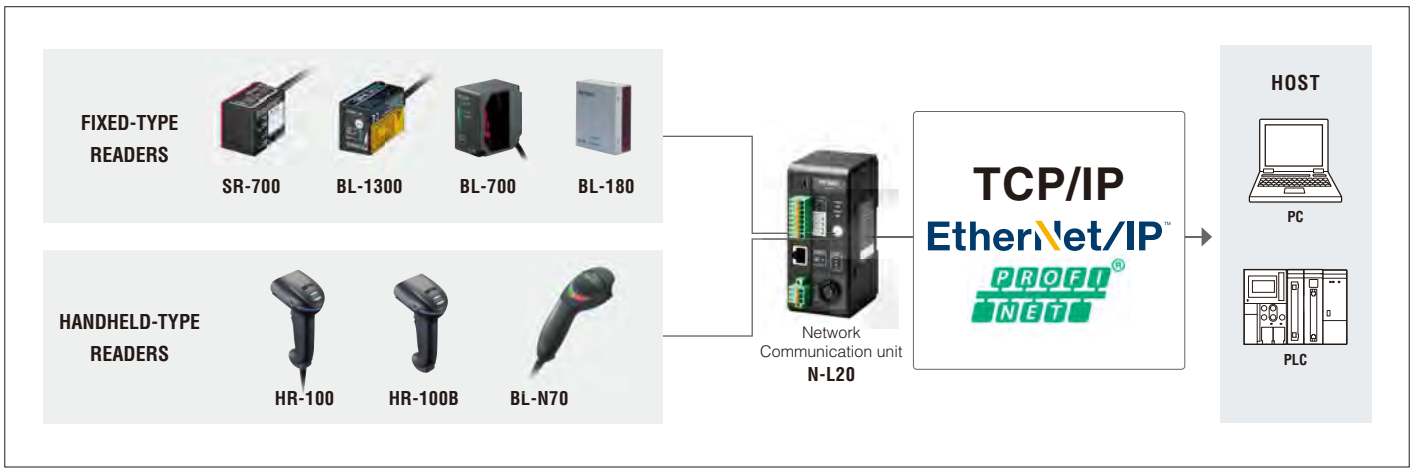


NX-CD2M

				Multi-Drop Controller	AutoID Data Controller		
	BL-U2	N-42	N-48	N-410K	DV-90		
							
	✓*2	✓*2	✓*2	✓	✓*2	SR-700	Applicable models
	✓	✓	✓	✓	✓	BL-700	
	✓*2	✓*2	✓*2	✓	✓*2	BL-1300	
	✓	✓	✓	✓	✓	BL-180	
	✓*6	✓*6			✓*6	HR-100	
	✓*8	✓*8			✓*8	HR-100B	
					✓*4	SR-1000	
					✓*4	SR-750	
	D-Sub 9 pin				D-Sub 9 pin	Code reader connector type	
	✓	✓	✓	✓	✓	DC	Power type
						AC	
	✓			✓	✓	RS-232C	Interface
					✓	USB	
		✓				RS-422A	
			✓*3			RS-485	
						Ethernet (TCP)	
						EtherNet/IP™	Field network
						PROFINET	
					✓*4	SR-2000	Power supply/ Communication function Integrated model
					✓*4	SR-1000	
					✓*4	SR-750	

*1 NX-CD2M is required. *2 OP-80616 is required. *3 N-410K is required as a master unit. *4 OP-87533 + OP-87527/87528/87529 are required. *5 HR-1C3RC + OP-87533 + NX-CD2M are required. *6 HR-1C3RC + OP-87533 are required. *7 HR-UC1 + HR-1C3RB + OP-88081 + NX-CD2N + OP-88046 + OP-99022 are required. *8 HR-UC1 + HR-1C3RB + OP-88081 + OP-88046 + OP-99022 are required.

▮ OPEN FIELD NETWORK SUPPORT



AutoID Data Controller

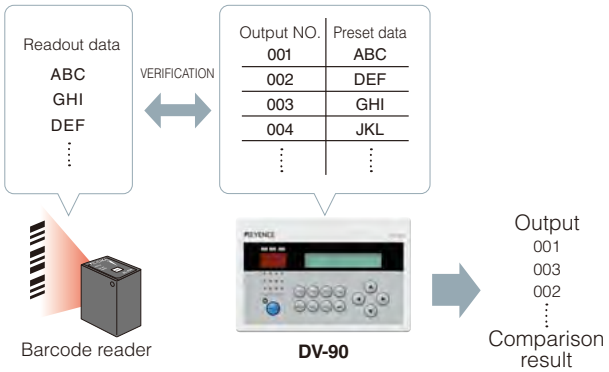
DV-90 Series

Pass/Fail signals Based on Barcode Data Comparison
Easy and Low-cost Barcode System Configuration

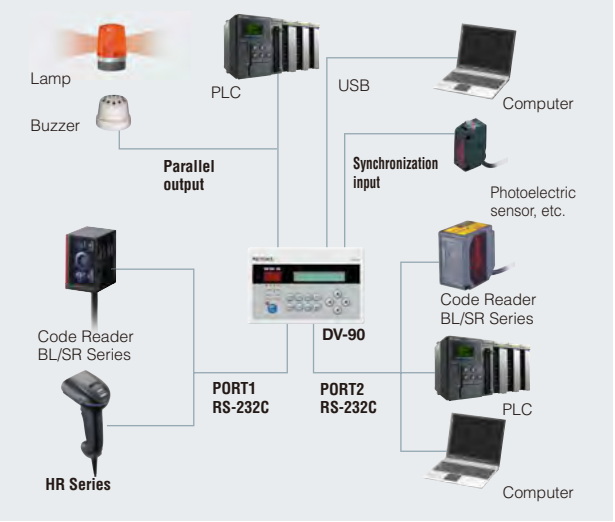
IMMEDIATE VERIFICATION/
EVALUATION OF CODE DATA

The DV-90 compares the data read with a code reader to the data registered in advance (preset data) for verification. The evaluation result is output in parallel*. Setting is easy without any need for difficult PLC programming.

*The output can be selected from bit, binary, and BCD. Up to 900 pieces of master data can be registered.



SYSTEM CONFIGURATION



MODEL LINEUP

DV-90NE (NPN Type) **DV-90PE** (PNP Type)

APPLICATION EXAMPLES

Prevent incorrect products from being packed

Provide instructions during the assembling process

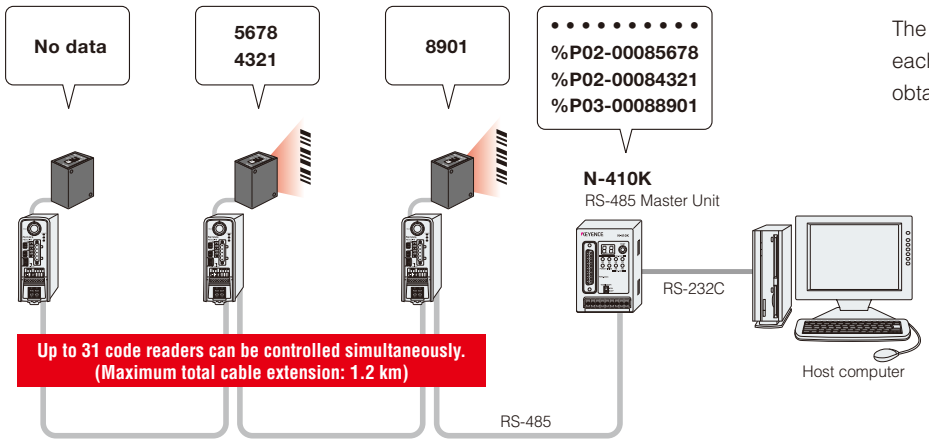
Prevent careless mistakes during the packaging process

Prevent mistakes when filling chemical bottles

Multi-Drop Controller

N-410K Series

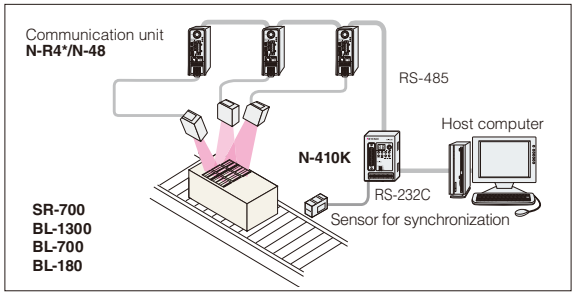
Significantly reduce programming workload by simultaneously operating up to 31 code readers



The N-410K polls (requests data from) each code reader, and it transmits the obtained data to the host computer.

MUTUAL INTERFERENCE PREVENTION FUNCTION

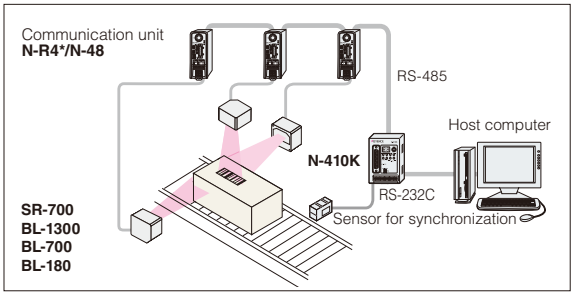
The N-410K controls several code readers so that they scan alternately, eliminating mutual interference. This function is useful when several code readers must be installed close to each other to read a label with multiple codes.



* The device that can be connected to the N-R4 is the SR-700/BL-1300.

MULTI-HEAD MODE

The N-410K controls several code readers as if they were a single unit, without using a host computer. This mode is useful when the position of labels varies between work pieces.



* The device that can be connected to the N-R4 is the SR-700/BL-1300.

Handheld Mobile Computer

BT-W100/W80/W70 Series

Durability and specialized reading performance where it's needed the most

SCANNING PERFORMANCE

The redesigned decoding engine greatly improves reading performance for challenging codes and shake resistance.

Printer Sourced

Faded Printing

Bleeding

Worn printing

Primary noise

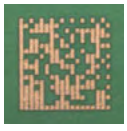
Environment Sourced

Oil stain

Oil stain

Material Sourced

Black resin



PCB

Stainless steel

Motion Sourced

With high scanning speeds,
an unsteady hand is no setback.

Purpose-built Durability

With a 'floating frame' encasing structure, the BT-W has been tested to withstand 20,000 tumbles without loss of functionality.

KEYENCE's view of "durability"

Resistance to Significant Shocks

+

Resistance to Continual Damage

=

"Absolute Durability"

Model	Concrete Drop Resistance	Tumbles 30 cm 0.98'
BT-W100	8.0 ft	20,000 tumbles
BT-W80	12.0 ft	20,000 tumbles
BT-W70	6.0 ft	20,000 tumbles

Long-term Battery Life

The high energy-density battery design provides over 20 hours of usage time.
Substantially prolong battery replacement.

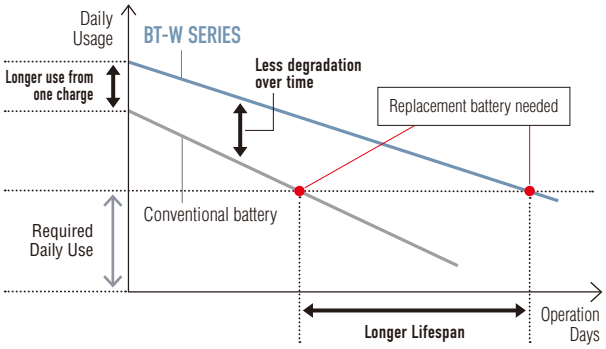
High Energy Density

+

Battery Control Algorithm

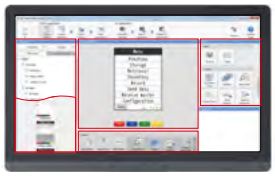
=

Long-term Battery Life



Simplified Application Development

With the BT Application Design Tool, anyone can develop custom applications. By building on templates created from years of industry experience, you can make a dedicated application for your company's needs.



SELECT Select a BT-W model and template.

CUSTOMIZE Intuitively configure screens and operations.

DEPLOY Transfer the application to the BT-W Series.

SPECIFICATIONS

Main unit

Model			SR-2000	SR-2000W	SR-2000 + SR-20AH
Type			Full-range model	Ultra-wide field of view model	High-resolution model
Receiver	Sensor		CMOS image sensor		
	Number of pixels		2048 × 1536		
	Focus		Auto*		
Light emitter	Light source		High-intensity red LED		
	Pointer light source		High-intensity green LED		
Reading specifications	Supported symbols	2D code	QR, MicroQR, DataMatrix (ECC200), GS1 DataMatrix, PDF417, MicroPDF417, GS1 Composite (CC-A/CC-B/CC-C)		
		Barcode	CODE39, ITF, 2of5 (Industrial 2of5), COOP 2of5, NW-7 (Codabar), CODE128, GS1-128, GS1 DataBar, CODE93, JAN/EAN/UPC, Trioptic CODE39, CODE39 Full ASCII, Pharmacode, Postal (Japan Postal, IMB)		
	Minimum resolution	2D code	0.040 mm 0.0016"	0.063 mm 0.0025"	0.012 mm 0.0005"
		Barcode	0.082 mm 0.0032"	0.082 mm 0.0032"	0.082 mm 0.0032"
	Reading distance		100 to 2000 mm 3.94" to 78.74"	50 to 1000 mm 1.97" to 39.37"	35 to 70 mm 1.38" to 2.76"
	Field of view for reading (at 800 mm 31.50")		263 × 197 mm 10.35" × 7.76"	707 × 530 mm 27.83" × 20.87"	26 × 19 mm 1.02" × 0.75" (at 70 mm 2.76")
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		
	Control output	Number of outputs	3		
		Output type	Photo MOS relay output		
		Maximum rating	30 VDC		
		Maximum load current	Single output: 50 mA or less, 3-output total: 100 mA or less		
		Leakage current when OFF	0.1 mA or less		
		Residual voltage when ON	1 V or less		
	Ethernet	Communication standard	IEEE 802.3-compliant, 10BASE-T/100BASE-TX		
		Supported protocol	TCP/IP, SNTP, FTP, BOOTP, EtherNet/IP™, PROFINET, KV STUDIO, MC Protocol, OMRON PLC Link		
	Serial communication	Communication standard	RS-232C-compliant		
		Communication speed	9600, 19200, 38400, 57600, 115200 bps		
		Supported protocol	No-protocol, KV STUDIO, MC protocol, SYSWAY		
	USB	Communication standard	USB 2.0 Full Speed-compliant		
Environmental resistance	Enclosure rating		IP65		
	Ambient temperature		0 to +45°C 32 to 113°F		
	Ambient storage temperature		-10 to +50°C 14 to 122°F		
	Ambient humidity		35 to 85% RH (No condensation)		
	Ambient storage humidity		35 to 85% RH (No condensation)		
	Ambient illuminance		Sunlight: 10000 lux, Incandescent lamp: 6000 lux, Fluorescent lamp: 2000 lux		
	Operating environment		No dust or corrosive gas present		
	Vibration resistance		10 to 55 Hz: Double amplitude 0.75 mm 0.03", 3 hours each in X, Y and Z directions		
Ratings	Power voltage		24 VDC ±10%		
	Current consumption		Approx. 1600 mA		
Weight			Approx. 300 g		Approx. 350 g

* The focal position can be adjusted automatically during installation or tuning.
• SR-2000N and SR-2000WN are available as supported models for India.

Setup software (AutoID Network Navigator)

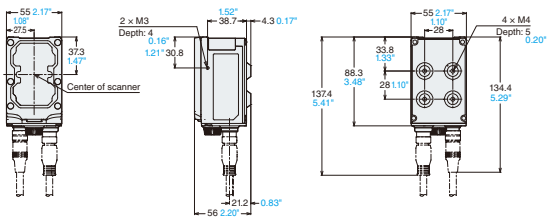
Model	SR-H6W
Supported OS	Windows 10 Professional or later, 32 bit/64 bit Windows 8 Professional or later, 32 bit/64 bit (Except for Windows RT) Windows 7 Professional or later, 32 bit/64 bit Windows Vista Business/Ultimate SP2 or later, 32 bit*
Running environment	Processor: 2.0 GHz or better, Memory: 1 GB (32 bit)/2 GB (64 bit), DVD-ROM drive (during installation), Screen resolution: 1024 × 768 or better

*SR-2000/G100 products do not support Windows Vista.
• .NET Framework 3.5 SP1 or later installed • Internet connectivity for Windows 8/10 machines with .NET 3.5 installed
• Control panel operability for Windows 8/10 machines with .NET 3.5 installed

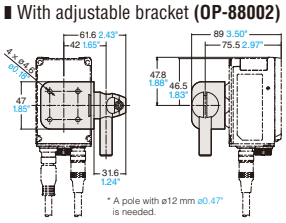
DIMENSIONS

Unit: mm inch

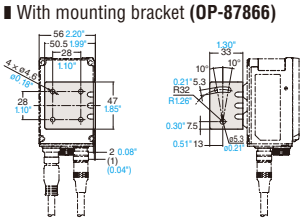
SR-2000/2000W



With adjustable bracket (OP-88002)



With mounting bracket (OP-87866)



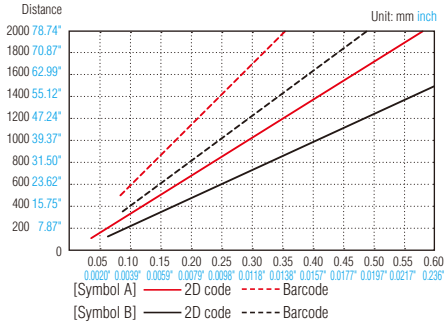
* Attach a cable with a bending radius of at least the following values.
[When not in motion] R=15 mm 0.59"
[When in motion] Control cable: R=20 mm 0.79"
Ethernet cable: R=50 mm 1.97"

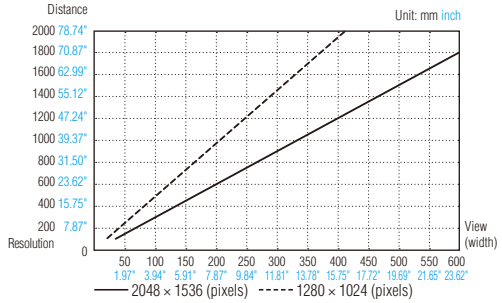
READING RANGE CHARACTERISTICS [TYPICAL]

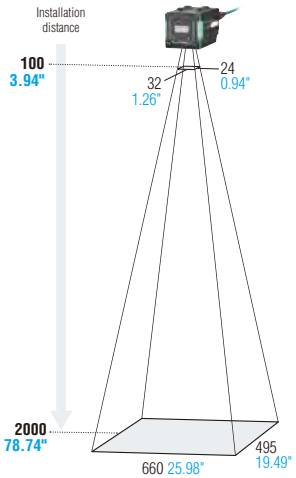
Symbol A	2D code	———	QR, MicroQR, DataMatrix (ECC200), GS1 DataMatrix
	Barcode	- - - - - -	CODE39, ITF, NW-7 (Codabar), CODE128, GS1-128, JAN/EAN/UPC, CODE39 Full ASCII
Symbol B	2D code	———	PDF417, Micro PDF417, GS1 Composite (CC-A, CC-B, CC-C)
	Barcode	- - - - - -	GS1 DataBar, CODE93, 2of5 (Industrial 2of5), COOP 2of5, Trioptic CODE39, Pharmacode

*For information on postal codes (including Japan Postal and IMB), please refer to the user's manual.

SR-2000 Full-range model







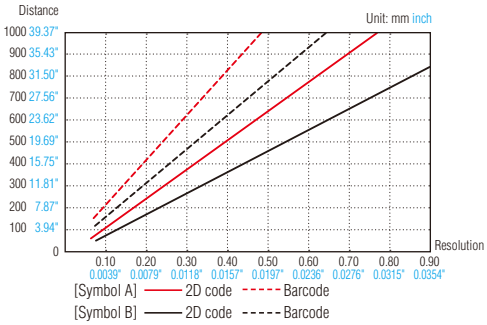
Minimum resolution Unit: mm inch

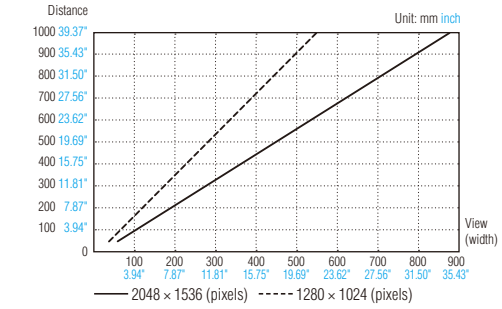
Type	Distance	2D code	Barcode
Symbol A	100 3.94"	0.04 0.0016"	0.082 0.0032"
	100 3.94" to 340 13.39"	0.10 0.0039"	
	100 3.94" to 700 27.56"	0.21 0.0083"	0.125 0.0049"
	100 3.94" to 1400 55.12"	0.41 0.0161"	0.25 0.0098"
	100 3.94" to 1800 70.87"	0.53 0.0209"	0.32 0.0126"
Symbol B	100 3.94" to 600 23.62"	0.25 0.0098"	0.15 0.0059"
	100 3.94" to 1000 39.37"	0.41 0.0161"	0.25 0.0098"

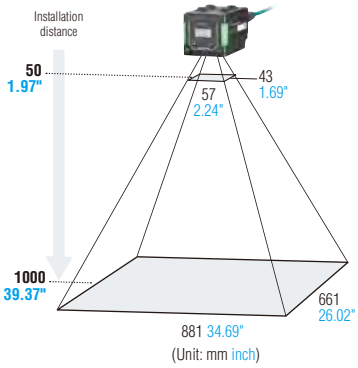
Field of view (typical) Unit: mm inch

Distance	2048 × 1536 (pixel)		1280 × 1024 (pixel)	
	Width	Height	Width	Height
100 3.94"	32 1.26"	24 0.94"	20 0.79"	16 0.63"
340 13.39"	111 4.37"	83 3.27"	69 2.72"	55 2.17"
700 27.56"	230 9.06"	173 6.81"	144 5.67"	115 4.53"
1000 39.37"	329 12.95"	247 9.72"	206 8.11"	164 6.46"
1400 55.12"	461 18.15"	346 13.62"	288 11.34"	230 9.06"
1800 70.87"	594 23.39"	445 17.52"	371 14.61"	297 11.69"
2000 78.74"	660 25.98"	495 19.49"	412 16.22"	330 12.99"

SR-2000W Ultra-wide field of view model







Minimum resolution Unit: mm inch

Type	Distance	2D code	Barcode
Symbol A	50 1.97"	0.063 0.0025"	0.082 0.0032"
	50 1.97" to 150 5.91"	0.126 0.0050"	
	50 1.97" to 350 13.78"	0.28 0.0110"	0.17 0.0067"
	50 1.97" to 500 19.69"	0.40 0.0157"	0.24 0.0094"
	50 1.97" to 650 25.59"	0.51 0.0201"	0.31 0.0122"
	50 1.97" to 1000 39.37"	0.78 0.0307"	0.48 0.0189"
Symbol B	50 1.97" to 220 8.66"	0.25 0.0098"	0.15 0.0059"
	50 1.97" to 370 14.57"	0.41 0.0161"	0.25 0.0098"

Field of view (typical) Unit: mm inch

Distance	2048 × 1536 (pixel)		1280 × 1024 (pixel)	
	Width	Height	Width	Height
50 1.97"	57 2.24"	43 1.69"	36 1.42"	28 1.10"
150 5.91"	144 5.67"	108 4.25"	90 3.54"	72 2.83"
250 9.84"	231 9.09"	173 6.81"	144 5.67"	115 4.53"
350 13.78"	317 12.48"	238 9.37"	198 7.80"	158 6.22"
500 19.69"	447 17.60"	335 13.19"	279 10.98"	223 8.78"
650 25.59"	577 22.72"	433 17.05"	361 14.21"	288 11.34"
1000 39.37"	881 34.69"	661 26.02"	550 21.65"	440 17.32"

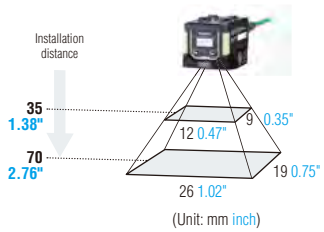
SR-2000 + SR-20AH High-resolution model

Minimum resolution Unit: mm inch

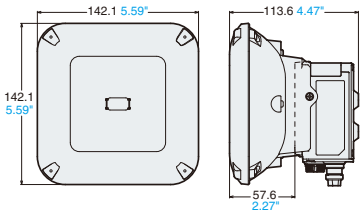
Type	Distance	2D code	Barcode
Symbol A	35 1.38"	0.012 0.0005"	0.082 0.0032"
	35 to 45 1.38" to 1.77"	0.015 0.0006"	
	35 to 70 1.38" to 2.76"	0.025 0.0010"	

Field of view (typical) Unit: mm inch

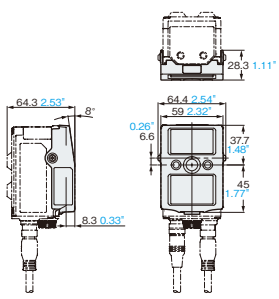
Distance	2048 × 1536 (pixel)		1280 × 1024 (pixel)	
	Width	Height	Width	Height
35 1.38"	12 0.47"	9 0.35"	7 0.28"	6 0.24"
45 1.77"	16 0.63"	12 0.47"	10 0.39"	8 0.31"
70 2.76"	26 1.02"	19 0.75"	16 0.63"	13 0.51"



■ With lighting attachment (**SR-20AL**)



■ With high-resolution lens attachment (**SR-20AH**)



SPECIFICATIONS

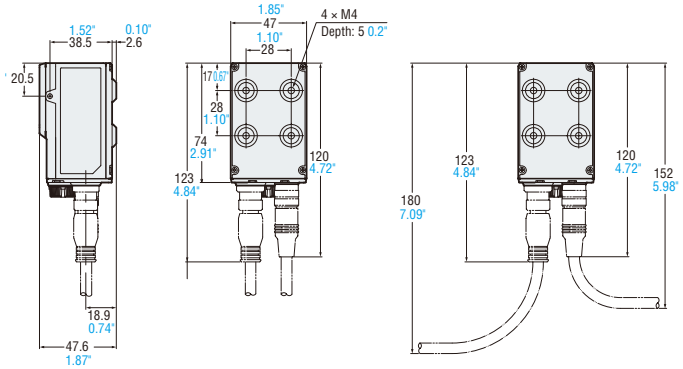
Main unit

Model			SR-1000	SR-1000W	SR-1000+SR-10AH
Type			Standard type	Wide-field type	When the high resolution lens attachment is installed
Receiver	Sensor		CMOS Image Sensor		
	Number of pixels		1280 × 1024 pixels		
Light emitter	Illumination light source		High intensity red LED		
	Pointer light source		High intensity green LED		–
Focus adjustment			Autofocus*		
Reading specifications	Supported symbol	2D	QR, MicroQR, DataMatrix (ECC200), GS1 DataMatrix, PDF417, MicroPDF417, GS1 Composite (CC-A/CC-B/CC-C)		
		Barcode	CODE39, ITF, 2of5(Industrial 2of5), COOP 2of5, NW-7 (Codabar), CODE128, GS1-128, GS1 DataBar, CODE93, JAN/EAN/UPC, Trioptic CODE39, CODE39 Full ASCII, Pharmacode		
	Minimum resolution	2D	0.063 mm 0.002"	0.082 mm 0.003"	0.025 mm 0.001"
		Barcode	0.082 mm 0.003"	0.082 mm 0.003"	0.082 mm 0.003"
	Reading distance		110 mm to 1000 mm 4.33" to 39.37"	50 mm to 600 mm 1.97" to 23.62"	20 mm to 40 mm 0.79" to 1.57"
	Field of view for reading		122 × 97 mm 4.80" × 3.82" (Typical example at 400 mm 15.75")	257 × 206 mm 10.12" × 8.11" (Typical example at 400 mm 15.75")	19 × 15 mm 0.75" × 0.59" (Typical example at 40 mm 1.57")
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		
		Residual voltage when ON	1 V or less		
	Ethernet	Communication standard	IEEE 802.3 compliant, 10BASE-T/100BASE-TX		
		Supported protocol	TCP/IP, SNTP, FTP, BOOTP, MC Protocol, Omron PLC link, 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		
	USB	Communication standard	USB 2.0 Full Speed compliant		
Environmental resistance	Enclosure rating		IP65		
	Ambient temperature		0 to +45°C 32 to 113°F		
	Ambient storage temperature		–10 to +50°C 14 to 122°F		
	Relative humidity		35 to 85% RH (No condensation)		
	Storage ambient humidity		35 to 85% 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 0.75 mm 0.030", 3 hours each in X, Y and Z directions		
Rating	Power voltage		24 VDC ±10%		
	Current consumption		Approx. 700 mA		
Weight			Approx. 200 g		Approx. 250 g

* The focal position can be adjusted automatically during installation.
• SR-1000N and SR-1000WN are available as supported models for India.

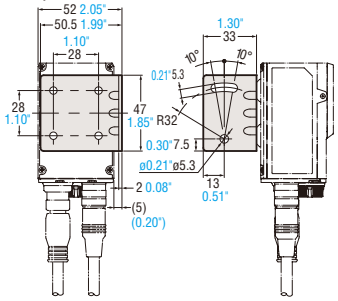
DIMENSIONS

Main unit **SR-1000/1000W**

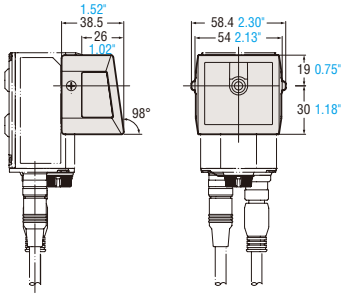


Adjustable bracket **OP-87866**

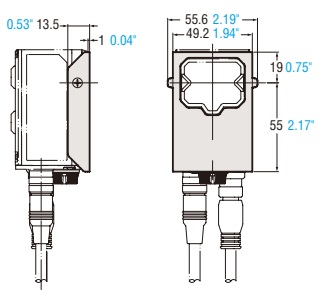
Unit: mm inch



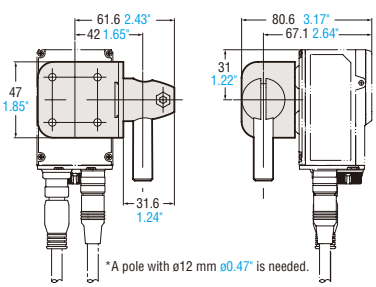
High resolution lens attachment **SR-10AH**



Reflector attachment **SR-10AR**



Adjustable bracket **OP-88002**



READING RANGE CHARACTERISTICS [TYPICAL]

SR-1000

MINIMUM RESOLUTION

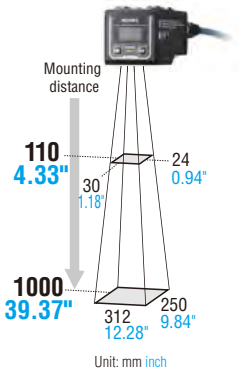
Unit: mm inch

Distance	2D	Barcode
110 4.33"	0.063 0.002"	0.082 0.003"
110 to 140 4.33" to 5.51"	0.082 0.003"	
110 to 230 4.33" to 9.06"	0.14 0.006"	
110 to 300 4.33" to 11.81"	0.18 0.007"	0.11 0.004"
110 to 400 4.33" to 15.75"	0.24 0.009"	0.15 0.006"
110 to 600 4.33" to 23.62"	0.37 0.015"	0.22 0.009"
110 to 1000 4.33" to 39.37"	0.61 0.024"	0.37 0.015"

FIELD OF VIEW

Unit: mm inch

	Image capture range (1280 × 1024 pixels)		Image capture range (800 × 600 pixels)	
Distance	Width	Height	Width	Height
110 4.33"	30 1.18"	24 0.94"	19 0.75"	14 0.55"
140 5.51"	40 1.57"	32 1.26"	25 0.98"	18 0.71"
230 9.06"	68 2.68"	54 2.13"	42 1.65"	32 1.26"
300 11.81"	90 3.54"	72 2.83"	56 2.20"	42 1.65"
400 15.75"	122 4.80"	97 3.82"	76 2.99"	57 2.24"
600 23.62"	185 7.28"	148 5.83"	116 4.57"	87 3.43"
1000 39.37"	312 12.28"	250 9.84"	195 7.68"	146 5.75"



Unit: mm inch

SR-1000W

MINIMUM RESOLUTION

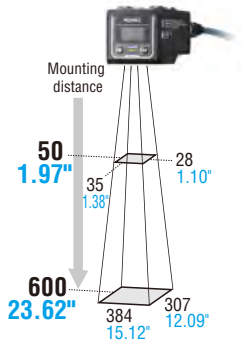
Unit: mm inch

Distance	2D	Barcode
50 1.97"	0.082 0.003"	0.082 0.003"
50 to 100 1.97" to 3.94"	0.14 0.006"	
50 to 150 1.97" to 5.91"	0.20 0.008"	0.12 0.005"
50 to 230 1.97" to 9.06"	0.30 0.012"	0.18 0.007"
50 to 300 1.97" to 11.81"	0.38 0.015"	0.23 0.009"
50 to 400 1.97" to 15.75"	0.51 0.020"	0.31 0.012"
50 to 600 1.97" to 23.62"	0.76 0.030"	0.45 0.018"

FIELD OF VIEW

Unit: mm inch

	Image capture range (1280 × 1024 pixels)		Image capture range (800 × 600 pixels)	
Distance	Width	Height	Width	Height
50 1.97"	35 1.38"	28 1.10"	22 0.87"	16 0.63"
100 3.94"	67 2.64"	54 2.13"	42 1.65"	31 1.22"
150 5.91"	99 3.90"	79 3.11"	62 2.44"	46 1.81"
230 9.06"	150 5.91"	120 4.72"	93 3.66"	70 2.76"
300 11.81"	194 7.64"	155 6.10"	121 4.76"	91 3.58"
400 15.75"	257 10.12"	206 8.11"	161 6.34"	120 4.72"
600 23.62"	384 15.12"	307 12.09"	240 9.45"	180 7.09"



Unit: mm inch

SR-1000 + SR-10AH

MINIMUM RESOLUTION

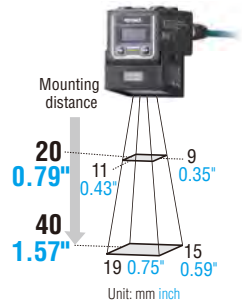
Unit: mm inch

Distance	2D	Barcode
20 0.79"	0.025 0.001"	0.082 0.003"
20 to 30 0.79" to 1.18"	0.03 0.001"	
20 to 40 0.79" to 1.57"	0.04 0.002"	

FIELD OF VIEW

Unit: mm inch

	Image capture range (1280 × 1024 pixels)		Image capture range (800 × 600 pixels)	
Distance	Width	Height	Width	Height
20 0.79"	11 0.43"	9 0.35"	7 0.28"	5 0.20"
30 1.18"	15 0.59"	12 0.47"	9 0.35"	7 0.28"
40 1.57"	19 0.75"	15 0.59"	11 0.43"	8 0.31"



Unit: mm inch

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 15.75" lens	With 600 mm 23.62" lens
Receiver	Sensor		CMOS Image Sensor					
	Number of pixels		752 x 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 0.003"	0.127 mm 0.005"	0.19 mm 0.007"	0.19 mm 0.007"	0.33 mm 0.013"	0.5 mm 0.02"
		Barcode	–	0.127 mm 0.005"	0.127 mm 0.005"	0.17 mm 0.007"	0.22 mm 0.009"	0.33 mm 0.013"
	Reading distance (typical examples)	DataMatrix QR	22 to 50 mm 0.87" to 1.97" (Cell size = 0.25 mm 0.01")	40 to 80 mm 1.58" to 3.15" (Cell size = 0.25 mm 0.01")	45 to 165 mm 1.77" to 6.50" (Cell size = 0.5 mm 0.02")	180 to 305 mm 7.09" to 12.01" (Cell size = 0.5 mm 0.02")	300 to 490 mm 11.81" to 19.29" (Cell size = 0.5 mm 0.02")	460 to 690 mm 18.11" to 27.17" (Cell size = 0.5 mm 0.02")
		Barcode	–	30 to 100 mm 1.18" to 3.94" (Narrow bar width = 0.33 mm 0.013")	45 to 195 mm 1.77" to 7.68" (Narrow bar width = 0.5 mm 0.02")	180 to 330 mm 7.09" to 12.99" (Narrow bar width = 0.5 mm 0.02")	250 to 540 mm 9.84" to 21.26" (Narrow bar width = 0.5 mm 0.02")	400 to 760 mm 15.75" to 29.92" (Narrow bar width = 0.5 mm 0.02")
	Focal distance		38 mm 1.50"	60 mm 2.36"	100 mm 3.94"	250 mm 9.84"	400 mm 15.75"	600 mm 23.62"
	Field of view (at focal distance)		26 x 17 mm 1.02" x 0.67"	42 x 27 mm 1.65" x 1.06"	70 x 45 mm 2.76" x 1.77"	65 x 41 mm 2.56" x 1.61"	108 x 69 mm 4.25" x 2.72"	165 x 106 mm 6.50" x 4.17"
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					
		Residual voltage when ON	1 V or less					
	Ethernet	Communication standard	10BASE-T/100BASE-TX					
		Supported protocol	TCP/IP, FTP, SNTP, BOOTP, EtherNet/IP™, PROFINET, MC protocol, KV STUDIO					
	Serial communication	Communication standard	RS-232C compliant					
		Transmission speed	9600, 19200, 38400, 57600, 115200 bps					
		Supported protocol	Non-procedural, MC protocol, SYSWAY, KV STUDIO					
Environmental resistance	Enclosure rating		IP65					
	Ambient temperature		0 to 45°C 32 to 113 °F					
	Ambient storage temperature		-10 to +50°C 14 to 122 °F					
	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 0.06"/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	

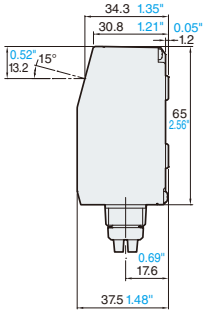
*1 SR-750HA can read Barcodes which fit into the Field of View.
*2 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No.50.
*3 To comply with CSA No.61010-1/UL61010-1/IEC61010-1, use a power supply meeting the following criteria:
- provides Class 2 output as defined in the CEC and NEC, or
- 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.

DIMENSIONS

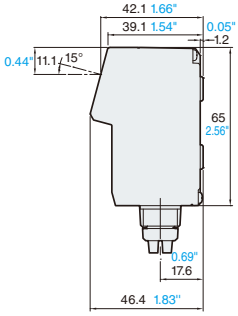
Unit: mm inch

Main unit

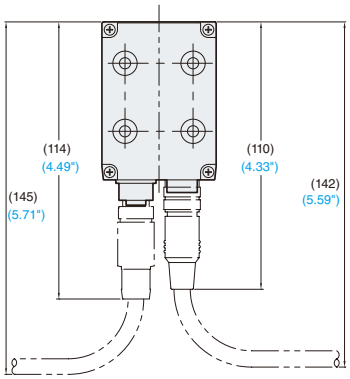
SR-750/751/750HA



SR-752

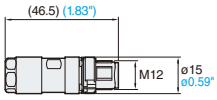


With cable

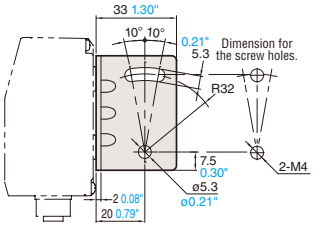


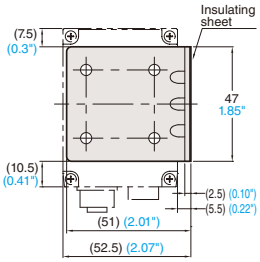
Ethernet plug assembly

OP-87362

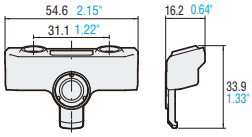


Mounting bracket

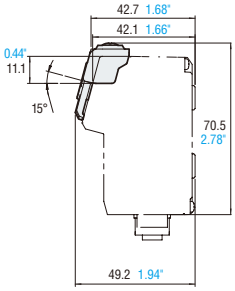




Long distance lens attachment



SR-75L4/75L6

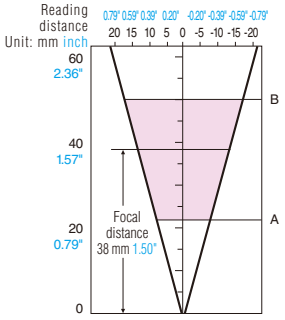


READING RANGE CHARACTERISTICS [TYPICAL]

SR-750HA: High-resolution type

Unit: mm inch

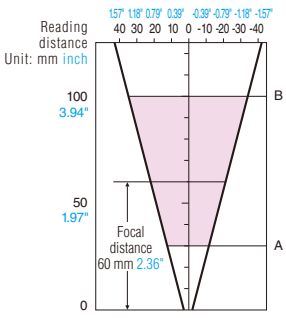
Code type	Cell size	A	B
DataMatrix QR	0.08 0.003"	31 1.22"	39 1.54"
	0.127 0.005"	27 1.06"	42 1.66"
	0.25 0.010"	22 0.87"	50 1.97"



SR-750: Close-range type

Unit: mm inch

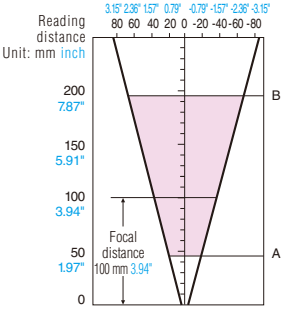
Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.127 0.005"	50 1.97"	70 2.76"
	0.25 0.010"	40 1.57"	80 3.15"
Code39	0.127 0.005"	46 1.81"	74 2.91"
	0.33 0.013"	30 1.18"	100 3.94"
Code128	0.25 0.010"	34 1.34"	90 3.54"



SR-751: Middle-range type

Unit: mm inch

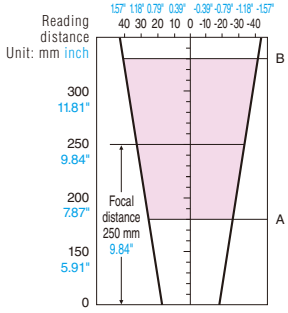
Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.25 0.010"	65 2.56"	130 5.12"
	0.5 0.02"	45 1.77"	165 6.50"
Code39	0.127 0.005"	75 2.95"	110 4.33"
	0.5 0.02"	45 1.77"	195 7.68"
Code128	0.25 0.010"	50 1.97"	150 5.91"



SR-752: Long-range type

Unit: mm inch

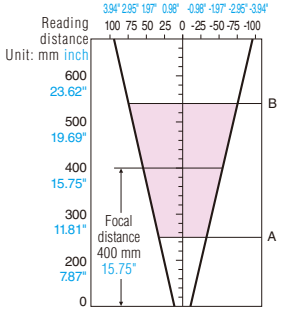
Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.19 0.007"	220 8.66"	260 10.24"
	0.25 0.010"	210 8.27"	270 10.63"
	0.33 0.013"	200 7.87"	280 11.02"
	0.5 0.02"	180 7.09"	305 12.01"
Code39	0.17 0.007"	220 8.66"	260 10.24"
	0.5 0.02"	180 7.09"	330 12.99"
Code128	0.25 0.010"	195 7.68"	275 10.83"



SR-752 + SR-75L4 (400 mm 15.75" lens)

Unit: mm inch

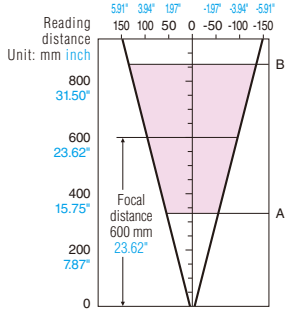
Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.33 0.013"	350 13.78"	450 17.72"
	0.5 0.02"	300 11.81"	490 19.29"
Code39	0.22 0.009"	370 14.57"	440 17.32"
	0.5 0.02"	250 9.84"	540 21.26"
Code128	0.25 0.010"	350 13.78"	450 17.72"



SR-752 + SR-75L6 (600 mm 23.62" lens)

Unit: mm inch

Code type	Cell size Narrow bar width	A	B
DataMatrix QR	0.5 0.02"	460 18.11"	690 27.17"
	1 0.04"	330 12.99"	860 33.86"
Code39	0.33 0.013"	500 19.69"	690 27.17"
	0.5 0.02"	400 15.75"	760 29.92"
Code128	0.33 0.013"	500 19.69"	690 27.17"



SPECIFICATIONS

▮ Main unit

Model			SR-700HA	SR-700	SR-710
Type			High-resolution type	Close-range type	Middle-range type
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*1)		
Lighting	Light source		High intensity red LED		
Reading	Supported code	Barcode	*2	CODE39, ITF, 2of5 (Industrial 2of5), COOP 2of5, NW-7 (Codabar), CODE128, GS1-128, GS1 DataBar, CODE93, JAN/EAN/UPC, Trioptic CODE39, CODE39 Full ASCII, Pharmacode	
		2D code	QR, MicroQR, DataMatrix (ECC200), GS1 DataMatrix, PDF417, MicroPDF417, GS1 Composite (CC-A, CC-B, CC-C)		
	Minimum resolution	Barcode	–	0.127 mm 0.005"	0.127 mm 0.005"
		2D code	0.082 mm 0.003"	0.127 mm 0.005"	0.19 mm 0.008"
	Reading distance (typical examples)	Barcode	–	30 to 100 mm 1.18" to 3.94" (Narrow bar width = 0.33 mm 0.01")	45 to 195 mm 1.77" to 7.68" (Narrow bar width = 0.5 mm 0.02")
		2D code	22 to 50 mm 0.87" to 1.97" (Cell size = 0.25 mm 0.01")	40 to 80 mm 1.57" to 3.15" (Cell size = 0.25 mm 0.01")	45 to 165 mm 1.77" to 6.50" (Cell size = 0.5 mm 0.02")
	Focal distance		38 mm 1.50"	60 mm 2.36"	100 mm 3.94"
	Field of view (Typical example at focal distance)		26 mm × 17 mm 1.02" × 0.67"	42 mm × 27 mm 1.65" × 1.06"	70 mm × 45 mm 2.76" × 1.77"
I/O	Control input		2 inputs (IN1 and IN2), non-voltage input (contact, solid-state)		
	Control output		4 NPN open collector outputs (OUT1 to 4) 30 mA or less (24 V or less) Residual voltage 0.8 V or less, leakage current 0.1 mA or less		
	RS-232C	Transmission speed	9600, 19200, 38400, 57600, 115200 bps		
		Supported protocol	No-protocol, MC protocol, SYSWAY, KV STUDIO		
	USB		USB 2.0 Full Speed compliant		
Environmental resistance	Enclosure rating		IP65		
	Ambient temperature		0 to +45°C 32 to 113 °F		
	Ambient storage temperature		-10 to +50°C 14 to 122 °F (No freezing)		
	Relative 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 0.06", 3 hours each in X, Y and Z directions		
Rating	Power voltage		5 VDC +5%, -10%		
	Current consumption		630 mA or less		
Weight			Approx. 160 g (including cable)		

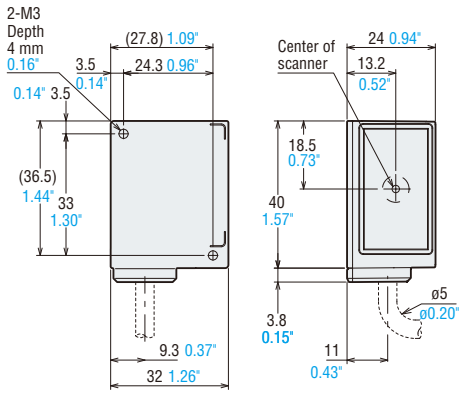
*1 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No.50.
*2 Barcodes which fit into the visual field can be read.

DIMENSIONS

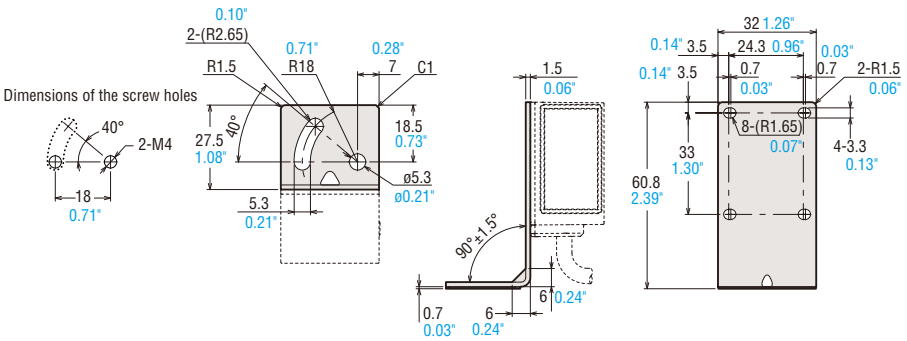
Unit: mm inch

▮ Main unit

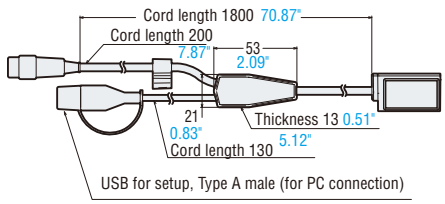
SR-700/710/700HA



▮ MOUNTING BRACKET



▮ HEAD CABLE

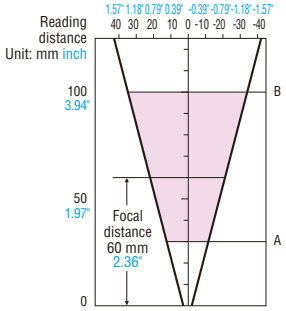


READING RANGE CHARACTERISTICS [TYPICAL]

■ SR-700:Close-range type

Unit: mm inch

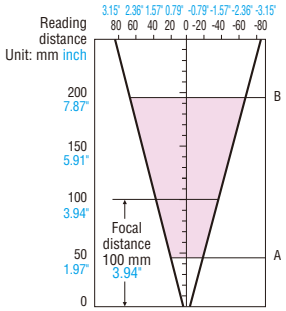
Code type	Cell size Narrow bar width	A	B
2D	0.127 0.005"	50 1.97"	70 2.76"
	0.25 0.010"	40 1.57"	80 3.15"
Barcode	0.127 0.005"	46 1.81"	74 2.91"
	0.33 0.013"	30 1.18"	100 3.94"



■ SR-710:Middle-range type

Unit: mm inch

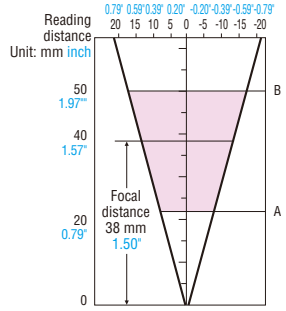
Code type	Cell size Narrow bar width	A	B
2D	0.25 0.010"	65 2.56"	130 5.12"
	0.5 0.020"	45 1.77"	165 6.50"
Barcode	0.127 0.005"	75 2.95"	110 4.33"
	0.5 0.020"	45 1.77"	195 7.68"



■ SR-700HA:High-resolution type

Unit: mm inch

Code type	Cell size	A	B
2D	0.08 0.003"	31 1.22"	39 1.54"
	0.127 0.005"	27 1.06"	42 1.66"
	0.25 0.010"	22 0.87"	50 1.97"



SPECIFICATIONS

Main unit

Model		BL-1300	BL-1301	BL-1300HA	BL-1301HA
Type		**Standard**		**High-resolution**	
Read direction		Front			
Light source		Visible-light semiconductor laser (660 nm wavelength)			
	Output	85 µW			
	Pulse duration	112 µs			
	Laser class	Class 2 Laser Product (IEC60825-1, FDA (CDRH) Part1040.10*1)			
Scanning method		Single	Raster	Single	Raster
Focal distance		120 mm 4.72"		90 mm 3.54"	
Reading distance		65 to 500 mm 2.56" to 19.69" *2 (1.0 mm 0.04" narrow bar width)		45 to 270 mm 1.77" to 10.63" *2 (0.5 mm 0.02" narrow bar width)	
Readable bar width		0.125 mm 0.005"		0.08 mm 0.003"	
Largest readable label width		339 mm 13.35" *2 (350 mm 13.78" distance, 1.0 mm 0.04" narrow bar width)		189 mm 7.44" *2 (189 mm 7.44" distance, 0.5 mm 0.02" narrow bar width)	
PCS		0.4 or more			
Scanning rate		500 to 1300 scans/second			
Supported barcodes		CODE39, ITF, 2of5(Industrial 2of5), COOP2of5, NW-7(Codabar), CODE128, GS1-128, CODE93, JAN/EAN/UPC, GS1 DataBar			
Number of readable digits		74 digits (148 digits with CODE128 start character C)			
Environmental resistance	Enclosure rating	IP65			
	Operating ambient illumination	Sunlight: 10000 lux, Incandescent lamp: 6000 lux			
	Operating ambient temperature	0 to 45°C 32 to 113 °F			
	Storage ambient temperature	-20 to +60°C -4 to +140 °F			
	Operating ambient humidity	35 to 85% RH, No condensation			
	Operating environment	No dust or corrosive gas			
	Vibration resistance	10 to 55 Hz, 1.5 mm 0.06" double amplitude in X, Y, and Z directions, 2 hours respectively			
Rated values	Power supply	5 VDC ±5%			
	Current consumption	400 mA max.			
Weight		Approx. 115 g			

Model		BL-1350HA	BL-1351HA	BL-1370	BL-1371
Type		**High-resolution side**		**Long-distance**	
Read direction		Side		Front	
Light source		Visible-light semiconductor laser (660 nm wavelength)			
	Output	85 µW			
	Pulse duration	112 µs			
	Laser class	Class 2 Laser Product (IEC60825-1, FDA (CDRH) Part1040.10*1)			
Scanning method		Single	Raster	Single	Raster
Focal distance		65 mm 2.56"		230 mm 9.06"	
Reading distance		40 to 250 mm 1.57" to 9.84" *2 (0.5 mm 0.02" narrow bar width)		160 to 600 mm 6.30" to 23.62" *2 (1.0 mm 0.04" narrow bar width)	
Readable bar width		From 0.08 mm 0.003"		From 0.15 mm 0.006"	
Largest readable label width		201 mm 7.91" *2 (175 mm 6.89" distance, 0.5 mm 0.02" narrow bar width)		404 mm 15.91" *2 (420 mm 16.54" distance, 1.0 mm 0.04" narrow bar width)	
PCS		0.4 or more			
Scanning rate		500 to 1300 scans/second			
Supported barcodes		CODE39, ITF, 2of5(Industrial 2of5), COOP2of5, NW-7(Codabar), CODE128, GS1-128, CODE93, JAN/EAN/UPC, GS1 DataBar			
Number of readable digits		74 digits (148 digits with CODE128 start character C)			
Environmental resistance	Enclosure rating	IP65			
	Operating ambient illumination	Sunlight: 10000 lux, Incandescent lamp: 6000 lux			
	Operating ambient temperature	0 to 45°C 32 to 113 °F			
	Storage ambient temperature	-20 to +60°C -4 to +140 °F			
	Operating ambient humidity	35 to 85% RH, No condensation			
	Operating environment	No dust or corrosive gas			
	Vibration resistance	10 to 55 Hz, 1.5 mm 0.06" double amplitude in X, Y, and Z directions, 2 hours respectively			
Rated values	Power supply	5 VDC ±5%			
	Current consumption	400 mA max.			
Weight		Approx. 130 g		Approx. 115 g	

*1 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No.50.
*2 Specifications for 500-scan/second operation
- Use the Limited Power Source defined in UL/IEC60950-1 to comply with UL/IEC60950-1.
- Internal body settings are written in the internal memory area (can be rewritten 100,000 times).

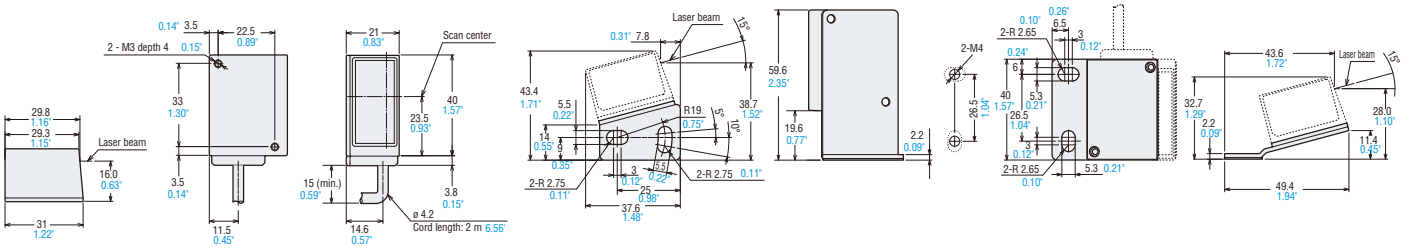
DIMENSIONS

BL-1300/1301/1300HA/1301HA/1370/1371 (front type)

Mounting A (front type)

Mounting B (front type)

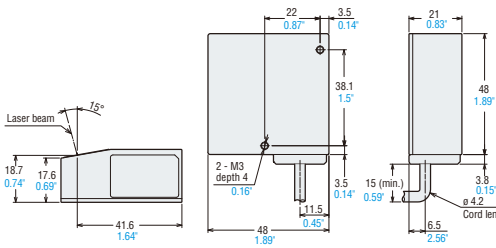
Unit: mm inch



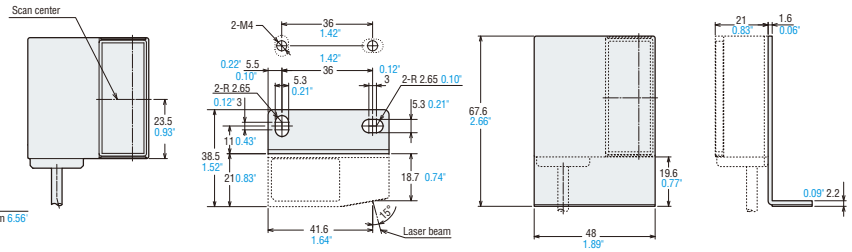
DIMENSIONS

Unit: mm inch

BL-1350HA/1351HA (side type)

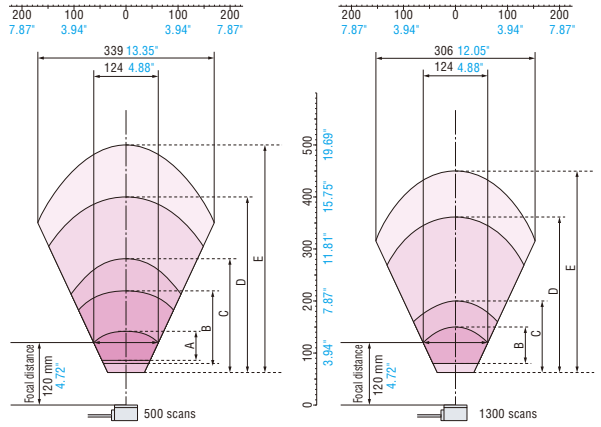


Mounting (side type)



READING DISTANCES

BL-1300/1301 (standard type)

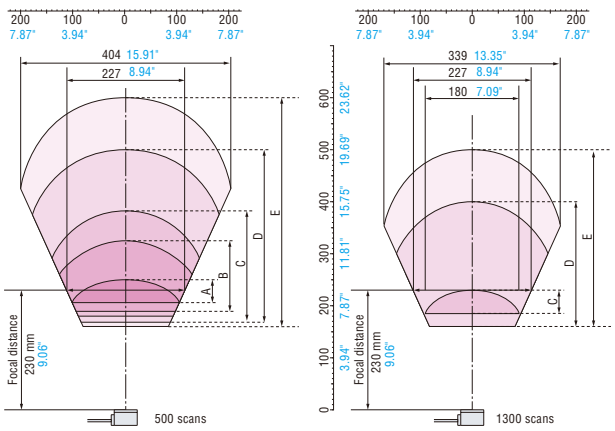


Unit: mm inch

	Barcode type	Narrow bar width	Read distance (500 scans)	Read distance (1300 scans)
A	CODE39	0.125 0.005"	85 to 140 3.35" to 5.51"	–
B	CODE39	0.19 0.008"	80 to 220 3.15" to 8.66"	80 to 150 3.15" to 5.91"
C	CODE39	0.25 0.01"	65 to 280 2.56" to 11.02"	60 to 200 2.36" to 7.87"
D	CODE39	0.5 0.02"	65 to 400 2.56" to 15.75"	60 to 360 2.36" to 14.17"
E	CODE39	1.0 0.04"	65 to 500 2.56" to 19.69"	60 to 450 2.36" to 17.72"

Measurement conditions: Standard KEYENCE barcode (narrow/wide bar ratio of 1:2.5);
Mounting conditions: 15° skew, 0° pitch, 0° tilt

BL-1370/1371 (long-distance type) L-1300/1301 (standard type)

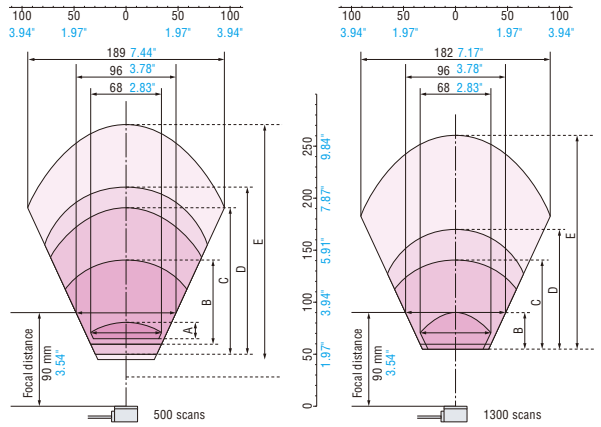


Unit: mm inch

	Barcode type	Narrow bar width	Read distance (500 scans)	Read distance (1300 scans)
A	CODE39	0.15 0.006"	205 to 250 8.07" to 9.84"	–
B	CODE39	0.19 0.008"	190 to 330 7.48" to 12.99"	–
C	CODE39	0.25 0.01"	180 to 380 7.09" to 14.96"	60 to 200 7.48" to 9.06"
D	CODE39	0.5 0.02"	170 to 500 6.69" to 19.69"	60 to 360 6.30" to 15.75"
E	CODE39	1.0 0.04"	160 to 600 6.30" to 23.62"	60 to 450 6.75" to 19.69"

Measurement conditions: Standard KEYENCE barcode (narrow/wide bar ratio of 1:2.5);
Mounting conditions: 15° skew, 0° pitch, 0° tilt

BL-1300HA/1301HA (high-resolution front type)

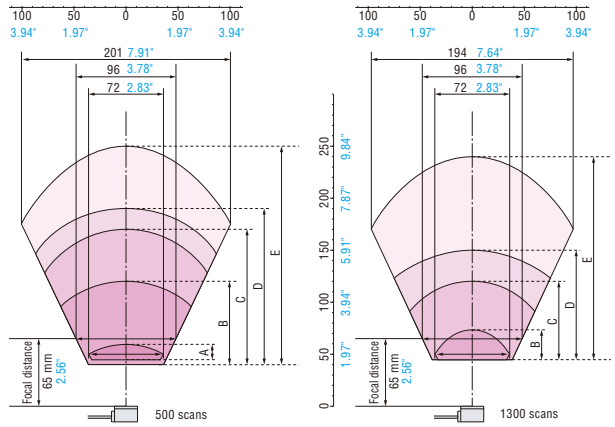


Unit: mm inch

	Barcode type	Narrow bar width	Read distance (500 scans)	Read distance (1300 scans)
A	CODE39	0.08 0.003"	65 to 80 2.56" to 3.15"	–
B	CODE39	0.125 0.005"	60 to 140 3.15" to 5.51"	55 to 90 2.17" to 3.54"
C	CODE39	0.19 0.008"	50 to 190 1.97" to 7.48"	55 to 140 2.17" to 5.51"
D	CODE39	0.25 0.01"	45 to 210 1.77" to 8.27"	55 to 170 2.17" to 6.69"
E	CODE39	0.5 0.02"	45 to 270 1.77" to 10.63"	55 to 260 2.17" to 10.24"

Measurement conditions: Standard KEYENCE barcode (narrow/wide bar ratio of 1:2.5);
Mounting conditions: 15° skew, 0° pitch, 0° tilt

BL-1350HA/1351HA (high-resolution side type)



Unit: mm inch

	Barcode type	Narrow bar width	Read distance (500 scans)	Read distance (1300 scans)
A	CODE39	0.08 0.003"	45 to 60 1.77" to 2.36"	–
B	CODE39	0.125 0.005"	40 to 120 1.57" to 4.72"	45 to 75 1.77" to 2.96"
C	CODE39	0.19 0.008"	40 to 170 1.57" to 6.69"	45 to 120 1.77" to 4.72"
D	CODE39	0.25 0.01"	45 to 190 1.57" to 7.48"	45 to 150 1.77" to 5.91"
E	CODE39	0.5 0.02"	45 to 250 1.57" to 9.48"	45 to 240 1.77" to 9.45"

Measurement conditions: Standard KEYENCE barcode (narrow/wide bar ratio of 1:2.5);
Mounting conditions: 15° skew, 0° pitch, 0° tilt

SPECIFICATIONS

BL-1300 Series

I/O specifications

Input terminals		2 inputs (IN1, IN2), non-voltage input (contact or solid-state)
Output terminals	Output format	4 (OUT1 through OUT4), NPN open collector
	Rated load	24 VDC, 30 mA
	OFF leak current	0.1 mA max.
	ON residual voltage	0.5 V max.
Serial interface	Communication standard	Conforms to EIA, RS-232C
	Baud rates	600/1200/2400/4800/9600/19200/31250/38400/57600/115200 bps
	Synchronization method	Start/stop synchronization
	Data bit length	7/8 bits
	Stop bit length	1/2 bits
	Parity check	None/Even/Odd

Long Distance Laser Barcode Reader **BL-700** Series

SPECIFICATIONS

Main unit

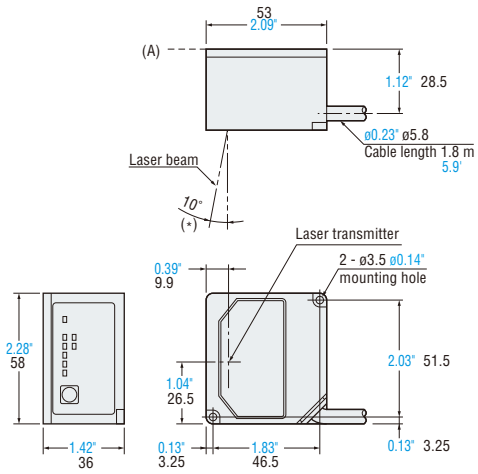
Model		BL-700	BL-701	BL-740	BL-741	BL-780	BL-781
Type		High-resolution		Middle-range		Long-range	
Scanning method *1		Single	Raster	Single	Raster	Single	Raster
Light source		Visible semiconductor laser (Wavelength: 655 nm)					
	Output	100 µW					
	Pulse duration	50 µs (FDA (CDRH) Part1040.10), 99.5 µs (IEC60825-1)					
	Laser class	Class II Laser Product (FDA (CDRH) Part1040.10), Class 2 Laser Product (IEC6085-1)					
Reading distance		160 to 370 mm 6.30" to 14.57" (When narrow bar width is 0.5 mm 0.02")		150 to 750 mm 5.91" to 29.53" (When narrow bar width is 1.0 mm 0.04")		200 to 1200 mm 7.87" to 47.24" (When narrow bar width is 2.0 mm 0.08")	
Reading bar width *2		0.15 to 1.0 mm 0.006" to 0.04"		0.25 to 2.0 mm 0.01" to 0.08"		0.32 to 2.0 mm 0.01" to 0.08"	
Largest readable label width *3		310 mm 12.20" (When reading distance is 335 mm 13.19")		600 mm 23.62" (When reading distance is 680 mm 26.77")		1010 mm 39.76" (When reading distance is 1080 mm 42.52")	
PCS		0.6 or more (Reflectance of white part: 75% or more)					
Scanning rate		700 scans/sec					
Target code		CODE39, ITF, 2of5(Industrial 2of5), COOP2of5, NW-7(Codabar), CODE128, GS1-128, CODE93, JAN/EAN/UPC					
Number of readable digits		32 digits max. *4					
Trigger input		Non-voltage input (contact, solid-state), TTL input is also possible.					
Serial interface	Applied standard	RS-232C					
	Synchronization	Start-stop					
	Transmission code	ASCII					
	Baud rate	600/1200/2400/4800/9600/19200/31250/38400 bps					
	Data length	7/8 bits					
	Parity check	None/Even/Odd					
	Stop bit length	1 bit/2 bits					
OK/NG output	Output form	NPN					
	Rated load	24 VDC, 30 mA					
	Leakage current (at OFF)	0.1 mA max.					
	Residual voltage (at ON)	0.5 V max.					
Environmental resistance	Enclosure rating	IP65					
	Ambient light	Sunlight: 10000 lux, Incandescent lamp: 6000 lux		Sunlight: 10000 lux, Incandescent lamp: 4000 lux		Sunlight: 8000 lux , Incandescent lamp: 3000 lux	
	Ambient temperature	0 to 40°C 32 to 104°F, No condensation					
	Relative humidity	35 to 85%, No condensation					
	Operating atmosphere	No dust or corrosive gas present					
	Vibration	10 to 55 Hz, 1.5 mm 0.06" double amplitude in X, Y, and Z directions, 2 hours respectively					
Power rating	Power supply voltage	5 VDC ±5%					
	Current consumption	510 mA max.					
Weight		Approx. 300 g (including cable)					

*1 BL-701 raster width: 10 ±1 mm 0.39" ±0.04" (reading distance: 200 mm 7.87") BL-741 raster width: 20 ±2 mm 0.79" ±0.08" (reading distance: 300 mm 11.81")
BL-781 raster width: 30 ±3 mm 1.18" ±0.12" (reading distance: 450 mm 17.72")
*2 When the barcode type is CODE39.
*3 Largest reading label width includes the barcode margin (quiet zone).
*4 When start/stop character of CODE128 is CODE-C, up to 64 digits are allowed.
Note: The internal BL settings are written to the built-in EEPROM (erasable up to 100,000 times).

DIMENSIONS

Unit: mm inch

BL-700 Series

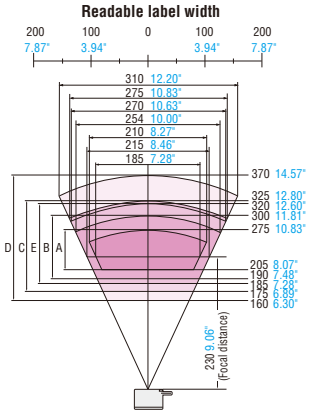


* The laser beam radiates at 10 ±0.5° perpendicular to side (A).

READING DISTANCES

Unit: mm inch

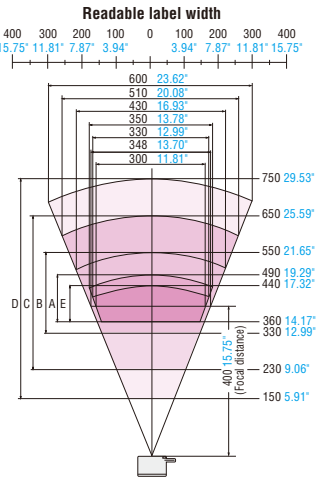
BL-700/701



	Narrow bar width	
A	0.15 mm	0.006"
B	0.19 mm	0.008"
C	0.25 mm	0.01"
D	0.5 mm	0.02"
E	1 (EAN)	

(Measuring conditions)
- The KEYENCE standard barcode is used.
- Skew: 0°
- Pitch: 0°
- Tilt: 0°
- Ratio 1:2.5
- Including the margins

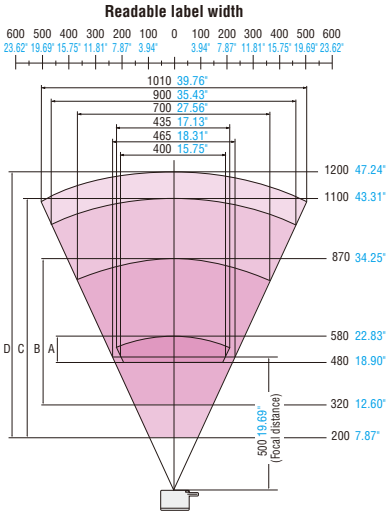
BL-740/741



	Narrow bar width	
A	0.25 mm	0.01"
B	0.32 mm	0.013"
C	0.5 mm	0.02"
D	1 mm	0.04"
E	1 (EAN)	

(Measuring conditions)
- The KEYENCE standard barcode is used.
- Skew: 0°
- Pitch: 0°
- Tilt: 0°
- Ratio 1:2.5
- Including the margins

BL-780/781



	Narrow bar width	
A	0.32 mm	0.013"
B	0.5 mm	0.02"
C	1.0 mm	0.04"
D	2.0 mm	0.08"

(Measuring conditions)
- The KEYENCE standard barcode is used.
- Skew: 0°
- Pitch: 0°
- Tilt: 0°
- Ratio 1:2.5
- Including the margins

SPECIFICATIONS

Main unit

Model		BL-180	BL-185
Model (with connector)		**BL-180SO (7030)**	**BL-185SO (7031)**
Reading direction		Front	Side
Light source/Light receiving element		LED/CCD image sensor	
Scanning distance		33 ±10 mm 1.30" ±0.39" *1 (Using narrow bars of at least 0.19 mm 0.008" in width)	
Readable bar width *2		0.125 to 1.0 mm 0.005" to 0.04"	
Largest readable label width		80 mm 3.15" *3 (Using narrow bars of at least 0.19 mm 0.008" in width)	
PCS		0.45 or more (Reflectance of white part: 75% or more)	
Scanning rate		500 scans/sec	
Target code		CODE39, ITF, Industrial 2of5, COOP 2of5, Codabar, CODE128, EAN/UPC (A·E)	
Number of readable digits		32 digits	
Trigger input		Non-voltage input (contact or solid-state), TTL input is also possible.	
Serial interface	Applied standard	RS-232C	
	Synchronization	Start-stop	
	Transmission code	ASCII	
	Baud rate	600/1200/2400/4800/9600/19200/31250/38400 bps	
	Data length	7/8 bits	
	Parity check	None/Even/Odd	
	Stop bit length	1 bit/2 bits	
OK/NG output	Output form	NPN	
	Rated load	24 VDC, 100 mA	
	Leakage current (at OFF)	0.1 mA max.	
	Residual voltage (at ON)	0.5 V max.	
Environmental resistance	Ambient light	Sunlight, Incandescent lamp: 10000 lux, Fluorescent lamp: 3000 lux.	
	Ambient temperature	0 to 40°C 32 to 104°F, No condensation	
	Relative humidity	35 to 85%, No condensation	
	Operating atmosphere	No dust or corrosive gas present	
	Vibration	10 to 55 Hz, 1.5 mm 0.06" double amplitude in X, Y, and Z directions, 2 hours respectively	
Power rating	Power supply voltage	5 VDC ±5% *4	
	Current consumption	300 mA max.	
Weight		Approx. 165 g	Approx. 180 g

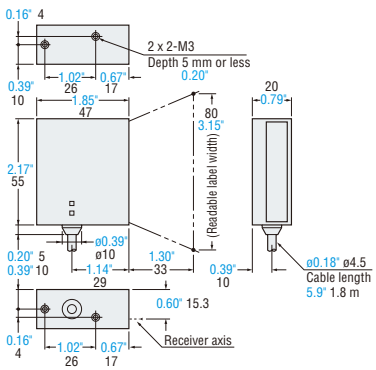
*1 33 ±5 mm 1.30" ±0.20" when the narrowest bar is less than 0.19 mm 0.008".
*2 Readable bar width indicates the range of the narrowest readable bar.
*3 60 mm 2.36" when the narrowest bar is less than 0.19 mm 0.008".
*4 Use a stable power supply of 5 VDC ±5%. The BL-U2 special power unit is available as an option.
Note: The internal BL settings are written to the built-in EEPROM (erasable up to 100,000 times).

DIMENSIONS

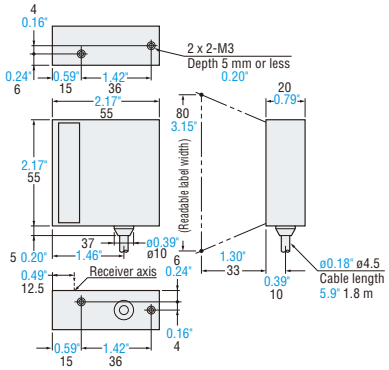
BL-180

Unit: mm inch

BL-180 Front-view type



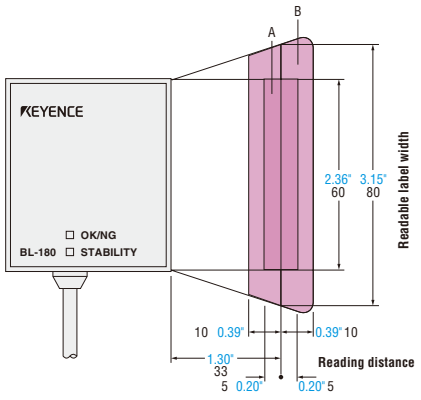
BL-185 Side view type



READING DISTANCES

BL-180/185

Unit: mm inch



	Narrow bar width
A	Less than 0.19 0.008"
B	0.19 0.008" Min.

(Measuring conditions)
- The KEYENCE standard barcode is used.
- Skew: -10°
- Pitch: 0°
- Tilt: 0°

AutoID Data Controller **DV-90** Series

SPECIFICATIONS

Main unit

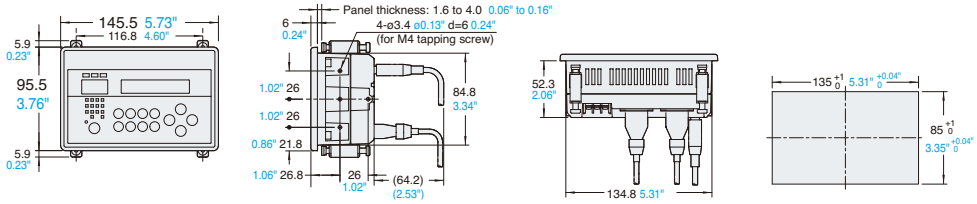
Model			DV-90NE (NPN output), DV-90PE (PNP output)
Applicable barcode reader			SR-2000/1000/750/700/G100 Series*2, BL-1300/700/600/180/N70RKE, HR-100*1
Registered preset data number			900 max.
Memory backup			Flash ROM (Rewritable: 100,000 times)
I/O terminal	Input (4 points) • Trigger input (2 points) • Unlock input • Remote input	Rated input voltage	10 to 26 VDC, 10 mA, Class 2
		Maximum OFF current	1.0 mA
	Output (16 points) • Out 1 through 12 • OK output • NG output • Read error output • Quality error output	Output form	DV-90NE: NPN Open-collector DV-90PE: PNP Open-collector
		Rated load	30 VDC, 100 mA
		Leakage current at OFF	0.1 mA max.
		Residual voltage at ON	Less than 1 V
Serial interface	PORT1 (For connecting code reader) PORT2 (For connecting PC, PLC, or code reader)	Applied standards	RS-232C
		Synchronization	Asynchronous
		Baud rate	600 to 115200 bps
		Data length	7/8 bits
		Parity check	None/Even/Odd
		Stop bit length	1 bit/2 bits
	USB (Special for connecting PC)		USB 2.0 (B type) (Communication speed fixed to 115200 bps)
Power output	Power for barcode reader		5 VDC ±5%, 1100 mA max. (at the ambient temperature of 0 to 40°C 32 to 104°F) 850 mA max. (at the ambient temperature of 40 to 50°C 104 to 122°F)
	Power for sensor		24 VDC ±10%, 250 mA max.
Environmental resistance	Enclosure rating		IP65 (only the front panel when panel-mounted)
	Ambient temperature		0 to 50°C 32 to 122°F, No condensation
	Relative humidity		35 to 85%, No condensation
	Operating atmosphere		No dust or no corrosive gas present
Power rating	Power supply voltage		24 VDC ±10%, Class 2
	Current consumption		850 mA max.
Weight			Approx. 360 g

*1 To connect the HR-100, HR-1C3RC/OP-87533 are required. To connect the HR-100B, HR-UC1/HR-1C3RB/OP-88046/OP-99022/OP-88081 are required.
*2 To connect the SR-1000/750, the OP-87533 and the OP-87527/87528/87529 are required. To connect the SR-G100, the SR-LR1/OP-27937 are required.

DIMENSIONS

Unit: mm inch

DV-90N



Multi-Drop Controller **N-410K** Series

SPECIFICATIONS

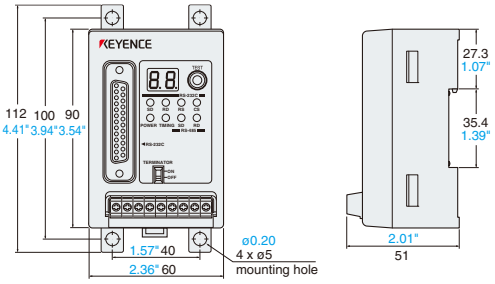
Main unit

Model		N-410K
Connectable code reader		SR-700/600, BL-1300/700/600/180 Series
Trigger input	Rated input	15 to 26.4 VDC, 10 mA max.
	Max. OFF current	1.0 mA
RS-232C	Applied standards	RS-232C
	Synchronization	Start-stop (Full-duplex)
	Transmission code	ASCII
	Baud rate	9600/19200/38400/57600/115200 bps
	Data length	7/8 bits
	Parity check	Even/Odd/None
	Stop bit length	1 bit/2 bits
RS-485	Applied standards	RS-485
	Synchronization	Start-stop (Full-duplex)
	Transmission code	ASCII
	Baud rate	600 to 115200 bps
	Data length	7/8 bits
	Parity check	Even/Odd/None
	Stop bit length	1 bit/2 bits
	Max. number of connectable units	31
	Max. total extension distance	1.2 km 0.75 mile
Environmental resistance	Ambient temperature	0 to 55°C 32 to 131°F, No condensation
	Relative humidity	35 to 85%, No condensation
Power rating	Power supply voltage	24 VDC (+10%, -20%)
	Current consumption	80 mA max.
Weight		Approx. 180 g

DIMENSIONS

Unit: mm inch

N-410K



SPECIFICATIONS

DEDICATED POWER SUPPLY/COMMUNICATION UNITS

Model			N-R2	N-R4	N-UB
Power supply for the code reader			5 VDC ± 5% (650 mA)		
Environment resistance	Operating surrounding air temperature		0 to 50°C 32 to 122°F		
	Storage ambient temperature		-20 to +60°C -4 to +140°F		
	Operating ambient humidity		35 to 85% RH, No condensation		
	Operating atmosphere		No dust or corrosive gases present		
	Vibration resistance		10 to 55 Hz, complex amplitude 1.5 mm 0.06", 2 hours in each of X, Y, and Z directions		
Rating	Power voltage		24 VDC (+10%, -20%)		
	Consumption current		380 mA or less		
Mass			Approx. 135 g	Approx. 135 g (excluding the connector)	Approx. 155 g
Terminal block	Input	Number of pins	2 (IN1 and IN2)		
		Input format	Bidirectional voltage input		
		Input maximum rating	26.4 VDC		
		Minimum ON voltage	15 VDC		
		Maximum OFF current	1 mA		
	Output	Number of pins	4 (OUT1 to 4)		
		Output format	Photo MOS relay output		
		Output rating load	30 VDC, 100 mA*		
		OFF time leak current	0.1 mA or less		
		ON time residual voltage	1 V or less		
Host interface			15 m 49.21' or less (including the head cable)	1.2 km 0.75 mile or less	5 m 16.40' or less

* To connect the BL-1300 or SR-700, the OP-80616 conversion cable (sold separately) is required. In this situation, the communication baud rate is capped at 38400 bps.

DEDICATED POWER SUPPLY/COMMUNICATION UNITS

Model			N-L20
Power supply for the code reader			5 VDC ± 5% (650 mA)
Environment resistance	Operating surrounding air temperature		0 to 50°C 32 to 122°F
	Storage ambient temperature		-20 to +60°C -4 to +140°F
	Operating ambient humidity		35 to 85% RH, No condensation
	Operating atmosphere		No dust or corrosive gases present
	Vibration resistance		10 to 55 Hz Vibration amplitude: 0.3 mm 0.01" 2 hours each in X, Y, and Z directions
Rating	Power voltage		24 VDC (+10%, -20%)
	Consumption current		380 mA or less
Mass			Approx. 150 g
Terminal block	Input	Number of pins	2 (IN1 and IN2)
		Input format	Bidirectional voltage input
		Input maximum rating	26.4 VDC
		Minimum ON voltage	15 VDC
		Maximum OFF current	1 mA
	Output	Number of pins	4 (OUT1 to 4)
		Output format	Photo MOS relay output
		Output rating load	30 VDC, 100 mA*
		OFF time leak current	0.1 mA or less
		ON time residual voltage	1 V or less
Host interface			100 m 328.09' or less

* To connect the BL-1300 or SR-700, the OP-80616 conversion cable (sold separately) is required. In this situation, the communication baud rate is capped at 38400 bps.

DEDICATED POWER SUPPLY/COMMUNICATION UNITS

Model			BL-U1SO (7176)*1
Connectable barcode reader			BL-700/600/180 Series
Power supply for barcode reader			5 VDC ±5% (1.5 A)
Power supply for sensor			12 V ±10% (300 mA)
Trigger input	Input rating		8.5 to 30 VDC, 10 mA max.
	Max. OFF current		0.5 mA
Interface			RS-232C, RS-422A, RS-485 multi-drop (Max. number of connectable units: 31) (Max. total extension distance: 1.2 km 0.75 mile)
Power rating	Power supply voltage		100 to 240 VAC (50/60 Hz)
	Power consumption		40 VA (100 VAC), 50 VA (240 VAC)
	Current consumption		–
Weight			Approx. 615 g (including cable)

*1 Available in U.S. only.

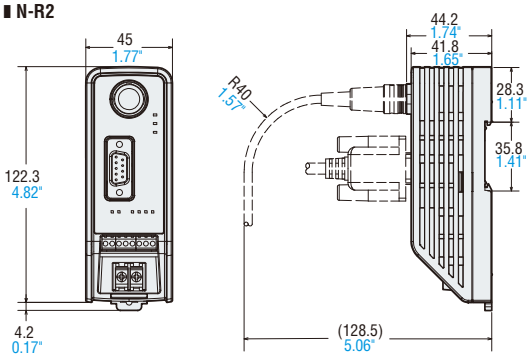
DEDICATED POWER SUPPLY/COMMUNICATION UNITS

Model			BL-U2	N-42	N-48
Conversion interface			—	RS-232C RS-422A (Level conversion)	RS-232C RS-485 (Level conversion)
Connectable barcode reader			BL-700/600/180 Series		
Power supply for barcode reader			5 VDC ±5% (630 mA)		
Power supply for sensor			—		
Trigger input	Input rating		8.5 to 26 VDC, 10 mA max.	15 to 26 VDC, 10 mA max.	
	Max. OFF current		1.0 mA		
Interface			Conforms to RS-232C approved by EIA	RS-422A (Max. total extension distance: 1.2 km 0.75 mile)	RS-485 (Max. number of connectable units: 31) (Max. total extension distance: 1.2 km 0.75 mile)
Power rating	Power supply voltage		24 VDC, +10%, -20%		
	Power consumption		—		
	Current consumption		250 mA max.	260 mA max.	
Weight			Approx. 80 g	Approx. 100 g	

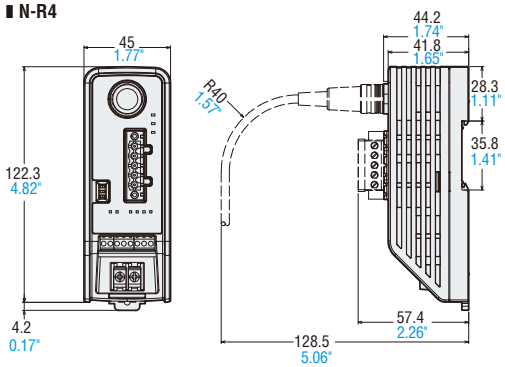
DIMENSIONS

Unit: mm inch

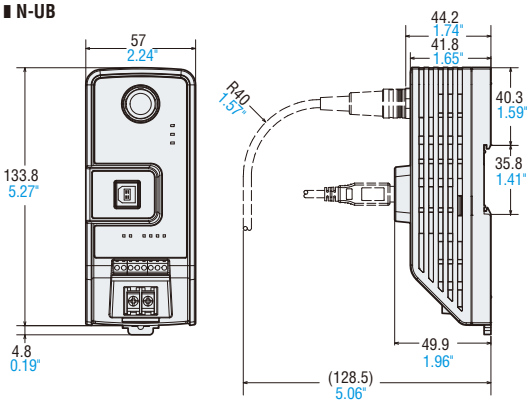
N-R2



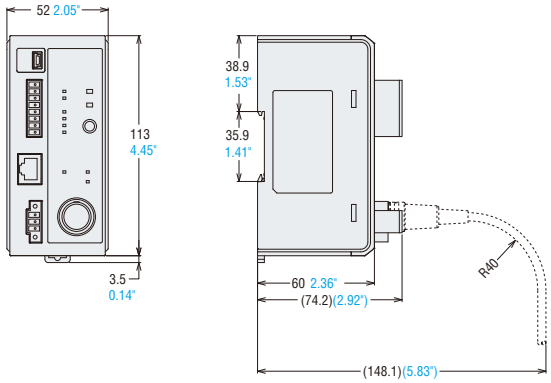
N-R4



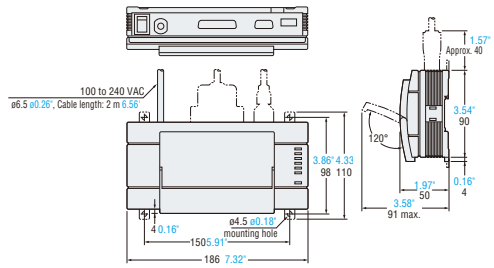
N-UB



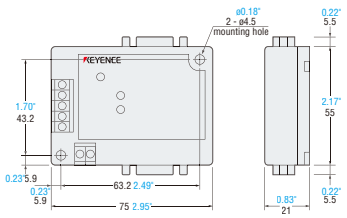
N-L20



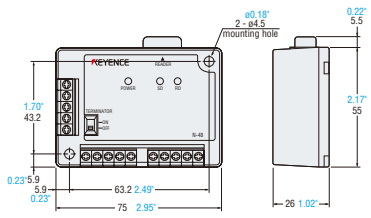
BL-U1SO (7176)



BL-U2



N-42/N-48



Ultimate Handheld Model with capability of handling **SR-G100** Series

SPECIFICATIONS

Handheld DPM Code Reader

Model			SR-G100
Receiver	Sensor		CMOS image sensor
	Number of pixels		900 × 900 pixels (2D code), 1280 × 900 pixels (Barcode)
Light emitter	Illumination light source		High-intensity red LED, High intensity blue LED
Reading specifications	Supported symbol	2D code	QR, MicroQR, DataMatrix (ECC200), GS1 DataMatrix, PDF417, MicroPDF417, GS1 Composite (CC-A/CC-B/CC-C)
		Barcode	CODE39, ITF, 2of5(Industrial 2of5), COOP 2of5, NW-7 (Codabar), CODE128, GS1-128, GS1 DataBar, CODE93, JAN/EAN/UPC, Trioptic CODE39, CODE39 Full ASCII, Pharmacode
	Minimum resolution	2D code	0.127 mm 0.005"
		Barcode	0.1 mm 0.004"
	Focal distance		30 mm 1.18"
Communication specifications	Wireless communication		Bluetooth Ver. 2.1 + EDR Class 2
	Wireless communication distance		Approx. 10 m 32.81' (line-of-sight)
	Setup communication		USB 2.0 Full Speed
Environmental resistance	Enclosure rating		IP54
	Ambient temperature		0 to +45°C 32 to +113°F/ When charging: 0 to +40°C 32 to +104°F
	Ambient storage temperature		-10 to +50°C 14 to +122°F
	Relative humidity		35 to 95% RH (No condensation)
	Ambient storage humidity		35 to 95% RH (No condensation)
	Ambient light		Sunlight: 10000 lux, Incandescent lamp: 6000 lux, Fluorescent lamp: 2000 lux
	Operating environment		No dust or corrosive gas present
	Drop resistance*		2.0 m 6.56', 50 times
Rating	Power consumption		Approx. 8.5 W
Dimensions			214 × 78.5 × 97.4 mm 8.43" × 3.09" × 3.83"
Weight			Approx. 375 g (incl. rechargeable battery pack)
Continuous usage time (Central value)			Approx. 10 hours (reading count: 10000)
Charging time			Approx. 4.5 hours

• This is a test value and is not guaranteed.

Communication unit (USB)

Model		SR-UB1
Communication specifications	Wireless communication	Bluetooth Ver. 2.1 + EDR Class 2
	Wireless communication distance	Approx. 10 m 32.81' (line-of-sight)
	USB communication	USB 2.0 Full Speed
	Interface	USB-COM, USB keyboard
Environmental resistance	Ambient temperature	0 to +45°C 32 to +113°F
	Ambient storage temperature	-10 to +50°C 14 to +122°F
	Relative humidity	35 to 95% RH (No condensation)
	Ambient storage humidity	35 to 95% RH (No condensation)
Rating	Current consumption	Approx. 80 mA
Dimensions		20.6 × 11.2 × 65.4 mm 0.81" × 0.44" × 2.57"
Weight		Approx. 15 g
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

Communication unit (Ethernet & RS-232C)

Model		SR-LR1
Communication specifications	Wireless communication	Bluetooth Ver. 2.1 + EDR Class 2
	Wireless communication distance	Approx. 10 m 32.81' (line-of-sight)
	RS-232C	9600, 19200, 38400, 57600, 115200 bps
		No-protocol, MC protocol, SYSWAY, KV STUDIO
	Ethernet	IEEE 802.3, 10BASE-T / 100BASE-TX
		TCP/IP, FTP, MC protocol, Omron PLC link, KV STUDIO, EtherNet/IP™, PROFINET
Control output	Number of points	3
	Output format	Photo MOS relay
	Maximum rating	30 VDC, 100 mA
	Leakage current when OFF	0.1 mA or less
	Residual voltage when ON	1 V or less
Environmental resistance	Ambient temperature	0 to +45°C 32 to +113°F
	Ambient storage temperature	-10 to +50°C 14 to +122°F
	Relative humidity	35 to 95% RH (No condensation)
	Ambient storage humidity	35 to 95% RH (No condensation)
Rating	Power voltage / current consumption	24 VDC ±10% / Approx. 120 mA, or use dedicated AC adapter (12 VDC) / Approx. 230 mA
Dimensions		62 × 125.8 × 40 mm 2.44" × 4.95" × 1.57"
Weight		Approx. 160 g

AC adapter

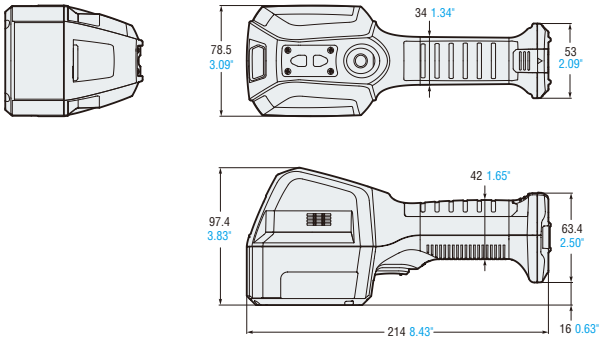
Model	OP-88020
Rated input	100 to 240 VAC, 50/60 Hz
Rated output	12 VDC, 1.5 A max.
Dimensions	104 × 43 × 31 mm 4.09" × 1.69" × 1.22" (excl. cable area)
Weight	Approx. 125 g

• Using SR-PU1 or SR-LR1. AC cable required separately.

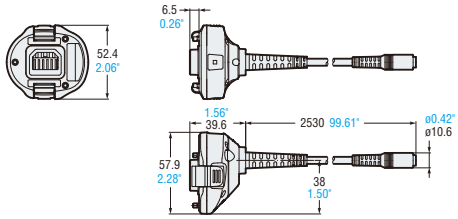
DIMENSIONS

Unit: mm inch

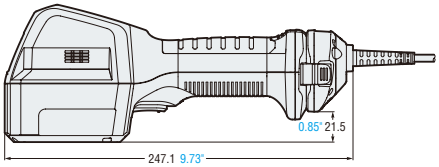
Handheld DPM Code Reader
SR-G100



SR-G100 Cable
SR-PU1

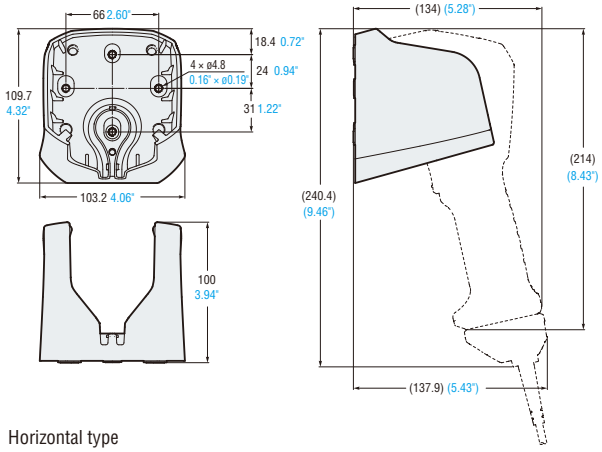


Connected **(SR-G100 + SR-PU1)**

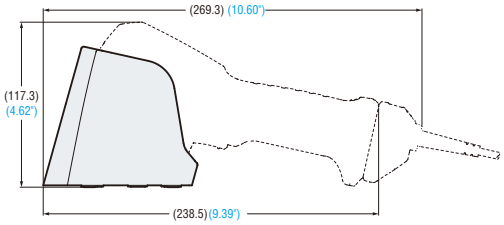


Holder
SR-HL1

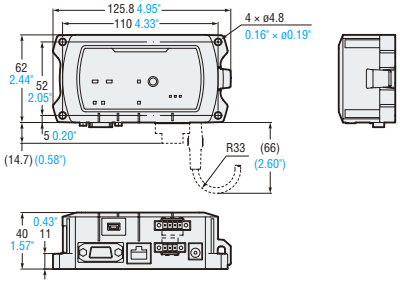
Wall-mounted



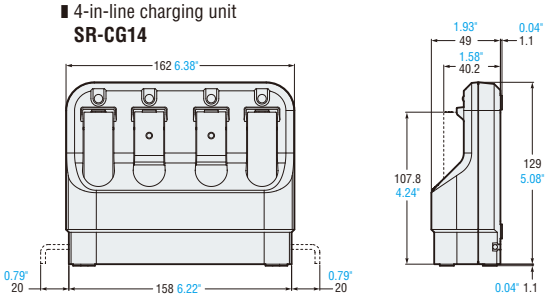
Horizontal type



Communication unit (Ethernet & RS-232C)
SR-LR1



4-in-line charging unit
SR-CG14



FIELD OF VIEW FOR READING (TYPICAL)

2D code

Unit: mm inch

Distance	Minimum resolution	Horizontal	Vertical
30 1.18"	0.127 0.005"	45 1.77"	45 2.56"
70 2.76"	0.25 0.009"	65 2.56"	65 2.56"
110 4.33"	0.5 0.020"	85 3.35"	85 3.35"

Barcode

Unit: mm inch

Distance	Minimum resolution	Horizontal	Vertical
80 3.15"	0.25 0.010"	99 3.90"	70 2.76"
120 4.72"	0.5 0.020"	127 5.00"	90 3.54"
200 7.87"	1 0.039"	184 7.24"	129 5.08"

Handheld 1D and 2D Code Reader **HR-100** Series

SPECIFICATIONS

▮ Main unit

Model			HR-100	HR-100B	HR-101	HR-101B
Type			Standard		High resolution	
Interface			Wired	Wireless	Wired	Wireless
Light source			Red LED			
Reading specifications	Supported symbol	2D	QR, MicroQR, DataMatrix (ECC200), PDF417, MicroPDF417, GS1 Composite (CC-A/CC-B/CC-C), MaxiCode, AztecCode			
		Barcode	CODE39, ITF, 2of5(Industrial 2of5), NW-7 (Codabar), CODE128, GS1-128, GS1 DataBar, CODE93, JAN/EAN/UPC, MSI, Postal, CODE11, 2of5			
	Minimum resolution	2D	0.169 mm 0.007"		0.127 mm 0.005"	
		Barcode	0.127 mm 0.005"		0.076 mm 0.003"	
	Reading distance	2D	15 to 180 mm 0.59" to 7.09" (Cell size = 0.254 mm 0.01")		0 to 114 mm 4.49" (Cell size = 0.254 mm 0.01")	
		Barcode	25 to 115 mm 0.98" to 4.53" (Narrow bar width = 0.127 mm 0.005")		0 to 96 mm 3.78" (Narrow bar width = 0.127 mm 0.005")	
Wireless	Standard		—	Bluetooth version 2.1	—	Bluetooth version 2.1
Environmental resistance	Ambient temperature		0 to 50°C 32 to 122°F			
	Relative humidity		5 to 95% RH (no condensation)			
	Ambient light		Sunlight: 10000 lux, Fluorescent lamp: 2000 lux			
	Drop impact resistance		1.8 m 5.91' 50 times on concrete			
Rating	Power voltage		4.0 to 5.5 VDC	—	4.0 to 5.5 VDC	—
	Current consumption		Reading: 450 mA, Standby: 90 mA	—	Reading: 450 mA, Standby: 90 mA	—
Operating time (when using HR-B1)*			—	Approx. 14 hours	—	Approx. 14 hours
Dimensions			161 × 86 (head) × 71 mm (head) 6.34" × 3.39" × 2.80"			
Weight			Approx. 150 g	Approx. 225 g	Approx. 150 g	Approx. 225 g

*Typical example at 1 scan/s

▮ HR-100B/101B options

Model		HR-UC1
Type		Communication Unit
Wireless	Standard	Bluetooth version 2.1
Rating	Power voltage	4.5 to 5.5 VDC
	Current consumption (with AC adapter)	1000 mA
Charging time (with AC adapter)		Approx. 4.5 hours
Dimensions		81 × 132 × 101 mm 3.19" × 5.20" × 3.98"
Weight		Approx. 180 g

Laser Handheld Barcode Reader **BL-N70** Series

SPECIFICATIONS

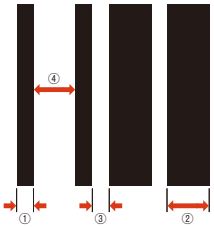
▮ Main unit

Model		BL-N70VE	BL-N70UBE	BL-N70RE*1	BL-N70RKE
Interface		PS2	USB	RS-232C*2	RS-232C For KEYENCE products
	Connector type	Mini-DIN 6-pin	USB (Type A)	D-sub 9-pin (female)	
Light source		Visible red semiconductor laser (Wavelength 650 nm)			
	Output	40 µW			
	Pulse duration	1.5 ms			
	Laser class	Class 1 Laser Product (IEC 60825-1, FDA (CDRH) Part1040.10)*3			
Reading distance		0 to 177 mm 0" to 6.97" (When the narrow bar width is 0.66 mm 0.03")			
Resolution		0.125 mm 0.005" min.			
PCS		0.35 min.			
Scanning rate		72 scans per second			
Target codes		CODE39, ITF, 2of5(Industrial 2of5), NW-7(Codabar), CODE128, GS1-128, GS1 DataBar, CODE93, JAN/EAN/UPC			
Readable bar width		Maximum 3 to 40 digits (80 digits with CODE128 CODE-C)			
Environmental resistance	Ambient light	4800 lux			
	Ambient temperature	0 to 40°C 32 to 104°F			
	Relative humidity	35 to 85% RH, No condensation			
	Operating atmosphere	No dust or corrosive gas			
Ratings	Power supply	5 VDC ±5%			
	Current consumption	200 mA max.			
EMI		EN 55022, Class B			
Weight		Approx.100 g			

*1 Available in U.S. and Canada only.
*2 An AC adapter is included for BL-N70RE. The power supply voltage for the included AC adapter is 100-240 VAC. OP-99002 (AC cable) is required. BL-N70RE does not comply with the requirements on CE Marking.
*3 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No.50.

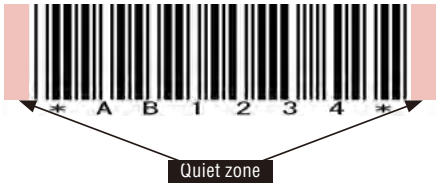
Barcode Information & Tips

BARCODE



(1) Narrow bar width (NB): Thinnest bars
(2) Wide bar width (WB): Thickest bars
(3) Narrow space width (NS): Thinnest space
(4) Wide space width (WS): Thickest space

Ratio - NB:WB = NS:WS = 1:2 to 1:3

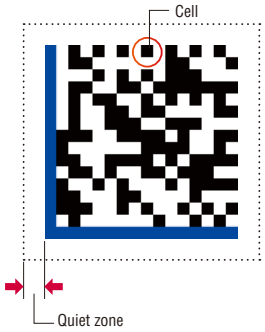


Quiet zone

White space ten times or more than the size of the narrow bar width; must be both before and after the code.

2D CODE

DataMatrix

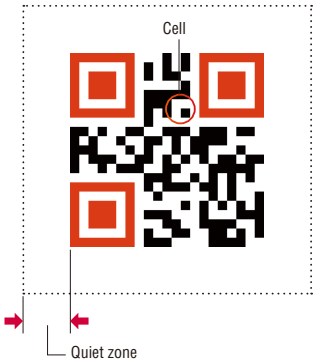


Quiet zone
(required for the 4 directions surrounding the code)

Quiet zone width → Width of 1 cell

Alignment pattern → L-shaped part

QR



Quiet zone
(required for the 4 directions surrounding the code)

QR
Quiet zone width → Width of 4 cells

MicroQR
Quiet zone width → Width of 2 cells

Alignment pattern → 3 corners (QR) or 1 corner (microQR)

TYPES OF 2D CODE VERIFICATION STANDARDS

This section introduces typical code quality verification standards.

ISO/IEC 15415

A 2D code quality evaluation standard established by the International Organization for Standardization.
This standard is mainly used for evaluation of 2D codes printed on labels.

ISO/IEC TR 29158 (AIM DPM-1-2006)

A 2D code quality evaluation standard for direct part marking (DPM) established by the Automatic Identification Manufacturers. This standard was established based on ISO/IEC15415 and also standardized by International Organization for Standardization in 2011.

Basic Steps for Selecting a Code Reader

It is important to choose the correct model to ensure stable reading. The three steps below are key.

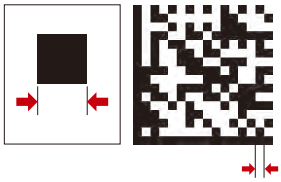
Step 1 Check code conditions

The most important thing is to check the resolution of the code you are reading.

Barcodes are defined by widths of Narrow Bars (NB), whereas 2D codes are defined by Cell Sizes (CS).

NB: The width of the narrowest bar

CS: The size of the smallest cell

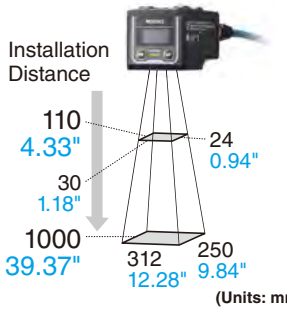


Step 2 Check the Reading Distance/Field of View

The possible reading distance depends on the above-mentioned NB or CS.

Where the reading distance is restricted, you must consider both the code reader's reading range specifications as well as the code conditions.

Also, the further the reading distance, the larger the field of view becomes.



(Units: mm inch)

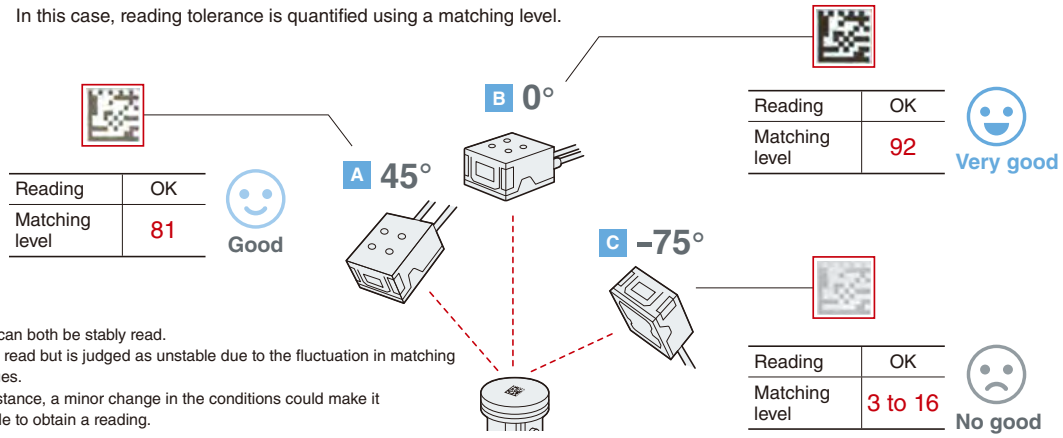
Minimum Resolution and Possible Installation Distance Units (mm inch)

Distance	2D code	Barcode
110 4.33"	0.063	0.082
110 to 140 4.33" to 5.51"	0.082	
110 to 230 4.33" to 9.05"	0.14	
110 to 300 4.33" to 11.81"	0.18	0.11
110 to 400 4.33" to 15.74"	0.24	0.15
110 to 600 4.33" to 23.62"	0.37	0.22
110 to 1000 4.33" to 39.37"	0.61	0.37

Step 3 Field Testing

Based on the values in Step 2, carry out a live reading test with actual targets.

In this case, reading tolerance is quantified using a matching level.



*A and B can both be stably read.
C can be read but is judged as unstable due to the fluctuation in matching level values.
In this instance, a minor change in the conditions could make it impossible to obtain a reading.

Consulting Sheet

Barcode/2D Code Basic Information

Code Types

(Data Matrix, QR, EAN, Code128...)

Resolution

mm inches

Code Size

mm inches

×

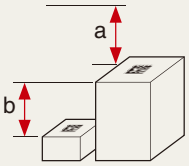
mm inches

Printing Method

- ☐ Laser Marker
- ☐ Inkjet Printer
- ☐ Printing/Label

Installation Conditions

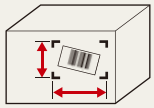
Installation Distance/Reading Distance



a mm inches

b mm inches

Reading Field of View



mm inches

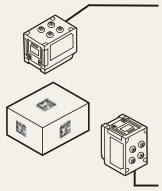
×

mm inches

Multiple Code Reading

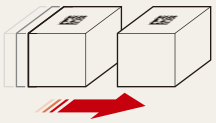
Number of Codes for Reading

Number of Sides for Reading



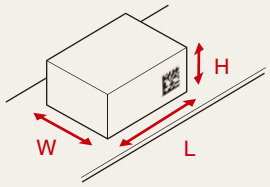
Reading While in Motion

Line Speed



m/min inches/min

Target Size

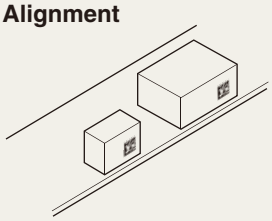


L mm inches

W mm inches

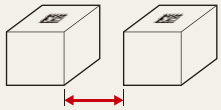
H mm inches

Alignment



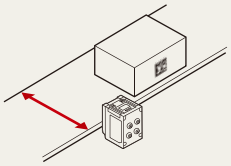
- ☐ Yes
- ☐ No

Distance Between Targets



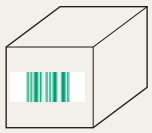
mm inches

Conveyor Width



mm inches

Code Color



- ☐ Yes
- ☐ No

CODE39

NB=0.25 mm 0.01", NB:WB=1:2.5

NB=1.0 mm 0.04", NB:WB=1:2.5

ITF

NB=0.25 mm 0.01", NB:WB=1:2.5

NB=1.0 mm 0.04", NB:WB=1:2.5

UPC-A

NB=0.33 mm 0.013", bar width ratio=1:2:3:4

EAN

NB=0.33 mm 0.013", bar width ratio=1:2:3:4

CODE128

NB=0.25 mm 0.01", bar width ratio=1:2:3:4

Data Matrix

Cell size=0.25 mm 0.01"

Cell size=0.25 mm 0.01"

Cell size=0.63 mm 0.025"

Cell size=0.63 mm 0.025"

QR

Cell size=0.25 mm 0.01"

Cell size=0.63 mm 0.025"

KEYENCE

CALL TOLL FREE | TO CONTACT YOUR LOCAL OFFICE **1-888-KEYENCE** 1-888-539-3623

www.keyence.com

SAFETY INFORMATION
Please read the instruction manual carefully in order to safely operate any KEYENCE product.

CONTACT YOUR NEAREST OFFICE FOR RELEASE STATUS

KEYENCE CORPORATION OF AMERICA

Head Office 500 Park Boulevard, Suite 200, Itasca, IL 60143, U.S.A. **PHONE:** +1-201-930-0100 **FAX:** +1-855-539-0123 E-mail: keyence@keyence.com

AL Birmingham
AR Little Rock
AZ Phoenix
CA San Francisco
CA San Jose
CA Cupertino
CA Los Angeles
CA Irvine
CO Denver
FL Tampa
GA Atlanta
IA Iowa
IL Chicago
IN Indianapolis
KY Louisville
MA Boston
MI Detroit
MI Grand Rapids
MN Minneapolis
MO Kansas City
MO St. Louis
NJ Elmwood Park
NY Rochester
NC Charlotte
NC Raleigh
OH Cincinnati
OH Cleveland
OR Portland
PA Philadelphia
PA Pittsburgh
SC Greenville
TN Knoxville
TN Nashville
TX Austin
TX Dallas
WA Seattle
WI Milwaukee

KEYENCE CANADA INC.

Head Office PHONE: +1-905-366-7655 FAX: +1-905-366-1122 E-mail: keyencecanada@keyence.com
Montreal PHONE: +1-514-694-4740 FAX: +1-514-694-3206 Windsor PHONE: +1-905-366-7655 FAX: +1-905-366-1122

KEYENCE MEXICO S.A. DE C.V.

PHONE: +52-55-8850-0100 FAX: +52-81-8220-9097
E-mail: keyencemexico@keyence.com

KA1-1017
BL-KA-C10-US 1038-3 611G55