Line-Beam Mapping Sensors

BWML Series (EtherCAT)

CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- Stable glass substrate detection using line beam detection with minimal non-detection area (patent)
- Sensing distance: 95 ±10 mm
- Customized models available
  : sensing channels (4 to 62 CH), sensing target pitch (≥ 20 mm), sensing area (280 to 1,775 mm)
- Communication output: EtherCAT
- Easy installation with installation instruction mode and background sensing mode
- Channel interference alarm, 5-stage sensing level setting, emitter / receiver error alarm
- Bright status indicators
- EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Ordering Information

This is only for reference, the actual product does not support all combinations.
For selecting the specified model, follow the Autonics website.

BWML ❶ - ❷ EC ❸ - ❹

❶ Sensing target pitch
Number: Optical axis pitch (≥ 20 mm)

❷ Sensing CH
Number: 4 to 62 CH

❸ Operation mode
L: Light ON
D: Dark ON

❹ CH ordering orientation
No-mark: Forward (bottom = 1 CH)
R: Backward (top = 1 CH)

Product Components

- Product × 1
- Instruction manual × 1
- Bracket A × 4
- Bracket B × 4
- Fixing bolt × 8

Specifications

Model	BWML
Sensing method	Diffuse reflective type
Beam pattern	Line-beam type
Light source	Infrared LED (850 nm modulated light)
Sensing distance	95 mm ± 10 mm
Sensing target	Transparent or opaque glass plate
CH ordering orientation 01)	Forward (bottom = 1 CH) / Backward (top = 1 CH) (parameter setting)
Sensing CH 01)	4 to 62 CH
Sensing target pitch 01)	20 mm to ordered specification
Response time	≤ 120 ms
Operation mode 01)	Light ON / Dark ON (parameter setting)
Function	Background sensing mode, installation guide mode, sensing level setting, output option, self-diagnosis
Indicator	Output indicator (red), stability indicator (green), status indicator (green, yellow, red)
Approval	CE CC-LINK
Weight (packaged)	≈3.64 kg (≈ 4.8 kg) (based on BWML82-20ECL)

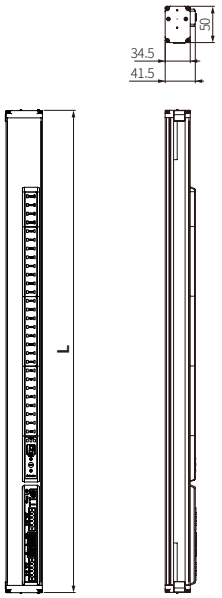
01) This product is order made.

Power supply	24 VDC⎓ (ripple P-P: ≤ 10 %)
Current consumption	≤ 1.0 A
Control output	EtherCAT
Comm. protocol	EtherCAT protocol
Physical layer	100BASE-TX (IEEE 802.3u)
Comm. medium	Over CATEGORY 5 / E (must be shield cable)
Connection method	Daisy chain
Transmission speed	100 Mbps
Address range	0 to 65535 (16-bit)
Address setting	Software (EtherCAT Master)
Comm. range	Distance between nods: ≤ 100 m
Protection circuit	Reverse power protection circuit, output short overcurrent protection circuit
Insulation resistance	≥ 20 MΩ (500 VDC⎓ megger)
Noise immunity	The square wave noise by the noise simulator (voltage: 500 V, period: 10 ms, pulse width: 1 us)
Dielectric strength	Between all power input terminals and F.G. terminal : 500 VAC~ 50 / 60 Hz for 1 min Between communication input terminals and F.G. terminal : 1000 VAC~ 50 / 60 Hz for 1 min Between power input terminals and communication input terminals: 1000 VAC~ 50 / 60 Hz for 1 min
Vibration	1.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	210 m / s² (≈ 21 G) in each X, Y, Z direction for 3 times
Ambient temperature	15 to 35 °C, storage: -10 to 50 °C (no freezing or condensation)
Ambient humidity	35 to 55 %, storage: 35 to 85 % (no freezing or condensation)
Protection rating	IP40 (IEC standard)
Material	Case: AL, sensing part and Indicator part: PMMA

CE EAC

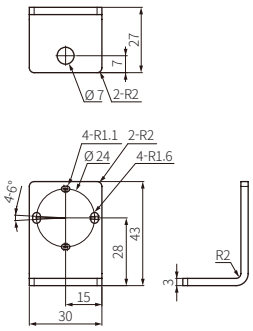
Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.
- Length of the product can be different by its ordered specification.
  Refer to the followings
  Max. sensing area = 20+{sensing target pitch×(the total number of sensing target-1)}

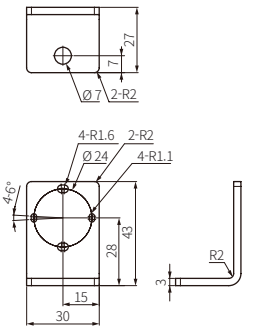


Length of the product (L)	Max. sensing area (mm)
384	280
434	310
484	335
564	460
614	490
664	515
744	640
794	670
844	695
924	820
974	850
1024	875
1104	1000
1154	1030
1204	1055
1284	1180
1334	1210
1384	1235
1464	1360
1514	1390
1564	1415
1644	1540
1694	1570
1744	1595
1824	1720
1874	1750
1924	1775

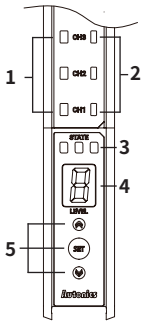
■ Bracket A



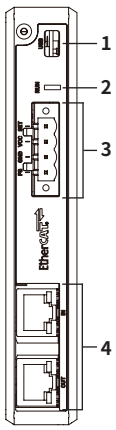
■ Bracket B



Unit Descriptions



1	Output indicator (red)
2	Stability indicator (green)
3	Status indicator (green, yellow, red)
4	Status display
5	Mode setting key



1	USB port: This port is only for firmware upgrade, run mode change, and A / S. Do not use this port for the another purpose, or the product can malfunction.
2	Comm. status indicator: It displays the communication status through LED.
3	Power cable connector
4	EtherCAT comm. input / output connector: It is with the communication status indicator which turns on or flashes according to the communication status.