

Product Selection Guide



UAM
Safety Laser Scanner



UST

The smallest and
The lightest, Wider range
and Faster response



URM

Outdoor laser scanner
High accuracy and resolution
Detection and measurement



UTM

Long distance,
Wide range
and High speed



YVT

3D outdoor laser scanner
High accuracy and resolution
Long measurement range



Unique Products & Best Sensing

We strive to be the best partner of our customers throughout the world!

SCANNING LASER RANGE FINDERS

2D scanners for measuring distance, size, position and direction of moving objects. Suitable for applications such as environment recognition for robots or obstacle detection for automated vehicles.



OPTICAL DATA TRANSMISSION DEVICES

Mainly used for data transmission between AGV/RGVs, automated storage systems, cranes. Serial, parallel and other interfaces are available.



Our locations

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Toyonaka Factory

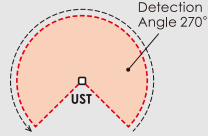
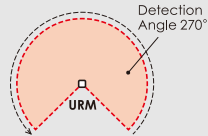
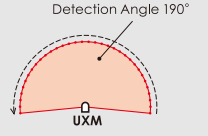
1-37 Kamisu-cho Toyonaka City, Osaka, 561-0823, Japan
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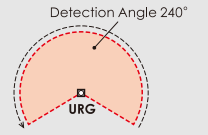
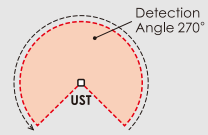
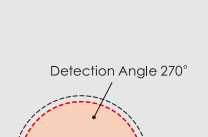
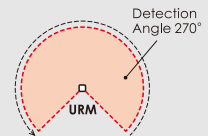
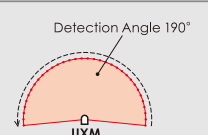
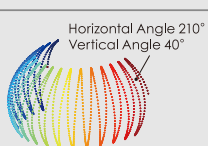
CANNING LASER RANGE FINDERS

Scanning Laser Range Finders are 2-dimensional sensors for measuring the distance between the sensor and its surroundings. It is possible to detect size, position and the moving direction of the objects based on scanning data obtained. Please select either Area setting type (Parallel type) or Data output type (Serial type) from the following line-up depending on your requirements.

Area Setting Type

Model Number	Part No.	Features	Scanning distance	Interface	Power supply	Scanning range zone
	UAM-05LP-T301	- Safety Laser Scanner The smallest in the world - Type3 SIL2 PLd	Protection Range Max. 5m Warning Range Max. 20m	OSSD1/2/3/4 WARNING1/2 Ethernet 100BASE-TX	24VDC	
	UST-05LN UST-10LN UST-20LN	- The smallest and the lightest of its kind - Wider detection range - Faster response	5m 10m 20m	CONTROL OUTPUT 1/2/3	12VDC 24VDC	
	URM-40LC-EW	- Long distance - High accuracy - High resolution - Multi-Echo data	40m	Ethernet 100BASE-TX	10-30VDC	
	UXM-30LAH-EHA	- Long distance - High speed - Better accuracy - Finer resolution - Built-in heater	80m	CONTROL OUTPUT 1/2/3 Ethernet 100BASE-TX		

Data Output Type

	URG-04LX-UG01	- Super small - USB bus power	4m	USB1.1 / 2.0	USB	
	UST-05LX UST-10LX UST-20LX	- Long distance - Wide range - High speed	5m 10m 20m	Ethernet 100BASE-TX	12VDC 24VDC	
	UTM-30LX	- Long distance - Wide range - High speed	30m	USB2.0	12VDC	
	UTM-30LX-EW	- Long distance - Wide range - High speed - Multi-Echo data				
	URM-40LC-EW	- Long distance - High accuracy - High resolution - Multi-Echo data	40m	Ethernet 100BASE-TX	10-30VDC	
	UXM-30LXH-EHA	- Long distance - High speed - Better accuracy - Finer resolution - Built-in heater - Multi-Echo data	80m			
	YVT-35LX-F0 YVT-35LX-FK (Low noise model)	3D Laser scanner - Multi-Echo data	35m		12VDC 24VDC	

SAFETY LASER SCANNER



SIL2 Type3
PL d Category3

UAM-05LP-T301

Features

- 5m x 270 degrees safety range
- Dual protection
- Encoder input
- Distance data output

Applications

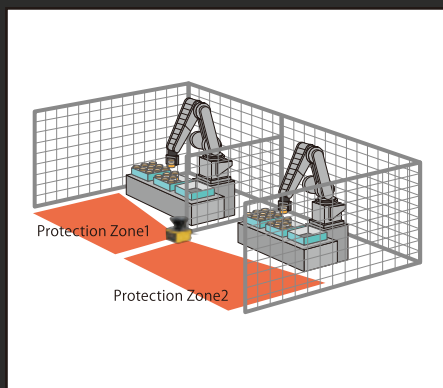
- Collision prevention
- Presence detection
- Intrusion detection



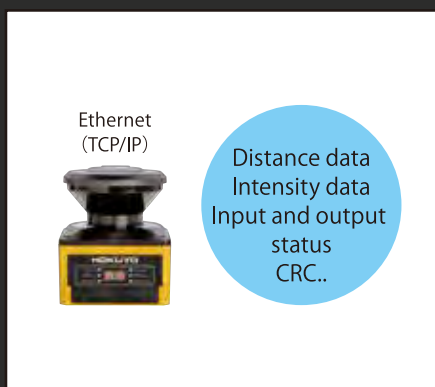
Specifications

Part No.	UAM-05LP-T301	UAM-05LP-T301C
Power supply	DC 24V $\pm 10\%$: when operation using converter power supply DC 24V $-30\%/+20\%$: when operation using battery	
Protection range	Max. 5m	
Warning range	Max. 20m	
Distance tolerance	+ 100mm	
Detection capability	From Black-Reflector Sheet (1.8%) to Retro-Reflector Sheet	
Minimum detectable width	$\phi 30$ mm (Max: 1.8m), $\phi 50$ mm (Max: 3.0 m), $\phi 70$ mm (Max: 5.0 m)	
Scan frequency	30ms (Rotational Speed: 2000 rpm)	
Area pattern	Max 32 patterns	
Interface	USB2.0 (USB micro type-B connector) Ethernet 100BASE-TX (Water proof connector)	
Cable	Flying lead cable length : 3m	Cable with water proof connector / Cable length: 0.3m
Weight and size	0.5Kg, 80mm (W) $\times$ 80mm (D) $\times$ 95mm (H)	

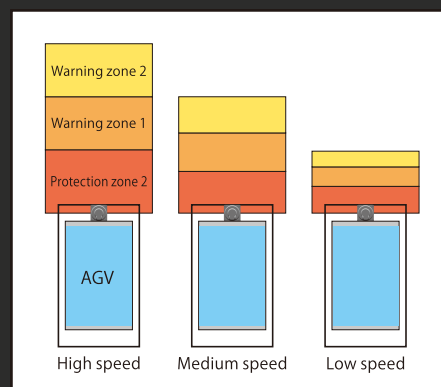
New Functions



● Dual Protection



● Distance Data output



● Encoder input

SCANNING LASER RANGE FINDER

UST-05LN
UST-05LA
UST-10LN
UST-20LN

Features

- Wide detection range
- Fast response
- More flexible settings
- The smallest and the lightest of its kind

Applications

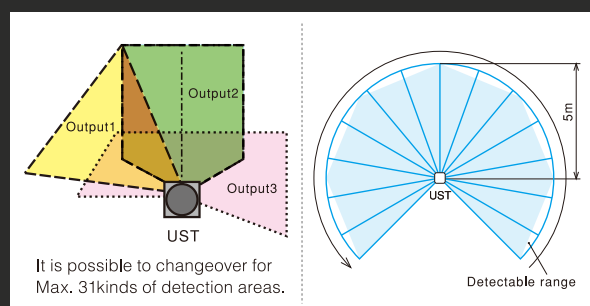
- Obstacle detection
- Presence detection



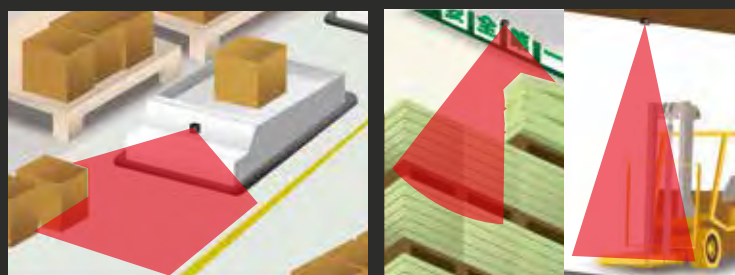
Specifications

Part No.	UST-05LN / UST-05LA	UST-10LN	UST-20LN
Power supply	12VDC / 24VDC (10-30VDC ripple: 10% or less)		
Consumption current	150mA (DC24V) or less (400mA when switching on)		
Light source	Semiconductor laser (905nm) , class 1 eye safe		
Distance	0.06-5m (White sheet)	0.06-10m (White sheet)	0.06-20m (White sheet)
	0.06-2m (Black sheet with 10% reflectivity)	0.06-4m (Black sheet with 10% reflectivity)	0.06-8m (Black sheet with 10% reflectivity)
Distance accuracy	±40mm		
Repeatability	σ<20mm		
Scanning angle	270°		
Scanning time	25ms per scan		
Angular resolution	0.5°	0.25°	
Start-up time	10sec or less		
Area pattern	31 patterns		
Output	Photo coupler / Open collector		
Response time	66ms or less		
Interface	USB / RS422 (only for UST-05LA data output)	USB / RS422 (for area setting)	
Indicator LED	Power (blue) : Blinking during start-up and malfunction		
Ambient temperature	-10 to 50 °C		
Protective structure	IP65		
Weight	130g (excluding cable)		

System structure



Applications



● Obstacle detection of AGVs

● Load shifting detection

SCANNING LASER RANGE FINDER

UXM-30LXH-EHA UXM-30LAH-EHA

Features

- Hard coating
- Ethernet
- Finer resolution
- Multi-Echo
- Built-in heater
- IP67

Applications

- Container crane control
- Tower crane collision avoidance
- AGV obstacle detection

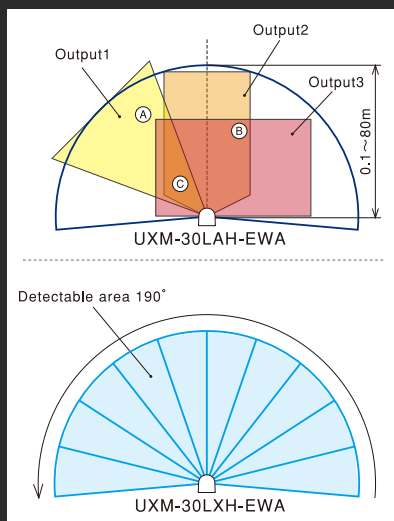


Specifications

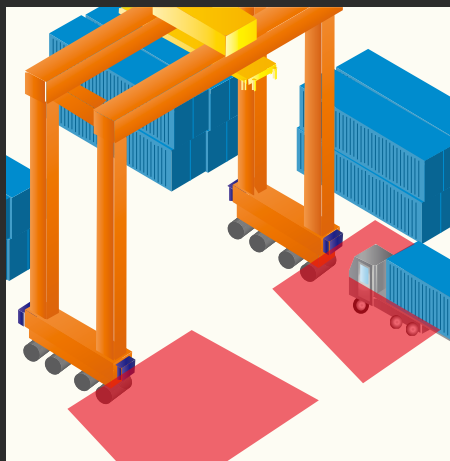
Part No.	UXM-30LXH-EHA / UXM-30LAH-EHA
Power supply	10-30VDC
Consumption current	7.2W or less (usual operation) 15W when heater is on with power of 12VDC 30W when heater is on with power of 24VDC
Light source	Semiconductor laser (905nm), class 1 eye safe
Distance	0.1m-30m (Black sheet with 10% reflectivity) 0.1m-80m (White sheet with 90% reflectivity)
Distance accuracy	±50mm
Repeatability	$\sigma < 30\text{mm}$
Scanning angle	190°
Scanning time	50ms per scan
Angular resolution	0.125°

Start-up time	30sec or less
Area pattern	15 patterns (UXM-30LAH-EHA only)
Output (UXM-30LAH-EHA only)	Photo coupler / Open collector Output 1, 2 & 3 : area detection Output 4: malfunction (Normally ON) Output 5: Sync. Output
Response time	100ms or less Extra 1 scan time is needed during area switching
Interface	Ethernet
Ambient temperature	-30 to 50 °C
Protective structure	IP67
Weight	1.2kg

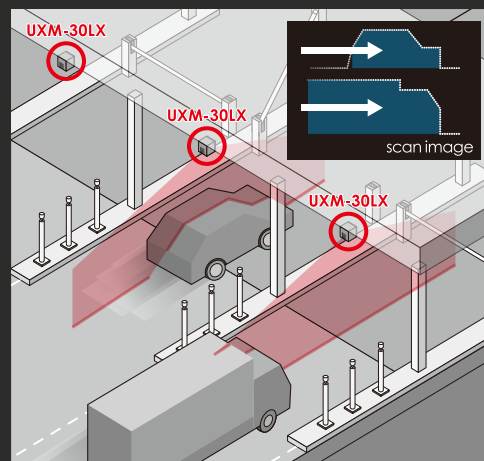
System structure



Applications



- UXM-30LAH-EHA : Collision avoidance for RTGs, RMGs and AGVs



- UXM-30LXH-EHA : Vehicle Classification System by Binaryworks

SCANNING LASER RANGE FINDER

URG-04LX-UG01

The most affordable laser scanner in the world

Features

- Low cost
- Low power consumption
- High accuracy
- USB bus power

Applications

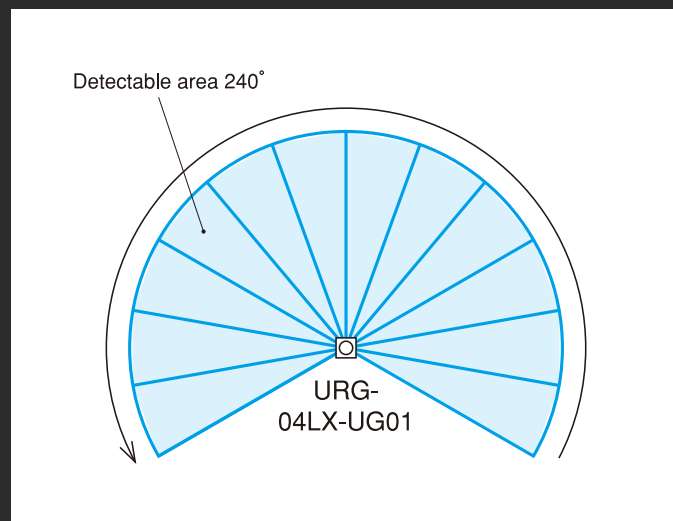
- Service robotics
- Research robotics
- Intelligent AGV



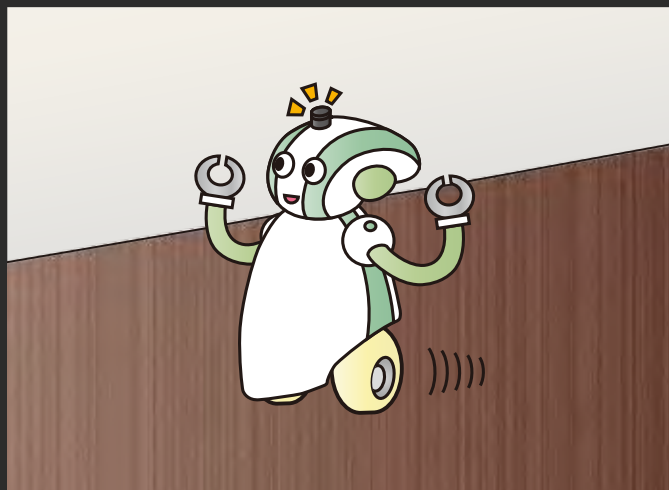
Specifications

Part No.	URG-04LX-UG01
Power supply	5VDC $\pm 10\%$ (USB bus power)
Consumption current	500mA or less (600mA when switching on)
Light source	Semiconductor laser (785nm), class 1 eye safe
Distance	0.06-4m (White sheet)
Distance accuracy	0.06-1m : ± 30 mm, 1-4m : 3% of distance
Scanning angle	240 degrees
Scanning time	100ms per scan
Angular resolution	0.36°
Interface	USB1.1 / 2.0
Ambient temperature	-10 to 50 °C
Protective structure	IP64
Weight	160g

System structure



Applications



- Environment recognition for autonomous robot

SCANNING LASER RANGE FINDER

UST-05LX UST-10LX UST-20LX

Features

- High speed
- Long distance
- Wide range
- Compact and lightweight

Applications

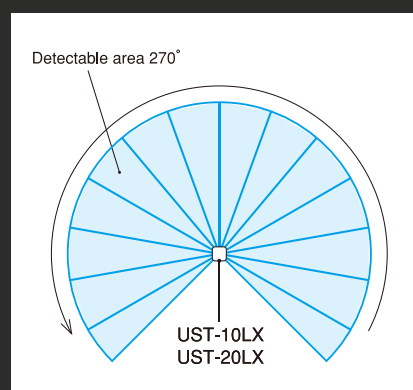
- Service robot
- Research robot
- Medical robot



Specifications

Part No.	UST-05LX	UST-10LX	UST-10LX-H01	UST-20LX	UST-20LX-H01
Power supply	12VDC / 24VDC (10-30VDC ripple: 10% or less)				
Consumption current	150mA or less (450mA when switching on)				
Light source	Semiconductor laser (905nm) , class 1				
Distance	0.06-5m (White sheet) 0.06-2m (Black sheet with 10% reflectivity) Max.detection distance : 15m	0.06-10m (White sheet) 0.06-4m (Black sheet with 10% reflectivity) Max. detection distance : 30m		0.06-20m (White sheet) 0.06-8m (Black sheet with 10% reflectivity) Max. detection distance : 60m	
Distance accuracy	±40mm				
Repeatability	$\sigma < 30\text{mm}$				
Scanning angle	270 degrees				
Scanning time	25ms per scan				
Angular resolution	0.25°	0.25°	0.125°	0.25°	0.125°
Start-up time	10sec or less				
Interface	Ethernet 100BASE-TX				
Ambient temperature	-10 to 50 °C				
Protective structure	IP65				
Weight	130g (excluding cables)				

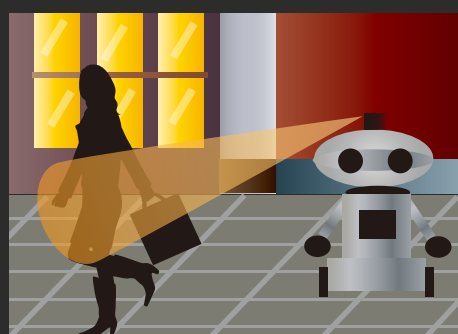
System structure



Applications



- Interactive media systems



- Environment recognition for autonomous service robots

SCANNING LASER RANGE FINDER

UTM-30LX(-F) UTM-30LX-(F)EW

Features

- Long distance
- Wide range
- High speed
- Multi-Echo data (UTM-30LX-EW only)
- IP67 (UTM-30LX-EW) (UTM-30LX-FEW)

Applications

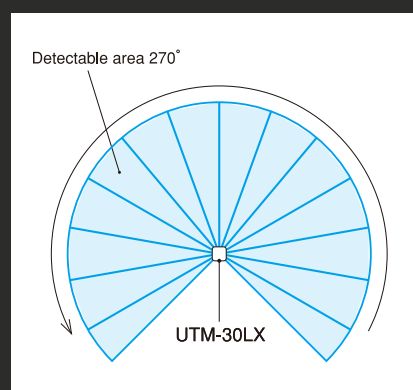
- Service robot
- Medical robot
- Research robot
- Intelligent AGV



Specifications

Part No.	UTM-30LX / UTM-30LX-EW	UTM-30LX-F / UTM-30LX-FEW
Power supply	12VDC $\pm 10\%$	
Consumption current	700mA or less (1A when switching on)	
Light source	Semiconductor laser (905nm), class 1 eye safe	
Distance	0.1-30m (White sheet)	
Distance accuracy	$\pm 50\text{mm}$	
Repeatability	$\sigma < 30\text{mm}$	
Scanning angle	270 degrees	
Scanning time	25ms per scan	10ms per scan
Angular resolution	0.25°	0.65°
Output	Sync.	
Interface	USB for UTM-30LX Ethernet for UTM-30LX-EW	USB for UTM-30LX-F Ethernet for UTM-30LX-FEW
Ambient temperature	-10 to 50 °C	
Protective structure	IP64 for UTM-30LX IP67 for UTM-30LX-EW	IP64 for UTM-30LX-F IP67 for UTM-30LX-FEW
Weight	210g (excluding cables)	

System structure



Applications



- Environment recognition by autonomous robot for outdoor use



- Analyzing human movement patterns for marketing purposes

NEW PRODUCT

SCANNING LASER RANGE FINDER

URM-40LC-EW

A hybrid model with area setting
and data output

Features

- Lighter and fit for outdoor (IP67)
- Longer detection range (40m)
- Higher angular resolution (0.125°)
- Higher accuracy ($\pm 20\text{mm}$)

Applications

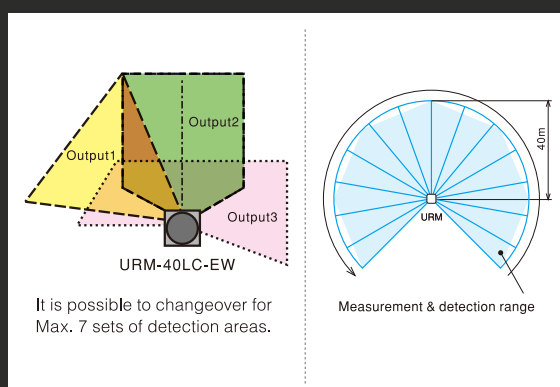
- Outdoor service robot
- Road & transportation automation
- Port & crane automation



Specifications

Part No.	URM-40LC-EW
Power supply	10-30DCV
Consumption current	8.4W or less (usual operation)
Light source	Semiconductor laser (905nm), class 1 eye safe
Distance	0.1m-40m (White sheet with 90% reflectivity) 0.1m-18m (Black sheet with 10% reflectivity)
Distance accuracy	$\pm 20\text{mm}$
Repeatability	$\sigma < 10\text{mm}$
Scanning angle	270°
Scanning time	25ms / 50ms per scan
Angular resolution	0.125° / 0.25°
Output	5 outputs (3 detection outputs, ready output, malfunction output)
Interface	Ethernet 100BASE-TX
Ambient temperature	-10 to 50 °C
Protective structure	IP67
Weight	500g

System structure



Applications



- Obstacle detection for agricultural vehicles



- Environment recognition for outdoor service robots

NEW PRODUCT SCANNING LASER RANGE FINDER

YVT-35LX-F0 YVT-35LX-FK

3D Laser scanner

Features

- Long distance outdoor measurement
- 3D solution suitable for mobile robot
- 40° vertical scanning range
- Fit for outdoor applications (IP67)

Applications

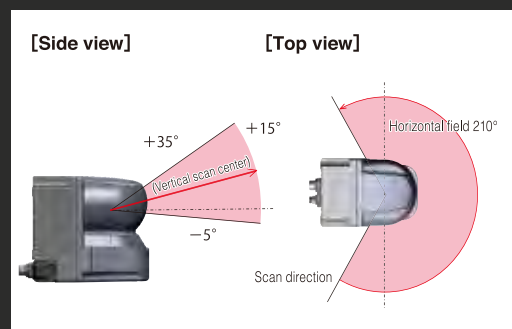
- Outdoor service robot
- Research robot
- Intelligent AGV



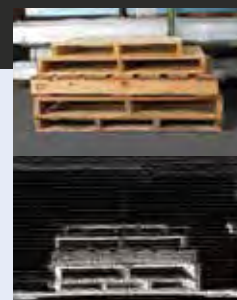
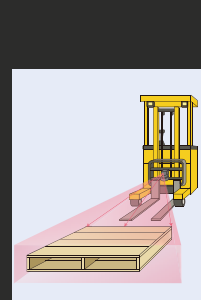
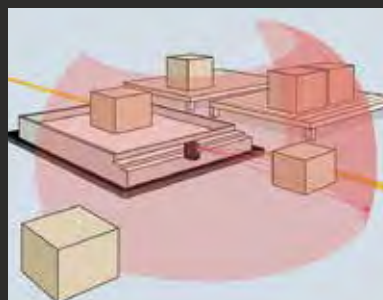
Specifications

Part No.	YVT-35LX-F0	YVT-35LX-FK (Low noise model)
Power supply	DC12V / 24V(Operating Voltage Range 10~30V)	
Consumption current	9.6W or less (usual operation)	
Light source	Semiconductor laser (905nm), class 1 eye safe	
Distance	$-45^{\circ} < \theta < 45^{\circ}$: 0.3-35m (White sheet), 0.3-11m (Black sheet) $-75^{\circ} < \theta \leq -45^{\circ}, 45^{\circ} \leq \theta < 75^{\circ}$: 0.3-20m (White sheet), 0.3- 6m (Black sheet) $\theta \leq -75^{\circ}, 75^{\circ} \leq \theta$: 0.3-10m (White sheet), 0.3-3m (Black sheet)	
Distance accuracy	Center White sheet below 15m: $\pm 50\text{mm}$ White sheet 15m~ : $\pm 100\text{mm}$	
Repeatability	Center White sheet below 15m: $\sigma < 20\text{mm}$ White sheet 15m~ : $\sigma < 35\text{mm}$	
Scanning angle	Horizontal : 210° , Vertical : 40°	
Scanning time	Horizontal : 20Hz , Vertical : 1,200Hz	
Angular resolution	Horizontal : 210° or more Pitch: 6° Accuracy: $\pm 0.125^{\circ}$ Vertical : 40° (-5° to 35°) Accuracy: $\pm 2^{\circ}$	
Output	PPS Input : photo-coupler input Sync. Output	
Interface	Ethernet 100BASE-TX	
Ambient temperature	-10 to 50°C	
Protective structure	IP67	
Weight	Approx. 650g	Approx. 1kg
Noise level	53db Frequency 1,200Hz	47db Frequency 1,200Hz
Size	70mm×106mm×95mm (W×D×H)	76mm×106mm×95mm (W×D×H)

System structure



Applications



- 3D environment recognition for AGVs
- Pallet visualization for forklifts



PTICAL DATA TRANSMISSION DEVICES

Mainly used for data transmission between AGV/RGVs, automated storage systems, cranes.
Serial, parallel and other interfaces are available.

Serial Type

Interface	Image	Transmission distance	Part NO.
Ethernet 100BASE-TX		100m	EWF-1EA-01 / EWF-1EB-01
Ethernet 10BASE-T		100m	BWF-3EA / BWF-3EB
		200m	BWF-4EA / BWF-4EB
		200m	BWF-4EA-SF / BWF-4EB-SF
CC-Link		200m	BWF-2CA / BWF-2CB
		100m	BWF-17A / BWF-17B
		200m	BWF-27A / BWF-27B
DeviceNet		100m	CWF-1NA-S / CWF-1NB-S
MITSUBISHI ELECTRIC SSCNETIII		50m	EWF-0VA / EWF-0VB
RS-232C/RS-422		100m	BWF-11A / BWF-11B
		200m	BWF-21A / BWF-21B
RS-422		100m	EWF-11A / EWF-11B
RS-232C		1m	DMS-GF1A / DMS-GF1B
			DMS-HF1A / DMS-HF1B

Parallel Type

Classification	Capacity	Image	Transmission distance	Part NO.
Head-ON	4BIT		 1m	DMS-GA1-V
			 3m	DMS-GA2-V
	8BIT		 1m	DMS-GB1-V
			 3m	DMS-GB2-V
Side-ON	4BIT		 1m	DMS-HA1-V
			 3m	DMS-HA2-V
	8BIT		 1m	DMS-HB1-V
			 3m	DMS-HB2-V
Head-ON	16BIT		 3m	DMH-GC1
Side-ON			 3m	DMH-HC1

NEW PRODUCT

OPTICAL DATA TRANSMISSION DEVICE

EWF-1E



Features

- Non-contact optical repeater
- Available for Ethernet communication
- Can be directly connected to Ethernet
- 100Mbps speed

Applications

- Stacker crane communication and control
- Ethernet Camera

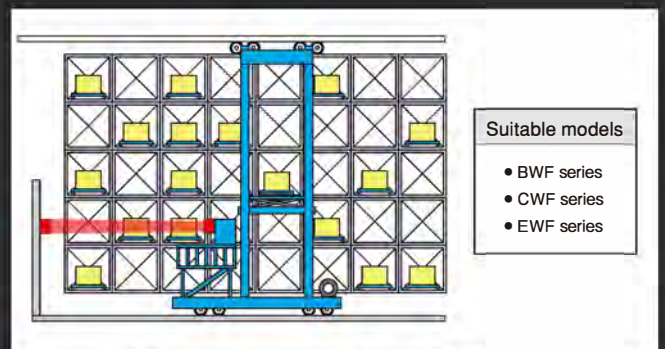
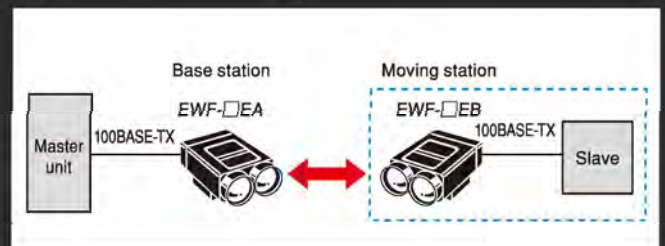


Specifications

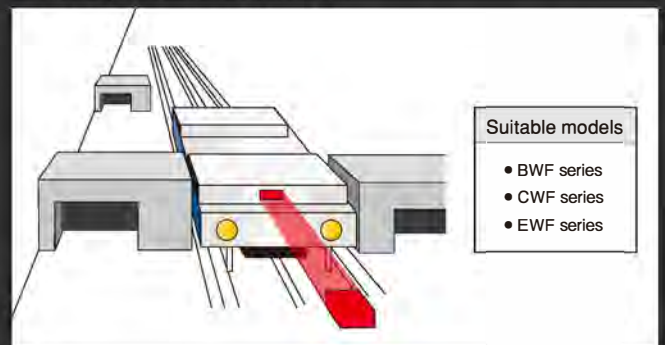
Part No.	EWF-1EA-01 / EWF-1EB-01
Transmission distance	100m
Directional angle	0.7° full angle
Power source	24VDC (±10%)
Consumption current	150mA (24VDC)
Transmission method	Full-duplex two-way transmission
Transmission speed	100Mbps
Laser class	2M
Interface	Ethernet
Communication standard	IEEE802.3u 100BASE-TX
Modulated method	Direct modulation
Connection	Mini clamp connector (Power / CD signal), Modular jack RJ-45 (Ethernet)
Ambient temperature	-10 to 50 °C
Ambient illuminance	10,000lux or less (Halogen / Mercury lamp)
Impact resistance	490m/s ² , Each 10 time in X, Y and Z directions
Vibration resistance	Double amplitude 1.5mm, 10~55Hz, each 2 hour in X, Y and Z direction
Protective structure	IP40
Light-reception level output (CD)	Photo-coupler open-collector (Withstand voltage 35V), Light-ON (Max.50mA, Residual voltage 1.5V)

Note: A and B must work together as a pair.

System composition



- **Control of stacker crane for Automated Storage Systems**
Instruction of address, main power ON / OFF, traveling and upturn / downturn etc.



- **Control of track type AGVs**
Instruction of address, main power ON / OFF, traveling etc.



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