Navtech 77GHz FMCW Radar with 3D scanner unit.

Description
The Navtech 77GHz Millimetre Wave FMCW radar is a high performance radar system designed for use in industrial sensing applications. With the standard scanner unit the radar is able to scan 360 degrees around the sensor. When fitted with the optional 3D scanner unit shown in Fig. 1 the radar beam may be simultaneously scanned in azimuth and elevation. This allows the area around and above/below the sensor to be covered.

The unit provides a full 360 degrees scan in azimuth at 2.5 Hz with target ranges up to between 200 and 800m. The system scans in elevation over 30 degrees, from 15 degrees below the horizontal to 15 degrees above. Some of the system specifications may be customised to suit a specific client application.

The radar signal is digitised and processed within the unit by a high speed DSP system. As standard the system will provide range and bearing information to the nearest target that is above a predefined size. It is also possible to send complete power spectra information over the chosen interface. This includes the returned radar signal power at each incremental range step from the sensor, up to the maximum range.
RS232 and CAN bus interfaces are available as standard. Other interface options are available for receiving the processed radar data including a 100Mbit Ethernet. This high bandwidth interface allows the complete power spectra information to be acquired at the maximum scan rate of the sensor.

The sensor is supplied with a graphical user interface. This allows the user to visualise the radar data acquired in real time over the Ethernet interface. Detection parameters can be set and the display can be rotated and zoomed in/out on an area of interest.
Specification
Transmit frequency   76 to 77 GHz
Transmit Power 15dBm

Max Range 200 to 800 m depending on configuration.
Range Accuracy upto ± 0.03m

Azimuth Scanner
Scanner Resolution 0.09 degrees
Scanner field of view 360 degrees
Scan Speed 2.5 Hz. (other speeds optional)

Elevation Scanner
Travel in elevation +15 and –15 degrees about the horizontal (30 deg. total)
Measurement resolution 0.02 degrees
Elevation scan rate 30 degrees in 6 seconds

Interfaces Ethernet, CAN or RS232
Supply voltage +24V nominal (18-36V)
Size 321x321x741 mm (Radar 321x321x171 mm + Optional 3D Raydome and Scanner 295 mm Wide x 570 mm High)
Environmental IP66, NEMA-4X
Temperature -20 to +70 degrees C

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