



# SPEED KING

Bosch's latest AutoDome series, combining clever design and some snappy performance numbers, indicates Bosch Security Systems is flexing its considerable industrial muscle and making a serious play for leadership in the PTZ speed dome market.

**P**OWERFUL PTZ speed domes are the kings of the surveillance camera market. Their ability to reach out across large sites to give operators unprecedented views makes them an indispensable element of any balanced CCTV solution. Combine this with some very affordable pricing and quality dome cameras are hard to resist.

Bosch's new AutoDome with 15-bit dinion technology is a case in point. It marries powerful camera performance with the latest digital processing and communications technologies in order to maximize operational flexibility across camera lifetime. In a notable departure for Bosch, AutoDome is entirely modular in design, with interchangeable modules allowing this camera to be upgraded as system demands change.

Modularity is good thinking from Bosch - you can pick from a wide range of modules that turn AutoDome from a powerful indoor fixed or PTZ camera running on RG59 coaxial cable to an IP-66 rated outdoor PTZ with day/night capabilities that's fully optioned for



end-to-end IP networking.

In fact, it's a double helping of smarts with AutoDome. Not only are manufacturing costs reduced thanks to standardisation of key components across Bosch's entire dome range, end users get low cost upgrade options while

installers enjoy common installation footprints and techniques.

Interchangeable modules include a CPU module that allows the option of fixed or PTZ operation. The PTZ module facilitates control, as well as advanced functions like masking tracking and a very cool stabilization feature that employs an averaging process to give the best possible images in the most challenging of environments.

The camera module allows a choice of fixed or PTZ modules, and colour or day/night performance with a selection of zoom lenses. There's also a housing module with indoor and outdoor modules that are vandal-resistant, and communications module options that let installers and end users pick whether they want twisted pair and coax, or TCP/IP. Importantly, AutoDome G4 will cost the same as G3 despite the improvements in performance.

Probably the most challenging aspect of AutoDome is effectively outlining its primary components, the trouble being that its mix-and-match possibilities mean you're not really describing a single dome solution but 8 or 10 cameras, each with standout capabilities and distinct function flavours of their own.

#### CPU MODULES

There are 4 CPU module options with AutoDome, with each serving as a replacement for an existing Bosch dome range in terms of feature spread. The new platform means users and installers are no

longer stuck with a particular camera choice if their needs change.

The first module option is the 100 series which is designed to handle fixed camera modules only and to replace the Unity fixed dome. Camera modules are 'plugged into' CPU modules and the 100 Series CPU module allows a choice of communications modules, either analogue or IP.

Next comes the 200 series CPU, which supports all Bosch's fixed and PTZ camera modules and serves as a replacement for the G3B basic dome. It offers 64 presets, 1 preset tour, diagnostic LEDs and the same support for analog or IP comms modules.

The 300 series CPU module replaces the G3A dome and incorporates all the features of the 200 series as well as offering 99 presets, 2 preset tours, 2 recorded tours and a privacy mask. There's also a 12x digital zoom, advanced alarm control with 7 inputs and 4 outputs, and cable compensation - a neat feature in any CCTV camera.

Finally there's the 500i series CPU module that replaces the G3A with AutoTrack. This top-of-the-line unit includes all the 300 features and tops them off with AutoTrack II, image stabilization and video motion detection incorporating virtual masking technology. The virtual masking employs techniques that distort or blur parts of the image in a more subtle way than the usual blocks of black that can snag the eye of a tired operator.

#### CAMERA MODULES

When it comes to camera modules, users and installers get 2 choices. First up is the fixed camera option, which incorporates colour or day/night, 540 lines of horizontal resolution, 15-bit digital imaging, 90dB XF wide dynamic technology, NightSense

automatic day and night colour/monochrome switching, mechanical IR filter, SensUp frame integration giving 10x sensitivity increase in night mode and varifocal, auto iris lens options.

If you choose to go PTZ you also get colour and day/night options, 460 lines of horizontal resolution, 18x and 26x optical zoom models, 360-degree per second pan and tilt speeds, NightSense colour/monochrome switching on day/night models, that mechanically switching IR filter and SensUp shutter control for a 50x increase in sensitivity.

#### COMMUNICATIONS MODULE

The communications module options are a vital part of AutoDome's future-proofing capabilities. If you're installing a traditional analog system with coaxial cable between the camera and DVR you select the coax/UTP version. Along with analog coax, this module also supports UTP - unshielded twisted pair - links, which allow greater cabling distances with less potential for interference than coax.

Along with the coax and UTP, this module also has a fibre optic capability for long distance (greater than 250m to 10+km) cable runs. Bilinx is another feature and it offers remote control, remote configuration and remote upgrades over coax, UTP or fibre.



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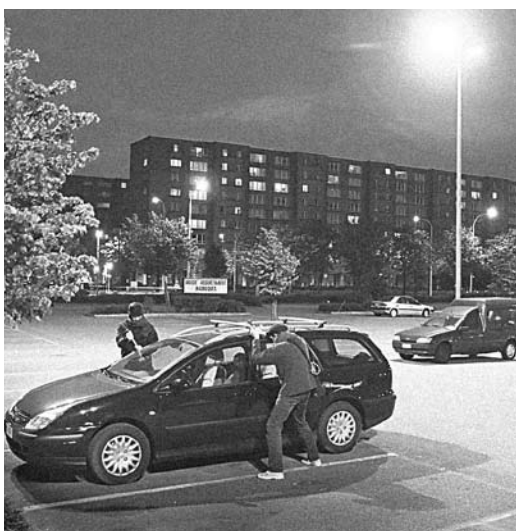


Providing future-proof performance is a TCP/IP module that is a hybrid digital/analog solution that supports streaming IP and analog video simultaneously. Using MPEG-4 compression, this module delivers 4CIF at 25 images per second, employing low bit rates to keep bandwidth and storage demands under control.

The tri-streaming capability of the TCP/IP module generates dual MPEG-4 and single MJPEG independent streams for multiple resolution and frame rate options. Along with this, there's iSCSI, allowing integrators to stream IP video directly to a local network-attached iSCSI RAID array. This module can be controlled, configured and upgraded from authorized remote workstations across a network.

### HOUSING MODULES

There are a bunch of housing options with AutoDome including pendants, roof attachments and flush-mounted in-ceiling solutions. We're going to focus here on the flagship housing module you'd use in external high security applications. It's a pendant



Left: Excellent images from AutoDome

style, with the dome bubble installed on curved arm that's attached to an IP66/NEMA 4X PSU power module.

Bosch has gone out of its way to make AutoDome easy to install and the design of the housing and its power module is replete with features that specifically target areas likely to challenge installers and their installations. For a start the power module has built-in surge protection for video, data, alarms and power. That's important because many problems can be traced back to interference with data cables – not just with transmission of the video signal. There's also factory installed colour-coded cabling and a hinged arm that provides easy access to the camera's power supply.

There are just 2 bolts with AutoDome and that hinged housing means you can use 2 hands to terminate during installations – that's a big deal when you're carrying out your installations from a cherry picker and you're 15m above the ground.

Overall it's a tough and compact housing, smaller than the superseded G3 dome by 15 per cent. Construction is entirely of cast aluminium to resist corrosion and there are neatly designed vandal resistant latches, a hinged housing without tethers, a heater and an anti-fog blower, a Lexan sunshield and a scratch-resistant polycarbonate bubble that's got a coating employing electrolysis for dirt resistance and water dispersal. AutoDome can handle challenging environments down to -60 degrees C.

All the cameras in the new Bosch dome range employ the same housings and that means you can switch cameras between housings depending on site demands, or upgrade camera modules while retaining the existing presets, housings and power modules.

### HIGHLIGHTS

The G4 AutoDome represents a ground-up redesign with a selection of excellent new functions. A very neat feature with the AutoDome is its ability to be installed inverted for mobile, meeting room, under-vehicle inspections and general observation duties. The AutoDome also has a taller image – giving about 10 per cent more image by tilting 18 degrees above the horizon.

According to Bosch's Sean Borg, development of the G4 AutoDome was based on what the

market wanted. Bosch developers asked installers what went wrong in their installations and what frustrated them most and used market opinions and ideas, incorporating them into the final design.

"AutoDome is by far the most light sensitive dome on the market," says Borg. "The camera also has great features like IR compensation – the green colour of foliage reflects IR so you get flare – we use IR compensation to see through foliage.

"AutoDome has AutoTrack II that can be used outside – it takes it Bosch's AutoTrack technology one step further than the G3. This dome will follow motion in a scene – it zooms in on motion and tracks the movement," Borg says.

"AutoTrack works hand-in-hand with tree masking. It's great support for operators monitoring multiple cameras or undertaking gatehouse or reception duties.

According to Borg, AutoDome's advanced image stabilisation is DSP-based and incorporates an algorithm that eliminates camera shake in the vertical and horizontal axis without loss of sensitivity.

"It's especially good with fast moving objects. The camera using buffer memory – automatic noise reduction – samples the images, sees what's the same and what's different," Borg explains. "Because noise varies and the image stays the same, if you eliminate the variations you eliminate the noise."

A cross-section of other great features include the fact there's now a large spread of alarm inputs and outputs with rules-based alarm management. Rules based actions for inputs and outputs are far more capable than just actioning of an output if an input is activated. There are also 24 masks per camera and 8 masks per preset scene.

The AutoDome G4 has built-in diagnostics including LEDs, OSD and self-testing, there's also one-way audio support and a default shutter speed that adjusts at night. The shutter will adjust up to 1/50 or 1/25 even if the auto iris lens is set to 1/500.

"Cable compensation on the 100 series cameras is excellent – eliminating high frequency roll-off," says Borg. "The cable compensation module is in the camera and it sorts out any issues related to cable runs that turn out to be longer than expected.

"We also now have an Auto Black feature that grabs the blackest part of the image and drags it down to pedestal level – perfect for smoky environments which cause a milky image – this gives brilliant contrast.

"Last, but not least, is Bosch's 3-year warranty," says Borg. "It's based on establishing the MTBF of all our products using high accelerated life testing, stress screening and multiple environment over-testing.

"Cameras are subjected to vibrations, extreme heat – extreme conditions that are grossly exaggerated to challenge our products to the limit." ▀ ▀ ▀