

HOKUYO

PL d Category3 | SIL 2 Type3

Safety Laser Scanner UAM-02LP-T301

The Smallest Size in the World
with a Versatile Range for
Area Protection Applications

Actual
Size



“So small and light!” Smallest

Smallest



Compact and Lightweight, Easy to Use

The compact design allows for an ease of installation on AGVs, AGCs as well as in vertical guarding applications.

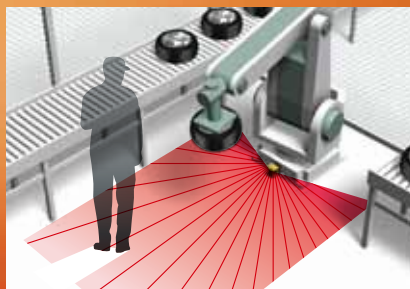
Size	Height 97.0× Width 90.0× Length 99.8 mm
Weight	1.0 kg
Conformity Standards	IEC61496-1/3 Type3
	IEC61508 SIL 2
	ISO13849-1 PL d Category3
	UL508
	UL1998
	UL61496-1 Type3 CSA C22.2 No. 14

Collision Prevention



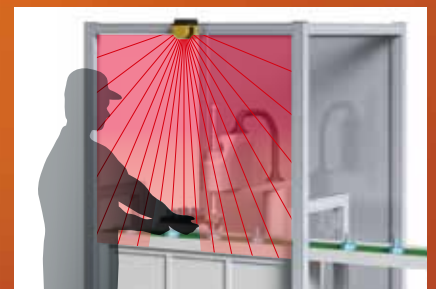
Can switch between 16 area patterns to accommodate the AGV travel path for object detection and collision prevention.

Presence Detection



Detects when a person or something enters or if an object is left in a hazardous area.

Intrusion Detection



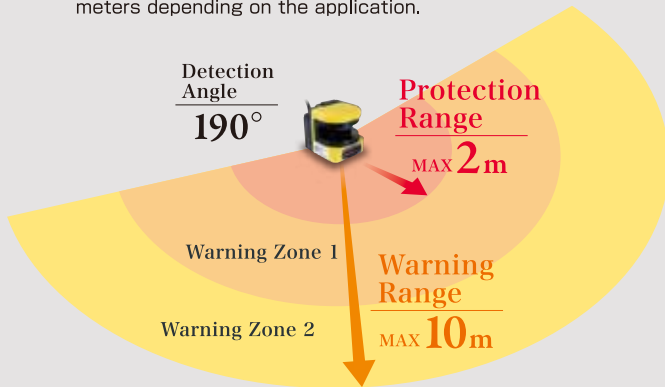
Detects when a critical zone is accessed. The reference boundary feature prevents unsafe conditions if there is a gap in the protection zone or a misalignment of the scanner.

Size in the World Expands Range of Safety Applications

Reliable Detection of Dark Objects and Clothing

Protection over a Wide Zone

Through a horizontal, two-dimensional scanning laser beam, the protection zone can be easily set to a maximum of 2 meters and the warning zone to a maximum of 10 meters depending on the application.

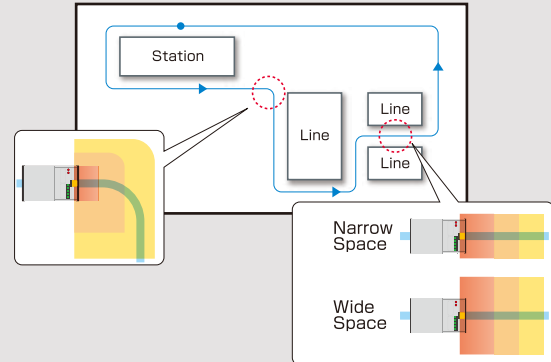


Able to Store 16 Patterns

of 1 Protection Zone and 2 Warning Zones

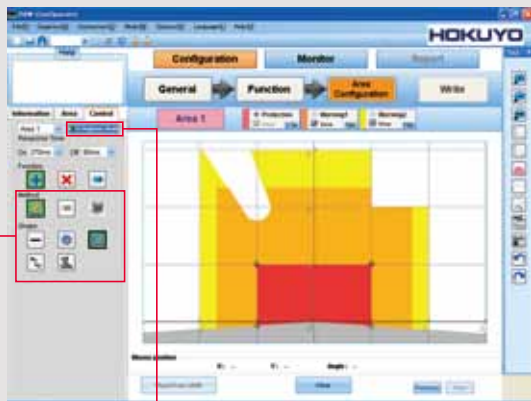
For optimal use on an AGV, 16-pattern combinations of a protection zone and two warning zones (non-safety) can be programmed, so the configured pattern can be switched to accommodate the surroundings or the travel path of the vehicle.

Example of Running an AGV with Switching Patterns

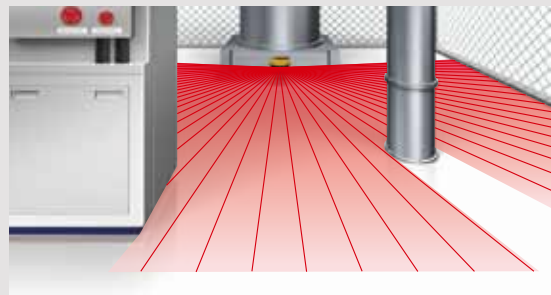


Equipped with Beginner Mode, Flexible Configuration of Protection Zone and Warning Zone is Simple

In addition to a simple interface, an easy to understand Beginner Mode configuration screen is available for ease of set up. While confirming the detection status in real-time, you can set the zone configuration. Also, depending on the task, you can select from three drawing methods, and can even configure it offline easily.



Also possible to configure complex-shaped zones to accommodate the environment. Using the Auto-Setting zone feature allows for configuration to be even simpler.



Beginner Mode

It is possible to configure one item at a time with guidance instructions.



Three Drawing Methods

- Direct Drawing
- Numerical Input
- Auto-Setting

Current Operation Status Apparent at a Glance

The seven-segment display on the front of Safety Laser Scanner shows the currently selected area number and error number, so observing the status is simple.

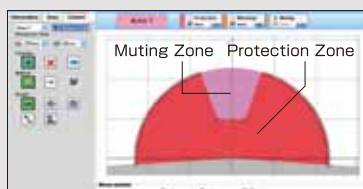


Reliable even with Complicated Zone Configuration or Offset

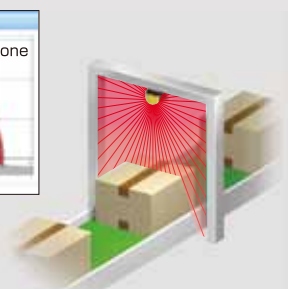
Simple Configuration of Complicated Disabled Zones

Muting Configuration

For transport entry/exit stations with complicated openings, by configuring the muting function you can disable a part of the protection zone. Therefore, zone configurations that would not be possible with a light curtain are now configurable.



Protection Zone Configuration Screen

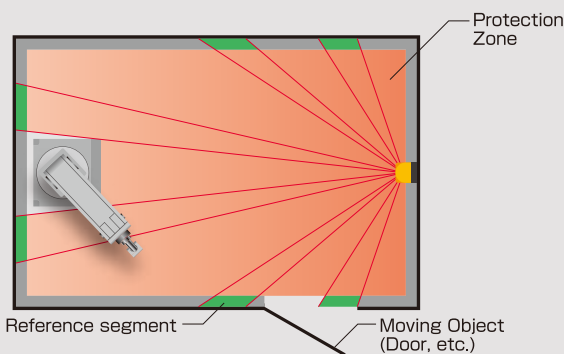


Possible to Configure Complicated Disabled Zones

Detection of Variation from Reference Points


Reference Feature

In cases where there is something that changes location in the protection zone, such as a door, by setting the location in advance of the door when it is closed, OSSD will be shut off when the door is moved.

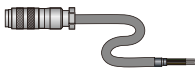


Category


Main unit

Appearance	Model number	Product code	Remarks
	UAM-02LP-T301	UUAM002	CD-ROM consist of the Configurator software is included



Connection cable (Option)

Appearance	Specification	Model number	Product code	Remarks
	Cable length: 2m	UAM-C002	UZ00036	Each UAM requires 1 cable
	Cable length: 5m	UAM-C005	UZ00034	
	Cable length: 10m	UAM-C010	UZ00032	
	Cable length: 20m	UAM-C020	UZ00035	


USB cable (Option)

Appearance	Specification	Model number	Product code	Remarks
	Cable length: 5m	UAM-USB5	UZ00038	USB cable needed for interface between PC and UAM. This is necessary during functions, zone configuration

Bracket (Option)

Appearance	Specification	Model number	Product code	Remarks
	L-shape	UAM-BK01	UZ00029	For vertical angle alignment
	Vertical	UAM-BK02	UZ00030	For vertical and horizontal angle alignment

UAM Configurator (Option)

Appearance	Specification	Model number	Product code	Remarks
	CD-ROM	UAM-CD01	UZ00037	UAM Configurator for functions and zone configuration



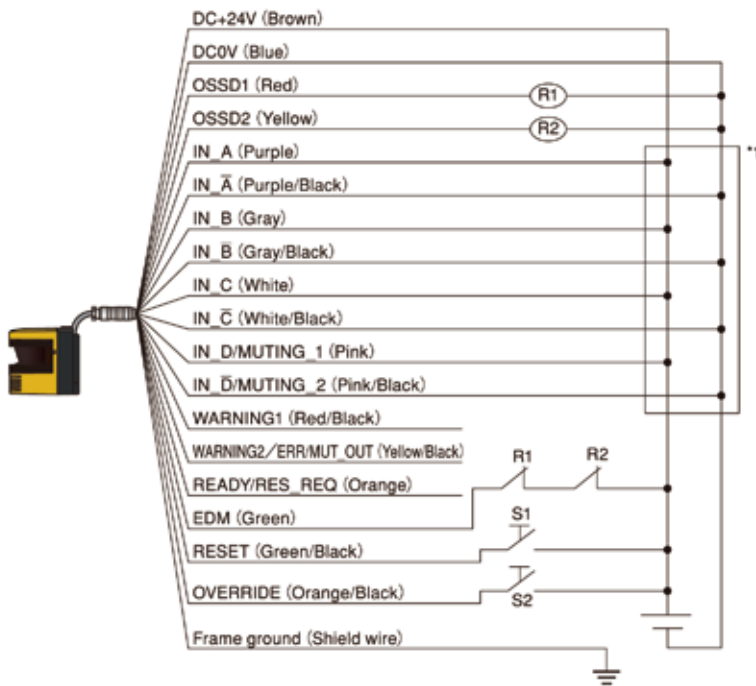
Specification

Subject	Specifications		
Model	UAM-02LP-T301		
Detection property	Protection Range	Max.2.0m	
	Warning Range	Max.10.0m (Non-safety)	
	Distance tolerance*1	+100mm	
	Detection capability	From Black-Reflector Sheet(1.8%) to Retro-Reflector Sheet Speed: 1.6m/s max.	
	Detection angle	190°	
	Minimum Detectable Width	φ30mm (Max. Dist.: 1.0m)	
		φ50mm (Max. Dist.: 1.5m)	
		φ70mm (Max. Dist.: 2.0m)	
	Scan Frequency	30ms (Rotational Speed 2000rpm)	
Area pattern	16 patterns		
Response time	OFF	60 to 510ms	
	ON	270 to 510ms	
Optics	Element	Pulsed Laser Diode	
	Wavelength	905nm	
	Safety Class	Laser Class 1 (IEC60825-1, CFR21 1040.10 and 1040.11)	
Safety Type		Type 3 (IEC 61496-1, IEC 61496-3, UL61496-1)	
Functional Safety		SIL 2 (IEC61508)	
PFH _d		7.5×10 ⁻⁸	
Housing	Size	90.0mm (W), 99.8mm (D), 97.0mm (H)	
	Weight	Approx. 1.0kg	
	Protection	IP65	
	Material	Body Aluminum / Optical Window: Polycarbonate	
	Cable	Flying cable and water proof connector /Cable 300mm /M16-19p	
Power Supply		DC 24V ±10% : Power supply from converter DC 24V -30%/+20%: Power supply from battery	
Cable length		Length 20 m AWG 22, 26, 28	
Power consumption	Normal (without load)	11W	
	Max. (without load)	19W	
	Max. (with load)	58W	
Output types	OSSD1/2 (Safety-related)	Output type (High side SW)	
		Output current (Max: 500 mA)	
		Leak current (Max: 1mA)	
		Wire (Length: 20m AWG 26)	
		Load (L/R=25ms C=1μF)	
	WARNING 1 (Non-safety)	Output type (PNP Transistor output)	
		Output current (Max: 100mA)	
		Leak current (Max: 1mA)	
	WARNING2 / ERR / MUT_OUT (Non-safety)	Output type (PNP Transistor output)	
		Output current (Max: 100mA)	
		Leak current (Max: 1mA)	
	READY or RES_REQ (Non-safety)	Output type (PNP Transistor output)	
Output current (Max: 100mA)			
Leak current (Max: 1mA)			
	Wire (Length: 20m AWG 28)		
	Wire (Length: 20m AWG 28)		
	Wire (Length: 20m AWG 28)		
Input	Number of inputs	16 area switching (4 inputs x 2 channels) EDM/RESET/MUTING1/MUTING2/OVERRIDE (1 input x 1 channel)	
	Input Impedance	4.7 kΩ	
	Cable	Length 20m AWG 28	
Interface	Configuration	USB2.0 (USB mini B type connector)	
	Temperature	-10 to +55°C	
Environmental resistance	Storage Temperature	-25 to +70°C	
	Humidity	95% RH	
	Storage Humidity	No freezing and condensation	
	Surrounding Intensity*2	Less than 3000lx	
	Vibration	Frequency range: 10 to 55Hz	Sweep rate: 1octave/min
		Amplitude: 0.35mm ±0.05mm	
Bump	Acceleration: 98m/s ² (10G)	Pulse duration: 16ms	

*1. Additional distance of 200mm is needed when the UAM is working under high reflective background.

*2. When the light sources located at ≥5° from the detection plane of UAM.

Wiring example



R1, R2: External device (Safety relay, Magnet contactor, etc.)
S1: Interlock-reset switch

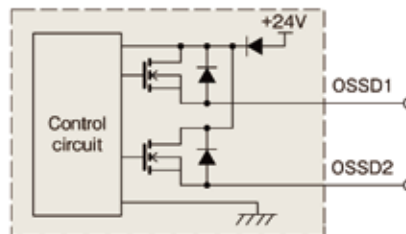
*1: Please refer to the user's manual for details on area switching.

Colour	Signal	Function	Description	AWG
Brown	+24V DC	Power	Power DC 24V	22
Blue	0V DC		Power 0V	
Red	OSSD 1	Output	Protection zone output 1	26
Yellow	OSSD 2		Protection zone output 2	
Purple	IN_A	Input	Area Switching Input A	28
Gray	IN_B		Area Switching Input B	
White	IN_C		Area Switching Input C	
Pink	IN_D/ MUTING1		Area Switching Input D/ Muting input 1	
Purple/Black	IN_Ā		Area Switching Input Ā	
Gray/Black	IN_B		Area Switching Input B	
White/Black	IN_C		Area Switching Input C	
Pink/Black	IN_D/ MUTING2		Area Switching Input D/ Muting input 2	
Green	EDM		External device monitoring	
Red/Black	WARNING1		Output	
Yellow/ Black	WARNING2/ ERR/ MUT_OUT	WARNING2: Warning zone output 2 ERR: OFF when diagnostic error detected MUT_OUT: Muting state output		
Orange	READY/ RES_REQ	READY: ON during Normal operation RES_REQ: ON when external reset is needed		
Green/Black	RESET	Input	Reset input	
Orange/Black	OVERRIDE	Input	Override input	
Shield wire	FG	—	Frame ground	—

Input/Output circuit

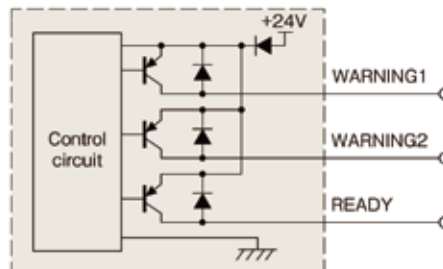
OSSD output circuit

OSSD outputs are source output type.



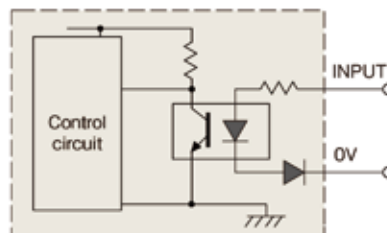
Other Output circuit

WARNING1, WARNING 2, READY outputs are PNP type.



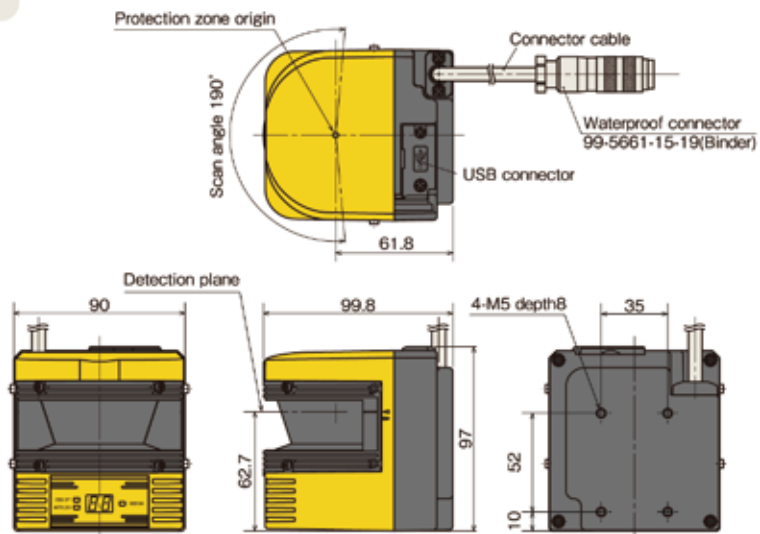
Input circuit

It is applicable for area inputs, EDM, RESET, MUTING1, MUTING 2 and OVERRIDE.

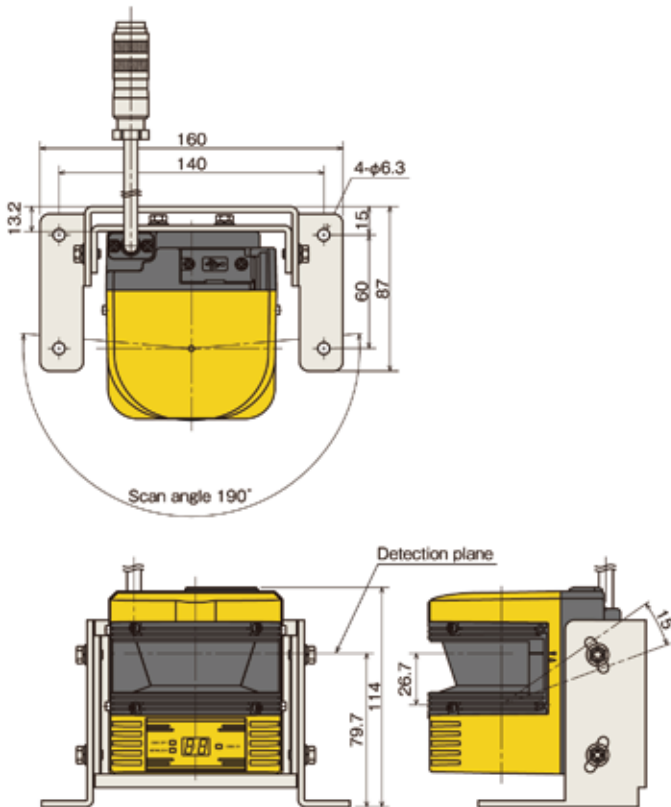


External Diagram

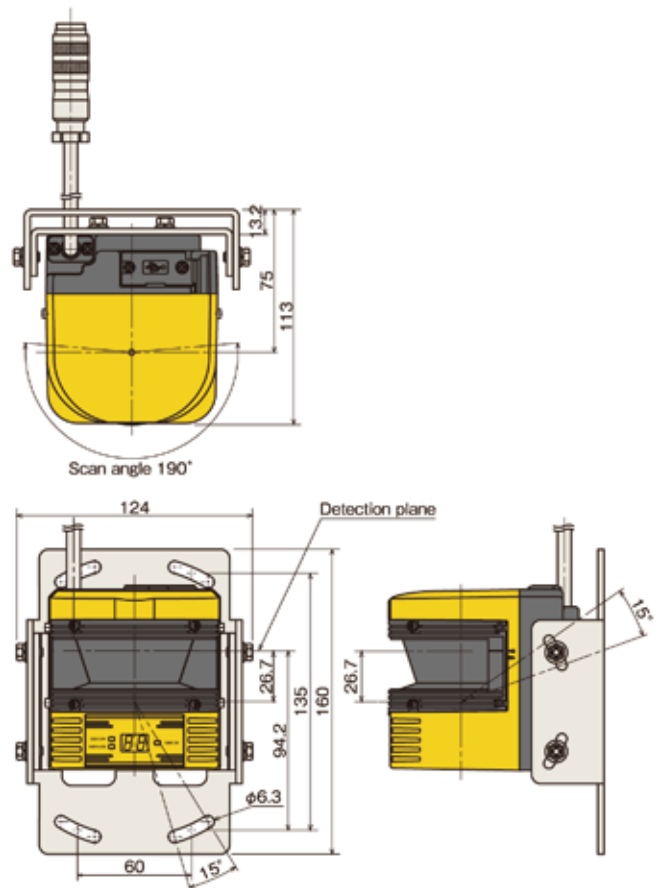
Sensor



Fixed Condition of L Mounting Bracket



Fixed Condition of Vertical Mounting Bracket





ISO14001 Certified
JQA-EM3873



ISO9001 Certified
JQA-1742



Caution for safety use

- Be sure to read instruction manual or catalog carefully before use.
- Products published in this catalog are intended to be used under certain conditions or applications.
- For product questions or technical issues contact our office.



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