# Matlab Sensing Board Interface v5 (SoliB compatible) – Mini How To

# Changes to v4

* The API has only changed little from the user’s perspective compared to v4.
* Most of the techniques described below will look familiar to a user of v4.

# Creating a RadarSystem object

* Creating a RadarSystem object is the same as in v4:

szPort = findRSPort;  
oRS = RadarSystem(szPort);

# Properties of a RadarSystem object

* Changing the value of a property changes the physical parameter on the board.
* If invalid values are entered an error is printed out and the physical parameter remains unchanged.
* The basic mechanism is the same as in v4
* Read only parameters:

sDeviceDescription  
uMajorVersionHW  
uMinorVersionHW  
uMajorVersionFW  
uMinorVersionFW  
uNumberOfAntennasTX  
uNumberOfAntennasRX  
fMinFMCWFrequency  
fMaxFMCWFrequency  
uNumberOfPowerSteps  
fChirpDuration  
fBandwidthPerSecond

* Changeable parameters:

fLoFrequency  
fHiFrequency  
sDirection  
fTXPower  
fSamplingRate  
uResolution  
uCalibrationMode  
uNumChirpsPerFrame  
uNumSamplesPerChirp  
sRXMask  
sTXMode

* Please refer to RadarSystem.m for more details and parameter formats

# Methods

* The available methods for RadarSystem objects are the same as in v4:

dispDeviceInfo  
startRadarOperation

* Each call of startRadarOperation gets the desired number of frames. The user has to make sure it matches the selected pattern of repetitions, RX antenna mask and TX pattern

# Radar data

* The radar data’s format has changed.
* It is now grouped in the property frameData with the following structure:

frameData.

uFrameIndex  
uNumChirps  
uNumSamplesPerChirp  
uNumRXAntennas  
uResolution  
data

* The actual data is organized as a multi-dimensional matrix with these dimensions:

data(uNumSample, uIndRXAntenna, NumFrame)

# Helper Functions

* clearSP: closes and deletes all serial port objects
* findRSPort: detects the serial port of the connected board
* getAvailablePorts: returns a list with all available serial ports
* resetRS: closes and deletes all serial port objects and sends forced stop messages for the internal automatic trigger.