



CiTeC & eCOM IP Monitoring Solution

Advanced communications products for Integrated Security Systems

System Overview

This solution is based on a high-speed communications gateway device installed on-site which establishes a secure primary communications path back to a Central Monitoring Station or an end user/customer management location and is directly linked to the intruder alarm system. The resilience of this communications is achieved by establishing a primary communications channel on an IP network with a secondary (backup) channel via either a PSTN or GSM network.

Each channel communicates through the highest level of security as the data is encrypted to 128bit AES encryption standard. The solution comprises 2 key components, **CiTeC** is the communications device which is located at the site end and is monitored and managed at the central monitoring station through a Europlex communication engine called **eCOMengine**.

The **eCOMengine** can be linked directly into a central station monitoring package (e.g. MAS, SIMS, etc.) or can be used with its own front-end system known as **eCOMPro**.

The **eCOMengine** provides the complete resilient and secure end-to-end solution required for high security applications. This engine can be configured to manage and monitor from a single site up to multiple sites (in the order of thousands), while performing its own polling and backup strategies. As such this solution is suitable for small to large scale monitoring of security systems.

The Europlex **eCOM & CiTeC** solution has been designed to provide secure and cost effective communications solutions for organizations looking to utilize their WAN, Intranet and Public networks to deliver security data to an In-house or third party Monitoring Centre or a combination of both. Organizations particularly focused on reducing their false alarms will benefit from implementing Europlex's **eCOM & CiTeC** solution. The detail of information delivered enables operators/managers to make more informed decisions as well as identifying any on-site activity of staff and subcontractors that looks suspicious.

CiTeC

CiTeC is a powerful, intelligent communication gateway device which interfaces with Europlex control panels. It can provide seamless integration on-site which enables inter operability between normally disparate systems and technologies.



The technologically advanced **CiTeC** Model circuitry

An affordable and scalable communications solution provides easy installation and maintenance on a single platform

The system consists of a powerful embedded processor with multiple communication interfaces. These consist of IP, RS232, RS485, PSTN, GSM and universal I/O. **CiTeC** has a resident Web Server. **CiTeC** provides true dual path signaling, monitoring and management. Utilizing the client's corporate network infrastructure, **CiTeC** enables connectivity for security systems and building management services, with back-up signaling via PSTN or GSM/GPRS. By using the existing corporate infrastructure as the primary communication path, telephone line rentals and call costs can be eliminated or vastly reduced.

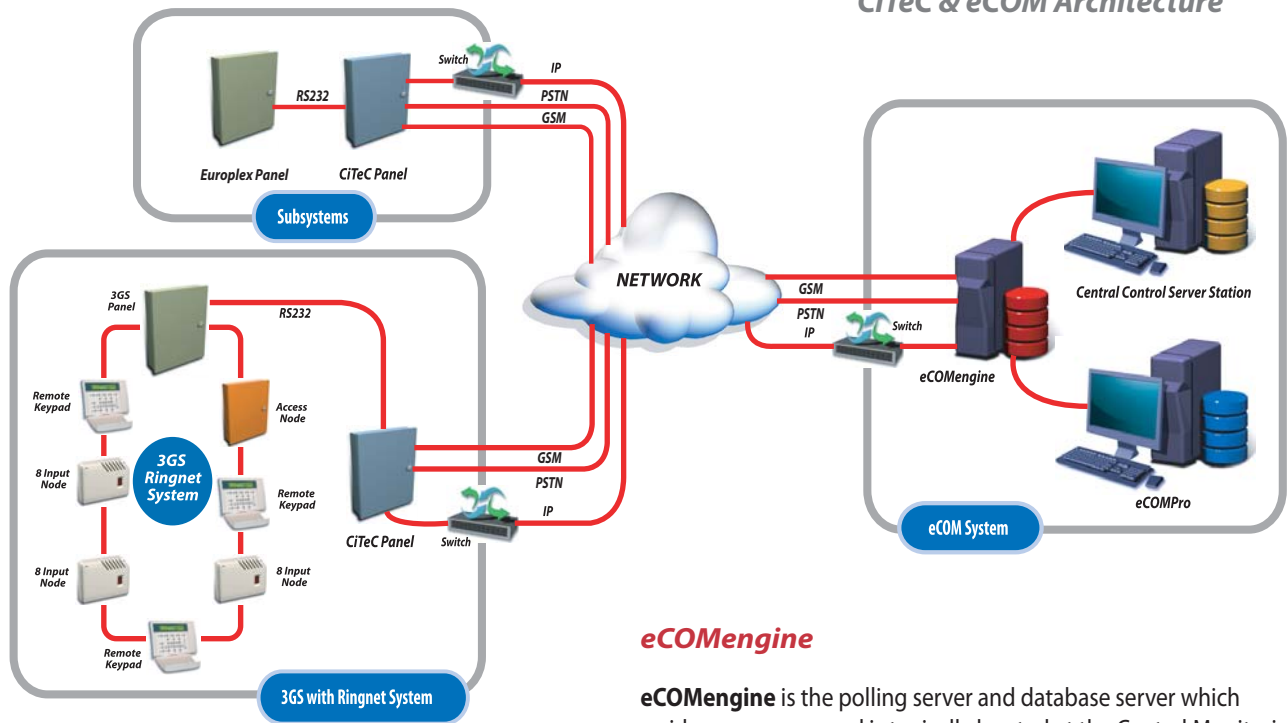
CiTeC is the family name for a range of products which include:

- **CiTeC** IP Only
- **CiTeC** with PSTN backup
- **CiTeC** with GSM backup

CiTeC is installed on-site and can be mounted directly into a Europlex 3GS or Aplex cabinet or can be installed in its own cabinet. All models of **CiTeC** connect directly to the intruder alarm panel and enable remote communications to the panel via the LAN\WAN or PSTN\GSM.

North American Supplier of





CiTeC & eCOM Architecture

CiTeC monitors the security system, archives the data and communicates all activity to the **eCOMengine** whilst maintaining the integrity of the communication channel and performs automatic channel switching in the event of network failure.

The **CiTeC** performs routine system checks on its power source, cabinet tampers, and telephone line, and will immediately report these system failures. All data communications are compressed, encrypted at high speed thus facilitating the secure fast transfer of large data which is ideal for the help desk or central monitoring applications.

Key Benefits

- Easy to install and secure high speed communications gateway
- Comes as standard network-ready (Ethernet)
- Secure end-to-end polling which manages communications integrity
- High security data encryption to AES 128 bit standard
- True integration of video with alarm events
- Resilient dual path signaling
- Optional PSTN or GSM Backup communications
- Designed for on-site customer security monitoring or to interface to remote Central Monitoring Station systems
- Provides powerful remote control and monitoring features

eCOMengine

eCOMengine is the polling server and database server which resides on a server and is typically located at the Central Monitoring Station or customer location. It will run on either a Linux or Microsoft Windows 2000/XP Server operating system. It supports a number of databases such as IBM DB2, Oracle and Microsoft SQL. It interfaces with **CiTeC** and manages all data communication. **eCOMengine** can be implemented in a number of ways. At a basic level the **eCOMengine** acts as a polling server for Europlex systems and interfaces to the Central Station Monitoring System software packages. **eCOMengine** is the communications engine for the Europlex **eCOMPro** management and monitoring software application. Also available is a software development kit using the **eCOMengine** which can be used by third-party developers and OEM's to interface with other management systems. This is implemented through API's using a fully featured scripting language.

eCOMengine communication integrity is provided by a dual path signaling platform and the management on site of this function is performed by the **CiTeC** unit installed and **eCOMengine** installed at the Monitoring Centre. In the event the primary communication path is lost or interrupted then **CiTeC** raises the alarm by routing the path failure and alarm information via its secondary path. The quality and level of management information is identical whether it is delivered by the primary or secondary communication paths to the Monitoring Centre. Irrespective of whether **CiTeC** delivers the data over private or public networks data integrity is ensured using the most secure encryption techniques available. The secondary path can be based upon PSTN, or GSM/GPRS.

The **eCOMengine** polls each of the sites individually and reports any irregularities depending on how the site has been programmed.



CiTeC & eCOM IP Monitoring Solution

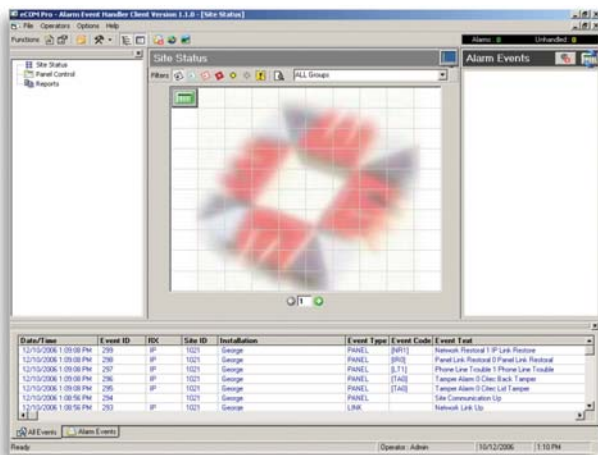
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Each of the sites can be configured to have individual polling strategies associated with them or alternatively sites can be allocated into groups to speed configuration and reduce the number of variants. The engine continually pings the site and expects a response back within a predefined period based on a number of variables. The true value of the Polling Server is its ability to manage responses within predefined parameters and only deliver communication failure alarms when it is sure there are genuinely alarms to report.

The **eCOMengine** can be configured to perform routine and repetitive tasks while it is polling, for example the synchronization of the time and date between the **eCOMengine**, **CiTeC** unit and associated controllers on-site. This has significant benefits, submitting or reviewing evidence whereby the time and date of all systems are not synchronized can lead to evidence being dismissed through such inaccuracies. **CiTeC** therefore ensures the time and date stamp matches on the following Card Access log, Alarm activation log, Monitoring Centre Alarm Log and operator activity report.

eCOMPro

eCOMPro is a client server application with the **eCOMengine** inside, which provides a Graphical User interface for managing and displaying the status of the sites in conjunction with the **CiTeC** product range. This application is suitable for on-site management of single or multiple control systems or in a Central Monitoring Station to give advanced site control and management. Using **eCOMPro** the Monitoring Centre will be fully aware and can view graphically the status of all systems connected and can determine the status of communication paths as to whether they are in "Fault" or "Healthy" at all times.



The eCOMPro graphical interface

The **eCOMengine** is designed with an open, easy to use API. Through this API, OEM customers who provide their own control applications can access the full feature set of the remote control equipment in a generic way. Through the API all aspects of a control system can be monitored and controlled. The **eCOMengine** API abstracts the complexity of the control equipment into simple generic commands. The API is provided in two forms either as a COM DLL for easy integration into VB/C++ applications, or in the form of a XML/HTTP Protocol interface for integration at the protocol level. **CiTeC** will feature an advanced scripting engine (LUA), allowing OEM's to add application/protocol support for their control equipment. Europlex will by default deliver the **CiTeC** with a command script allowing it to interact with Europlex products.

OEM Customers can modify this or provide their own script to support other equipment Software Development Kit (SDK.) Europlex can provide an SDK to approved Europlex partner companies or OEM customers for the purpose of developing interfaces to third party equipment utilizing the powerful integration platforms of **CiTeC** and **eCOMengine**.

The CiTeC system provides secure end-to-end polling which manages communications integrity

Part	Description
6341	CiTeC II - TCP/IP Module (IP only)
6342	CiTeC II - TCP/IP Module (IP with PSTN modem)
6343	CiTeC II - TCP/IP Module (IP with GSM)
4500	eCOMPro - including 100 connection license
4500L	eCOMPro - including 200 connection license
6341C	CiTeC II - TCP/IP Module with metal cabinet (IP only)
6342C	CiTeC II - TCP/IP Module with metal cabinet (IP with PSTN modem)
6343C	CiTeC II - TCP/IP Module with metal cabinet (IP with GSM)





Technical Specifications

eCOMEngine Specification

Server requirements	Intel P4 with 256MB RAM
PSTN Modem's	Up to 8 V.90 Modems
Operating system	Linux, Microsoft Windows 2000/XP Server
Databases supported	MySQL, IBM DB2, Oracle, Microsoft Access, Microsoft SQL
Output to CMS System	SIA, Surgard format, Contact ID, Radionics

IT Infrastructure Specification

Bandwidth requirements for polling over IP	The Central Station (eCOM) will use polling to verify that IP connectivity is available. Each poll consist of the Central Station sending out a UDP packet to the CiTeC and the CiTeC will then reply with an Acknowledge UDP packet	
Polling packet size	CiTeC Encrypted Poll Packet:	24 Bytes [192 bit]
	Protocol overhead (UDP, IP, Ethernet):	42 Bytes [336 bit]
	Total:	66 Bytes [528 bit]
Polling Frequency	Configurable on a per site basis. The frequency can be different when panel is armed and unarmed.	
Site Load (Polling interval 30 seconds)		
WAN Bandwidth	Average load	Peak Load
28K Analog (Half duplex)	0.126% (35 BPS)	3.770% (1056 BPS)
64K Digital (Full duplex)	0.028% (18 BPS)	0.825% (528 BPS)
128K Digital (Full duplex)	0.014% (18 BPS)	0.412% (528 BPS)
Central station load		
(Polling Interval 30 Seconds, 1000 Panels)		
64K Digital (Full duplex)	27.50% (17600 BPS)	41.25% (26400 BPS)
128K Digital (Full duplex)	13.75% (17600 BPS)	20.62% (26400 BPS)
1M Digital (Full duplex)	1.76% (17600 BPS)	2.64% (26400 BPS)
Bandwidth requirements for Video	CiTeC is designed for low bandwidth networks, in order to accommodate this video events are stored locally inside the CiTeC unit, and will only be transmitted to the central station upon request from the operator. A typical video event will consist of 32 JPEG compressed frames, a total of 320KByte on average. In order to facilitate video the IP connection bandwidth should not be less than 128KBPS.	
Notes	eCOMEngine will automatically level out the polling to provide consistent load, and has a built in throttle that can limit the bandwidth used for polling.	

CiTeC Specification

CPU	Dual Processor for high performance
Flash	Flash Upgradeable (local or remote)
Primary Communications	Ethernet - 10/100Mbps with automatic crossover detection (RJ45)
Backup Communications	PSTN V.90 56Kbps modem (RJ11) GSM/GPRS 115Kbps modem (MMCX) with antenna
Serial communications	1 x 115Kbps RS232 (DB-9) 2 x 307Kbps RS232/RS485 (Terminal Block)
Infrared	IrDA 115Kbps
Inputs	8 x Universal input 3V
Output	4 x 3A Relay SPST
Monitoring	Power, Current and Battery monitoring
Tampers	Cabinet tamper and back tamper, micro switch or terminal
Expansion	4 Port RS232/RS485 plug-on Module
Power supply (Optional)	IntelliPower – 3Amp or 6Amp SMPSU.
DC Input	8V – 15V
Average current	100 mA
Max current	500 mA
Security Grade	En50131-1;1997 Grade 3
Environmental Class	Class 2 (Indoor General)
Operating temperature	0 to 50 Celsius
Storage temperature	-20 to 85 Celsius
Humidity	Max 80% non condensing
Features	TCP/IP networking, DHCP/BOOTP Client, HTTP Server, Telnet access, SMTP client, SNMP Traps, PPP Client, PPP Server, Flash File System
Encryption	128bit AES
Compression	Yes
Europelex Panels, supported	Aplex, 3GS, Directplex, Adplex

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