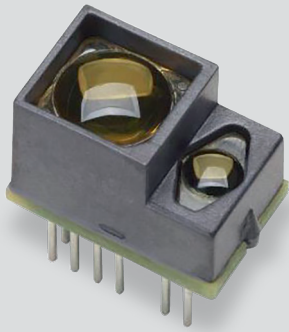


# AFBR-S50

## Integrated 3D-TOF sensor module



### Key Features

- Fully integrated 3D-TOF sensor module
- Integrated laser light source
- Laser Safety Class 1
- Receiver with 32 pixels
- Add. pixel for system health monitoring
- Distance range up to 30m and beyond
- Single 5V voltage supply
- Typ. current consumption of 33 mA
- Accuracy <math>< \pm 1.5\%</math>
- Ambient light suppression up to 100klux
- Frame rate up to 3kHz
- Up to 100m unambiguous range
- Operation temperature (ambient):  $-20^{\circ}\text{C}$  to  $70^{\circ}\text{C}$
- SPI digital interface up to 25 MHz
- Size: 12.4mm x 7.6mm x 7.9mm
- Integrated calibrated clock source
- 128 Bit EEPROM
- Logic for timing and integration

### Applications

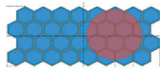
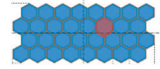

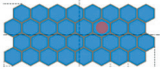
- 3D-Ranging & Safety features for
  - UAVs (Drones)
  - AGVs (Warehouse robots)
  - Industrial Sensing (robots)

### Overview

The Broadcom® AFBR-S50 product family is a multi-pixel optical distance and motion measurement sensor module based on the optical Time-of-Flight principle. The technology has been developed with a special focus on applications with the need for highest speed and accuracy at medium distance ranges, with small size and very low power consumption.

Due to the sophisticated ambient light suppression use in outside environments is possible in full sunlight. The sensor accurately measures against white, black, and colored as well as metallic and retroreflective surfaces.

The module has an integrated infrared laser light source and an internal clock source. A single power supply of 5V is required. Data is transferred using a digital Serial Peripheral Interface (SPI). For system health monitoring and functional safe applications, a reference pixel is used in addition to the integrated voltage and temperature sensors.

Product Overview				
Part number	AFBR-S50MV85G	AFBR-S50LV85D	AFBR-S50MV85I	AFBR-S50MV68B
Typical Range	~10m	~30m	~5m	~10m
Laser Light Source:	850nm (IR)	850nm (IR)	850nm (IR)	680nm (red)
Res. / Pixel	1.55°x1.55°	1.55°x1.55°	1.55°x1.55°	1.55°x1.55°
Beam Diverg. Tx:	4°x4°	2°x2°	13° x 6°	0.4°x0.4°
Tx spot size at 1m	7cm	3.5cm	23cmx10.5cm	0.7cm
Illuminated Pixels:	7-16 (32)	1-2 (32)	32	1 (32)
				
Usable Rx FoV:	4°x4°	2°x2°	12.4°x5.4°	0.4°x0.4°

### AFBR-S50 SoC

