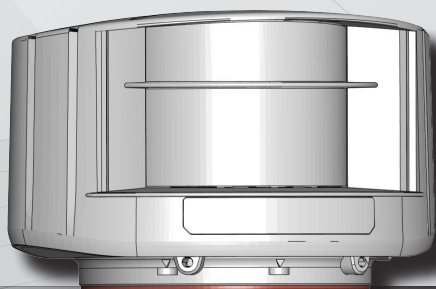




EN



LZR[®]-U920/U921

**LASER MEASUREMENT DEVICE WITH
BI-DIRECTIONAL BUS COMMUNICATION**

User's Guide



SAFETY



The device emits invisible (IR) and visible laser radiation.

IR laser: wavelength 905nm; output power 0.10mW
(Class 1 according to IEC 60825-1)

Visible laser: wavelength 635nm; output power 0.95mW
(Class 2 according to IEC 60825-1)

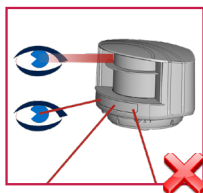
The visible laser beams are inactive during normal operation.
The installer can activate the visible lasers if needed.

Do not stare into visible laser beams.

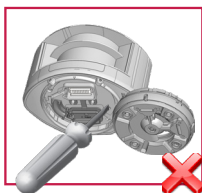


CAUTION!

Use of controls, adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.



Do not look into the laser emitter or the visible red laser beams.



The warranty is void if unauthorized repairs are made or attempted by unauthorized personnel.

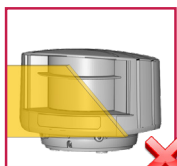


Only trained and qualified personnel are recommended to install and set up the sensor.

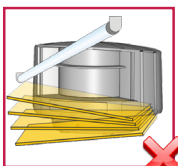
INSTALLATION AND MAINTENANCE



Avoid extreme vibrations.



Do not cover the laser windows.



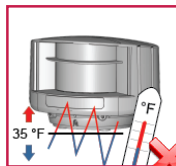
Avoid moving objects and light sources in front of the laser window.



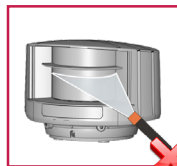
Avoid the presence of smoke and fog in the detection field.



Avoid condensation on the laser windows.



Avoid exposure to sudden and extreme temperature changes.



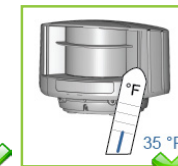
Avoid direct exposure to high pressure cleaning.



Do not use aggressive products to clean the laser windows.



Clean the laser window with compressed air. If needed, wipe only with a soft, clean and damp microfibre cloth.



Keep the sensor permanently powered in environments where the temperature can drop below 35 °F.

INSTALLATION/SERVICE COMPLIANCE EXPECTATIONS

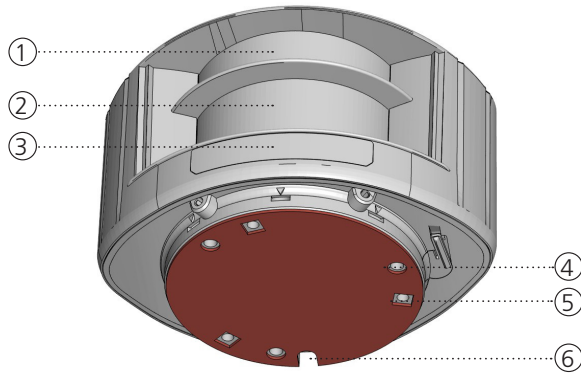
The sensor manufacturer cannot be held responsible for incorrect installations or inappropriate adjustments of the sensor/device; therefore, the sensor manufacturer does not guarantee any use of the sensor outside of its intended purpose.

CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

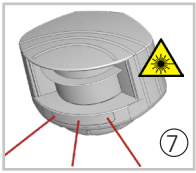
Installers and service personnel are responsible for executing a risk assessment following each installation/service performed, ensuring that the sensor system installation and/or device is compliant with local, national, and international regulations, codes, and standards.



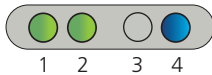
DESCRIPTION



- 1. laser window – emission
- 2. laser window – reception
- 3. LED signals (4)
- 4. holes for M5 screws
- 5. holes for Ø UNC N°10 screws
- 6. cable conduit
- 7. visible laser beams (3)



LED SIGNAL



- 1. LED 1
- 2. LED 2
- 3. Error LED
- 4. Power LED

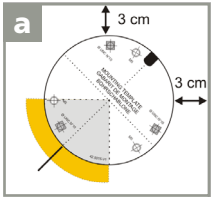
- LED 1**
- configuration mode (red)
 - on and running (green)

- ERROR LED**
- error (orange)
 - no error (off)

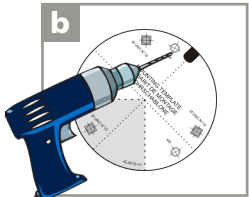
- LED 2**
- idle / transmitting heartbeat (red)
 - transmitting distance data (green)

- POWER LED**
- power (blue)
 - no power (on)

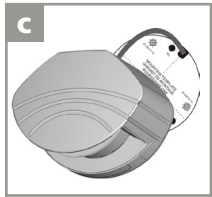
MOUNTING & WIRING



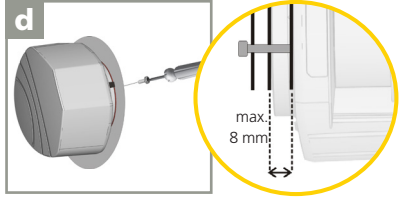
Use the mounting template to position the sensor correctly. The gray area indicates the detection range.



Drill 3 holes as indicated on the mounting template. Drill a hole (1/2 inch min.) for the cable.



Pass the cable through the cable opening.







Position the sensor and secure using the provided M5 or Ø UNC N°10 screws.

e	WIRE COLORS	FUNCTION
	Red (+)	Power supply (10 – 35 VDC)
	Black (-)	
	bare	GND
	Blue (+)	RS485B
	Blue/White (-)	RS485A
	Brown/White	ISSD1 PIN 1*
	Brown	ISSD1 PIN 2*

Wire accordingly.
* If the heartbeat mode1 via the brown/white and brown wire is not used, it is recommended to ground these wires.

For more information on existing parameters that can be configured, see Application Note "LZR®-U920/U921 Protocol" (76.0019).

TROUBLESHOOTING

	No blue LED	No power	Check cable and connection.
		Polarity of power supply is inverted	Check the polarity of the power supply.
	Orange LED is on	Power supply voltage exceeds acceptable limits	Check power supply voltage.
		Sensor exceeds temperature limits	Verify the temperature of the environment. Protect the sensor from sunlight using a cover, if necessary.
		Internal error	Wait a few seconds. If the LED remains ON, reset the power supply. If the LED turns on again, replace the sensor.
	LED 2 is permanently red	Faulty wiring	Verify connections (pins 6 and 7).
	LED 2 flashes red	Faulty wiring	Verify connections (pins 6 and 7).

TECHNICAL SPECIFICATIONS

Technology:	laser scanner, time-of-flight measurement		
Measurement range:	max 65 m (213 ft) [10 m (30 ft) @ 2% remission factor, 30 m (98 ft) @ 10% remission factor]		
Number of planes:	LZR®-U920: max. 4* / LZR®-U921: 1	* These parameters can be configured via the RS 485 communication interface. For more information on the existing options, see Application Note "LZR®-U920/U921 Protocol" (76.0019).	
Number of points/plane:	max. 274*		
Angular resolution:	min. 0.3516 °*		
Angular coverage:	max. 96 °*		
Rotating speed:	900 turns/min		
Scanning frequency:	LZR®-U920: 15 Hz / LZR®-U921: 60 Hz		
Remission factor:	> 2 %		
Laser emission characteristics:	IR laser: wavelength 905 nm; output power 0.10mW (CLASS 1) Visible laser: wavelength 635 nm; output power 0.95mW (CLASS 2)		
Supply voltage:	10 – 35 V DC @ sensor side		
Power consumption:	< 5 W		
Peak current at power-on:	1.8 A (max. 80 ms @ 35 V)		
Serial communication	see Application Note LZR®-U920/U921 Protocol (76.0019)		
Type	asynchronous		
Interface:	RS 485		
Communication mode:	half-duplex		
Transmission speed:	460800 bit/sec (max: 921600 bit/sec)		
Topology:	point to point		
Symbol coding:	1 start bit, 1stop bit, no parity bit		
File type:	8 bits		
Cable length:	3 m (10 ft)		
Input:	1 optocoupler (galvanic isolated - polarity free)		
Max. contact voltage:	30 VDC (over-voltage protected)		
Voltage threshold:	Log. H: > 8 V DC Log. L: < 3 V DC		
LED signal:	2 bi-colored (red/green) LEDs: function status 1 blue LED: power-on status 1 orange LED: error status		
Dimensions:	125 mm (5.00 in) (D) x 93 mm (3.66 in) (W) x 76 mm (2.75 in) (H)		
Material/Color:	PC/ASA, black		
Protection degree:	NEMA 4 / IP65		
Temperature range:	powered: -22 – 140 °F (-30 – 60 °C) unpowered: 14 – 140 °F (-10 – 60 °C)		
Humidity:	0-95 % non-condensing		
Vibrations:	< 2 G		
Pollution on front screens:	max. 30 %; homogenous		
Norm conformity:	IEC 60529:2001; IEC 60825-1:2007 Laser Class 1&2; IEC 60950-1:2005 IEC 61000-6-2:2005 EMC - Industrial level; IEC 61000-6-3:2006 EMC - Commercial level		

Specifications are subject to change without prior notice. All values measured in specific conditions.

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