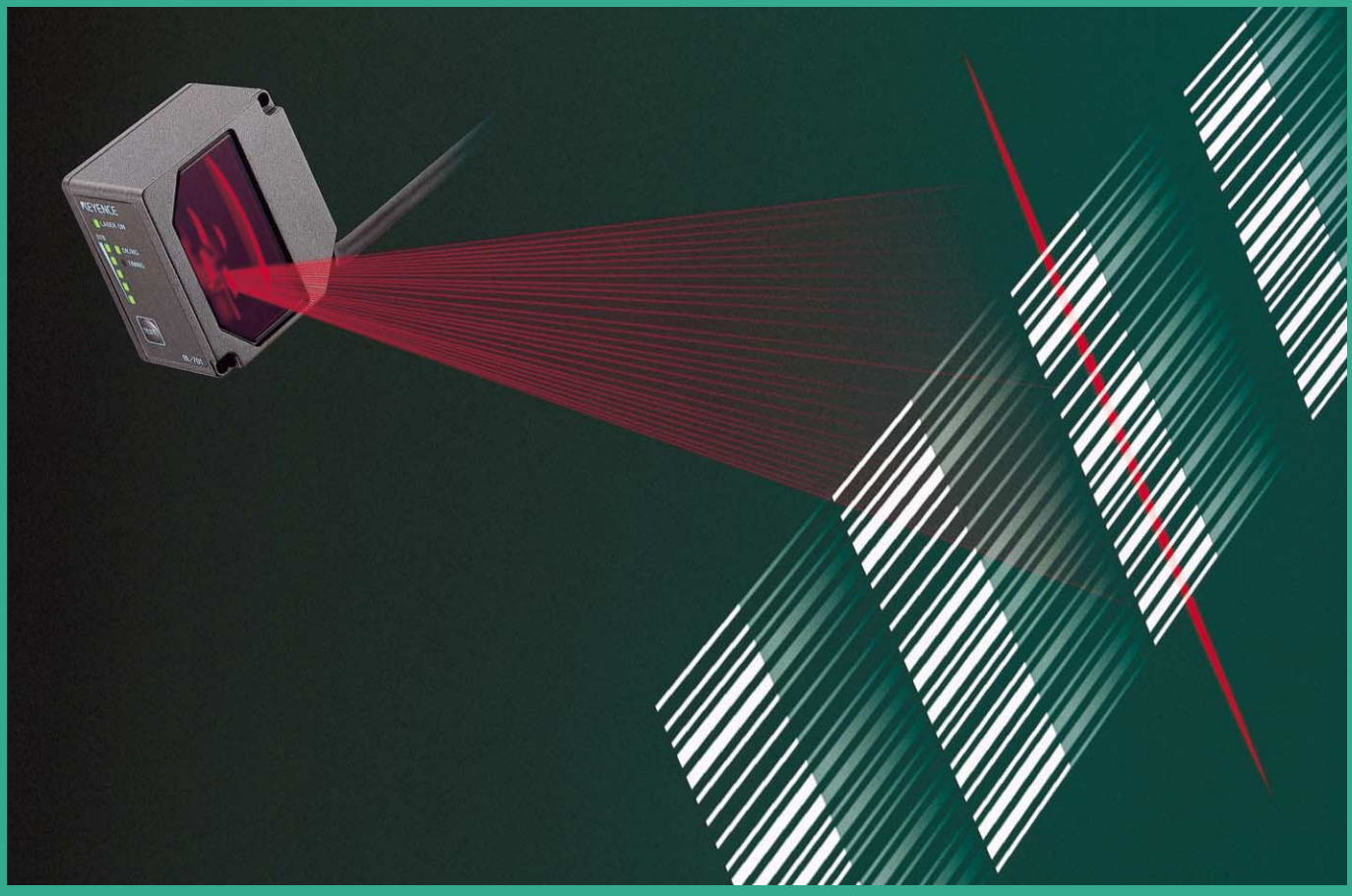
KEYENCE

Cat No BL700-C

Super Compact and Long Distance Laser Bar Code Reader

BL-700 Series

The BL Series features a compact housing and user-friendly software, plus amazing speed and exceptional accuracy.



Features

❑ *Ultra-long range*

The BL-700 Series allows ultra-long distance reading, even on varying target sizes.

❑ *Ultra-small size*

The BL-700 Series is only 36 mm deep, surprisingly small for a standard type long range bar code reader.

❑ *Built-in test switch*

The test mode allows you to confirm the optimal reading position by simply pressing a button.

❑ *LED indicator shows optimal mounting position.*

An integral stability indicator clearly shows the mounting position that ensures the best performance.

❑ *Simple, versatile setup program - no more complex, labour-intensive programming.*

An intuitive Windows™-compatible setup program simplifies the setup of operating parameters.

CE

BL-700

The world's smallest laser bar code reader delivers unparalleled features and performance.

A new standard for the warehousing industry.
Versatile functions are packed into the BL-700 Series
to meet the increasing demands for goods distribution and product identification.

World's smallest among products of the same class.

The BL-700 Series is ultra-small without compromising detection capabilities.

Since the cable exits from a slanted corner of the housing, extra space for the cable or connector is greatly reduced. Therefore, it can bemounted with minimal restrictions on the size of the space.


Vertical mounting

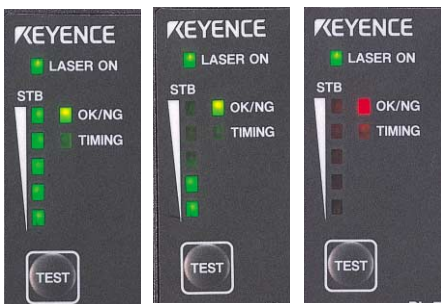

Horizontal mounting


Direct mounting on wall

Built-in test switch

Test mode operation can be performed easily without the aid of a personal computer, greatly improving onsite operability. By pressing the test switch, the 5-level LED indicator (for displaying the performance of the bar code reader) shows, in real time, the decoding ratio per 100 scans as a percentage.

Stability reading using the LED bars



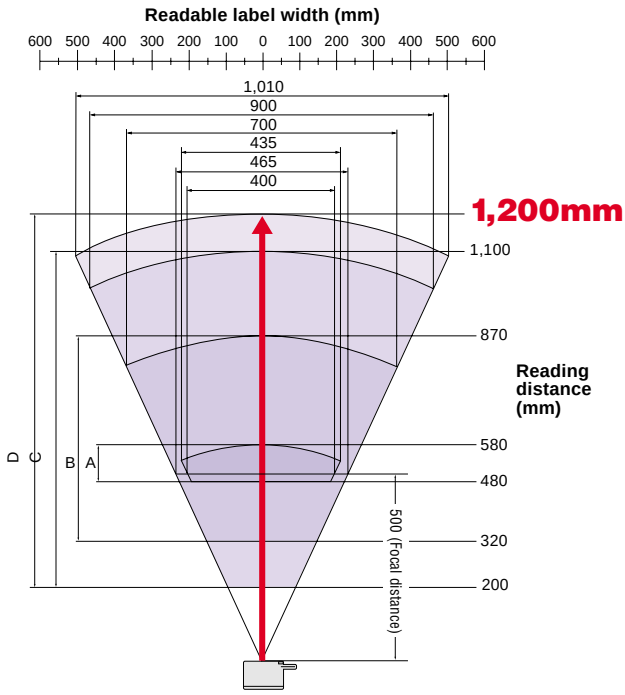
At 100 scans and 100 decodes **(100%)**

At 100 scans and 40 decodes **(40%)**

Read error status **(0%)**

World's longest range, 1200 mm (47.2″), among products of the same class.

With KEYENCE's laser technology, the BL-700 Series achieves long reading distance from an ultra small detction unit. Even if the target size varies, the auto gain control function ensures reliable reading by way of a vast reading depth.



BL-780/781

	Narrow bar width
A	0.32mm
B	0.5mm
C	1.0mm
D	2.0mm

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

When the bar code type is CODE39.

Both single-scan and raster-scan types are available.

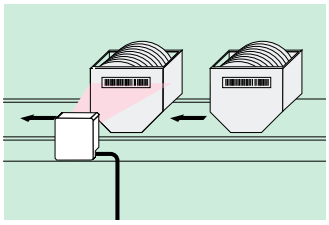
Each has its own advantages, depending on production-line conditions, bar code print quality, and bar code width.

Single-scan type: Reads the bar code with one scan line.
The single-scan type is the best choice for stable, high-speed production lines.

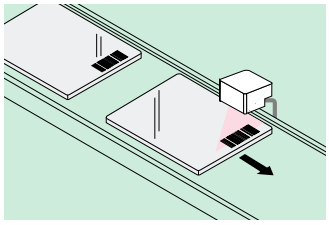
Raster-scan type: Reads the bar code with multiple scan lines.
The raster-scan type excels at accurately reading flawed bar codes, such as those with ink spots or voids.

All models UL approved. (Except BL-U1 power supply.)

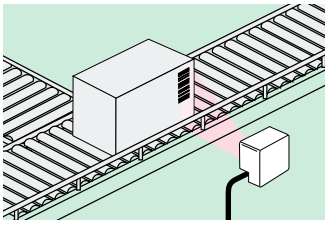
APPLICATIONS



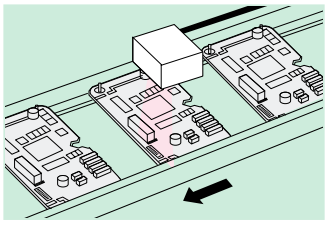
Bar code management for wafer carriers
Even Teflon-coated bar codes can be reliably read.



Bar code management for LCD boards
Bar codes directly marked on glass boards can now be read more stably than ever.



Installation on the side of cardboard box conveyors
The BL-700 Series can be mounted in small spaces and is designed to be less affected by the conveyor guide.

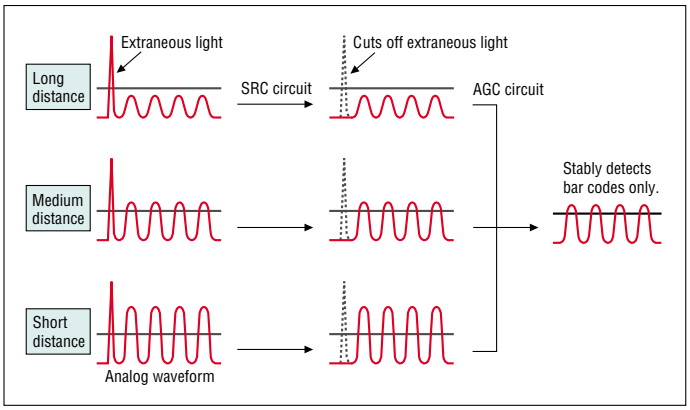


ICs & Electronics components
The compact body and high-speed reading capability of the BL-700 Series make them ideal for reading bar codes on printed circuits.

Great environmental resistance, rated to IP-65.
The BL-700 Series clears all IP-65 requirements, and can be used even in places where splashing might occur.

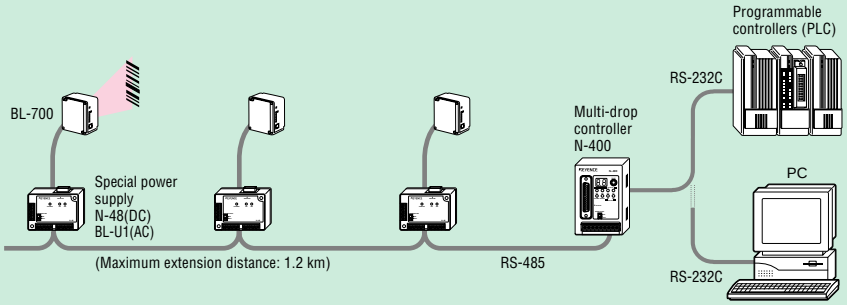
High-speed AGC is built-in.
The built-in AGC (Auto Gain Controller) automatically adjusts the GAIN to the optimal level. The AGC has accomplished long-distance reading. Also, GAIN adjustment has been automated.

SRC add-on
As a characteristic of an AGC circuit, when laser beams hit a metallic or mirrored surface, the GAIN is influenced by strong reflective beams. This makes invisible those reflective beams from the target bar that have delicate intensity differences. The SRC circuit is designed to minimize the influence of strong reflective beams from metallic and mirrored surfaces.

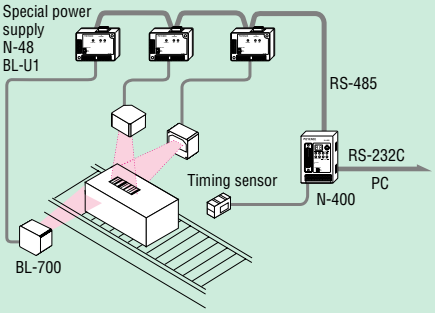


SYSTEM CONFIGURATION

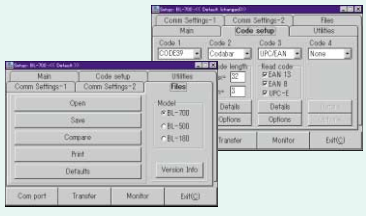
Simple-to-setup multi-drop link system.
Up to 31 bar code readers can be controlled with a single host computer. Since the N-400 controls communication with the bar code readers, hardly any programming for the host computer is required. Also, when the KV Series PLC is used, data sent from multiple bar code readers is written into the data memory of the KV Series PLC without using a communication program. This greatly reduces the time and labour needed for programming.



Data from multiple readers can be read.
Since multiple bar code readers can be controlled just like a single bar code reader, controlling the readers can be done easily without assigning difficult tasks to the host computer. When the bar code label position on each target varies and multiple bar code readers are used for simultaneous reading, the multi-drop link is convenient. Multiple bar code readers can also be mounted in close proximity by using the interference suppression function to alternately emit the laser beam from the readers. This function is effective for simultaneously reading multiple bar code labels placed vertically in close proximity with each other.



A clear, intuitive setup program (BL-H1WE).
Simplify setup of your bar code reader's operating parameters with the Windows™-compatible setup program. Anyone can perform the initial setup with ease. What's more, the program also allows you to manage data easily on a computer.



Prepare the setup console (BL-P1E)
Using the setup console, you can easily set the menu from a local site. The settings can be saved to a file on the memory card. This is very useful when copying the settings to several units.

*"MS-windows" and "Windows" are registered trademarks of Microsoft. Any other company name is registered trademark of that company.

BL-700

SPECIFICATIONS

Model		BL-700	BL-701	BL-740	BL-741	BL-780	BL-781
Type		High-resolution type		Middle-range type		Long-range type	
Light source		Visible semiconductor laser (Wavelength: 650 nm)					
	Maximum output	1.4 mW		1.8 mW		2.0 mW	
	Pulse width	91µsec					
	Class	Class II (FDA), Class 2 (IEC)					
Scanning method [1]		Single	Raster	Single	Raster	Single	Raster
Reading distance		160 to 370 mm (Narrow bar width = 0.5 mm)		150 to 750 mm (Narrow bar width = 1.0 mm)		200 to 1200 mm (Narrow bar width = 2.0 mm)	
Readable bar width [2]		0.15 to 1.0 mm		0.25 to 2.0 mm		0.32 to 2.0 mm	
Largest readable label width [3]		310 mm (Reading distance = 335 mm)		600 mm (Reading distance = 680 mm)		1010 mm (Reading distance = 1080 mm)	
PCS		0.6 or more (Reflectance of white part: 75% or higher)					
Scanning rate		700 scans/s					
Target codes		CODE39, ITF, INDUSTRIAL 2-of-5, COOP 2-of-5, NW-7, CODE128, CODE93, JAN/EAN/UPC (A-E)					
Number of readable digits		32 digits max.[4]					
Trigger input		Non-voltage input (contact or solid-state) *TTL input is also possible.					
OK/NG output	Output form	NPN open-collector					
	Rated load	24 VDC, 30 mA					
	Leakage current (at OFF)	0.1 mA max.					
	Residual voltage (at ON)	0.5 V max.					
Serial interface	Applied standard	Conforms to RS-232C					
	Synchronization	Start-stop					
	Transmission code	ASCII					
	Baud rate	600, 1,200, 2,400, 4,800, 9,600, 19,200, 31,250, 38,400 bps					
	Data length	7/8 bits					
	Parity check	None/Even/Odd					
	Stop bit length	1 bit/2 bits					
Environ-mental resistance	Enclosure rating	IP-65					
	Ambient light	Sunlight: 10,000 lux Incandescent lamp: 6,000 lux		Sunlight: 10,000 lux Incandescent lamp: 4,000 lux		Sunlight: 8,000 lux Incandescent lamp:3,000 lux	
	Ambient temperature	0 to 40°C					
	Relative humidity	35 to 85% (no condensation)					
	Atmosphere	No dust, no corrosive gas					
	Vibration	10 to 55 Hz, 1.5 mm double amplitude in X, Y, Z directions for 2 hours each.					
Power rating	Power supply voltage	5 VDC ±5%					
	Current consumption	510 mA max.					
Weight		Approx. 300 g (including cable)					

1. BL-701 raster width: 10±1 mm (reading distance: 200 mm), BL-741 raster width: 20±2mm (reading distance: 300 mm), BL-781 raster width: 30±3 mm (reading distance: 450 mm)
2. When the bar code type is CODE39.
3. Maximum reading label width includes the bar code margin (quiet zone).
4. When start/stop character of CODE128 is CODE-C, up to 64 digits are allowed.

CONNECTIONS

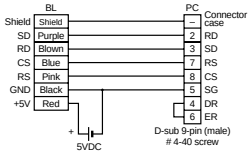
Wire colors and signal types

Wire color	Symbol		Description	Signal direction
Shield	Shield		Connect to ground(SG)	—
Purple	RS-232C	SD(TXD)	Send data	Output
Brown		RD(RXD)	Receive data	Input
Pink		RS(RTS)	Request to send(always on)	Output
Blue		CS(CTS)	Request to receive	Input
Black	GND(SG)		Ground (common ground for respective signals)	—
Yellow	TIM		Trigger input	Input
White	OK		OK output	Output
Gray	NG		NG output	Output
Red	+5V		+5 V power supply input	Input

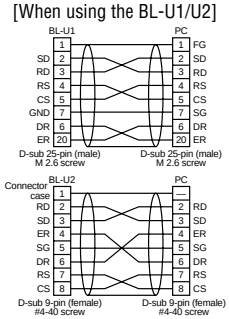
RS-232C connections

[When using a D-sub 9-pin connector]

Use a metallic connector housing for the D-sub 9-pin connector. Connect the shielded cable with the connector housing.

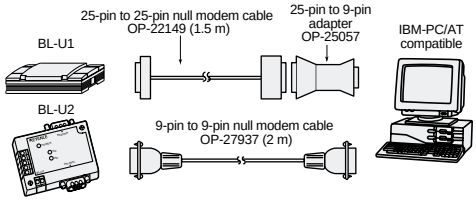


[When using the BL-U1/U2]



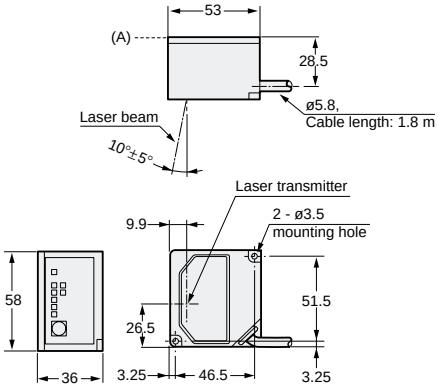
Options

The optional null modem cable is available from KEYENCE.



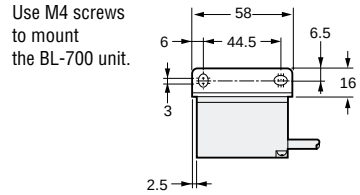
DIMENSIONS

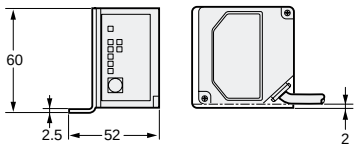
BL-700/701/740/741/780/781



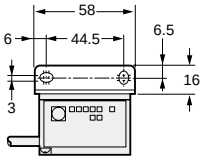
When mounting the BL-700 unit using the mounting brackets (accessory)

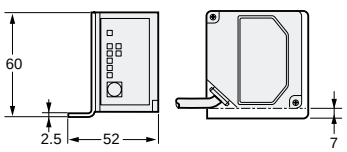
Use M4 screws to mount the BL-700 unit.





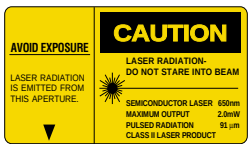
Use M4 screws to mount the BL-700 unit.



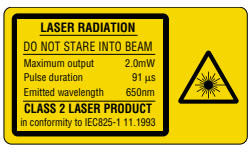


WARNING

The BL-700 Series conforms to the FDA standard for Class II and IEC standard for Class 2 laser products.



FDA



IEC

Specifications are subject to change without notice.

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