

60 GHz RADAR KIT (Tx+2Rx)

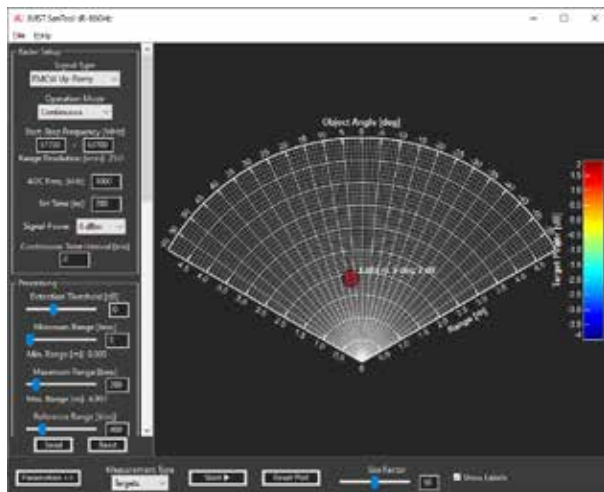
DK-sR60-12RLi AND sR60-12RLi: FMCW-RADAR FOR INDUSTRIAL APPLICATIONS

IMST's 60 GHz Radar **sR60-12RLi** and the Development Kit **DK-sR60-12RLi** are designed for high accuracy and high resolution distance measurements for industrial applications. The radar is integrated in a waterproofed housing. The dielectric lens allows a very narrow beam angle for a small measuring field of view. Different lenses can be mounted to adapt the radar to different applications. The module has a very low weight and is particularly cost-effective. This radars is optimized for precise range measurements, direction estimation or collision avoidance. Typical industrial applications are: Automation and positioning of cranes, process control and monitoring, tracking of goods or measurement of spatial parameters.

The Developer Kit DK-sR60-12RLi comes with a Graphical User Interface (GUI) called **SenTool™**. **SenTool™** makes it easy to configure the sensor and to measure, visualize and analyze radar data in several different graphical plots.



sR60-12RLi FMCW Radar with Dielectric Lens



SenTool™ with parameter settings and various data plots

TECHNICAL DATA DK-sR-12RLi

GENERAL

Modulation:	CW / FMCW
Operating Frequency:	57 GHz - 64 GHz
Number of Channels:	1 Transmit- (Tx) and 2 Receive-Channels (Rx), with I/Q demodulator for each channel
Data Interface:	SPI, USB, SSI, 20mA Current Loop, GPIOs
Certification:	none

ANTENNA

Antenna Type:	Chip-Integrated Patch Antennas (1Tx + 2Rx)
Antenna Characteristics (w/o lens):	65° Azimuth x 60° Elevation
with round dielectric lens:	8° Azimuth x 7° Elevation
Antenna Polarization:	linear

MEASUREMENT

Min. Measurement Range:	0 m - 50 m (@ BW = 6 GHz)
Range (reflector with RCS=8dBm ²):	28 m (verified measurement with lens)
Range (reflector with RCS=18dBm ²):	40 m (verified measurement with lens)
Range Resolution:	max. 25 mm (@ BW = 6 GHz)
Measurement Accuracy:	max. 1 mm (@ BW = 6 GHz)
Angle Accuracy:	TBD

OPERATION PARAMETERS

Number of TD Samples:	2048
Frequency Ramp Duration:	2 ms - 2 s
Update Rate:	typ. 100 Hz
Output Power (EIRP):	-15 dBm - 13 dBm (tunable)
with dielectric lens:	-3 dBm - 25 dBm (tunable)
Operating Temperature:	min. -40° C, max. 60° C

POWER SUPPLY

Operation Voltage:	11 V - 36 V DC
Standby Power:	1.2 W
Operating Power:	2.0 W

INTERFACES

Current Loop Voltage:	7.5 V - 40 V
SPI Clock Frequency:	10 kHz - 1MHz
SPI Voltage Level:	3.3 V (Input & Output)
GPIO Voltage Level:	3.3 V (Input & Output)
SSI Clock Frequency:	TBD
SSI Voltage Level:	±0.2 V to ±15 V (differential)
USB Data Rate:	USB 2.0 compatible, up to 3 Mbaud
USB Operating Current:	10 mA

HOUSING

Dimensions (L x W x H):	110mm x 84mm x 52mm
Weight:	200 g (without cable)
Mounting:	4 Mounting Holes (Ø 4mm)
Connection Cable and Connector:	12-pin Connector for Power Supply, Current Loop, SSI, SPI, GPIOs, internal USB Connector
Protection Code:	IP 65



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