Time Domain’s PulsON 410 (P410) Ultra Wideband (UWB) platform can be used as a standalone monostatic radar or as a system of distributed bi- and multistatic radars. Monostatic operation is provided through the use of the embedded Monostatic Radar Module (MRM) software. Bi- and multistatic operation is provided with the embedded Channel Analysis Tool (CAT) software.

The P410 is a compact low cost, low power platform and offers advanced real-time detection capability in a 3 inch x 3 inch footprint. It is a cost-effective replacement for more expensive ground-based radar sensors in many specific surveillance and location applications, both indoors and outdoors. It adds a unique capability to augment existing security technologies (cameras, long-range radars, physical fences).

The user communicates to the P410 either over Serial or USB using a defined and open Application Programming Interface (API). Graphical User Interfaces (GUI) provide the ability to configure the radar as well as collect, display, and log radar scans. Sample C and MATLAB code are also provided.

FEATURES

- Outstanding instantaneous bandwidth
- Supports monostatic, bistatic, and multistatic operation
- Excels in high multipath, high clutter environs
- Sample C and MATLAB code provided
- PN codes provide separate channels
- Cost-effective, easy to use and integrate
- Operates in all weather and lighting
- Monostatic radar provided with example detection processor

APPLICATIONS

- Collision avoidance
- Motion detection
- Presence detection
- See-through-wall radar
- Distributed sensor fields
- Security fences
- MIMO radar

Example Monostatic Radar GUI display showing motion filtered data and detection information.
ALSO SUPPORTS RANGING & COMMUNICATIONS

With additional software, the P410 can be configured to precisely measure the distance between units and to communicate wirelessly. The Ranging and Communications Module (RCM) software allows distance measurements to be made based on both two-way time-of-flight (TW-TOF) and self-calibrated signal strength techniques.

HIGH PROBABILITY OF DETECTION...
EVEN FOR THE MOST DIFFICULT TARGETS

Time Domain's P410 MRMs provide the associated raw reflectivity waveform scans needed to develop and refine signal processing in support of numerous sensor-system implementations. The P410 MRM software processes the waveform scans into target detection lists. Each detection list provides distance and reflectivity of the target from the radar sensor.

Because each transmitted pulse is very short in duration and the system timing is so accurate, the radar provides excellent clutter rejection with virtually no blind region. Time Domain delivers the most RF bandwidth (1.4 GHz) at the lowest possible center frequency (4.3 GHz).

SIMULTANEOUS INDOOR AND OUTDOOR INTRUSION MONITORING

P410 MRMs installed in a ceiling or wall simultaneously detect intrusions inside and outside the building, enabling through the wall detection before an intruder enters your facility. Networks of P410 MRMs can also allow security personnel to detect an intruder's direction of motion and room-level location. Very precise, tightly-defined boundaries and perimeters are possible.

INTRUSION DETECTION IN ALL CONDITIONS....
DAY AND NIGHT

P410 MRM systems can provide intrusion alerts. The signals penetrate precipitation dust, smoke, etc. for robust operation in all conditions, day or night.

EASILY INTEGRATED WITH EXISTING SECURITY SYSTEMS

The P410 MRM was devised for standard systems I/O. It can be easily integrated with associated security sensor networks to provide alerts, camera cueing, and interdiction functionality.

**SPECIFICATIONS**

**DIMENSIONS**
76 mm x 80 mm x 16 mm

**DETECTION RANGE**
Person Walking: 40 m (typical), 80 m (optimized)
Person Crawling: 20 m (typical), 40 m (optimized)
Vehicle: 40 m (typical), 80 m (optimized)

**TEMPERATURE RANGE**
-10° to 60°C

**POWER REQUIREMENTS**
5.75 - 30 V @ 4.0 Watts max
5 sleep modes with <3ms enter/exit time
Lowest sleep mode 1.1 Watts min

**CHANNELIZATION**
7 user-selectable pseudo-random pulse interval channels

**ANTENNA**
Broadspec™ Toroidal Dipole
Standard SMA coaxial connector

**INTERFACING OPTIONS**
USB 2.0 Client (Micro B), Serial Application Programming Interface (API)

**SUPPORT**
Vista 32, Vista 64, Win7 32, Win7 64
Graphical User Interface allows:
- Performance demonstration
- Configuration/operation of radar
- Live display and logging of raw data
- Bandpass and motion filtering (Monostatic only)
- Detections and detection filtering (Monostatic only)

Sample C code
Sample MATLAB code

**Spectrum**
FCC 15B (-14.5 dBm)
Adjustable
Bandwidth UWB 3.1 GHz to 5.3 GHz
Center Frequency 4.3 GHz

**PART NUMBERS**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>410MR01</td>
<td>P410 MRM Development Kit (1 radar + MRM GUI)</td>
</tr>
<tr>
<td>410MR02</td>
<td>P410 Multi-Mode Kit (2 radars + MRM &amp; CAT GUIs)</td>
</tr>
<tr>
<td>100ANR1</td>
<td>Broadspec Antenna (incl. with Kits)</td>
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<tr>
<td>300PS01</td>
<td>P410 Power Supply (incl. with Kits)</td>
</tr>
<tr>
<td>200SWR2</td>
<td>MRM GUI (incl. with both Kits)</td>
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<tr>
<td>200SWR3</td>
<td>CAT GUI (incl. with Multi-Mode Kit)</td>
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</tbody>
</table>

Optional Accessories

<table>
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<tr>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>300RB01</td>
<td>P410 Rechargeable Battery</td>
</tr>
<tr>
<td>300BC01</td>
<td>P410 Battery Charger</td>
</tr>
<tr>
<td>110MR01</td>
<td>Extra P410 module</td>
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</tbody>
</table>

Users interested in developing systems with multiple P410 devices should also consider evaluating the PulsOn Lab (8 modules) or PulsOn MegaLab (20 modules).

FOR MORE INFORMATION

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