SeedStudio MR24FDB1 Presence radar API

Packet structure

| C High | 1 Byte |
|---------------|---------|
| CRC | 1 Byte |
| Data | N Bytes |
| Function | 1 Byte |
| Class | 1 Byte |
| Group | 1 Byte |
| ength High | 1 Byte |
| Len | 1 Byte |
| Start Code | 1 Byte |

Start code = 0x55

Length = Length + Group + Class + Function + Data + CRC = 2 + 1 + 1 + 1 + 1 + N + 2 = 7+N CRC computed over all bytes including start code but excluding CRC

Get commands

Get commands sends request for information, the data is returned in a Responce packet

| Data Description | | Get identifying information from module | Get device Id | Get software version | Get hardware version | Get protocal version | Get Sensor / Radar related information | Get presence | Get movement strength | System related parameters | Get sensitivity setting | Get scene setting | Get unoccupied timer value | Other parameters | Get status of fall enable switch | Get fall warning time setting | Get fall sensitivity setting |
|--------------------|----------|---|---------------|----------------------|----------------------|----------------------|--|--------------|-----------------------|---------------------------|-------------------------|-------------------|----------------------------|------------------|----------------------------------|-------------------------------|------------------------------|
| Code | | | 0×01 | 0×02 | 0×03 | 0×04 | | 0×05 | 90×0 | | 0×0C | 0×10 | 0×12 | | 80×0 | 0×0C | 0×0E |
| Function Name | | | Device Id | Software Ver | Hardware Ver | Protocol Ver | | Presence | Movement | | Sensistivity | Scene | Unoccupied Timer | | Fall enable state | Fall Warning Time | Fall Sensitivity |
| Code | | 0×01 | | | | | 0×03 | | | 0×05 | | | | 90×0 | | | |
| Group | | Identification 0x0 | | | | | Sensor | | | System | | | | Other | | | |
| Class Name Code | Get 0x01 | | - | | | | | - | | | - | | | | - | | |

Set commands

Set commands write data, returns a responce packet

| Code Name Code Data Ox04 Scene Ox10 Ox00 | Group | | Function | | c+c() | Docemintion |
|--|-------|------|-------------------|--------|--------------|---|
| Scene | П | Code | | l Code | Daca | בסבד ולענידס: |
| Sensistivity 0x00 0x01-0x04 Set sensitivity, Higher value more Scene 0x10 0x00-0x06 Set scene 0x10 0x00-0x06 Set scene 0x00 0x00-0x06 Set scene 0x00 0x00-0x06 Set scene 0x00 0x00-0x00 Set scene 0x00 Set scene 0x00 Set scene 0x00 Set scene 0x00 Office Ox00 Ox00 | - 1 | | | | | |
| Seensitivity 6x6C 6x01-0x040 Set sensitivity, Higher value more 5cene 6x08 0x001-0x040 Default 0x02 Bathroom 0x02 Bathroom 0x04 Living Room 0x04 Living Room 0x05 Bedroom 0x06 Office 0x06 Office 0x06 Office 0x06 Office 0x06 Ox06 Ox0 | _ | 0×04 | | | | System Parameters |
| Scene OX10 0x00-0x06 | | | Sensistivity | 0×0C | | Higher value more |
| 0x00 | | | Scene | 0×10 | 90x0-00x0 | Set scene |
| 0x01 | | | | | 00×0 | Default |
| 0x002 0x003 | | | | | 0×01 | Area Detectiont |
| Noccupied Timer | | | | | 0×02 | Bathroom |
| 0x004 | | | | | 0×03 | Bedroom |
| Ox065 | | | | ! | 0×04 | Living Room |
| Discripted Timer 0x12 0x00 | | | | | | Office |
| Unoccupied Timer | | | | _ | | Hotel |
| 0x00 | | | Unoccupied Timer | 0x12 | | Get unoccupied timer value |
| 0x01 0x02 0x03 0x04 0x06 0x06 0x06 0x06 0x06 0x06 0x06 0x06 0x07 0x08 0x07 0x08 0x07 0x08 0x08 0x01 0x09 0x01 0x06 0x01 0x06 | | | | | 00×0 | Disable |
| 0x002 0x004 0x004 0x005 0x005 0x006 0x006 0x007 0x00 | | | | _ | 0×01 | 10 Sec |
| 0x03 0x04 0x06 0x06 0x06 0x06 0x07 0x08 0x07 0x08 0x07 0x08 0x07 0x08 0x07 0x08 0x07 0x08 0x00 | | | | | 0×02 | 30 Sec |
| 0x004 0x005 0x006 0x007 0x007 0x008 0x007 0x008 0x007 0x008 0x004 0x004 0x004 0x004 0x004 0x004 0x004 0x004 0x004 0x005 0x006 0x004 0x005 0x006 0x004 0x005 0x006 0x005 0x006 0x005 0x006 0x005 0x006 0x005 0x00 | | | | | 0×03 | 1 Min |
| 0x06 0x06 0x06 0x06 0x07 0x08 0x09 0x09 0x09 0x08 | | | | • | 0×04 | 2 Min |
| Peboot 0x04 0x08 Start Upgrade 0x04 4 to N bytes Dubtes 1 | | | | • | 0x05 | 5 Min |
| Reboot | | | | | T | 16 Min |
| Reboot 0x04 | | | | | Î | 30 Min |
| Reboot | | | | | 80.40 | Min GA |
| Reboot 0x04 | Ĕ | 0×05 | | | 2000 | |
| Packet | 1 | | _ | 170×0 | | Rehoot modile |
| Waytes N Bytes N Bytes N Bytes Waytes Waytes Waytes Waytes Waytes Wayte | | | Start Ungrade | 0×0 | 4 to N bytes | Start Firmware undrade |
| N Bytes 4 - 1024 Bytes 4 Bytes N Bytes N Bytes 0x0F 1 Byte 0x00 0x01 0x01-0x09 0x01 0x02 0x01 0x02 0x03 0x04 0x07 0x06 0x06 0x06 0x06 0x07 0x06 0x07 0x06 0x07 0x07 0x08 0x08 0x09 0x09 | | | 64- | | 4 Bytes | Firmware Size |
| 4 - 1024 Bytes 4 Bytes N Bytes N Bytes 0x0F 1 Byte 0x00 0x01 0x01 0x01 0x02 0x02 0x03 0x06 0x07 0x06 0x06 0x07 0x06 0x06 0x00 0x01 - 0x00 0x00 0x01 - 0x00 0x00 0x00 0x00 0x00 0x01 - 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x01 - 0x00 | | | | | N Bytes | Version |
| 4 Bytes 4 Bytes N Bytes 0x0F 1 Byte 0x00 0x00 0x01 0x01 0x01 0x01 0x02 0x03 0x04 0x04 0x04 0x06 0x06 0x07 0x06 0x07 0x06 0x07 0x06 0x07 0x06 0x07 | | | +0.10.0 | | | +0.10.13.14.15.15.15.15.15.15.15.15.15.15.15.15.15. |
| Bytes N Bytes N Bytes N Bytes N Bytes N Byte N Byte | | | Upgrade Packet | | | Upgrade packet |
| N Bytes 0x0F 1 Byte 0x00 0x01 0x01 0x01 0x02 0x02 0x04 0x05 0x04 0x05 0x06 0x06 0x06 0x06 0x06 0x07 0x07 0x08 | | | | | 4 Bytes | Offset |
| 0x0F 1 Byte 0x00 0x00 0x01 0x01 0x01 0x02 0x03 0x04 0x04 0x05 0x06 0x06 0x06 0x06 0x07 0x07 0x07 0x07 0x08 | | | | | N Bytes | Data |
| 1 Byte 0x00 0x01 0x01-0x09 0x01 0x01 0x02 0x03 0x03 0x04 0x06 0x06 0x06 0x06 0x06 0x06 | | | End Of Upgrade | 0×0A | 0×0F | Signal end of upgrade |
| 0x00 0x01 0x01 0x01 0x00 0x02 0x02 0x03 0x04 0x06 0x06 0x06 0x06 0x06 0x07 0x08 | | | Fall Enable | 0×0B | Byte | |
| 0x01 0x01 0x01 0x00 0x01 0x02 0x03 0x04 0x06 0x06 0x06 0x06 0x08 | | | | | | Disable |
| 0x01-0x09 0x00 0x01 0x01 0x02 0x04 0x06 0x06 0x06 0x06 0x07 0x08 | | | | | | Enable |
| 0x00 0x01 0x02 0x03 0x04 0x06 0x06 0x07 0x07 0x09 | | | Fall Warning time | 0×0C | 0×01-0×09 | Set timing of fallwarning |
| 0x01 0x02 0x03 0x04 0x05 0x06 0x06 0x07 0x08 0x09 | | | | | 00×0 | 1 Min |
| 0x02 0x03 0x04 0x04 0x05 0x06 0x07 0x09 0x01-0x0A | | | | - | 0x01 | 2 Min |
| 0x03 0x04 0x05 0x06 0x07 0x07 0x09 0x01-0x0A | | | | | 0x02 | 3 Min |
| 0x04 0x05 0x06 0x07 0x07 0x09 0x01-0x0A | | | | | 0x03 | 4 Min |
| 0x05 0x06 0x07 0x08 0x09 0x01-0x0A | | | | | 0×04 | 5 Min |
| 0x07 0x07 0x08 0x09 0x01 | | | | | 0×05 | 6 Min |
| 0x07 0x08 0x09 0x01-0x0A | | | | | 90×0 | 7 Min |
| 0x08 0x09 0x01-0x0A | | | | | 0×07 | 10 Min |
| 0x09 0x01-0x0A | | | | • | 80×0 | 15 Min |
| 0x01-0x0A | | | | | 60×0 | 30 Min |
| | | | Fall Sensitivity | 0×0E | 0x01-0x0A | Default 0x04, Higher vale more sensitive |

Responce Reports Responces to Get and Set commands

| Description | Get identi+ying in+ormation +rom module | | Device Id | Software version | Hardware version | Pprotocal version | Sensor / Radar related information | Presence | No Presence detected | Stationary presence | Moving precence | t Movement strength | System related | Sensitivity (0x07 default at startup) | Scene, see Set command above for details | Unoccupied timeout value, see Set command above | Other Reports | ACK/NACK on Upgrade Start | Fail | Success | ACK after each packet received | Fall Enable state | Disable - Fall detection off | Enable - Fall detection enabled | Fall warning time setting, See Set command above | Get fall sensitivity setting |
|--------------------|---|----------------|-------------|------------------|------------------|-------------------|------------------------------------|--------------|----------------------|---------------------|-----------------|----------------------|----------------|---------------------------------------|--|---|---------------|---------------------------|----------|---------|---|-------------------|------------------------------|---------------------------------|--|------------------------------|
| Description | et identifying information from | | /ice Id | ftware version | dware version | rotocal version | | ssence | Presence detected | ationary presence | /ing precence | /ement strength | stem related | nsitivity (0x07 default at startı | ene, see Set command above for de | occupied timeout value, see Set o | ner Reports | <pre></pre> | 11 | cess | <pre>4 after each packet received</pre> | ll Enable state | | able - Fall detection enabled | ll warning time setting, See Set | : fall sensitivity setting |
| Data |) | | 12 Bytes De | 10 Bytes So | 8 Bytes Ha | 8 Bytes Pp: | Sei | 3 Bytes Pr | 0X00 FF FF No | 0x01 00 FF St | 0x01 01 01 Mo | 4 Bytes float Mo | Sy | 0x01 - 0x0A Se | 0×00 - 0×06 Sc | 0×00 - 0×08 | 0¢ | ACI | 0x00 Fa. | 0x01 Su | 0x0F ACI | Fa | 0x00 Di | 0x01 En | 0x00 - 0x06 Fa | 0x01 - 0x0A Ge. |
| Code | | | 0×01 | 0×02 | 6×03 | 0×04 | | 0×05 | | | | 90×0 | | 0×0C | 0×10 | 0×12 | | 80×0 | | | 60×0 | 0×0B | | | 0×0C | 0×0E |
| Function Name | | | Device Id | Software Ver | Hardware Ver | Protocol Ver | | Presence | | | | Movement | | Sensistivity | Scene | Unoccupied Timer | | Upgrade Start ACK | | | Upgrade Pkt ACK | Fall Enable | | | Fall Warning Time | Fall Sensitivity |
| Code | | 0×01 | | | | | 0×03 | | • | | | | 0×04 | | | | 0×05 | | | | | | | | | |
| Group Name | | Identification | | | | | Sensor | | | | | | System | | | | Other | | | | | | | | | |
| Class Name Code | Responce 0x02 | | | | | | | | | | | | | • | | ' | | | | | | | | | | |

Responces to Get and Set commands

| Description | | | Get identifying information from module | Reported after successfull upgrade | | Sensor / Radar related information | Presence | No Presence detected | Stationary presence | Moving precence | Movement strength | Location or Direction of movement | No presence or movement detected | Close | Far | Aproaching | Leaving | System related parameters | Heartbeat presence detection | No presence detected | Stationary | Movement | Module crashed and rebooted |
|-------------|--------|--------|---|------------------------------------|---|------------------------------------|----------|----------------------|---------------------|-----------------|-------------------|-----------------------------------|----------------------------------|------------|------------|------------|------------|---------------------------|------------------------------|----------------------|------------|------------|-----------------------------|
| Data | | | | | | | 3 Bytes | 0×00 FF FF | 0x01 00 FF | 0x01 01 01 | 4 Bytes float | 3 Bytes | 0×01 01 01 | 0x01 01 02 | 0x01 01 03 | 0x01 01 04 | 0x01 01 05 | | 3 Bytes | 0×00 FF FF | 0x01 00 FF | 0x01 01 01 | 0x0F |
| - | l Code | | | 0×02 | | | 0×05 | | | | 90×0 | 0×07 | | | | | | | 0×01 | | | | 0×02 |
| Function | Name | | | Upgrade Complete | | | Presence | | | | Movement | Location | | | | | | | Heartbeat | | | | Abnormal Reset |
| - | Code | | 0×01 | | • | 0×03 | | • | | | | • | | | | | | 0×05 | | • | | | |
| Group | Name | | Identification | | | Sensor | | | | | | | | | | | | Other | | | | | |
| S | Code | 10×0 | | • | | | I | | | | | | | | | | | | • | | | | |
| Class | Name | Report | | | | | | | | | | | | | | | | | | | | | |

Fall Reports

Sent if Fall Enable is set and a fall is detected

| Description | | | Fall alarm | 0x00 Suspected fall | Real fall | No Fall | 0x03 0x00 - 0x04 Fall Warning count |
|------------------|------|-------|-----------------------------|---------------------|----------------|---------|---------------------------------------|
| Data | | | 0x01 0x01 - 0x02 Fall alarm | 00×0 | 0x01 Real fall | 0×02 | $0 \times 00 - 0 \times 04$ |
| Code | | | 0×01 | | | | 0×03 |
| Function Name | | | Fall Alarm | | | | Fall Warning |
| Code | | 0×01 | | ı | | | _ |
| Group | | Alarm | | | | | |
| ss Code | 0×04 | | • | | | | |
| Class Name C | Fall | | | | | | |