ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Keyence BL-180* at our website: *Click HERE*

KEYENCE

AutoID
General Catalog

BARCODE READERS
2D CODE READERS
AUTO ID DATA CONTROLLERS





Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Product Lineup / Index

ULTRA-COMPACT 2D CODE READER
SR-600 SERIES **NEW**

04



- Reliable Moving Object Code Detection
- Advanced Reading Flexibility
- Easy Setup & Maintenance

Reading range

SR-600HA	0.67" to 2.13" 17 mm to 54 mm
SR-600	1.06" to 3.82" 27mm to 97 mm
SR-610	1.38" to 8.07" 35 to 205 mm

HIGH SPEED DIGITAL TYPE
BL-1300 SERIES **NEW**

12



- Hi Scan Speed: 1300 scans/sec
- High Resolution: 0.003" 0.08 mm
- Unmatched reading ability on poor quality codes

Reading range

BL-1300HA	1.77" to 10.63" 45 to 270 mm
BL-1300	2.56" to 19.69" 65 to 500 mm
BL-1370	6.30" to 23.62" 160 to 600 mm

LONG-RANGE LASER TYPE
BL-700 SERIES

18



- Superior reading angle capabilities
- Longest reading range in its class: 3.9' 1.2 m
- 700 scans/s

Reading range

BL-700	6.30" to 14.57" 160 to 370 mm
BL-740	5.91" to 29.53" 150 to 750 mm
BL-780	7.87" to 47.24" 200 to 1200 mm

ULTRA-SMALL LASER TYPE
BL-600 SERIES

20



- Excellent reading depth and angle characteristics
- 500 scans/s

Reading range

BL-600	2.95" to 12.99" 75 to 330 mm
BL-600HA	2.17" to 7.48" 55 to 190 mm

ULTRA-SMALL CCD TYPE
BL-180 SERIES

22



- Ultra small size
- 500 scans/s

Reading range

BL-180	1.30" ± 0.39" 33 ±10 mm

AUTO ID DATA CONTROLLER
DV-90 SERIES

24



- Verify barcode data and output results in parallel

COMPACT HANDHELD READER
BL-N70 SERIES

28



- Superb reading ability
- 4 connection options for various applications

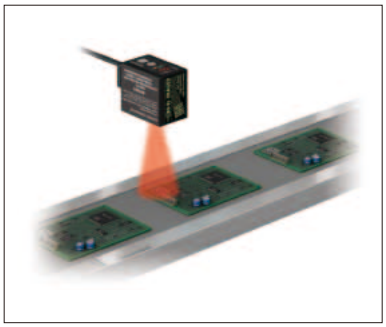
26 MULTI-DROP CONTROLLER
N-410K SERIES

29 PERIPHERAL DEVICES

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

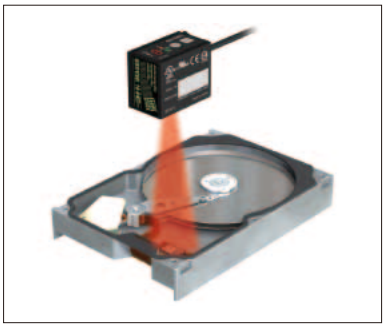
Reliable Code Readers for A Wide Range of Applications

SR-600 SERIES 04



ECU: Traceability

The SR-600 easily reads different colored boards with alternate settings across 16 different memory banks.



HDD: Traceability

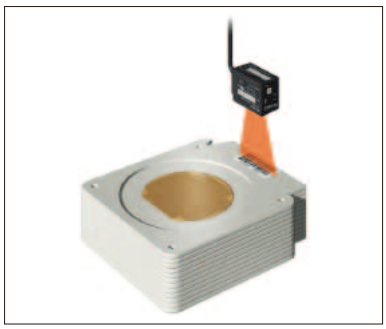
Reading the code on HDD parts to automatically control and log the manufacturing, inspection and tracability records of all items.



RSS code check

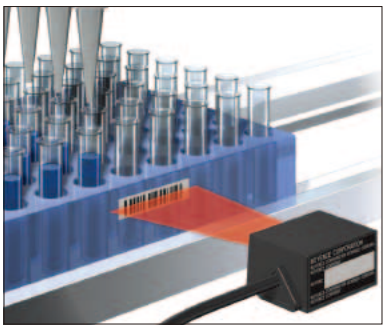
The SR-600 inspects and checks laser marked RSS codes.

BL-1300 SERIES 12



Wafer handler management

Stable reading for laser marked and low contrast ceramic barcodes.



Verification of pipette tray

The world's smallest barcode reader, BL-1300, can be mounted in limited space applications.



Verification of test tubes

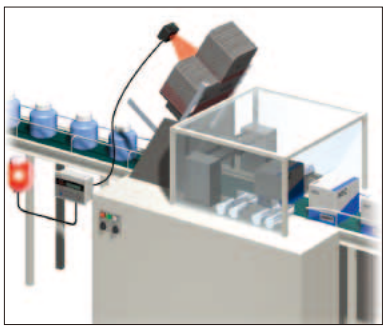
With its compact body and high speed reading capability, the BL-1300 can easily read the barcodes on medical test tubes.

BL-700 SERIES 18 /DV-90 SERIES 24



Seat parts: Traceability

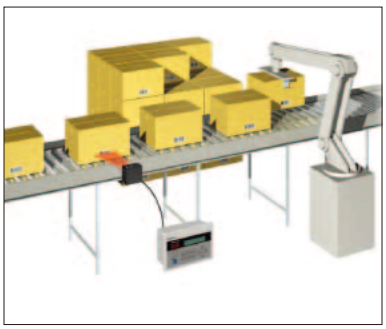
Barcodes are used for traceability management of the seat's weight, configuration, and seat belt ID.



Cartoner: Prevent mixing

A reliable read is ensured, even for barcodes with low PCS*, such as those on cardboard boxes.

*Print Contrast Standard



Product control

The preset number for the read barcode can be output enabling product sorting and control.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



The Smallest 2D Code Reader in its class

SR-600 SERIES

ULTRA-COMPACT 2D CODE READER

c UL us LISTED

[HI-SPEED]

Reliable Moving Object Code Detection

Fastest in its class: New optical design with high-speed, high-sensitivity imaging allows the SR-600 Series to read codes moving as fast as 160m/min.



[HI-PERFORMANCE]

Advanced Reading Flexibility

Simple setup with advanced reading ability. Up to 16 parameter banks allow greater flexibility when reading conditions change.



[HI-RELIABILITY]

Easy Setup & Maintenance

Easy calibration can be performed by simply pressing the TUNE button. Built-in USB connectivity enables [Live] monitoring, testing, and function changes via the easy-to-use AutoID Navigator software.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

New Optical Design



Reliably detects difficult-to-read and moving object codes. The new SR-600 Series optics were designed to overcome these conventional reader problems. Using KEYENCE's advanced decoding knowledge and techniques, the SR-600 Series emerges as a leader in compact 2D code readers.

Accurately captures moving and difficult-to-read codes with its high-intensity LED lighting and high-sensitivity CMOS.

HIGH-INTENSITY LED
Light intensity: 2.5 times greater than conventional readers
Provides a high illumination light source to improve reading capabilities on moving objects and difficult-to-read codes.

REVERSE ERNOSTAR LENS
Image clarity: 2 times greater than conventional readers
Reduces aberrations to improve image clarity and reading stability

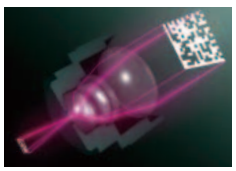
HIGH-SPEED, HIGH-SENSITIVITY CMOS
Imaging speed: 3 times greater than conventional readers
Sensitivity: 8 times greater than conventional readers
Provides faster imaging speed and improved stability

HIGH-SPEED DSP
Processing speed: 3 times greater than conventional readers
Enables high-speed decoding

LASER POINTER
Accurately position the reader

Approx. 3x greater reading speed

Approx. 40x greater code recognition



Reverse Ernostar lens

A reverse Ernostar lens is utilized to minimize aberration.
Although small, the reverse Ernostar lens is practically free from image distortion and offers excellent reading performance. Since it is glass, the reverse Ernostar lens resists environmental changes and maintains stable reading, even under severe manufacturing conditions.

Smallest in its Class with Outstanding Ease-of-Use

KEYENCE focused on functionality and ease-of-use, all while designing the smallest 2D code reader in its class.

ULTRA HIGH-DENSITY DESIGN BODY
High-density body protects the optical system and circuits, etc.

9 SEGMENT LED DISPLAY
Displays reading stability and bank number

TUNING BUTTON/TEST BUTTON
Initiate tuning and test modes



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

HI-SPEED

Fastest in its class
with detection up to 160m/min



Fastest in its class

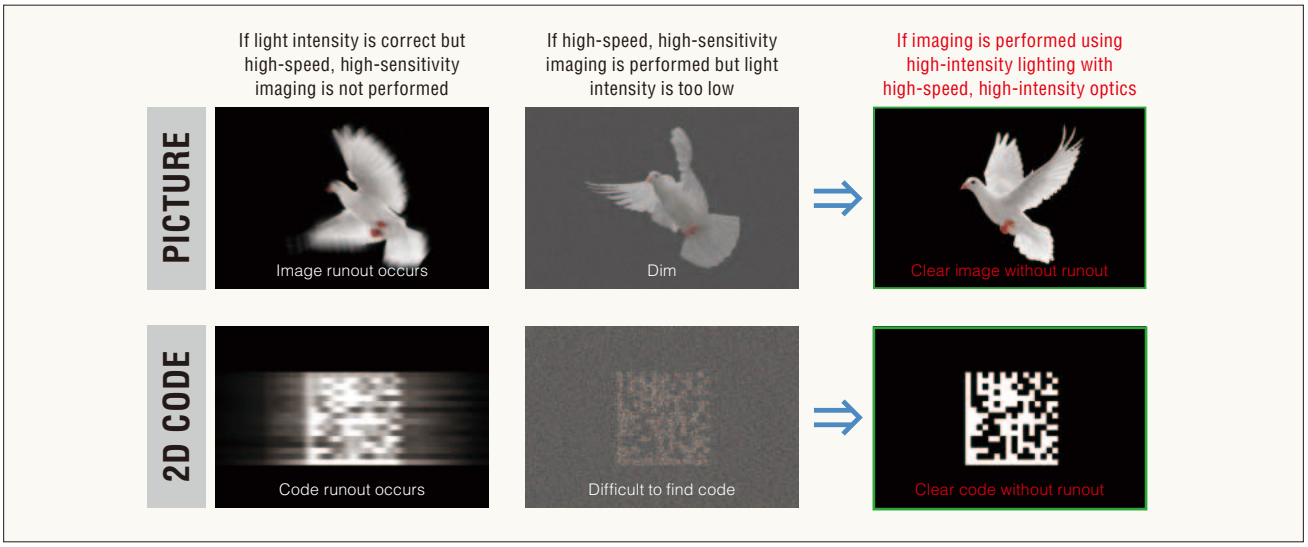
Hi-speed imaging performance up to 160m/min*

KEYENCE introduces its fastest in class performance technology to the SR-600 Series 2D code readers.
Fusing a new optical design with advanced decoding techniques, in-line, high-speed 2D code reading is now a reality.

* Using a test code containing the data: KEYENCE

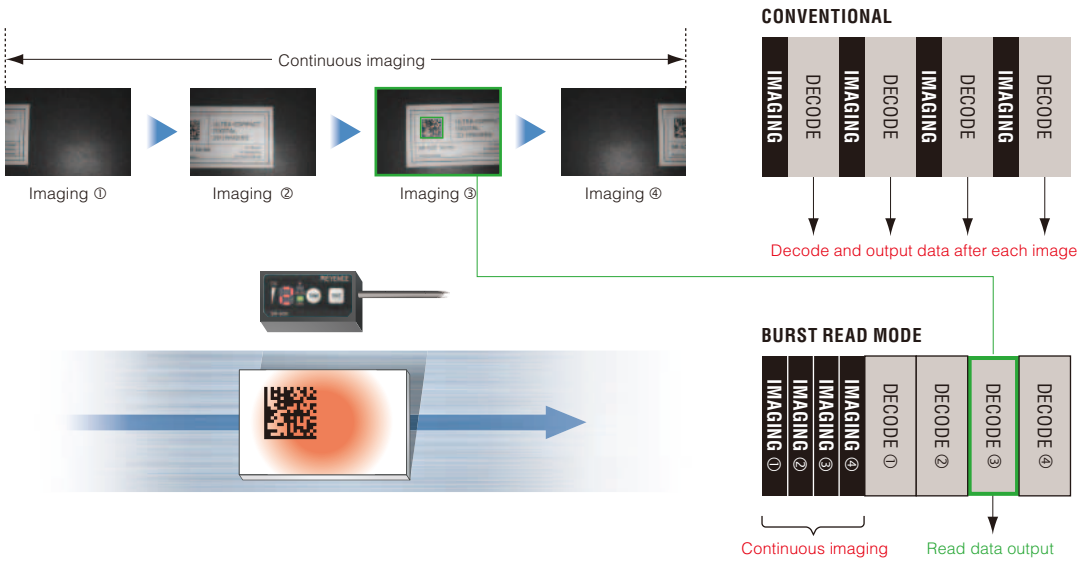
Ultrahigh-Intensity Lighting paired with High-Sensitivity Imaging & High-Speed Processing

An ultrahigh-intensity LED was adopted to illuminate codes that move at high speeds. Paired with high-speed, high-sensitivity optics, precision 2D code detection is possible up to 160m/min. Complete high-speed decoding is possible when combined with the SR-600's high-speed digital signal processing (DSP).



NEW Burst Read Mode

Burst Read mode acquires up to 8 consecutive images as a part quickly passes through the SR-600's field of view. The decoding process is not performed until all images have been captured. Conventional readers decode each image after it is captured, preventing additional imaging until the decode process is complete. The Burst Read mode allows for higher speed code detection as decoding is not performed until multiple images have been captured.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Best reading ability in its class

The SR-600 Series was not just designed to be the smallest in its class.
It was designed to meet the high reading performance and capability standards of KEYENCE.

New Optical Design makes Codes Brighter & Clearer

The easiest way to improve code reading capability is to improve code clarity. The SR-600 combines the proper balance of lighting and processing to improve code clarity on all surface types.

Illuminates codes with sufficient light intensity



Difficult-to-read workpiece due to dark background (black resin)

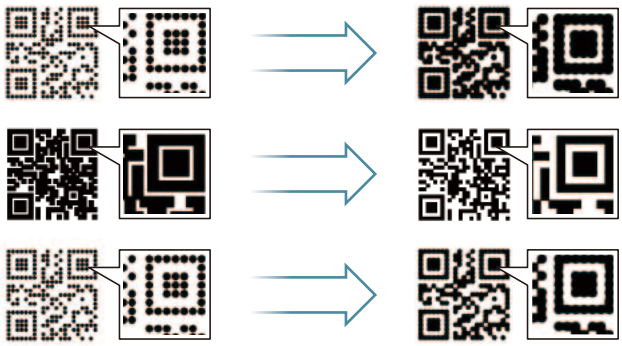
The Hi-DR function suppresses luster to improve code contrast



Difficult-to-read workpiece due to low contrast caused by high luster

Built-in image filters Provide- Stable Reading

Specialized KEYENCE image filters provide stable reading by reducing poor printing and noise factors.



EXPANSION FILTER
Expands the printed portion of the code to make it more uniform for simple decoding.

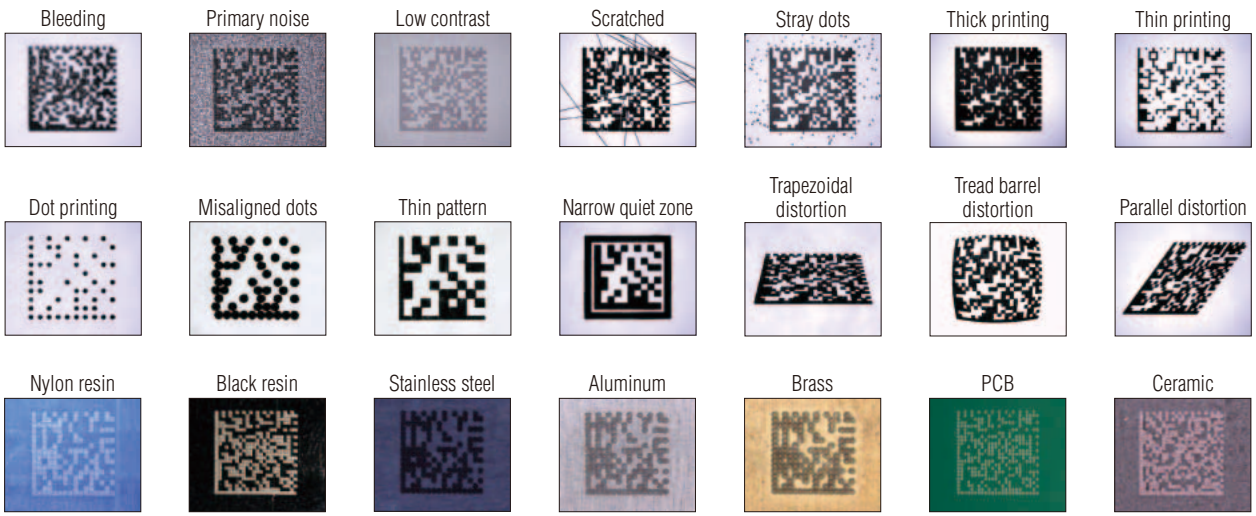


SHRINK FILTER
Shrinks the printed portion of the code, making thick printed codes easier to read.



CLOSE PROCESSING
Combining both the expansion and shrink filters enables printed dots to be connected without changing the print thickness.

SAMPLE CODES



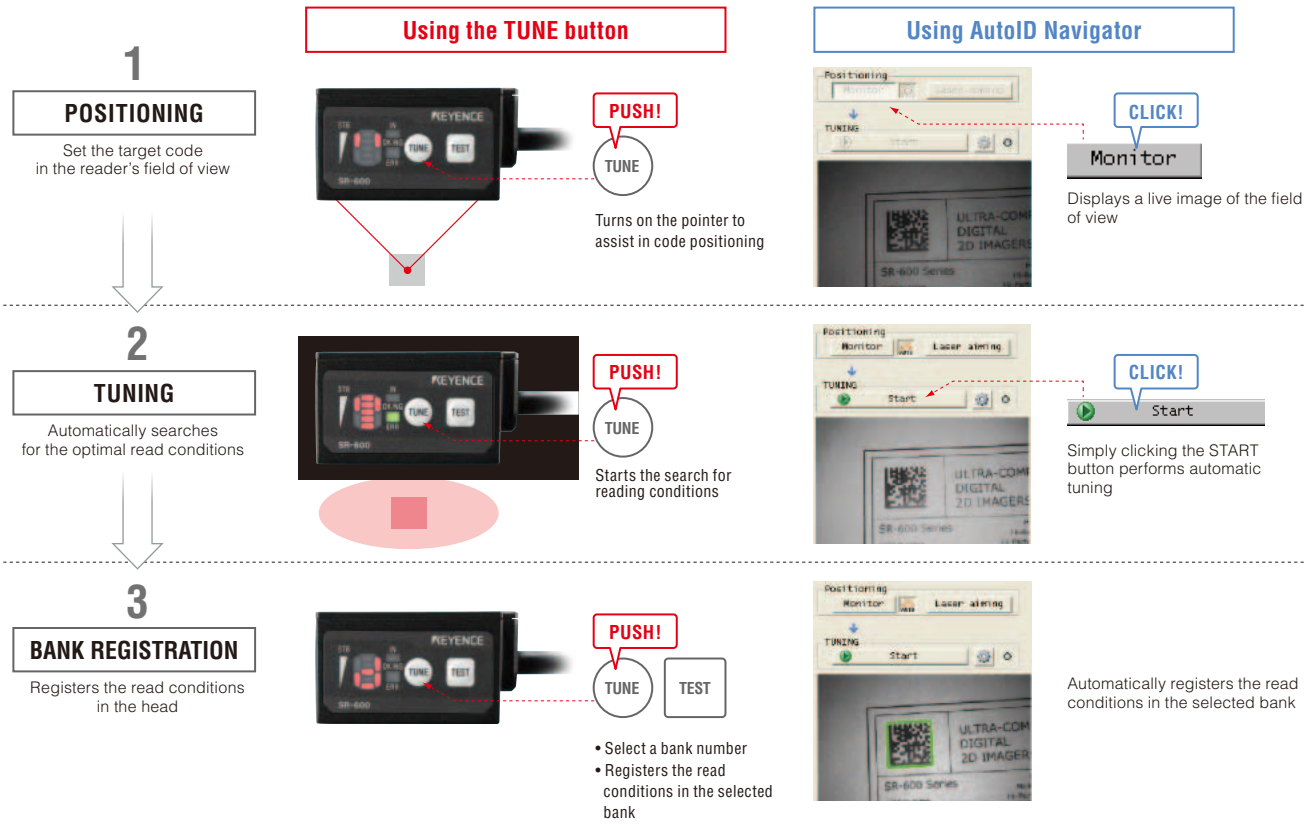
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Simple Setup

In order to be reliable, the reader must not only deliver strong performance, but also must be simple to use. KEYENCE designed the SR-600 Series with this ease-of-use in mind.

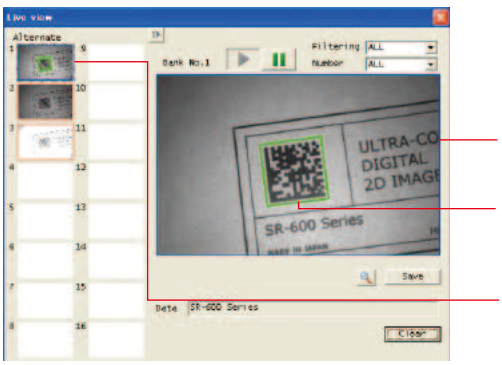
EASY TUNING 1·2·3

Tuning can be performed by one of two simple procedures: by using the TUNE button on the reader OR via the AutoID Navigator software.



Easy Startup from Live View

Employing the first hybrid USB interface in its class has made it possible to display, in real time, high-definition images on a PC screen. Manhours for startup and maintenance can be drastically reduced because the images can be displayed simultaneously on the PC screen and the test mode screen.

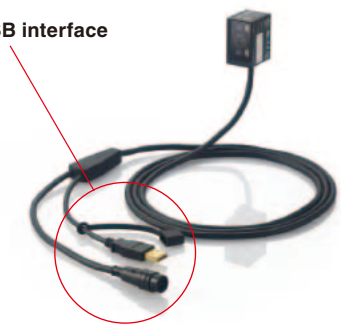


Live image (20 frames/second)

When a live image is being read, the code is located and a target box □ appears.

When a parameter bank is set, the bank number currently being read is displayed in a blue frame.

Fastest in its class **Hybrid USB interface**



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

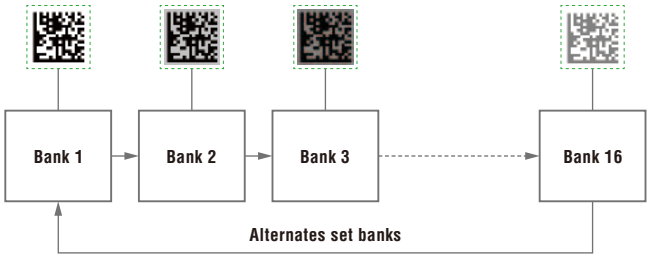
Advanced functions that simplify operation

KEYENCE designed multiple functions into the ultra-compact 2D code reader that not only provide high performance, but also account for various condition changes that may occur during actual operation.

PARAMETER BANK & ALTERNATE FUNCTION

The Parameter Bank & Alternate Function allow the user to register up to 16 different reading conditions. This allows the reader to automatically compensate for changes in reading conditions, such as code contrast.

Automatic switching of up to 16 optimum conditions



ELIMINATE CONVENTIONAL READING PROBLEMS

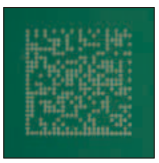
Unstable printing conditions

Printing quality and conditions vary with the type of printing and material used.

Black resin



PCB



Setup change occurrence

Equipment setup changes sometimes involve completely different workpieces that require the labor intensive task of resetting scanning settings.

White background



Inverted



Variable reading positions

Reading can become unstable if the code position changes in the field of view.

Center of field of view



Corner of field of view



ON-BOARD TEST MODE

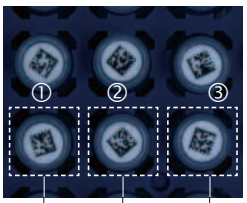
Pressing the TEST button enables you to start various test modes.



Reading rate measurement mode	Displays the reading success rate.
Tact measurement mode	Displays the time required for reading using a level display.
Code position measurement mode	Displays the displacement from the center of the code reading area using a level display.

READING AREA LIMITATION FUNCTION

The reading area can be split into smaller focus areas to read multiple codes in the field of view. Data can be output in any order.





Output of data from each area in specified order

ENVIRONMENTALLY-RESISTANT [IP65]

The main body has been designed from environmentally resistant magnesium die-cast, which meets IP65 specifications for use, even in harsh environments.

HIGH-RESOLUTION LINEUP

Three different reader types, tailored to accurate, high resolution decoding, are available. A minimum resolution of 0.08 mm 0.003" is possible when reading 2D codes.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

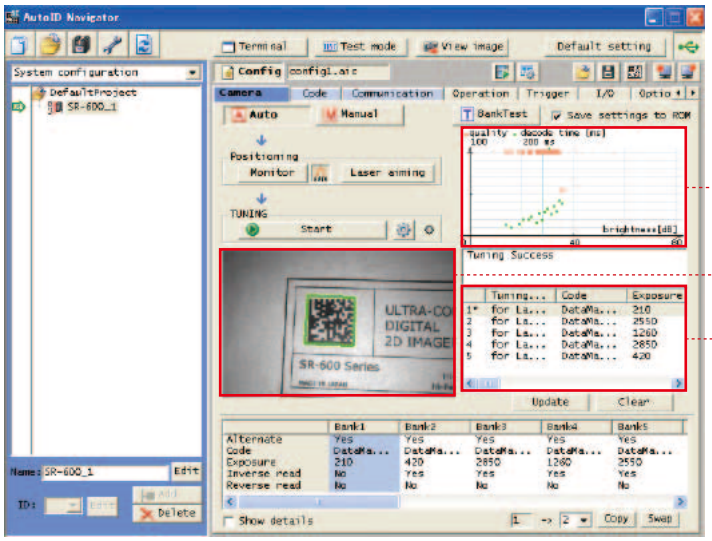
Setup, test, and troubleshoot

The AutoID Navigator will immediately eliminate concerns such as “difficult calibration”, “long setup time”, and “troublesome maintenance”.

SIMPLE OPERATION FROM BASIC SETTING TO MANUAL TUNING

AUTOMATIC TUNING

Simple, step-by-step calibration enables you to easily and automatically set the optimum reading conditions. You can perform tuning with ease while actually monitoring read images.



Tuning View

Enables you to view the code, in real time, throughout the tuning process.

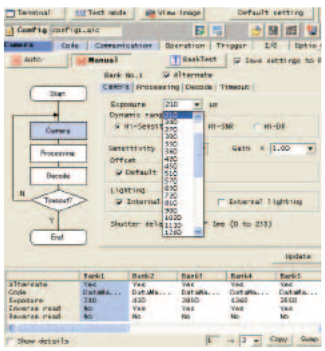
Real Time Plot

Graphs the relationship between the reading condition parameters and reading stability at each point of the tuning process.

Tuning History Function

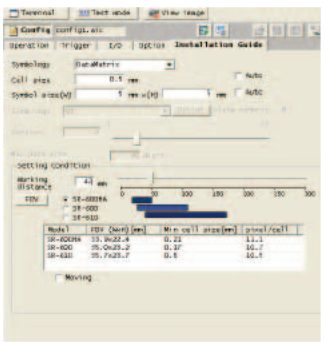
Enables you to select the optimum conditions by comparing multiple tuning results. The desired results can be set to different parameter banks, allowing the reader to account for different reading conditions, without being re-calibrated.

Manual Tuning Screen



Enables you to perform manual tuning. Configurable parameters are displayed on this screen to allow more detailed setting.

Installation Guide Screen



Entering conditions such as the data size, code type, and symbol size from this screen enables automatic calculation of the reading distance and field of view capabilities.

Image Capture Function

Enables you to save and review images that the SR-600 failed to successfully read.

Quick setup 2D Codes

Convert the contents set on your PC to Quick setup 2D codes and print them in advance. This enables you to change the settings by simply reading codes.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

SUPPORTS USB/ETHERNET CONNECTION

Interface lineup

The SR-600 Series supports USB and Ethernet interfaces, as well as RS-232C, RS-422A and RS-485. This wide range of supported interfaces enables versatile system configuration.

Specification: see page 17

RS-232C



N-R2

RS-422A/485



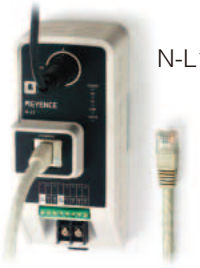
N-R4

USB



N-UB

Ethernet



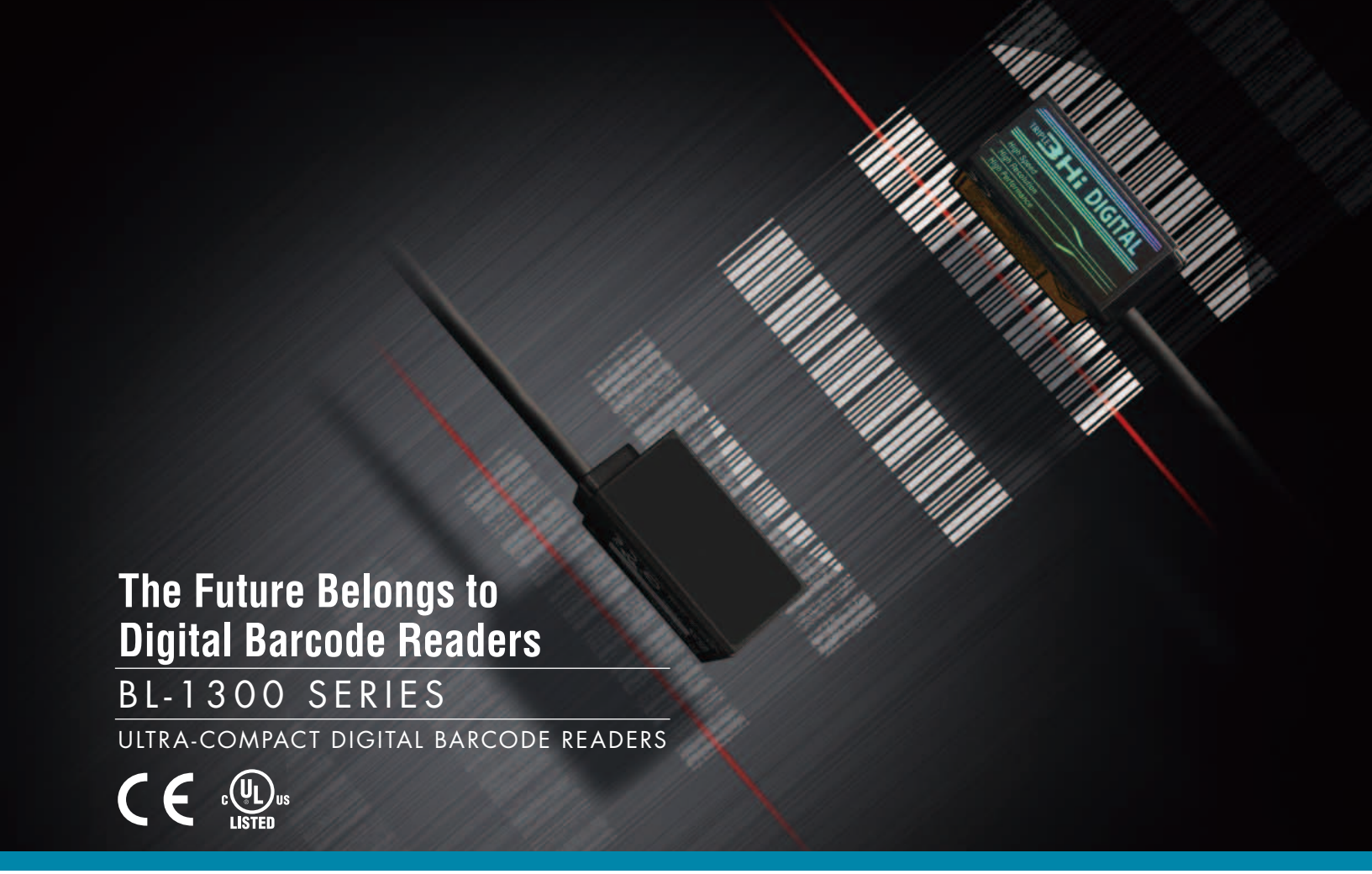
N-L1

Specifications

Model			SR-600	SR-610	SR-600HA
Type			Close-range type	Middle-range type	High-resolution type
Laser pointer	Light source		Visible light semiconductor laser (wavelength: 660 nm)		
	Output		90 µW		
	Pulse duration		200 µs		
	Laser class		Class 1 (IEC60825-1, FDA CDRH Part1040.10)*		
Illumination	Light source		High-intensity red LED		
	LED class		Class 1 (IEC60825-1)		
Reading	Supported codes	Barcode	CODE39, ITF, Industrial 2-of-5, COOP 2-of-5, Codabar, CODE128, GS1-128 (EAN128), GS1 Databar (RSS) CODE93, EAN/UPC, Trioptic Code39		
		2D code	QR, MicroQR, DataMatrix, PDF417, MicroPDF, MaxiCode, GS1-Composite		
	Focal distance		60 mm 2.36"	100 mm 3.94"	38 mm 1.50"
	Minimum resolution	Barcode	0.127 mm 0.005"	0.127 mm 0.005"	
		2D code	0.127 mm 0.005"	0.25 mm 0.01"	0.082 mm 0.003"
	Reading time (representative example)		21 ms (Focal distance, in QR CODE21 x 21)		
	Reading distance (representative example)	QR	31 mm 1.22" to 97 mm 3.82" (Cell size: 0.339 mm 0.01")	35 mm 1.38" to 188 mm 7.40" (Cell size: 0.508 mm 0.02")	17 mm 0.67" to 54 mm 2.13" (Cell size: 0.254 mm 0.01")
		DataMatrix	35 mm 1.38" to 95 mm 3.74" (Cell size: 0.339 mm 0.01")	40 mm 1.57" to 173 mm 6.81" (Cell size: 0.508 mm 0.02")	19 mm 0.75" to 51 mm 2.01" (Cell size: 0.254 mm 0.01")
		Barcode	29 mm 1.14" to 106 mm 4.17" (Narrow bar width: 0.339 mm 0.01")	44 mm 1.73" to 205 mm 8.07" (Narrow bar width: 0.508 mm 0.02")	
	Reading view range (focal distance)		42.5 mm 1.67" x 27.1 mm 1.07"	70.6 mm 2.78" x 45.0 mm 1.77"	26.6 mm 1.05" x 17.0 mm 0.67"
I/O	Input terminal		2 inputs (IN1, IN2), non-voltage input (relay contact, solid state)		
	Control output		NPN open-collector output: 4 outputs (OUT1 to OUT4) 30 mA max. (24 V max.) Residual voltage 0.8 V max., leakage current 0.1 mA max.		
	RS-232C	Communication method	Conforms to RS-232C		
		Communication speed	9600/19200/38400/57600/115200 bps		
		Synchronous method	Start-stop synchronization		
		Data length	7/8 bits		
		Stop bit length	1/2 bits		
		Parity check	None/Even/Odd		
	USB		Conforms to USB 2.0 Full Speed		
Environmental resistance	Enclosure rating		IP65		
	Operating ambient temperature		0 to 45 °C 32 to 113 °F		
	Storage ambient temperature		-10 to +50 °C 14 to 122 °F, No condensation		
	Operating ambient humidity		35 to 95% RH, No condensation		
	Ambient operating illuminance		Sunlight: 10000 lux, Incandescent lamp: 6000 lux, Fluorescent lamp: 2000 lux		
	Operating atmosphere		No dust or corrosive gas present		
	Vibration resistance		10 to 55 Hz, 1.5 mm 0.06" double amplitude in X, Y, and Z directions, 3 hours respectively		
Rating	Power voltage		5 VDC +5%,-10%		
	Consumption current		630 mA max.		
Weight			Approx. 160 g (including the cable)/Weight without cable: Approx. 27 g		

* The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No.50.
* Use the Limited Power Source defined in UL/IEC60950-1 to comply with UL/IEC60950-1.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



The Future Belongs to Digital Barcode Readers

BL-1300 SERIES

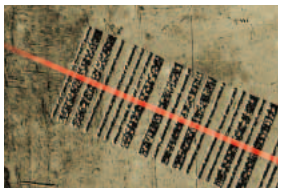
ULTRA-COMPACT DIGITAL BARCODE READERS

KEYENCE's new BL-1300 Series (3Hi-Digital) models. The first models in this class to use parallel digital processing technology. Noise reduction and compensation functions only possible with digital processing overcome the reading performance difficulties of conventional analog circuits.

[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.



[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

Same Basic Functions as Previous Models



Test modes available from the test button

BL-1300 Series models have a test button that lets you initiate test modes from the barcode reader body.

Test button

TEST MODE

- Read ratio measurement mode
- Cycle time measurement mode
- Barcode position measurement mode NEW

5-Bar LED

Displays the result of the executed test mode. Shows the result at a glance, significantly reducing the man-hours needed for adjustment work.

Read ratio measurement mode



100% read ratio | 40% read ratio | Read error

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Specifications

Model		BL-1300	BL-1301	BL-1300HA	BL-1301HA
Type		Standard type		High-resolution	
Read direction		Front			
Light source		Visible-light semiconductor laser (660 nm wavelength)			
	Output	1.0 mW			
	Pulse duration	112 µs			
	Laser class	Class 2 (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, Industrial 2-of-5, Standard 2-of-5, COOP 2-of-5, Codabar, CODE128, GS1-128 (EAN-128), CODE93, UPC/EAN, GS1 DataBar (RSS)			
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 VCD ±5%			
	Current consumption	400 mA max.			
Weight		Approx. 115 g			

Model		BL-1350HA	BL-1351HA	BL-1370	BL-1371
Type		High-resolution side type		Long-distance type	
Read direction		Side		Front	
Light source		Visible-light semiconductor laser (660 nm wavelength)			
	Output	1.0 mW			
	Pulse duration	112 µs			
	Laser class	Class 2 (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, Industrial 2-of-5, Standard 2-of-5, COOP 2-of-5, Codabar, CODE128, GS1-128 (EAN-128), CODE93, UPC/EAN, GS1 DataBar (RSS)			
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 VCD ±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

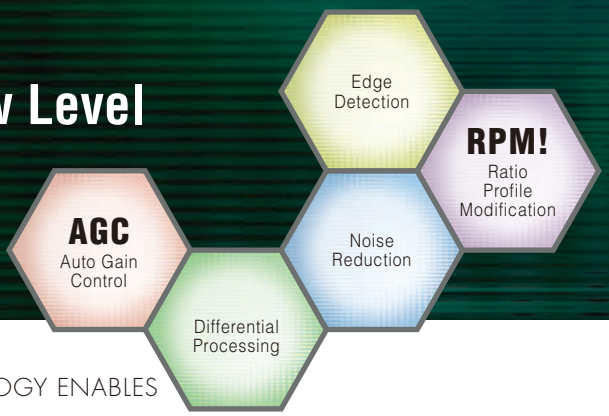
- Use the Limited Power Source defined in UL/IEC60950-1 to comply with UL/IEC60950-1.
- Internal body settings are written in the internal memory area (can be rewritten 100,000 times).

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

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

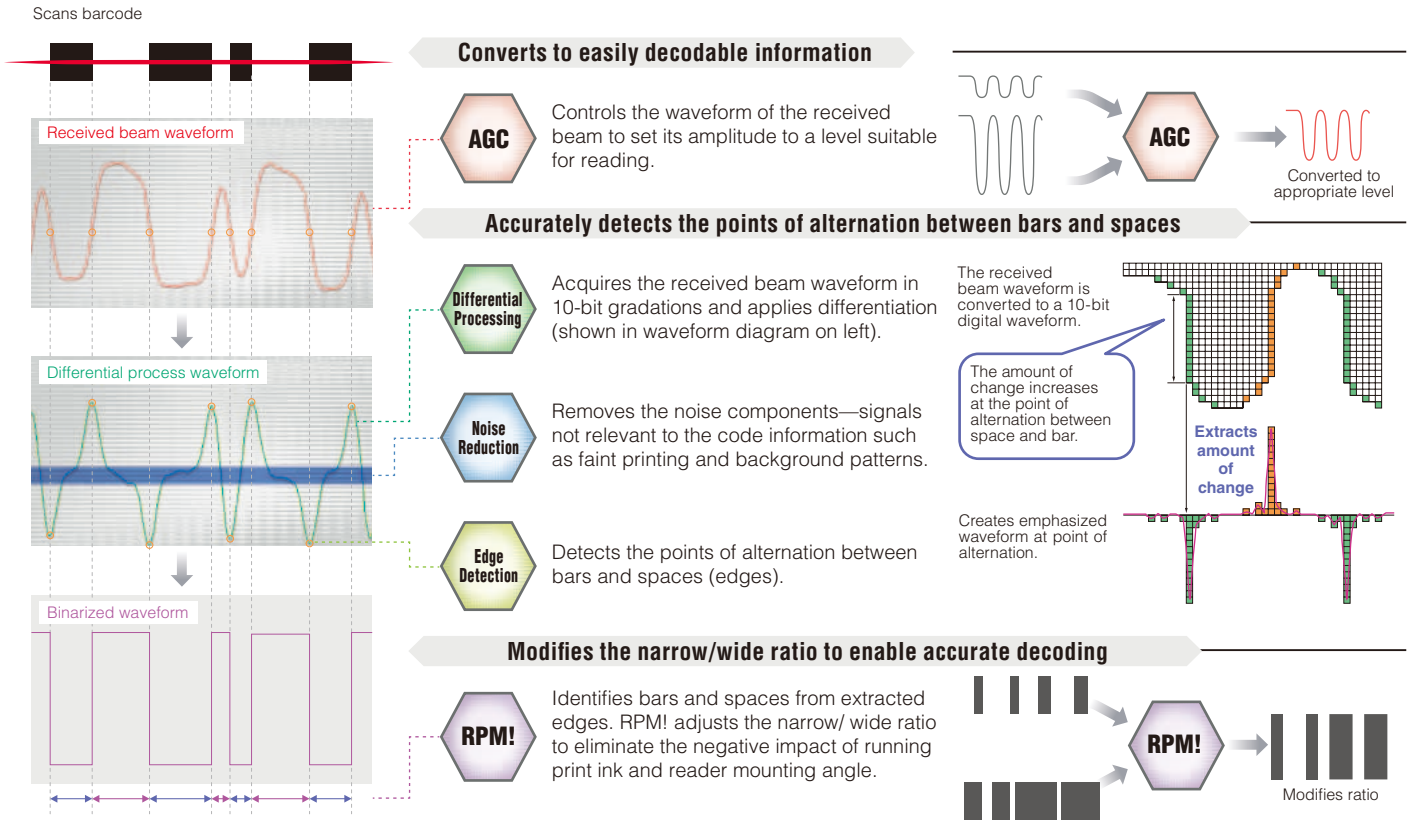
3Hi-DIGITAL Models Provide A New Level of Reading Performance



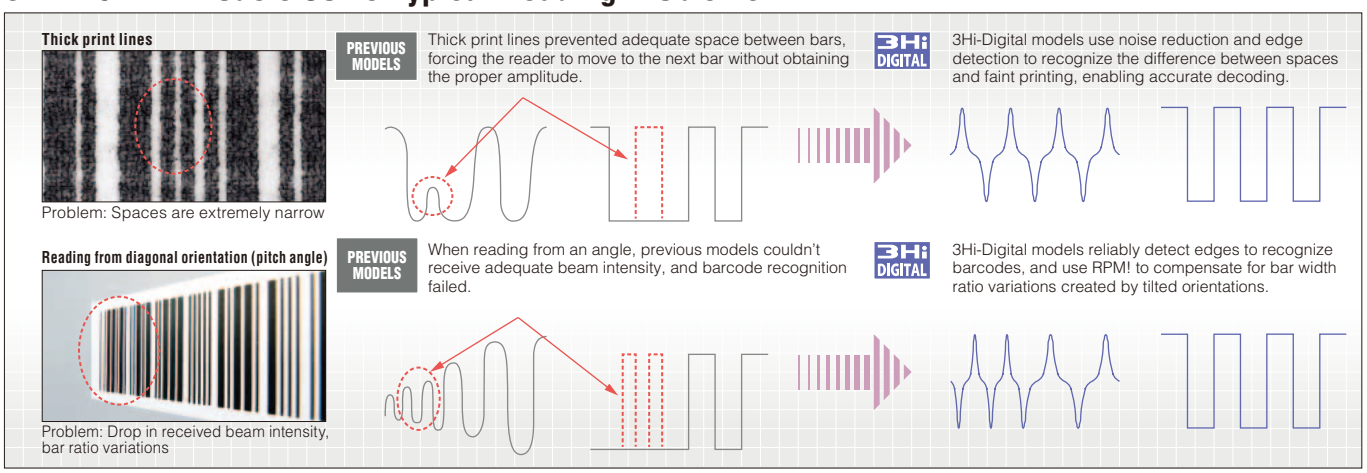
[INDUSTRY-BEST] ORIGINAL DIGITAL PROCESSING TECHNOLOGY ENABLES

Superior Reading Performance 3Hi-DIGITAL

New Decoding Process Provides Unrivaled Reading Performance



3Hi-DIGITAL Models Solve Typical Reading Problems



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



[UNMATCHED DECODE SPEED]

High-Speed Engine Maximizes Performance HPPE

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.



1300 Decodes/second

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

IP65 Environmental Resistance

Die-cast magnesium bodies make BL-1300 Series models highly resistant to adverse environments and dirt, allowing mounting anywhere and use with any equipment.

Extensive Product Lineup

Standard type	Reading distance	65 to 500 mm 2.56" to 19.69" (1.0 mm 0.04" narrow bar width)	Single: BL-1300 Raster: BL-1301
High-resolution type	Reading distance	45 to 270 mm 1.77" to 10.63" (0.5 mm 0.02" narrow bar width)	Single: BL-1300HA Raster: BL-1301HA
Long-distance type	Reading distance	160 to 600 mm 6.30" to 23.62" (1.0 mm 0.04" narrow bar width)	Single: BL-1370 Raster: BL-1371
High-resolution Side type	Reading distance	40 to 250 mm 1.57" to 9.84" (0.5 mm 0.02" narrow bar width)	Single: BL-1350HA Raster: BL-1351HA

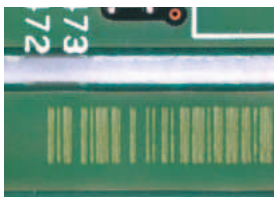


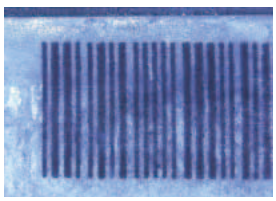
Front type



Side type

Sample Barcodes


Misaligned marking (PCB)

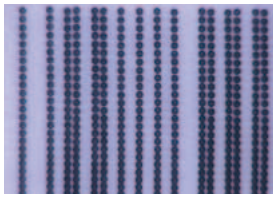

Shiny background (aluminum)

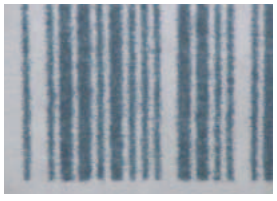

Thick print lines (coated paper)


Faint printing (thermal paper)


Uneven background (cardboard)


Curved part (sticker)


Dot printing (plastic)


Running ink (copy of slip)

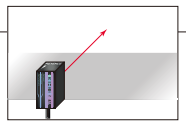
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Advanced Functions Designed for Ease-of-Use

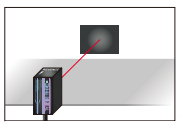


NEW Auto-Trigger Mode

Monitors the received light intensity of an internal laser sensor to determine if the product is present or absent. Automatically detects and reads the target workpiece when it is placed in the scan area, with no need to install timing sensors or use serial commands.

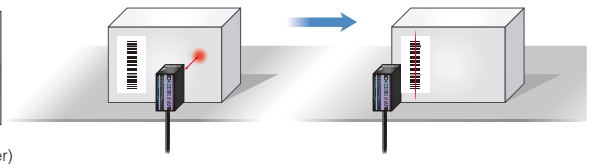


Very distant background, or no workpiece



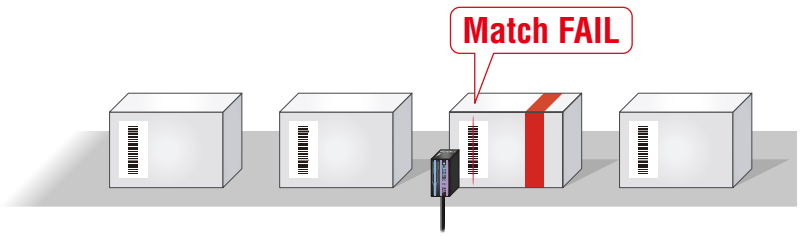
Background has lower reflection ratio (is darker) than barcode surface.

Receives reflected beam and starts scanning



NEW Preset/Comparison Function

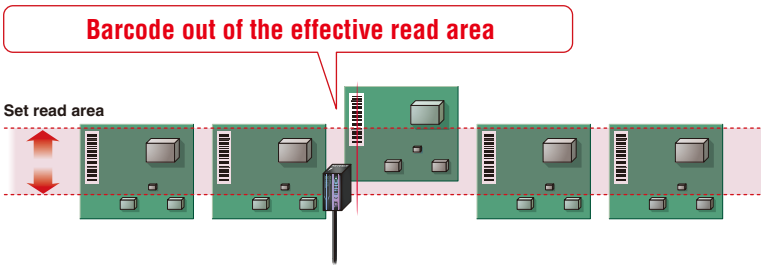
Compares the read barcode data with barcode data stored internally on the BL (preset data), and outputs a match PASS or FAIL. In environments supporting multi-I/O functions, you can quickly register a new preset code by sending an input signal to the reader.



Outputs FAIL if a target other than the preset product type passes the reader

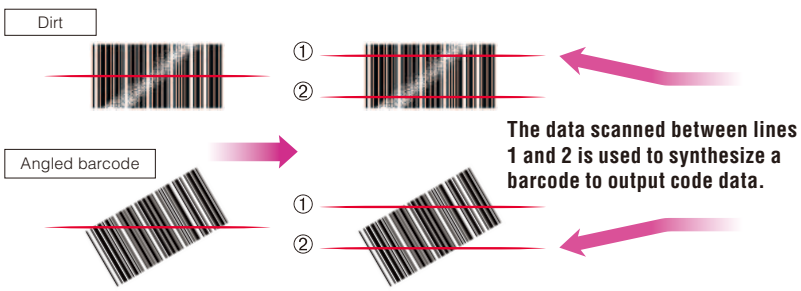
NEW Barcode Position Detection Function

Checks the left/right edge positions of the read barcode labels, and appends edge position data when outputting the code information. An output terminal can be set to turn ON when read data is out of the set edge range, providing status information before reading fails completely.



NEW Synthesized Barcode Reading Function

When a barcode is damaged by scratches or dirt, or enters the read area at an angle, this function reads the barcode data by synthesizing a barcode from a combination of laser scans



The data scanned between lines 1 and 2 is used to synthesize a barcode to output code data.

NEW Supports GS1 Databar (RSS) Barcodes

The BL-1300 Series can read GS1 DataBar (RSS) barcodes, which can express the same quantity of data in a smaller space.





Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



SUPPORTS USB/ETHERNET CONNECTION

Interface lineup

The BL-1300 Series supports USB and Ethernet interfaces, as well as RS-232C, RS-422A and RS-485. This wide range of supported interfaces enables versatile system configuration.

RS-232C



N-R2

RS-422A/485



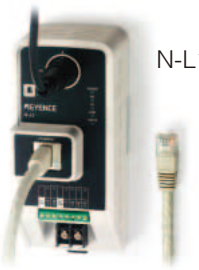
N-R4

USB



N-UB

Ethernet



N-L1

Multi-I/O Function

Lets you assign various operation conditions to individual I/O terminals. Supports two inputs and four outputs, which can be freely configured to match application conditions.

Example configuration when reading serial Nos.

IN 1: Timing input
IN 2: Test mode START

OUT 1: OK (Read OK)
OUT 2: ERROR (Read error output)
OUT 3: POSITION (Read position is outside set area.)

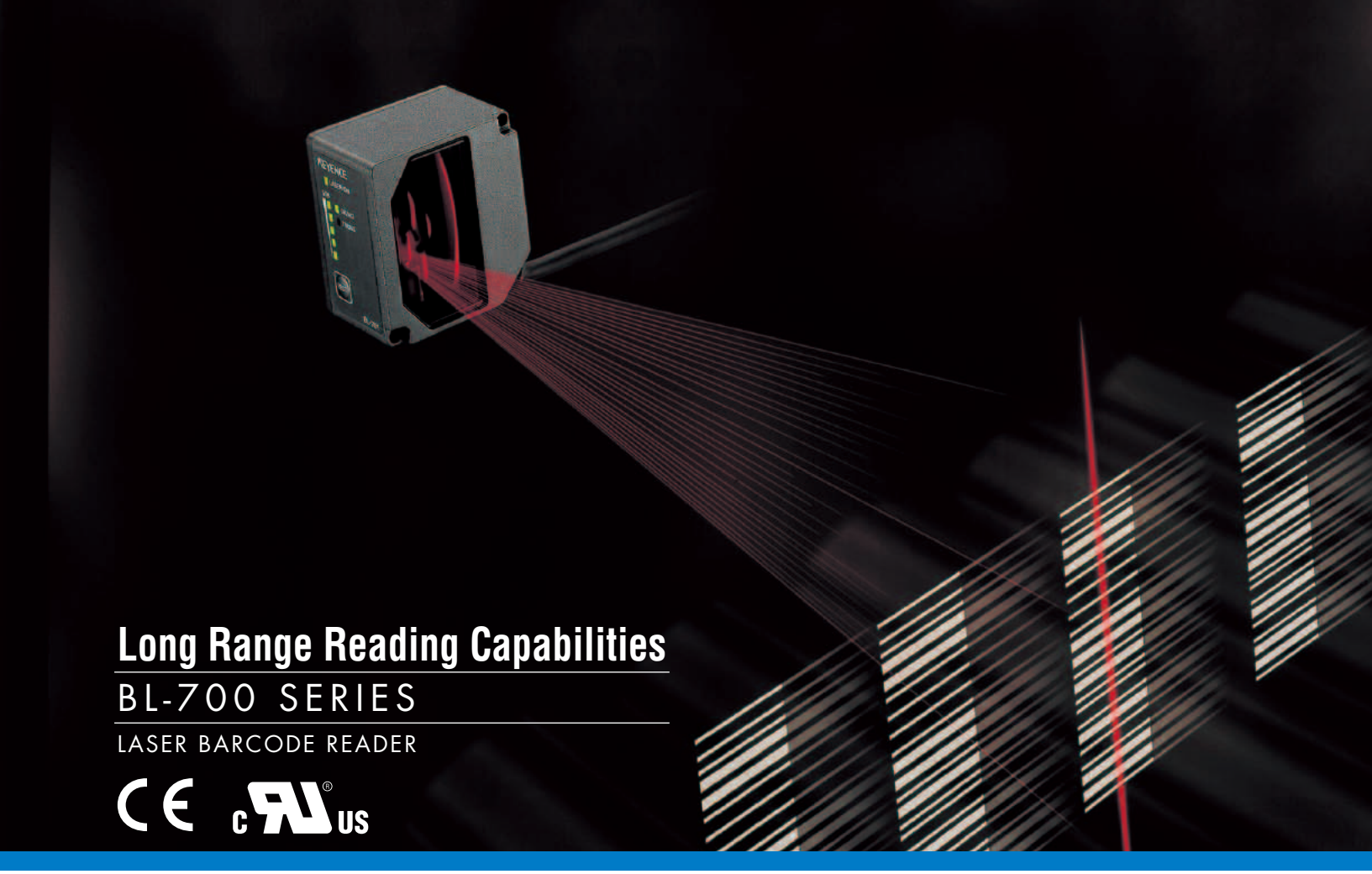
Example configuration when checking for presence of different products

IN 1: Timing input
IN 2: Preset registration
OUT 1: OK (Read OK/comparison OK)
OUT 2: FAIL (Comparison FAIL output: Mismatch with preset data)
OUT 3: ERROR (Read error output: Barcode read failure)
OUT 4: PRESET: Output when preset data registration has finished.

Specifications

Type			 RS-232C	 RS-422A/485	 USB	 Ethernet
Model			**N-R2**	**N-R4**	**N-UB**	**N-L1**
Power supply for the code reader			5 VCD ± 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 VCD (+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 VCD			
		Minimum ON voltage	15 VCD			
		Maximum OFF current	1 mA			
	Output	**Number of pins**	4 (OUT1 to 4)			
		Output format	Photo MOS relay output			
		Output rating load	30 VCD, 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	100 m 328.08' or less

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

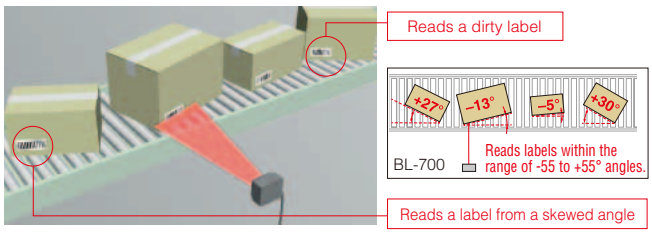


Long Range Reading Capabilities

BL-700 SERIES

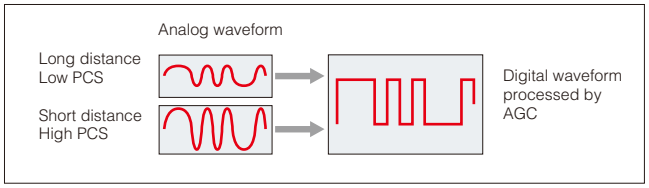
LASER BARCODE READER

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.



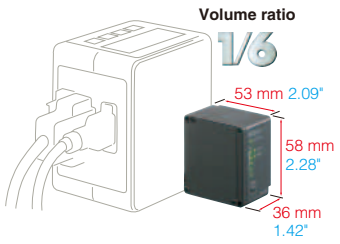
Auto Gain Control

The Auto Gain Control (AGC) function automatically adjusts the intensity of the received light according to the change in the reading distance and PCS. With the AGC function, the BL-700 Series achieves an excellent reading range despite its ultra-small body. A reliable read is ensured for barcodes with low PCS, such as those on cardboard boxes. During the AGC operation, the Specular Reflection Cancel (SRC) circuit minimizing the influence of strong reflective beams from parts other than barcodes.



Compact Design

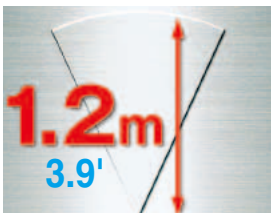
The BL-700 Series, a standard model for the warehousing industry, is surprisingly small with a depth of only 36 mm 1.42". The cable, which exits from a slanted corner of the housing, greatly reduces the extra space needed for a cable or connector. Mounting can be done without any restrictions on the size of the space.



Compared with conventional models

Longest Reading Range in Its Class : 1.2m 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.



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.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

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

Built-in Test Button

The BL-700 Series features a test mode that indicates the optimal reading position by a press of a button. This saves a large amount of installation and maintenance labor.



First-in-class, 5-level LED Indicating the Reading Performance

By pressing the test button, the 5-level LED indicator shows, in real time, the decoding ratio per 100 scans as a percentage.

Stable reading indicator using bar LEDs

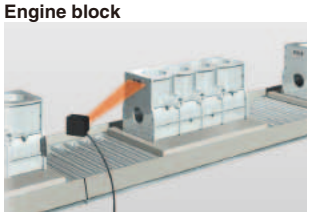

At 100 scans and 100 decodes


At 100 scans and 40 decodes

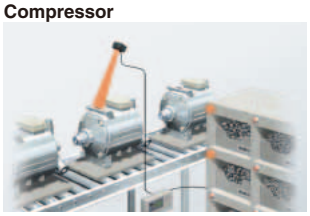

Reading error status

Applications

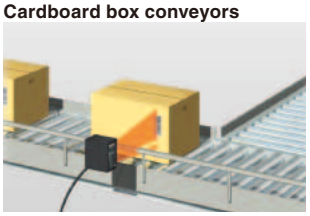
Engine block


The AGC function guarantees a reliable read even if the barcode labels are dirty or dusty.

Compressor


Giving directions to pick the necessary parts for compressor assembly.

Cardboard box conveyors


The BL-700 Series can be mounted in small spaces and is less affected by the conveyor guide.

Specifications

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: 650 nm)					
	Output	1.4 mW		1.8 mW		2.0 mW	
	Pulse duration	FDA: 50 µs, IEC: 43 µs		FDA: 50 µs, IEC: 29 µs		FDA: 50 µs, IEC: 23 µs	
	Laser class	Class II (FDA CDRH Part1040.10), Class 2 (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, Industrial 2-of-5, COOP 2-of-5, Codabar, CODE128, CODE93, EAN/UPC (A·E)					
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 VCD, 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 VCD ±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).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



Ultra-small Barcode Reader

BL-600 SERIES

LASER BARCODE READER

The BL-600 is one of the world's smallest barcode readers. (31 x 40 x 21 mm 1.22" x 1.57" x 0.83")

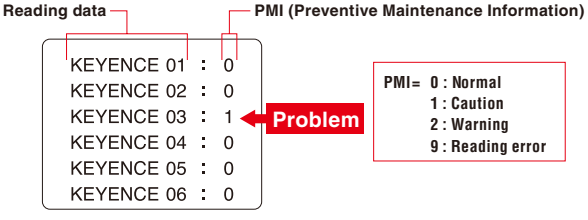
*The BL-600 is roughly than 1/2 the size of conventional barcode readers but delivers ultra high performance



The BL-600 features an ultra compact polygon mirror. The compact size is achieved by using optical technology developed for high precision measurement.

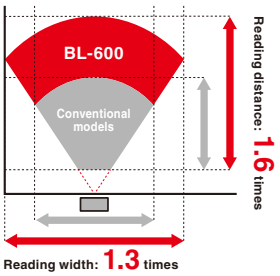
Preventive Maintenance Information (PMI)

The BL-600 Series is the first barcode reader to feature a PMI function, which prevents reading errors before they occur. This function outputs diagnostic information while the reader is reading barcodes. By examining the information, it is possible to detect problems that may cause reading errors. This unique function is an invaluable tool for acquiring maintenance information or for analyzing and finding the cause of reading errors.

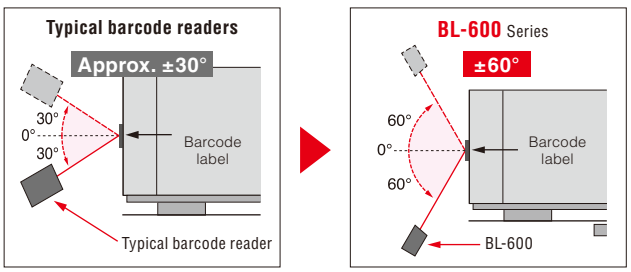


Superior Reading Performance

Using KEYENCE's exclusive AGC, circuits for advanced high-speed performance, the BL-600 offers excellent reading depth and angle characteristics. The reader also includes built-in SRC circuits that greatly reduce the effects of extraneous reflected light and allows a more reliable and stable reading.



[STABLE READING RANGE]



The BL-600 Series offers greater mounting flexibility.

FRONT-VIEW TYPE

STANDARD

BL-600 (Single-scan)
BL-601 (Raster-scan)

HIGH-RESOLUTION

BL-600HA (Single-scan)
BL-601HA (Raster-scan)

SIDE-VIEW TYPE

HIGH-RESOLUTION

BL-650HA (Single-scan)
BL-651HA (Raster-scan)



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Test Button for Easy Adjustment

The test mode allows you to confirm the optimal reading position at the point of installation by simply pressing a button. This valuable feature of the BL-600 results in faster installation and quick maintenance.



5-Bar LED Display

The BL-600 indicates the reading ratio (decoding rate/100 scans), in real time, using a five-bar LED display. Current read status can be checked at a glance, helping to prevent read errors before they occur.

* The reading ratio can be output to a PC.

Reading Status Indicator



100% of max. rate



40% of max. rate



Reading error



Heavy duty construction in an ultra-light package

Thanks to its die-cast magnesium casing, the BL-600 is not only ultra light and compact, but also durable.

Exceptional resistance in severe environments

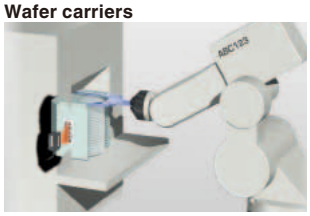
The highly resistant construction of the BL-600 passes the demanding IP65 environmental specifications for sensors. The BL-600 offers excellent protection in harsh or dirty environments and can be installed in almost any location.

Easy maintenance

The flat reading surface of the BL-600 Series greatly reduces the tedious maintenance often involved with barcode readers.

Applications

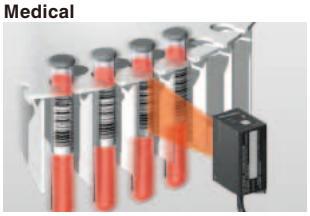
Wafer carriers



Thanks to the AGC function, the BL-600 can reliably read PFA-coated barcode labels even at extreme angles.

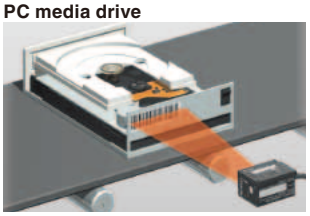
* A special model for a 300 mm 11.81" wafer load ports (SEMI E15.1 fully supported) is also available.

Medical



With its compact body and high speed reading capability, the BL-600 can easily read the barcodes on medical specimens.

PC media drive



Even with vibrations and unevenness, the BL-600 performs accurately and reliably.

Specifications

Model		BL-600	BL-601	BL-600HA	BL-601HA	BL-650HA	BL-651HA
Type		Standard		High-resolution		High resolution, side type	
Reading direction		Front				Side	
Scanning method *1		Single	Raster	Single	Raster	Single	Raster
Light source		Visible semiconductor laser (Wavelength: 650 nm)					
	Output	1.5 mW					
	Pulse duration	FDA: 56 µs, IEC: 65 µs					
	Laser class	Class II (FDA CDRH Part1040.10), Class 2 (IEC60825-1)					
Reading distance		75 to 330 mm 2.95" to 12.99" (When narrow bar width is 1.0 mm 0.04")		55 to 190 mm 2.17" to 7.48" (When narrow bar width is 0.5 mm 0.02")		45 to 175 mm 1.77" to 6.89" (When narrow bar width is 0.5 mm 0.02")	
Readable bar width *2		0.19 to 1.0 mm 0.008" to 0.04" (0.25 to 1.0 mm 0.01" to 0.04" for CODE 93 and CODE 128)		0.125 to 1.0 mm 0.005" to 0.04" (0.15 to 1.0 mm 0.006" to 0.04" for CODE 93 and CODE 128)			
Largest readable label width *3		250 mm 9.84" (When reading distance is 280 mm 11.02")		156 mm 6.14" (When reading distance is 174 mm 6.85")		170 mm 6.69" (When reading distance is 155 mm 6.10")	
PCS		0.6 or more (Reflectance of white part: 75% or more)					
Scanning rate		500 scans/sec					
Target code		CODE39, ITF, Industrial 2-of-5, COOP 2-of-5, Codabar, CODE128, GS1-128(EAN-128), CODE93, EAN/UPC (A·E)					
Number of readable digits		32 digits max. *4					
Trigger input		Non-voltage input (contact, solid-state), TTL input is also possible.					
Serial interface		RS-232C (Refer to the data of BL-700 Serial Interface in page 19 for details.)					
OK/NG output	Output form	NPN					
	Rated load	24 VCD, 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					
	Ambient temperature	0 to 45°C 32 to 113°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 VCD ±5%					
	Power consumption	330 mA max.					
Weight		Approx. 115 g				Approx. 130 g	

*1 Raster width: BL-601: 7.1 ±1.8 mm 0.28" ±0.07" (When reading distance is 120 mm 4.72"), BL-601HA: 5.5 ±1.4 mm 0.22" ±0.06" (When reading distance is 90 mm 3.54"), BL-651HA: 5.5 ±1.4 mm 0.22" ±0.06" (When reading distance is 65 mm 2.56")

*2 Reading bar width indicates the range of readable narrow bar width when the barcode type is CODE39.

*3 Maximum 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).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

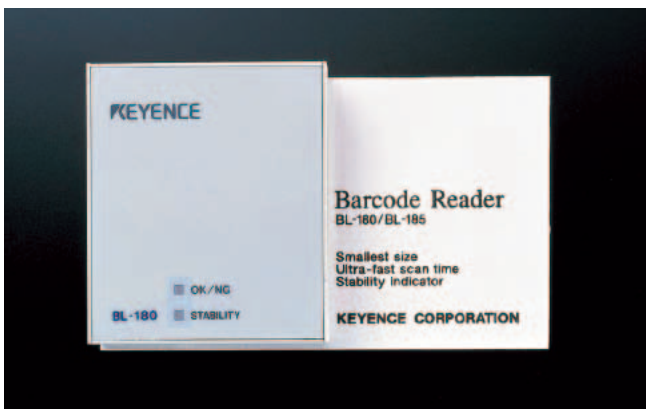


Ultra Small Size...
Half the Size of a Business Card

BL-180 SERIES

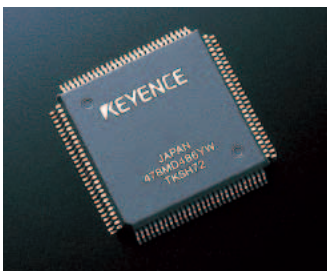
CCD BARCODE READER

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".



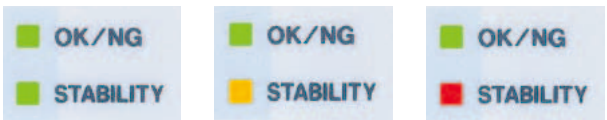
500 Scans Per Second

The BL-180 Series is the first CCD barcode reader that achieves a laser-type-level, 500 scans per second. The reliability is dramatically improved with the high-speed processing circuit developed by KEYENCE.



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.



Front type
BL-180

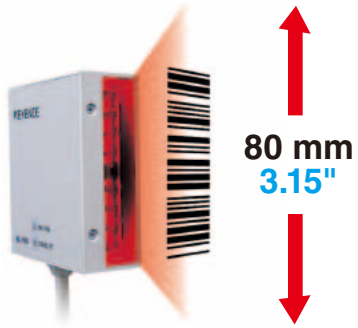


Side type
BL-185

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Ultra-small Body Reads Labels as Wide as 80 mm 3.15"

The BL-180 Series is small in size but reads wide. KEYENCE's original optical technology achieves 80 mm 3.15" of readable label width.



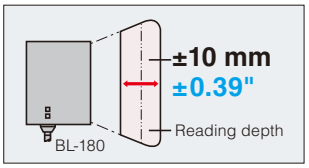
Reads Bars as Narrow as 0.125 mm 0.005"

The BL-180 Series offers the best reading capability of all other CCD barcode readers in the world. It can read bars as narrow as 0.125 mm 0.005", making it ideal for today's increasingly miniaturized barcodes.



Reading Depth of ±10 mm ±0.39"

Reading is reliable regardless of vibration or position of the targets. The original optical technology and the high-intensity LED achieve a reading depth of ±10 mm ±0.39", resulting in a stable reading performance.



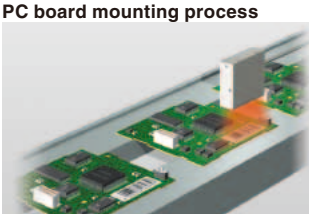
Applications

Medical applications



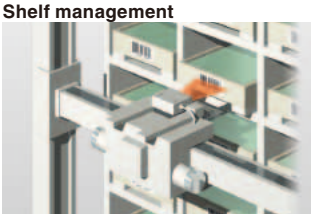
The BL-180 Series excels at reading barcodes on specimen containers with its reading width of 80 mm 3.15".

PC board mounting process



The compact body and high-speed reading capability of the BL-180 Series makes it ideal for reading barcodes on PC boards or wafer carriers.

Shelf management



The compact body can be mounted easily anywhere in the shelf.

Specifications

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 2-of-5, COOP 2-of-5, 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 VCD, 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 VCD ±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-U1 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).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



Automatic Data Verification and Evaluation

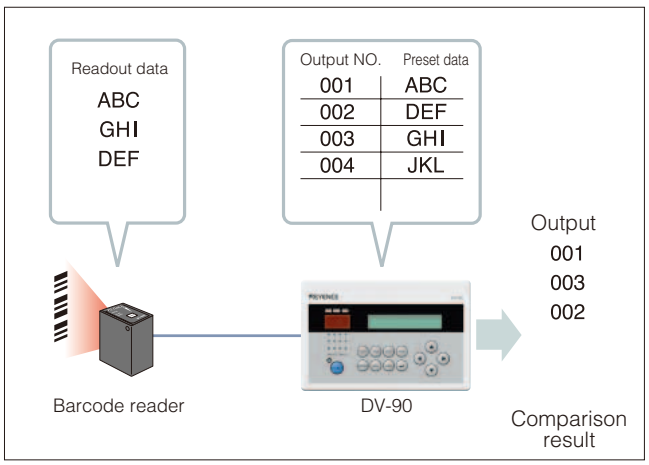
DV-90 SERIES

AUTO ID DATA CONTROLLER

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.



Easy Preset Registration

The preset barcode data can be registered by simply scanning the barcodes applied on products or instruction sheets. Additions or product changeovers can be registered without the need for complicated PLC programming.

Two Serial Ports & USB Interface are Standard

Both serial ports can be used to connect BL/SR Series units (code readers). It is also possible to select from PORT 1 or 2 to verify data for each preset number. In addition, a USB interface is featured as standard. Consequently, two BL/SR Series units and a PC can be connected simultaneously.

PNP Output Type Available

A PNP open-collector output model is also available (DV-90PE)

DV Quick Setup Code

The included software allows users to set up the DV-90 by simply scanning barcodes that are printed out from the software.

DV-90 INITIALIZE

MENU → FNC **STEP1**

ESC **STEP2**

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

DV-90 Series Verification Functions

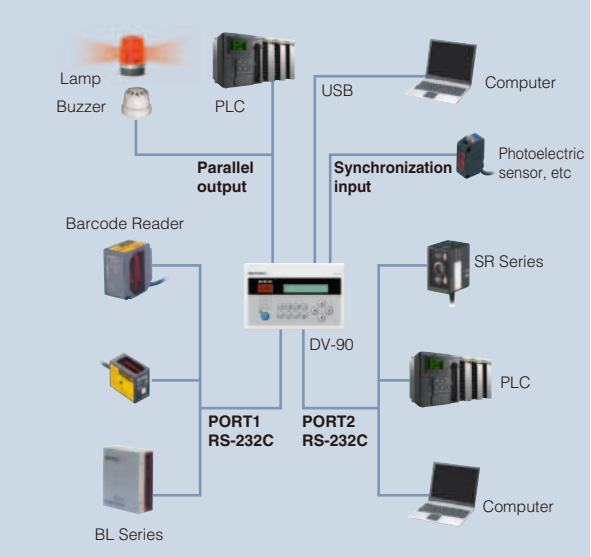
Normal Verification
Compares scanned data to all preset data and outputs the result with a corresponding output number.

Step Verification
Compares two consecutive data readings and outputs whether the two data strings match or do not match.

Active Verification
Compares scanned data to a specific preset data and outputs whether they match or do not match.

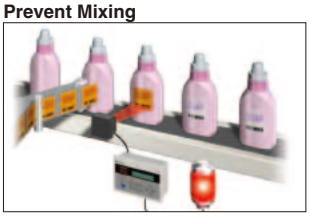
3-Point A Verification
Compares the combinations of three pieces of data and outputs whether the combinations match or do not match.

3-Point B Verification
Compares three barcodes in turn and determines that they are picked in the correct order.



Applications

Prevent Mixing



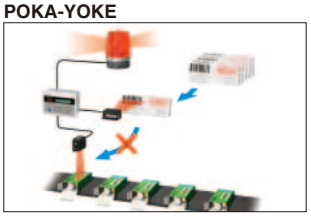
Wrong products can be effectively prevented from entering the line.

Changeover



The DV-90 will handle product differentiation and provide accurate instructions to the upper (control) devices.

POKA-YOKE



Make sure that the correct instruction sheet is included with the product.

Specifications

Model			DV-90NE (NPN output type), DV-90PE (PNP output type)
Applicable barcode reader			SR Series, BL-1300/700/600/500/180/N70RKE
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	600/1200/2400/4800/9600/19200/31250/38400/57600/115200 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

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

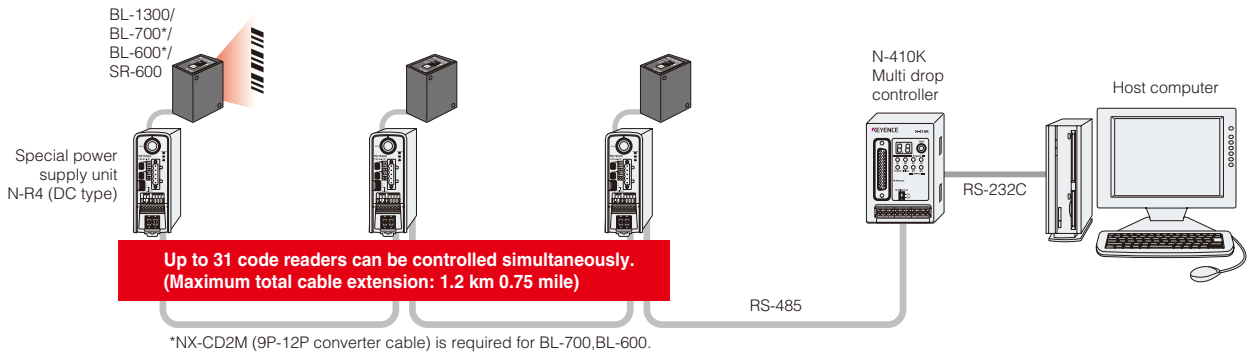


Multi-Drop Link for BL/SR Networking

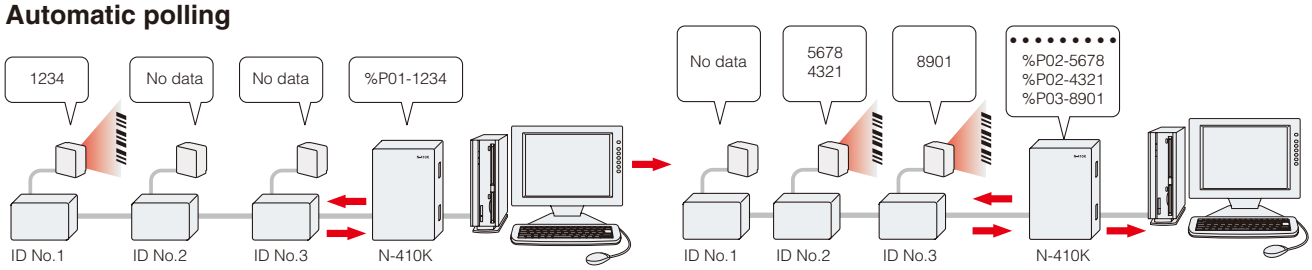
N-410K SERIES

MULTI-DROP CONTROLLER

Up to 31 code readers can be controlled with a single host computer. The N-410K controls the communication between the code readers, partially eliminating the need for programming the host computer.



Automatic polling



The N-410K constantly inquires for data (polling) to the connected code readers. The data is stored temporarily in the internal memory (sending buffer) of the N-410K.

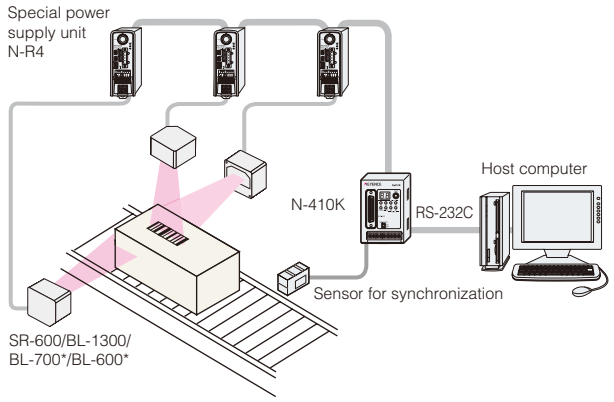
The N-410K polls the connected code readers. The N-410K receives data and sends it to the host computer immediately.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Multiple Scanning Heads

Multi-Head Mode

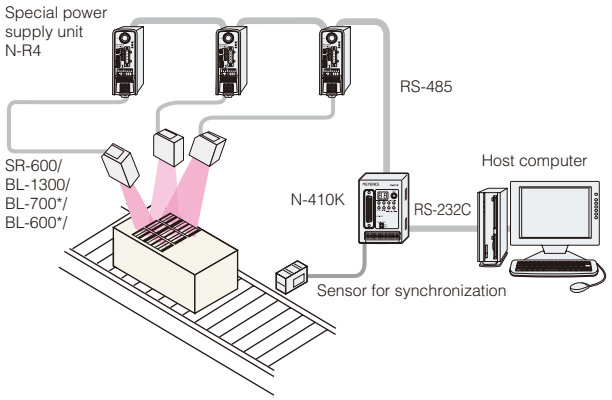
The N-410K controls several code readers as if they were a single unit, without using a host computer. This mode is useful when the position of labels varies between work pieces.



*NX-CD2M (9P-12P converter cable) is required for BL-700, BL-600.

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.



*NX-CD2M (9P-12P converter cable) is required for BL-700, BL-600.

Features of the N-410K

Greatly Reduced Programming for the Host Computer

Up to 31 code readers can be controlled with a single host computer.

100 KB Memory (Sending Buffer) Featured as Standard

The internal buffer can store up to 3000 pieces of data. In the event of an accident, the data is retained, even when the host computer is turned off.

Built-in Test Mode for Connection Check

The N-410K features a test mode to enable an easy verification of the connection with the code readers. No special programming or PC is required.

Setting Change of Code Readers

You can change various settings of code readers using the N-410K, such as adding code types or changing the maximum code length to be read.

Reading Test of Each Code Reader

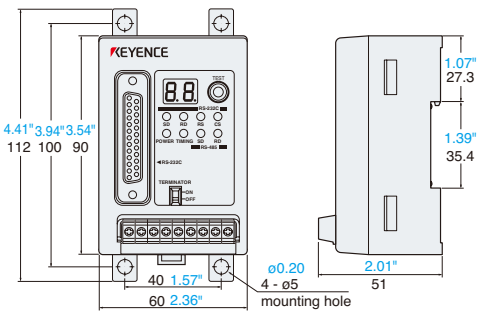
You can use the functions of the BL/SR Series, as well as the test mode, through the N-410K. This allows remote access to the code readers to check settings and ensure correct operation.

Specifications

Model		N-410K
Connectable code reader		SR Series, BL-1300/700/600 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



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



BL-N70 SERIES

COMPACT HANDHELD BARCODE READER

Superb Reading Ability

Wide depth-of-field capability from contact to non-contact reading.

Compact & Light Weight Body That is Easy to Handle & Operate

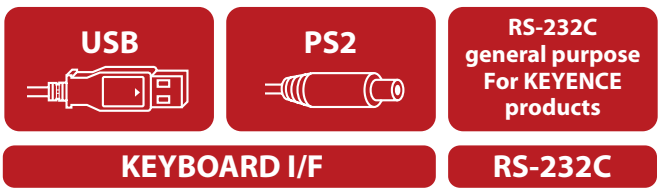
Significantly improved ergonomics thanks to the approx. 100 g compact body.

Read Any Code System

Reads EAN-128, magazine code (UPC Supplemental), RSS code and more.

3 WAYS TO CONNECT

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



Specifications

Model		BL-N70VE	BL-N70UBE	BL-N70RE*1	BL-N70RKE
Interface		PS2	USB	RS-232C	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 (IEC 60825-1, FDA CDRH Part1040.10)*2			
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		EAN/UPC(A·E), CODE39, CODE128/GS1-128 (EAN128), Codabar, CODE93, ITF, 2-of-5, GS1 Data bar (RSS)			
Readable bar width		Maximum 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		Class B			
Weight		Approx.100 g			

*1 Available in U.S only.
*2 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No.50.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Power Supply Units

BL-U1SO (7176)*1



N-42



N-48



BL-U2



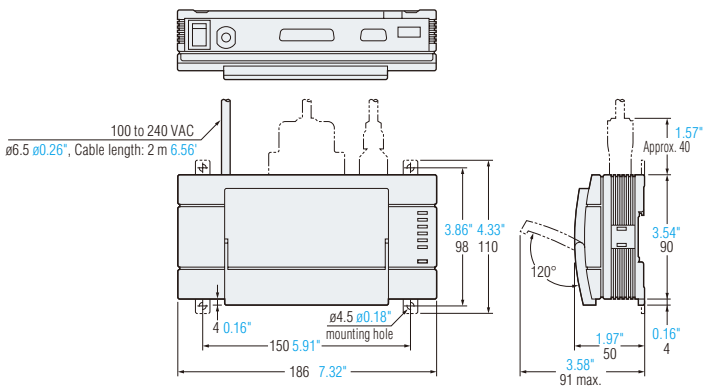
Specifications

Model		BL-U1SO (7176)*1	BL-U2
Connectable barcode reader		BL-700/600/180 Series	
Power supply for barcode reader		5 VDC ±5% (1.5 A)	5 VDC ±5% (630 mA)
Power supply for sensor		12 V ±10% (300 mA)	
Trigger input	Input rating	8.5 to 30 VDC, 10 mA max.	8.5 to 26 VDC, 10 mA max.
	Max. OFF current	0.5 mA	1.0 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)	Conforms to RS-232C approved by EIA
Power rating	Power supply voltage	100 to 240 VAC (50/60 Hz)	24 VDC (+10%, -20%)
	Power consumption	40 VA (100 VAC), 50 VA (240 VAC)	
	Current consumption		250 mA max.
Weight		Approx. 615 g (including cable)	Approx. 80 g

Model		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)	
Trigger input	Input rating	15 to 26 VDC, 10 mA max.	
	Max. OFF current	1.0 mA	
Interface		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%	
	Current consumption	260 mA max.	
Weight		Approx. 100 g	

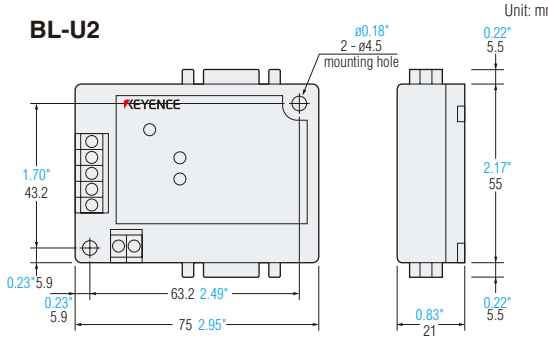
Dimensions

BL-U1SO (7176)*1

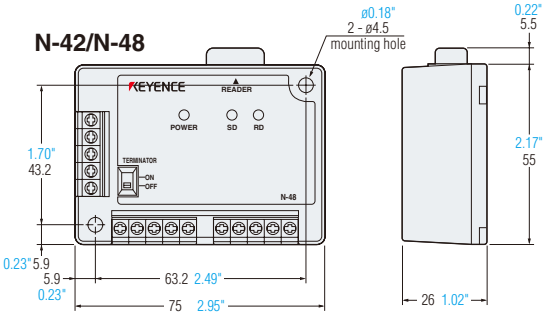


Unit: mm inch

BL-U2



N-42/N-48



*1 Available in U.S only.

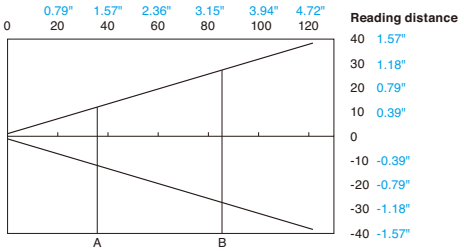
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Reading Range Characteristics & Dimensions

Unit: mm inch

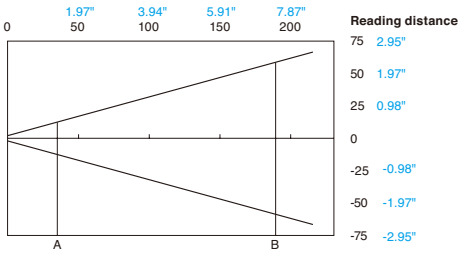
SR-600

Code type		Cell size*	A	B
2D code	QR	0.127 0.005"	48 1.89"	74 2.91"
	QR	0.25 0.01"	36 1.42"	85 3.35"
	DataMatrix	0.127 0.005"	48 1.89"	71 2.80"
	DataMatrix	0.25 0.01"	38 1.50"	84 3.31"
Composition symbol	CC-A	0.25 0.01"	31 1.22"	89 3.50"
Barcode	CODE39	0.127 0.005"	42 1.65"	76 2.99"
	CODE39	0.25 0.01"	30 1.18"	95 3.74"
	CODE128	0.25 0.01"	27 1.06"	96 3.78"
	GS1 DataBar	0.25 0.01"	37 1.46"	97 3.82"



SR-610

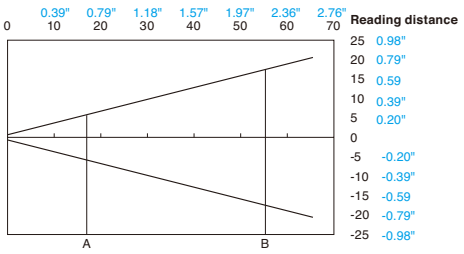
Code type		Cell size*	A	B
2D code	QR	0.25 0.01"	58 2.28"	135 5.32"
	QR	0.5 0.02"	35 1.38"	188 7.40"
	DataMatrix	0.25 0.01"	62 2.44"	135 5.32"
	DataMatrix	0.5 0.02"	40 1.57"	173 6.81"
Composition symbol	CC-A	0.25 0.01"	51 2.00"	142 5.59"
Barcode	CODE39	0.25 0.01"	45 1.77"	158 6.22"
	CODE39	0.5 0.02"	44 1.73"	205 8.07"
	CODE128	0.25 0.01"	41 1.61"	154 6.06"
	GS1 DataBar	0.25 0.01"	48 1.89"	160 6.30"



SR-600HA

Code type		Cell size*	A	B
2D code	QR	0.08 0.003"	28 1.10"	40 1.57"
	QR	0.127 0.005"	24 0.94"	45 1.77"
	QR	0.25 0.01"	17 0.67"	54 2.13"
	DataMatrix	0.08 0.003"	28 1.10"	39 1.54"
	DataMatrix	0.127 0.005"	24 0.94"	45 1.77"
	DataMatrix	0.25 0.01"	19 0.75"	51 2.01"

* For barcode, narrow bar width.



SR-600 (Close Range Type)

Reading Distance		27	38	60	84	97
View Size	Width	20.6 0.81"	27.9 1.10"	42.5 1.67"	58.4 2.30"	67.0 2.64"
	Height	13.1 0.52"	17.8 0.70"	27.1 1.07"	37.3 1.47"	42.8 1.69"

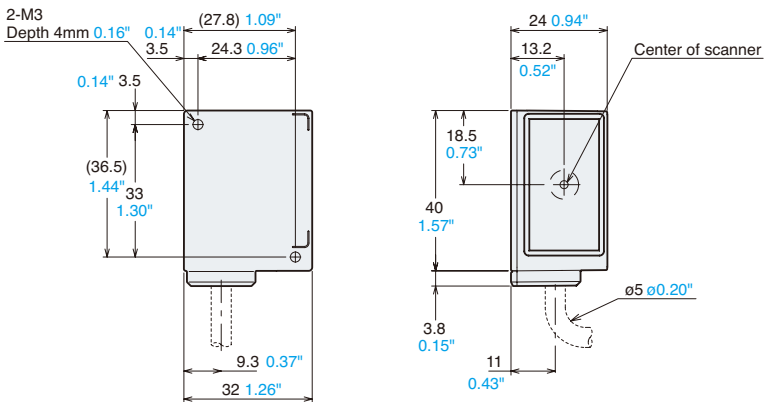
SR-610 (Middle Range Type)

Reading Distance		35	62	100	154	205
View Size	Width	26.6 1.05"	44.8 1.76"	70.6 2.78"	107.1 4.22"	141.6 5.57"
	Height	17.0 0.67"	28.6 1.13"	45.0 1.77"	68.4 2.69"	90.4 3.56"

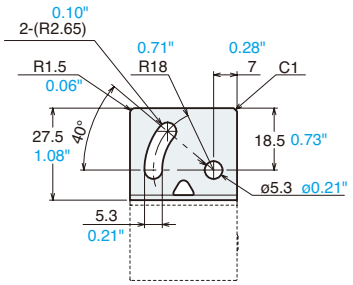
SR-600HA (High Resolution Type)

Reading Distance		17	28	38	45	54
View Size	Width	13.2 0.52"	20.2 0.80"	26.6 1.05"	31.1 1.22"	36.9 1.45"
	Height	8.4 0.33"	12.9 0.51"	17.0 0.67"	19.8 0.78"	23.5 0.93"

Main body
SR-600/610/600HA



Mounting bracket

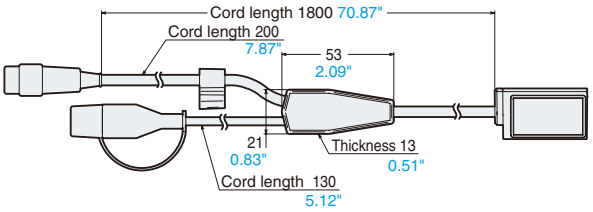


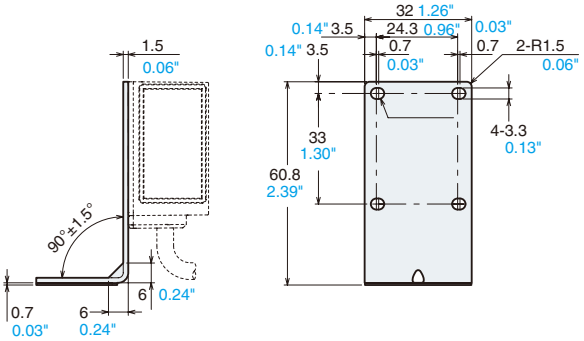
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Dimensions

Unit: mm inch

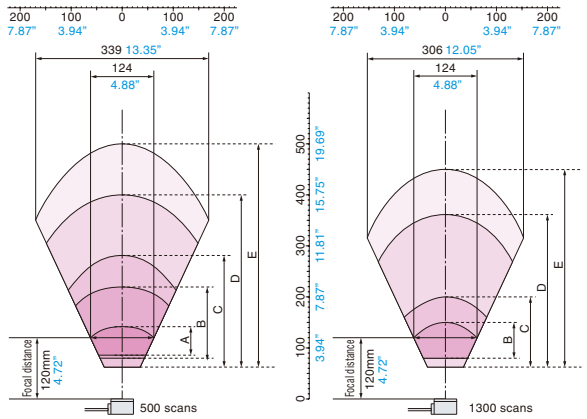
Head cable





Reading Range Characteristics

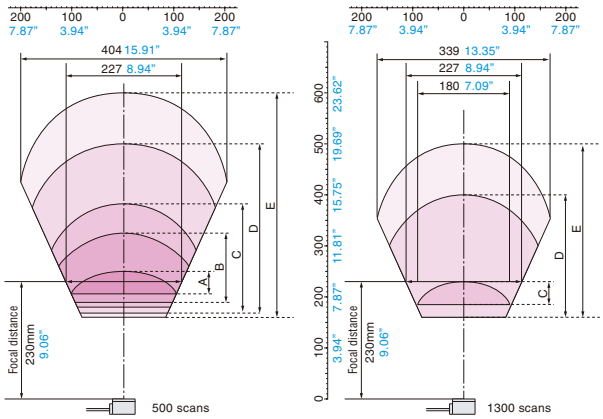
BL-1300/1301 (standard type)



	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: 15º skew, 0º pitch, 0º tilt

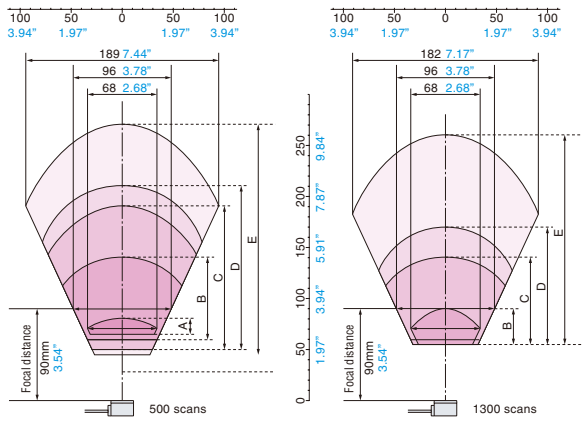
BL-1370/1371 (long-distance type)



	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"	190 to 230 7.48" to 9.06"
D	CODE39	0.5 0.02"	170 to 500 6.69" to 19.69"	160 to 400 6.30" to 15.75"
E	CODE39	1.0 0.04"	160 to 600 6.30" to 23.62"	160 to 500 6.30" to 19.69"

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

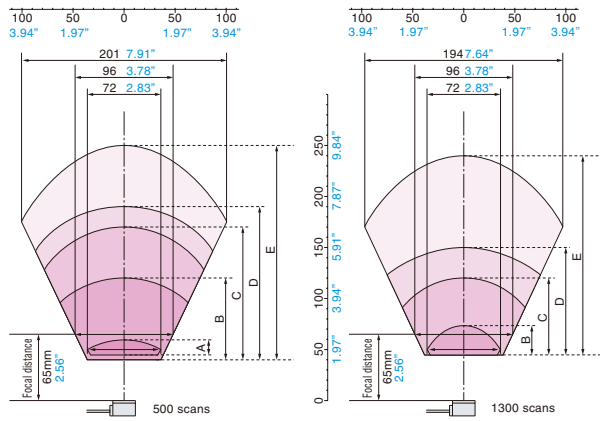
BL-1300HA/1301HA (high-resolution front type)



	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 2.36" 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: 15º skew, 0º pitch, 0º tilt

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



	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 2.95"
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"	40 to 190 1.57" to 7.48"	45 to 150 1.77" to 5.91"
E	CODE39	0.5 0.02"	40 to 250 1.57" to 9.84"	45 to 240 1.77" to 9.45"

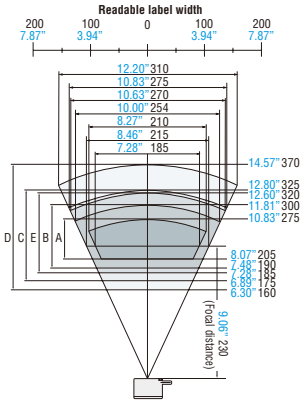
Measurement conditions: Standard KEYENCE barcode (narrow/wide bar ratio of 1:2.5);
Mounting conditions: 15º skew, 0º pitch, 0º tilt

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Reading Range Characteristics

Unit: mm inch

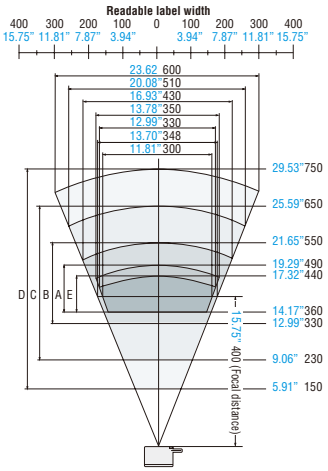
BL-700/701



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

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

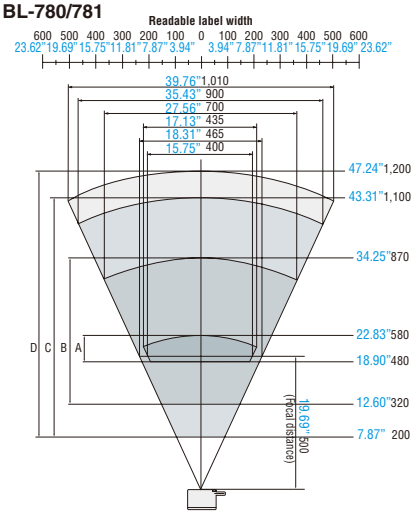
BL-740/741



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

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

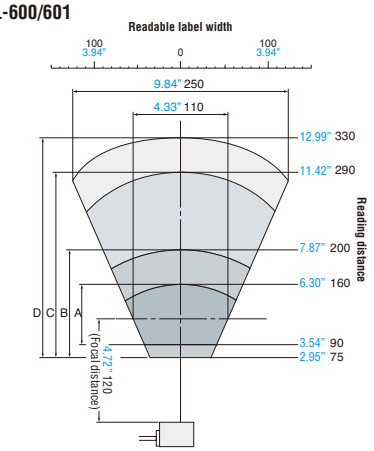
BL-780/781



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

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

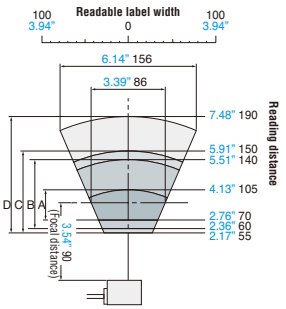
BL-600/601



	Narrow bar width
A	0.008" 0.19 mm
B	0.01" 0.25 mm
C	0.02" 0.5 mm
D	0.04" 1.0 mm

(Measuring conditions)
- The KEYENCE standard barcode is used.
- Skew: 15°
- Pitch: 0°
- Tilt: 0°
- Ratio 1:2.5
- Including the margins

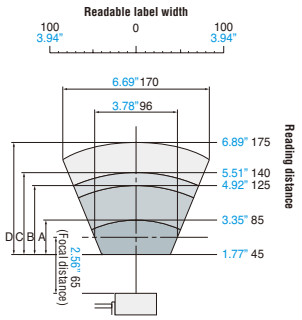
BL-600HA/601HA



	Narrow bar width
A	0.005" 0.125 mm
B	0.008" 0.19 mm
C	0.01" 0.25 mm
D	0.02" 0.5 mm

(Measuring conditions)
- The KEYENCE standard barcode is used.
- Skew: 15°
- Pitch: 0°
- Tilt: 0°
- Ratio 1:2.5
- Including the margins

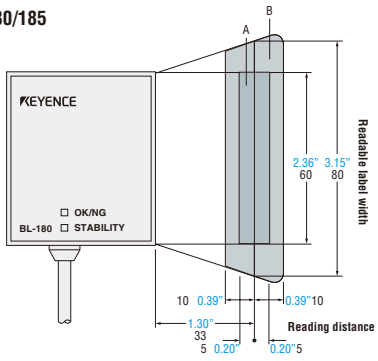
BL-650HA/651HA



	Narrow bar width
A	0.005" 0.125 mm
B	0.008" 0.19 mm
C	0.01" 0.25 mm
D	0.02" 0.5 mm

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

BL-180/185



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

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

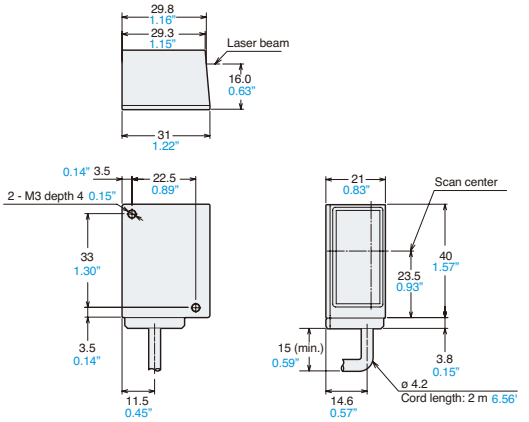
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Dimensions

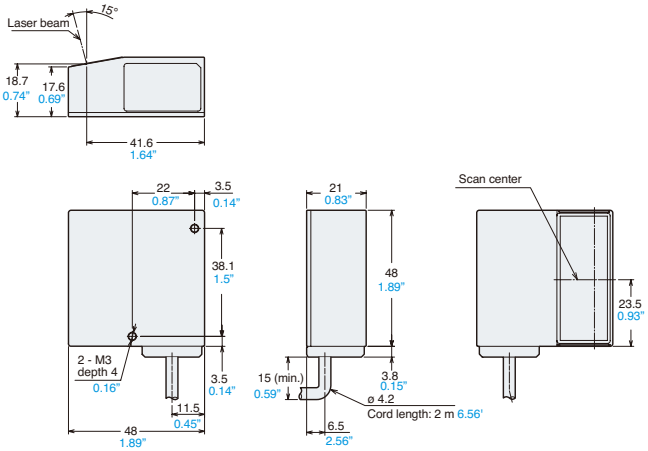
Unit: mm inch

Body

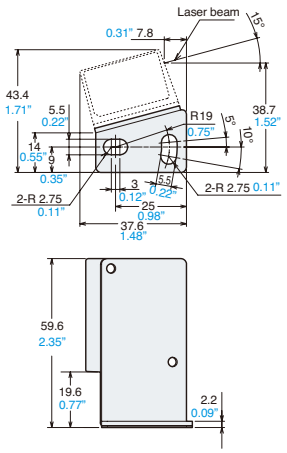
BL-1300/1301/1300HA/1301HA/1370/1371(front type)



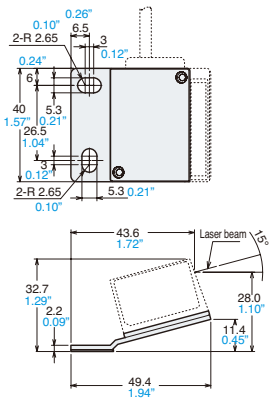
BL-1350HA/1351HA (side type)



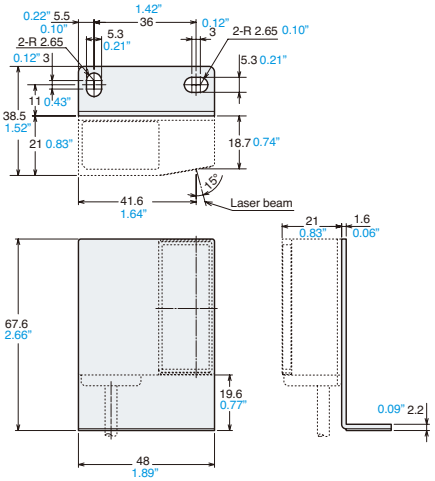
Mounting A (front type)



Mounting B (front type)

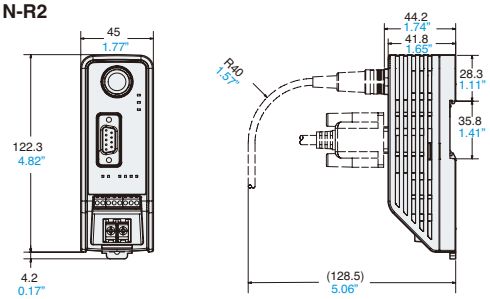


Mounting (side type)

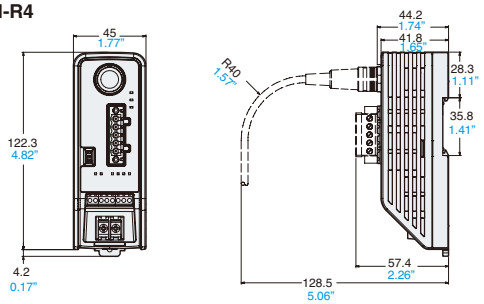


Power unit

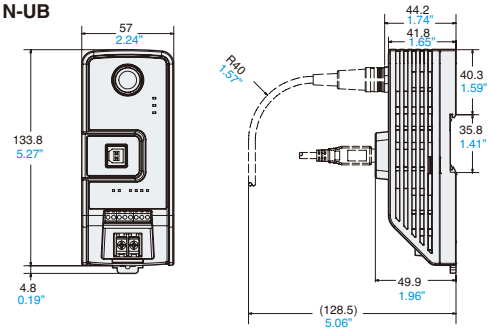
N-R2



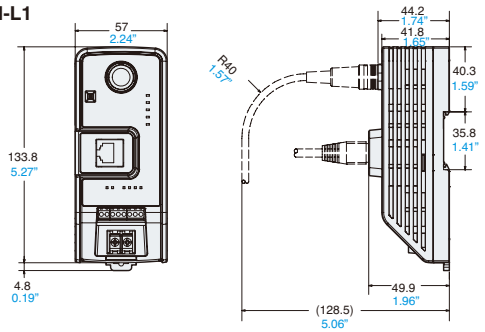
N-R4



N-UB



N-L1

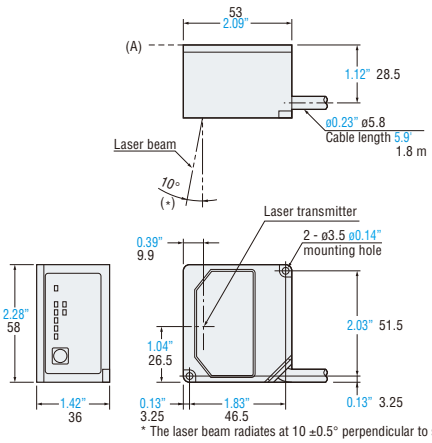


Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Dimensions

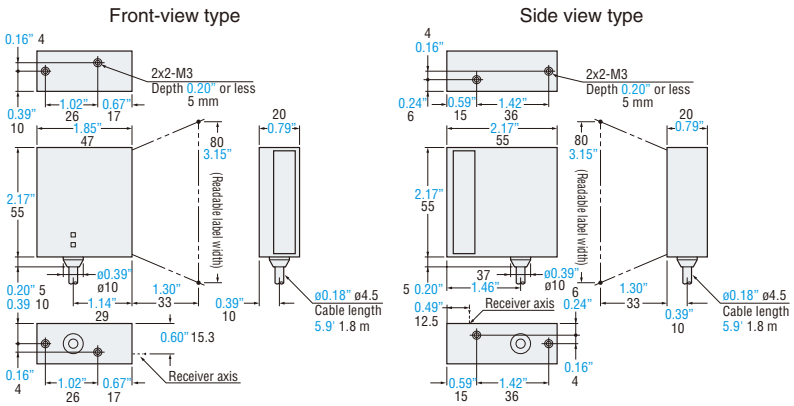
Unit: mm inch

BL-700 Series

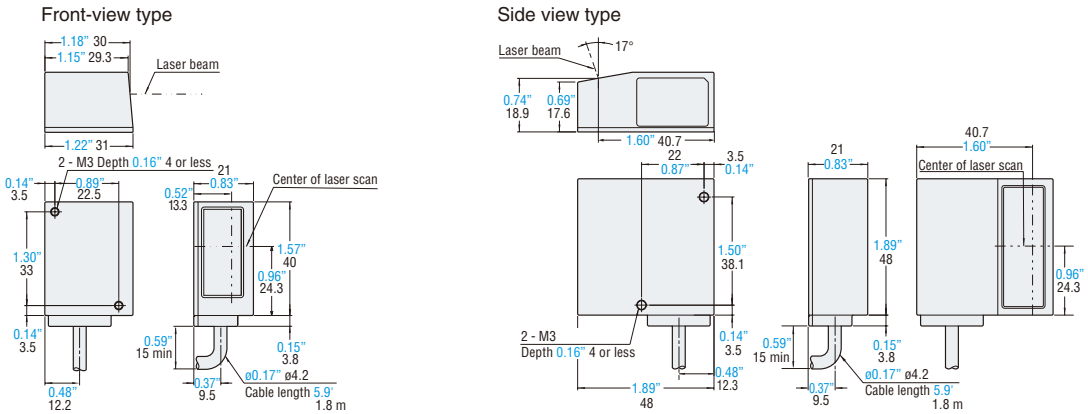


* The laser beam radiates at 10 ±0.5° perpendicular to side (A).

BL-180 Series



BL-600 Series



Laser labels

BL- 1300 Series

BL-1300 Series complies with FDA performance standards for laser products except for deviations pursuant to laser Notice No.50.

Warning label

BL- 1300 Series



BL- 600 Series

The BL-600 Series conforms to FDA and IEC standards as follows:

Model	BL-600/601/600HA/601HA/650HA/651HA
FDA	Class II
IEC	Class 2

Protective housing label

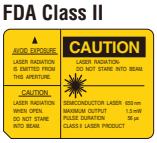
FDA



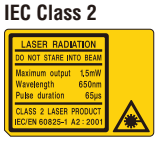
Warning labels

BL- 600/601/ 600HA/ 601HA

FDA Class II

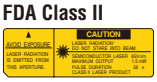


IEC Class 2



BL- 650HA/ 651HA

FDA Class II



IEC Class 2



BL- 700 Series

The BL-700 Series conforms to FDA and IEC standards as follows:

Model	BL-700/701/740/741/780/781
FDA	Class II
IEC	Class 2

Protective housing label

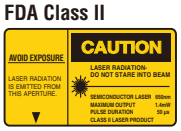
FDA



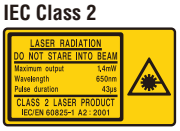
Warning labels

BL-700/701

FDA Class II

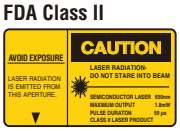


IEC Class 2



BL-740/741

FDA Class II

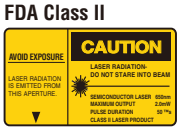


IEC Class 2



BL-780/781

FDA Class II



IEC Class 2



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Barcode Samples

NB= Narrow bar width
WB= Wide bar width
* The barcodes given below do not show the barcode reader performance criteria.

CODE39

NB=0.25mm,NB:WB=1:3.0



NB=0.5mm,NB:WB=1:2.5



NB=1.0mm,NB:WB=1:2.2



UPC/EAN

UPC-A



UPC-E



EAN



CODE128

NB=0.25mm



NB=0.25mm



ITF

NB=0.25mm,NB:WB=1:3.0



NB=0.5mm,NB:WB=1:2.2



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



2D CODE

DataMatrix



PDF417



QR CODE



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

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.

KEYENCE CORPORATION OF AMERICA

Corporate Office 50 Tice Blvd., Woodcliff Lake, NJ 07677 PHONE: 201-930-0100 Fax: 201-930-0099 E-mail: keyence@keyence.com

■ **Regional offices**

AL	Birmingham	**CO**	Denver	**IN**	Indianapolis	**MI**	Detroit	**NJ**	Woodcliff Lake	**OH**	Cincinnati	**SC**	Greenville	**TX**	Dallas
CA	N.California	**FL**	Tampa	**KS**	Kansas City	**MI**	Grand Rapids	**NY**	Rochester	**OH**	Cleveland	**TN**	Knoxville	**VA**	Richmond
CA	Los Angeles	**GA**	Atlanta	**KY**	Louisville	**MN**	Minneapolis	**NC**	Charlotte	**OR**	Portland	**TN**	Nashville	**WA**	Seattle
		IL	Chicago	**MA**	Boston	**MO**	St. Louis	**NC**	Raleigh	**PA**	Philadelphia	**TX**	Austin		

KEYENCE CANADA INC.

Head Office PHONE: 905-696-9970 Fax: 905-696-8340 E-mail: keyencecanada@keyence.com
Montreal PHONE: 514-694-4740 Fax: 514-694-3206

KEYENCE MEXICO S.A. DE C.V.

PHONE: +52-81-8220-7900 Fax: +52-81-8220-9097
E-mail: keyencemexico@keyence.com

KEYENCE GLOBAL HEADQUARTERS

1-3-14, Higashi-Nakajima, Higashi-Yodogawa-ku, Osaka, 533-8555, Japan PHONE: +81-6-6379-2211

The information in this publication is based on KEYENCE's internal research/evaluation at the time of release and is subject to change without notice.
Copyright (c) 2010 KEYENCE CORPORATION. All rights reserved.

BL-KA-GC5-E 1070-2-E[61349] Printed in Japan

* 6 1 1 3 4 9 *

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP