

# Blickfeld QbVolume



## Smart 3D LiDAR for accurate and on-demand volume data

QbVolume continuously captures and processes 3D data on-device, providing volume information on various goods and materials.

The integrated, user-friendly software is fully customizable, enabling remote and automated volume monitoring of diverse goods and materials. The sensor also supports measuring silo fill levels and determining pallet's loading volumes. QbVolume offers reliable detection in both indoor and outdoor environments, consistently performing in harsh weather and lighting conditions as well as dusty surroundings.

## TECHNICAL DATA

### PERFORMANCE

<b>Technology</b>	3-dimensional laser ranging (LiDAR) with edge processing	
<b>Maximum field-of-view</b> <sup>a</sup>	90° x 50° (horizontal x vertical)	
<b>Typ. application range</b> <sup>b</sup>	1 - 100 m	
<b>Coverage</b> <sup>b</sup>	Installation height, tilt angle	Coverage (width x depth)
	3 m / 9.8 ft, 30°	15 x 12 m / 49.2 x 39.4 ft
	5 m / 16.4 ft, 30°	28 x 22 m / 91.9 x 72.2 ft
	10 m / 32.8 ft, 35°	35 x 28 m / 115 x 91.9 ft
	15 m / 49.2 ft, 40°	41 m x 28 m / 135 x 91.9 ft
	20 m / 65.6 ft, 40°	56 m x 45 m / 184 x 148 ft
<b>Typical range precision (1 sigma)</b>	< +-2 cm	
<b>Frame rate</b>	1 – 50 Hz depending on configured scan pattern	
<b>Number of returns</b>	3	
<b>Vertical resolution</b> <sup>c</sup>	2 – 400 scan lines per frame (user-configurable)	
<b>Horizontal resolution</b>	0.25°, 0.5°, 0.75° (user-configurable)	

### LASER

<b>Laser class</b>	Class 1, eye-safe (IEC 60825-1:2014)
<b>Laser wavelength</b>	Infrared, 905 nm
<b>Laser beam divergence</b>	0.25° x 0.25°

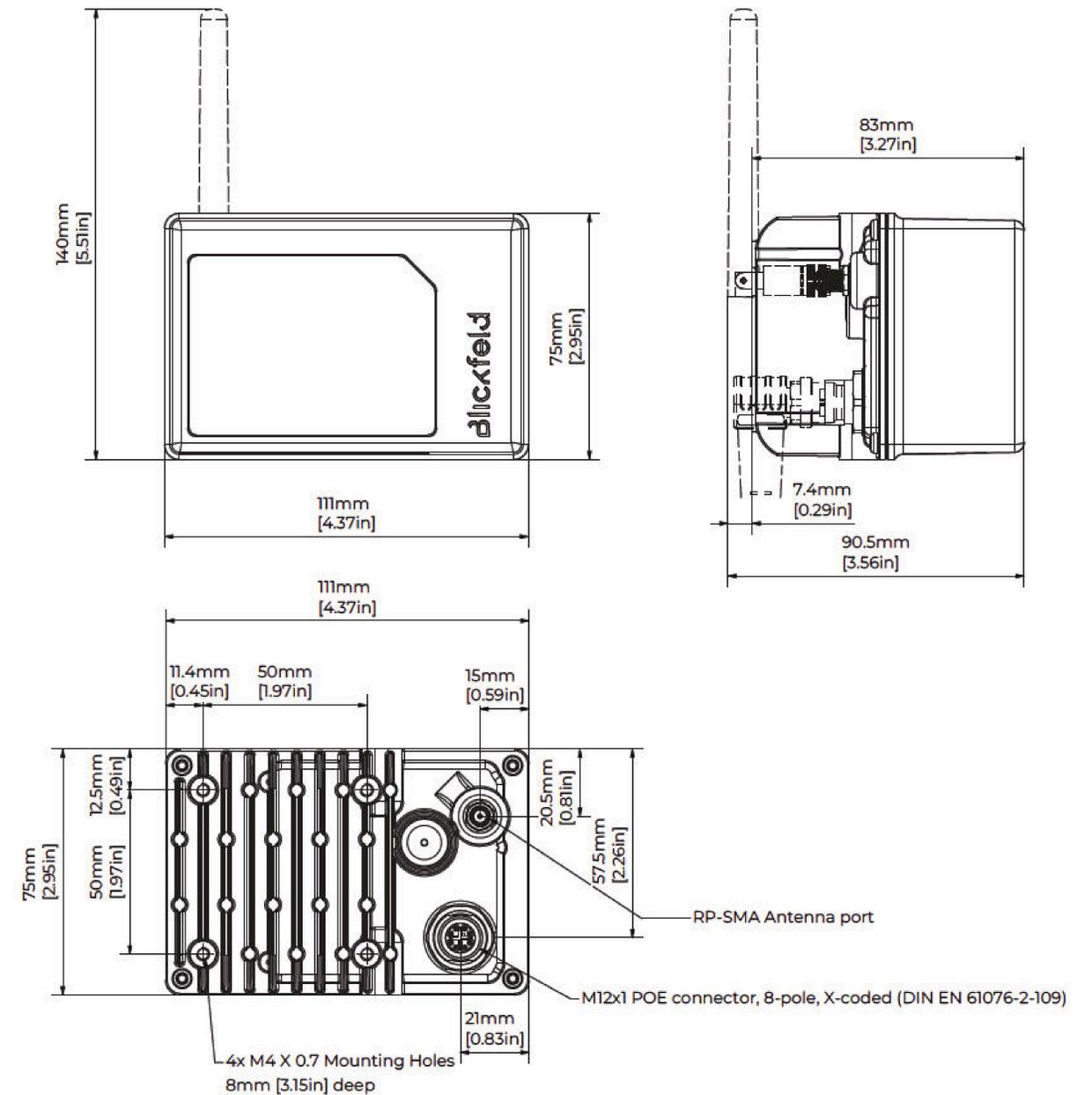
### ON-DEVICE SOFTWARE AND OUTPUT DATA

<b>Integrated web interface</b>	Interactive 3D LiDAR point cloud visualization, device configuration and setup, output specification, data recording <sup>d</sup>
<b>Central processing unit</b>	Broadcom Quad-core (ARM v8) 64-bit, 1.5 GHz
<b>Zone management</b>	Volume zone configuration, material shape configuration, volume measurement, object detection, exclusion of areas from analysis
<b>Dashboard</b> <sup>(optional)</sup>	Volume data (real-time and historic), multiple zones and sites, mass calculation via pre-defined density value, alarm generation for volume limits
<b>Integrated inertial measurement unit (IMU)</b>	TDK InvenSense ICM-20600
<b>LiDAR data and IMU</b>	Available via API

### OPERATIONAL

<b>Dimensions (H x W x D)</b> <sup>e</sup>	Ca. 75 mm x 111 mm x 83 mm
<b>Weight</b> <sup>e</sup>	Ca. 535 g
<b>Voltage input</b>	Power over Ethernet (PoE), IEEE 802.3at Type 1
<b>Ingress protection</b> <sup>f</sup>	IP67 (IEC 60529)
<b>Operating ambient temperature</b> <sup>g</sup>	-30 °C ... +60 °C
<b>Storage temperature</b>	-40 °C ... +60 °C
<b>Conformity marks / compliance</b>	CE, UKCA, REACH, FDA, FCC, SRRC TAA-compliant product variants available upon request

## DIMENSIONS



values in brackets are calculated and may contain round-off errors

INTERFACES	
<b>LAN connection</b>	Ethernet 1000 Base-T (1 Gbit/s)
<b>WiFi connectivity</b>	2.4 GHz: IEEE 802.11b/g/n, antenna included
<b>Ethernet connector</b>	M12x1 Industrial Ethernet connector, 8-pole, X-coded (EN 61076-2-109), IP67 <sup>h</sup>
<b>Security</b>	User & API-key authentication (multiple access levels, read-only access), 802.1X & WPA2 (EAP)
<b>Protocols</b>	ARP, ICMP, DHCP, DNS, TLS, 802.1X, UDP, NTP, IPv4, IPv6, TCP/IP, HTTP, HTTPS, gRPC, MQTT <sup>i</sup>
ACCESSORIES	
<b>Antenna</b>	Matching WiFi antenna (included). WiFi operation only permitted with Blickfeld-authorized antenna.
<b>Cable</b>	Matching Ethernet cable, length: 3 / 7 / 10 m. M12x1 Industrial Ethernet connector to RJ45, straight, Cat. 6a, X-coded, 8-pole, UV-resistant, halogen-free, PUR jacket
<b>Mounting</b>	Pan-tilt mounting bracket, weather protection roof
<b>Add-on</b>	Weather protection roof

- a Non-rectangular field-of-view
- b Range performance depends on many factors including but not limited to object reflectivity, orientation, surface texture, ambient light level, and ambient temperature. Reduced accuracy and resolution in small areas of the field of view in close distance to the sensor.
- c Less than 35 scan lines requires reduced field-of-view
- d On request: Customized on-device dashboard
- e Without antenna or cables attached
- f With antenna and Ethernet cable attached or with protective caps attached
- g Continuous operation between -37°C and 60°C. Increased start-up time (max. 30 min) for temperatures below -30°C
- h IP67 with cable and protective cap attached
- i On request: OPC-UA, Modbus TCP, Profinet, REST-API