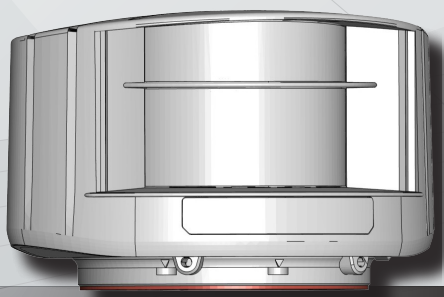
EN

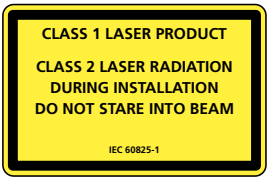


LZR®-U920/U921

LASER MEASUREMENT DEVICE WITH BI-DIRECTIONAL BUS COMMUNICATION

User's Guide

SAFETY



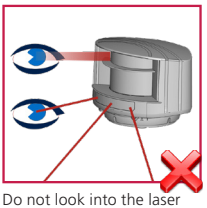
The device emits invisible (IR) and visible laser radiation.

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.

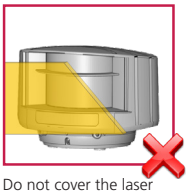

Do not look into the laser emitter or the visible red laser beams.

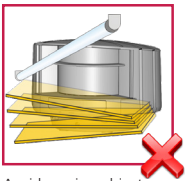

The warranty is void if unauthorized repairs are made or attempted by unauthorized personnel.


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

INSTALLATION AND MAINTENANCE

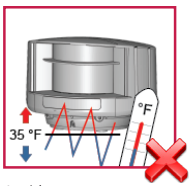

Avoid extreme vibrations.


Do not cover the laser windows.

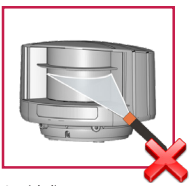

Avoid moving objects and light sources in front of the laser window.


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


Avoid condensation on the laser windows.

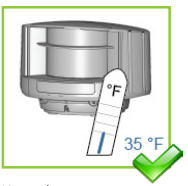


Avoid exposure to sudden and extreme temperature changes.


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.

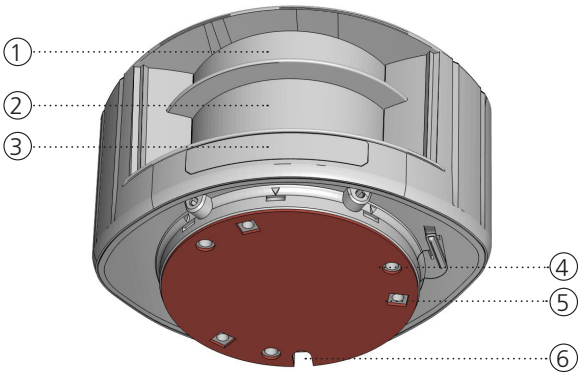


Keep the sensor permanently powered in environments where the temperature can drop below 35 °F.

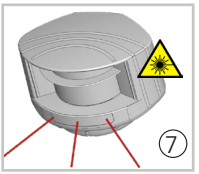
BEA, INC. INSTALLATION/SERVICE COMPLIANCE EXPECTATIONS

The installation is provided by CUSTOMER or its affiliates. BEA is not affiliated with CUSTOMER or any of its affiliates. BEA has no liability to CUSTOMER or the end user for any and all liability, claims, demands, obligations, actions, losses, costs, damages, fees or expenses (including attorneys' fees and legal costs) arising out of or in connection with product installation, or the end user's use of or inability to use the product, the installation services, product defects or malfunctions, including, but not limited to, any actual or alleged injury, damage, death or other consequence occurring to any person or property as a result, directly or indirectly, of installation, possession, or use of any product or services provided by CUSTOMER or any individual or entity acting for or on behalf of CUSTOMER, whether claimed by reason of breach of warranty, negligence, product defect or otherwise, and regardless of the form in which any such claim is made (collectively, the "Released Matters"). You, on behalf of yourself and each of the Releasor Parties, hereby releases and absolutely and irrevocably discharges each Hippo Party and their respective officers, directors, employees, representatives and agents from and against any Released Matters. You acknowledge and agree that the foregoing is a full and final release of all Released Matters, including those that are unknown, unanticipated or unsuspected or that may hereafter arise as a result of the discovery of new and/or additional facts, and you expressly waive all rights under Section 1542 of the Civil Code of California as well as any similar statutes of any other jurisdictions, which you acknowledge you have read and understood and which provides as follows: A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM MUST HAVE MATERIALLY AFFECTED HIS SETTLEMENT WITH THE DEBTOR.

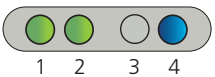
DESCRIPTION



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)*

LED 2

idle / transmitting heartbeat *(red)*

transmitting distance data *(green)*

ERROR LED

error *(orange)*

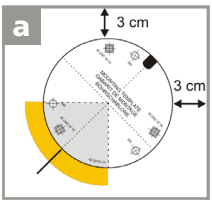
no error *(off)*

POWER LED

power *(blue)*

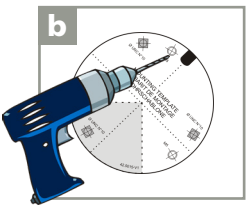
no power *(on)*

MOUNTING & WIRING



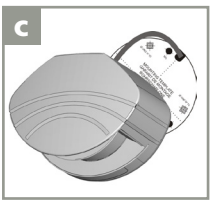
Use the mounting template to position the sensor correctly.

The gray area indicates the detection range.

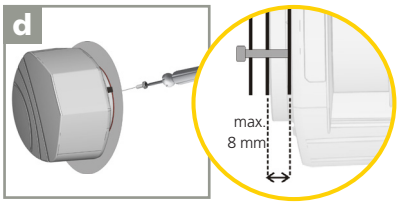


Drill 3 holes as indicated on the mounting template.

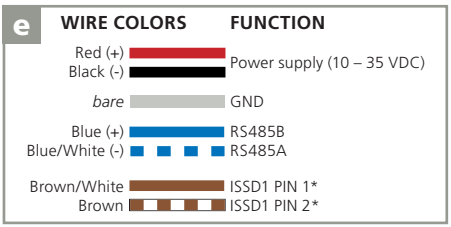
Drill a hole (1/2 inch min.) for the cable.



Pass the cable through the cable opening.



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



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,

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
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 Type Interface: Communication mode: Transmission speed: Topology: Symbol coding: File type:	*see Application Note LZR®-U920/U921 Protocol (76.0019)* asynchronous RS 485 half-duplex 460800 bit/sec (max: 921600 bit/sec) point to point 1 start bit, 1stop bit, no parity bit 8 bits
Cable length:	3 m (10 ft)
Input: Max. contact voltage: Voltage threshold:	1 optocoupler (galvanic isolated - polarity free) 30 VDC (over-voltage protected) 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

** 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).

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

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