Low Power, Cylindrical Outdoor Covert Cellular Smart uPTZ Camera System

Small, versatile, ultra low bandwidth, covert cellular system is Internet accessible, provides long run time on small external battery, true remotely controlled PTZ camera, 300-ft subject distance, and can be used exposed or in a multitude of user-built enclosures.

Private Investigators: Ask about Fleet Pricing for large quantities

Top-Level Benefits

- Small, rugged, totally sealed, weatherproof, cylindrical housing can be exposed to elements or placed in wide range of user’s outer rectangular or cylindrical, horizontal or vertical housings to suit local needs
- Quickly pays for itself in labor and cellular bandwidth cost savings, enables faster response times and promotes fleets of outdoor video surveillance operations
- Provides far more efficient paradigm for remote video surveillance, enabling viewing 24 hours’ internally recorded video over the air in only 12 minutes with little data, and 30 day’s recorded video with less than 2 GB of cellular data, using optional internal Rapid Review™/Integrated Time-lapse software
- Much faster and more efficient determination of subject activity, no need to monitor live video, or bring video recorder back to office and spend hours reviewing video
- Monitoring subjects’ homes 24 hours/day is feasible
- Proper operation and view can be monitored and controlled remotely, with remote access via cellular network and Internet, providing live and internally recorded HD video, PTZ camera control, tampering alerts, and optional Rapid Review™ time-lapse video
- Continuous sharp 1920x1080 video recording on 128 GB internal solid state storage or ext. user-supplied USB flash drive avoids high cellular data usage
- Miniature true PTZ camera can be controlled via Internet and enables reading license plate at up to 450 ft at 4 dpi or face at up to 300 ft at 6 dpi at max. optical zoom
- New design of forward-looking, pan-tilt movement provides wide angle of view with very small covert window for ease of concealment in outer housing
- Small size and light weight, including external battery, for ease of transport and placement in outer housings
- Very low power dissipation requires only a small, external, rechargeable LiFePO4 battery to provide 6+ days continuous HD video capture, and enables wide variety of small outer housings to be used
Many Ways to Conceal Boundless’ Low Power, Cylindrical Outdoor Covert Cellular Smart uPTZ Camera System and Small Battery

In Tall Traffic Cones, Traffic Channelizer Cones, Delineator Posts, Non-metallic Barrels and Barricades with at least 3.5” ID

In Passenger Vehicle or Roof Carrier

In Pipe on Roof, or Inside Service Vehicle

In 4” or Larger Dia. Drain or Sewer Pipe

In 3” PVC Conduit Alongside Utility Poles (can be installed from ground without ladder)

In Faux Rocks and Logs

Mount Cylindrical Smart uPTZ Camera System horizontally or vertically for wide utility
Low Power, Cylindrical Outdoor Covert Cellular Smart uPTZ Camera System

Small, versatile, ultra low bandwidth, covert cellular system is Internet accessible, provides long run time on small external battery, true remotely controlled PTZ camera, 300-ft subject distance, and can be used exposed or in a multitude of user-built enclosures.

Benefits

• Easily set up covert outdoor high def digital video surveillance in minutes via cellular network and Internet for both live and recorded video
• Much smaller, less conspicuous, lower bandwidth, lower power, and more capable than an IP PTZ camera and cell modem in a covert housing
• Very low power dissipation for battery and solar, approx. 2.5 to 3 watts\(^3\) with active 3G cell service, or only 2W in Super Power Saver Mode
• Mimics 3” gray PVC conduit, can use exposed
• 5 MP, ¼” CMOS color image sensor with back-side illumination for better low light performance
• IR-cut filter is automatically removed in low light
• Records video 24/7 locally, avoiding distant network video recorder and constant network traffic, recording better video than could be sent to it, reducing cellular traffic by 250+ GB/month
• Opt. Rapid Review\textsuperscript{TM}/Integrated Time-lapse for reviewing hour’s video over the air in just 30 sec.
• Unique concealed Forward Pivot II\textsuperscript{TM} micro-PTZ camera is unusually small and rugged yet provides motorized pan, +/- tilt, and optical zoom via Internet, with just 1” dia. clear window
• 12-33 mm motorized optical zoom at 1920x1080, +/-25° motorized pan, with focal length for telephoto use (license plate up to 450 feet\(^5\) at 4 dpi)
• Extra-wide angle mode for much closer subjects
• Video recording on 128GB internal solid state storage or user-supplied, ext. USB flash drive
• Rapid access video file system greatly reduces time to view and download desired video
• Dual-stream optimization: monitoring stream is live and locally recorded 24/7 at 960x540 @ 10 fps, PLUS evidentiary stream: 1920x1080 @ 10 fps is also locally recorded 24/7
• View natively in browser on PC, MAC and Android, view live in iOS using a media player
• Opt. Stranger Detector\textsuperscript{TM} locating system detects presence and patterns of presence of persons using their smartphone’s WiFi signals

1920x1080 HD yet ultra low bandwidth, very low power, 450 ft license plate range

Weatherproof, sealed aluminum housing 3.5”\textsuperscript{D} x 8”\textsuperscript{L}, 3#, .25” ext. on rear

Rugged, 1” dia. crystal clear, fused quartz or opt. sapphire, flat window for concealed 5 mega-pixel Forward Pivot II\textsuperscript{TM} micro PTZ color camera

Weatherproof USB jack, for opt. external user-supplied USB flash drive for video

Rugged, 1” dia. crystal clear, fused quartz or opt. sapphire, flat window for concealed 5 mega-pixel Forward Pivot II\textsuperscript{TM} micro PTZ color camera

11.5-15 VDC power jack

• 3-D accelerometer detects camera movement
• 12 VDC nominal, wide range input (11.5 to 15V)
• “Smart” battery monitoring with estimated run time remaining
• Remote power management stretches battery
• Up to 6+ days\(^3\) 24/7 video run time on small, ext. 12V 30AH LiFePO4 (lithium) battery (not incl.)
• Opt. matching cylindrical LiFePO4 battery
• Internal battery-free shutdown UPS bridges brief power failures and provides clean shutdowns
• Industrial grade cell modem\(^1,2\) (svc. not incl.)
• Totally sealed avoids ingress of dust & moisture
• Cloud-based Portal for flexible user interface and ability to tunnel through cellular firewalls
• Custom built and configured, ready to use

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Low Power, Cylindrical Outdoor Covert Cellular Smart uPTZ Camera System

Powerful versatile system disguised as camera and accessible from the Internet provides far more efficient video surveillance paradigm for investigators and can be used exposed or in a multitude of user-built enclosures, with rugged fused quartz window.

Appearance varies.

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Low Power, Cylindrical Outdoor Covert Cellular Smart uPTZ Camera System

Low power, ultra low bandwidth, high definition, custom-preconfigured, outdoor covert cellular system for use exposed or in an outer housing, and 150 to 450 feet from a subject, or closer using extra-wide angle mode.

Vehicle license plate can be read at a distance of approx. 450 feet in daylight at max. zoom

Vehicles approx. 600 feet from camera at night at maximum optical zoom

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Un-retouched images obtained using similar model in different housing.
Opt. Rapid Review™ / Integrated Time-lapse enables reviewing an hour’s video at 960x540 resolution, with one snapshot every 15 seconds from the previous hour, in 30 sec. over the air, a 120X speedup.

This page has a demo version of our optional, patent-pending, Integrated Timelapse Software that runs within our Smart uPTZ Camera™ and reduces time reviewing recorded video 100X. Contact us for more information.

Status: Playing delayed live video
Date: 5/27/16, 09:44:51
Data rate: low

Year: 2016 ♦ Month: May ♦ Day: 27 ♦
H(24): 09 ♦ M: 44 ♦ S: 15 ♦
View recorded video: Data rate: low ♦ Speed: 1x ♦
Type: Normal ♦
Download files: Duration: 1 minute ♦ Data rate: low ♦
Type: Normal ♦


Initial view from camera main viewing page, showing delayed live video.

Status: Playing recorded video
Date: 5/27/16, 06:44:17
Data rate: low

Year: 2016 ♦ Month: May ♦ Day: 27 ♦
H(24): 06 ♦ M: 44 ♦ S: 15 ♦
View recorded video: Data rate: low ♦ Speed: 1x ♦
Type: Normal ♦
Download files: Duration: 1 minute ♦ Data rate: low ♦
Type: Normal ♦


View from camera main viewing page showing Normal recorded video being viewed over the air.

Status: Playing timelapse video, 1-hour files
Data rate: low

Year: 2016 ♦ Month: May ♦ Day: 27 ♦
H(24): 06 ♦ M: 44 ♦ S: 15 ♦
View recorded video: Data rate: low ♦ Speed: 120x ♦
Type: Timelapse ♦
Download files: Duration: 1 minute ♦ Data rate: low ♦
Type: Normal ♦


View from page showing opt. Time-lapse recorded video, being viewed over the air, speeding up the reviewing of an hour’s recorded video 120x for when you are looking for activity. Click over to Normal recorded video for more details once you know when something occurred. Then switch back.
Low Power, Cylindrical Outdoor Covert Cellular Smart uPTZ Camera System

Boundless’ optional Rapid Review/Integrated Time-lapse provides a new, much more efficient paradigm for private investigators to monitor subjects and determine patterns of activity.

Boundless’ optional, Rapid Review / Integrated Time-lapse software runs in Boundless’ Smart uPTZ Cameras along with all the other camera functions. Smart uPTZ Cameras can automatically create timelapse videos internally enabling long periods of time to be viewed very quickly, at 120X speed over the air for “hour” files, or 2,880X speed over the air for “day” files. In the Cylindrical Covert Smart uPTZ Camera, a 960x540 timelapse video of the previous hour is automatically created at the beginning of each hour from one snapshot every 15 seconds, and can be viewed over the air in 30 seconds. No cellular bandwidth, external equipment, software or effort is required to create the timelapse videos because they are automatically and continuously created within the Smart uPTZ Camera. It is a new kind of analytics.

Viewing of the timelapse video is integrated with Boundless’ normal, high definition video recordings, and Boundless’ rapid access video file system. To search for a subject and drill down for more details, timelapse video is viewed over the air at very high speed, paused, and the 960x540 and then the 1920x1080 normal recorded video quickly and easily viewed over the air starting at the time paused.

There is no need to: (a) watch live video to determine patterns of subject activity, (b) have a WiFi live video connection and an investigator nearby to avoid large cellular expense, or (c) wait to retrieve video recordings from the field to review them to determine subject activity.

Using Boundless’ Smart uPTZ Cameras with optional, patent-pending, time-saving, Rapid Review™ / Integrated Time-lapse software, private investigators can deploy fleets of unmanned covert outdoor video surveillance devices and greatly improve video surveillance productivity.

Determine subject activity using Boundless’ recorded surveillance videos from a previous day or days as follows:

1. While Boundless’ Smart uPTZ Camera is online in the field, a distant monitoring person remotely accesses the Smart uPTZ Camera via the Internet and views a subject’s previous day’s or days’ activity. Video is reviewed at very high speed and low bandwidth per hour of video using Boundless’ Rapid Review / Integrated Time-lapse video hour files. An hour’s video can be viewed over the air in 30 seconds, a 120X speedup, with typically only 2 to 4 MB of data in daylight, much less at night.

2. When a possible subject is spotted, the monitoring person pauses playback of the time-lapse video, backs up the playback time a few seconds, clicks over to that point in time in the normal recorded video, and views the normal recorded video.

3. To most quickly confirm the presence of the subject, the lesser (960x540) resolution, lesser data rate, normal recorded video stream is viewed first. When the time of the best view of the subject is obtained, playback is paused and the 1920x1080 normal recorded video is clicked over to.

4. Switch back to the time-lapse video at the time paused, resume playing, and repeat the above process for the entire time period desired.

5. A 24-hour period can be viewed in as little as 12 minutes over the air, plus time to confirm activity.

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### Stranger Detector™ Sortable Table User Interface

#### Many sorting functions

- Level 1 Sort by Frequency ▼ Ascending □ Descending
- Level 2 Sort by Time ▼ Ascending □ Descending
- Level 3 Sort by None ▼ Ascending □ Descending

#### Choose one or more hours (previous menu selects starting time)

- Number of Previous Hours to Display ▼
- Number of Future Hours to Display ▼
- Hide MAC Addresses in Skip List □
- Hide MAC Addresses in URL List □

#### Color-coded groups of MAC addresses help spot patterns of presence

- Video and Alerts integration
- Search within one location or across multiple

- Self-learning exclusion of recurring MAC addresses, or manual entry

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<table>
<thead>
<tr>
<th>Select</th>
<th>Group Select</th>
<th>Found</th>
<th>Date/Time</th>
<th>Vendor</th>
<th>MAC Address</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jan 23 2015 07:42:00.940</td>
<td>Sercomm</td>
<td>00:0e:B3:B9:0e:1</td>
<td>-91</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Jan 23 2015 07:47:44.065</td>
<td></td>
<td>be:36:7a:0e:a1:cc</td>
<td>-85</td>
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<td>Jan 23 2015 07:42:54.510</td>
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<td>16:de:32:e2:8e:ab</td>
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<td>-77</td>
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<td>a6:0c:04:19:3a:e9</td>
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<td>c2:5e:b2:b2:eb:34</td>
<td>-75</td>
</tr>
</tbody>
</table>
To: M-1.alerts@BoundlessSecurity.com
Subject: M-1 10:40:f3:56:a5:00 on Watch List detected

Smartphone on Watch List with WiFi Signature 10:40:f3:56:a5:00 Detected

Click any view link for live video. To view recorded video: (1) click the view link for the desired probe and wait for live video, (2) click REC and wait for recent recorded video, and then (3) click SET_TS to see recorded video starting 15 seconds before the probe was received.

The less negative the signal strength, the stronger the signal and the closer the smartphone or other WiFi-enabled mobile device was to the camera. Signals are received in all directions, not just where the camera views.

Probe received at Sep 6 2012 08:19:55 with signal strength -85 dBm view
Probe received at Sep 6 2012 08:19:55 with signal strength -84 dBm view
Probe received at Sep 20 2012 16:39:08 with signal strength -87 dBm view
Probe received at Sep 20 2012 16:39:14 with signal strength -86 dBm view
Probe received at Sep 21 2012 17:01:44 with signal strength -87 dBm view
Probe received at Sep 27 2012 16:23:28 with signal strength -78 dBm view
Probe received at Sep 28 2012 14:10:44 with signal strength -84 dBm view


Notes:
1. Able to use mobile-originated, 3G and 3.5G cellular data networks with appropriate modem built-in. Tunnels through mobile-originated cellular networks to Boundless’ Cloud-based Portal, from which users access the system.
2. Cellular networks are not intended for continuous viewing. Live and recorded video should be viewed only as needed.
3. Power dissipation and run time on a battery charge depend on many factors. Figures are not guaranteed.
4. Storage duration is typical but not guaranteed.
5. Distance for reading a license plate from the best quality, recorded video at maximum zoom is typical but not guaranteed.

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