

# High Performance

## High Quality

### Application Note :: Video Surveillance

Actelis' EoC platforms incorporate the company's patented, award-winning EFMplus™ technology to overcome the obstacles which have prevented copper pairs from delivering reliable high-bandwidth connectivity in the past. With Actelis' Ethernet solutions, speeds up to 100 Mbps, or up to 15 Mbps for a single twisted-copper pair, can be obtained. Furthermore, up to 16 copper pairs can be bonded together, enabling enough bandwidth to backhaul multiple video sources which can be viewed on a private network. Ease of deployment is also a strong feature of Actelis, allowing its customers to install video cameras faster than ever before, and given the penetration of the copper, in places they have not thought possible. This translates into increased coverage combined with huge savings in deployment effort and cost. Just as important, video cameras placed on an Actelis-powered IP/Ethernet network are much easier to manage.

Indeed, ease of management is a major strength of the Actelis/IVC combined solution, exploiting the technology of both vendors. While Actelis looks after the network and connectivity, IVC has taken configuration and management of the cameras themselves, along with the overall video experience, to a whole new level. IVC provides a wide selection of cameras for different lighting conditions and deployment situations, with options such as remote control of tilting. IVC also gives operators the ability to monitor the whole camera network from a single console and zoom in on specific locations. Individual cameras can be controlled and selected for viewing via their IP address, allowing click-and-point manipulation of the video. Furthermore, the IVC management system can switch to preset views on the basis of alarm triggers, with the ability to capture relevant video snapshots automatically. But most important, IVC's management software operates within a highly flexible distributed architecture that permits customers to start with a small deployment in a single building and then scale to the whole site. Customers with existing non-IP analog cameras can continue using them because they are easily adapted to the IVC system. This makes the transition to an all-IP camera network more affordable and less disruptive, plus it's also possible to expand further to a multi-site solution managed from a single point. This is especially valuable for the significant number of businesses, schools, and universities whose premises span multiple sites. Equally, the Actelis/IVC solution could appeal to a regional traffic monitoring agency wanting cameras in multiple towns.



Video surveillance monitors criminal behavior, prevents accidents, and can save lives.

In the end, the message to customers is that video surveillance cameras can now be widely deployed without the need to run fiber or coax, and they can be used successfully through intuitive displays that allow operators to flick between cameras that provide streaming video and/or snapshots of a location or multiple sites. From an economics viewpoint, by leveraging existing assets capital and operational expenditures are greatly reduced while a quick ROI is achievable in just a few months. But perhaps the most important value proposition is the added security, safety, and confidence the combined Actelis-IVC solution delivers. After all, a reliable video surveillance system is ultimately about preventing accidents, saving lives, and squashing criminal behavior—activities no one wants to experience or can afford.



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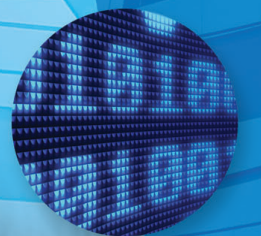
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## Video Surveillance

### Actelis Teams with IVC



# High Bandwidth

## Extended Rate, Reach & Reliability

Demand for video-based surveillance is booming across most industries, driven by heightened concerns over vandalism, violent crimes against individuals and, of course, terrorism, which is leading to increased expectations and mandates. High levels of security previously confined to military installations are now demanded by municipal and commercial sites, such as water treatment plants, transportation systems, construction sites, oil, petrochemical and pharmaceutical refineries, as well as educational campuses. This increased video surveillance is a response to the increasing number and severity of incidents. But although growing demand may be widespread, the nature of the video surveillance required varies greatly from industry to industry, calling for highly flexible solutions that can be deployed readily and managed from a single point.

For some sites, such as university campuses, video cameras need to be unobtrusive and deployed subliminally for invocation at times of crisis as part of an overall security solution, but not to monitor students moving freely as part of their everyday educational and social activities. At municipal and commercial sites, for example, video cameras may be part of an automated surveillance system programmed to trigger alarms upon detection of an intrusion at night. In another scenario, video surveillance may be used to augment existing physical control over access through doors and gates to critical areas of a water treatment plant, refinery, even college dormitories. These different scenarios call for distinct solutions, but with common requirements: they must be cost effective, easy to use, easy to install everywhere, and highly reliable. Video surveillance solutions struggle to meet all of these different requirements, especially when taking cost into consideration. Additionally, vendors have found it extremely difficult to integrate existing solutions into their access control systems.



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To be effective, video surveillance needs a large number of scattered cameras, and these all have to be connected to data networks for communication and to the electric grid for power. With location and connectivity being a major issue, many sites have been deterred from deploying video by wrongly assuming that remote video cameras must be connected to fiber or coaxial cabling systems. The problem here is that these systems rarely reach all of the points where video cameras are needed. Given that the cost of trenching for fiber or coaxial cable is prohibitive, most sites often end up doing nothing and then regretting it later when a security breach occurs. Yet in most instances, there is an ideal solution readily available. Existing copper-based networks are pervasive throughout campuses and other facilities. For most municipal, commercial and enterprise sites, copper was deployed decades ago to carry voice telephony around the site, and it already reaches the locations where video cameras are now needed to implement the required surveillance.

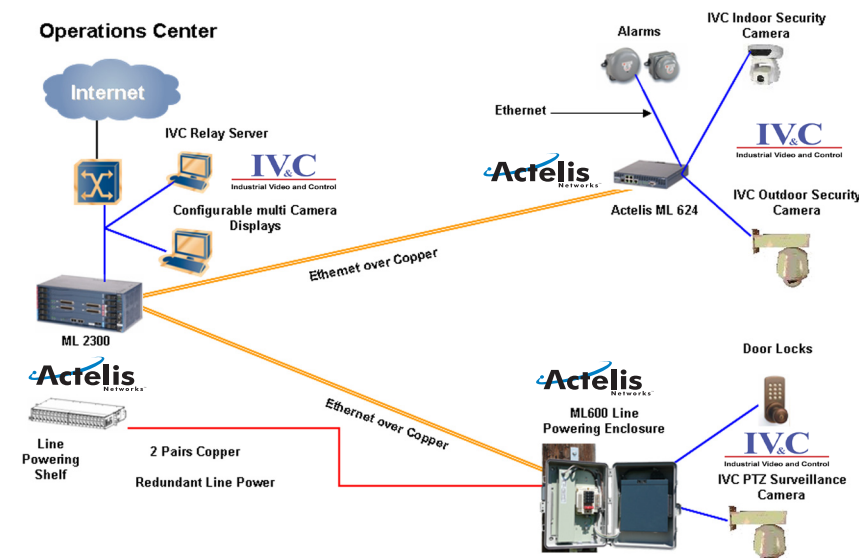
### The Challenge

The challenge for customers is to find the most cost-effective and easy-to-deploy video surveillance solution that does not compromise their security needs. The challenge for manufacturers is to convince customers that the basis of such a cost-effective solution exists, and right under the ground where they stand. Copper, allied to the latest Ethernet transmission technology from Silicon Valley, Calif.-based Actelis Networks®, can now sustain fiber-like *Rate, Reach and Reliability*, or what Actelis refers to as “*The 3 R’s of EFM™*,” with the low bit error rate necessary to meet the stringent QoS requirements of high resolution video. With Actelis Networks’ field-proven line of intelligent Ethernet access products, running surveillance and other video applications over existing copper networks is simple, easy to deploy, highly cost effective, and very reliable. And when compared to fiber, which, as we have discussed, is not nearly deployed as widely as copper, the return on investment (ROI) can be as quick as two to three months compared to two to five years as is common with fiber.

### How it Works :: Easily, Economically and Highly Reliable

The latest Ethernet over Copper (EoC) technology from Actelis allows video cameras to be hooked into the broadband IP/Ethernet network for central management, control, and access. EoC has another great advantage: it can deliver electric power as well as connectivity via the IEEE PoE (Power over Ethernet) standard. These compelling advantages of copper have brought together two leading companies in these fields, Actelis Networks and Industrial Video and Control (IVC), which have teamed up to provide total video surveillance solutions that incorporate networking, management, and control. So for manufacturers of video security solutions like IVC, the first task is to give their customers the good news that their existing copper will enable video cameras to be deployed inexpensively and quickly over their existing copper infrastructure, while also meeting all of the stringent QoS requirements. With Actelis and IVC, video surveillance cameras no longer have to be confined to only those relatively few locations reached by fiber.

## Ethernet Access Over Copper



Carrier Ethernet over Copper™  
Ethernet Solutions

### Highlights

- Streaming Video Transmission
- Rapid, Low Cost Deployment
- Superior Rate, Reach, Reliability
- Budget Alternative to Fiber
- Fiber Quality Transmission
- Superior bandwidth  
Up to 15 Mbps per pair.
- MEF Certified Ethernet Capabilities
- Conforms to Ethernet Security Standards

### Applications

- Data & Video Transport
- Building Security
- Municipalities
- Commercial Sites
- Intelligent Traffic Systems
- Corporate Buildings and Satellite Offices
- Educational Institutions