SIEMENS

MK8000 OPC Server Interface

Specifications for CC440

Building Technologies

Fire Safety & Security Products

About This Document

Purpose

The aim of this manual is to identify how the components of the CS440 intrusion control unit are mapped and represented in the MK8000 OPC Server.

Audience

This manual was written for software integrators responsible for connecting their SCADA and OPC Client applications to the CS440 via the MK8000 OPC Server. The reader should be familiar with OPC Specifications and software technologies such as COM/DCOM/OLE. Also, the reader should have been given a basic introduction to intrusion systems and more specifically to the CS440 unit.

Scope

This document was last updated for market package MP4.15. It is intended as a supplement to the general MK8000 OPC Interface Specification.

If you are missing this or any other document, you can download them from the Siemens Intranet as described in the Document Download section below, or you can request it from your Siemens representative. Please refer to the Reference documents section below to find the exact document title and number.

Reference documents

There are a few documents published by the OPC Foundation that are necessary and/or useful for understanding the underlying principles used in the MK8000 OPC Server. These PDF documents can be downloaded from www.opcfoundation.org. Select Latest Downloads from the Tech Info drop down menu on the main page of the site.

Name	Date	Comments
OPC Common 1.00	1998-10-27	
OPC DA 2.05 (Data Access Interface Specifications)	2001-12-17	
Using OPC via DCOM with Microsoft Windows XP Service Pack 2	2004	

Abbreviations

CS440	CS440 intrusion detection system
OPC	Ole for Process Control
OLE	Object Linking and Embedding
COM/DCOM	Component Object Model / Distributed Component Object Model
SCADA	Supervision Control And Data Acquisition
BMS	Building Management Systems
N/A	Not-Applicable

Modification index

Current version	Date	Notes
004973_e_en	06.2009	A wrong file name reference has been corrected on the last page.
004973_e_en	03.2009	Corresponds to market package MP4.15 + hotfix for Door Monitoring Zones / Lock supervision, which is now mapped as “Manual” state instead of “Alarm”.
004973_d_en	06.2008	Corresponds to market package MP4.15 and higher of MK8000 OPC Server Software. Formal changes only: no actual modifications to the data models.
004973_c_en	10.2003	Corresponds to market package MP1.30 to MP4.10 of MK8000 OPC Server Software
004973_b_en	03.2003	Corresponds to market package MP1.10 of MK8000 OPC Server Software
004973_a_en	05.2002	Corresponds to release 1.0 of MK8000 OPC Server Software

1 How to Use This Document

Each CS440 Object is listed in terms of OPC server representation with a brief explanation of what it is.

The primary concepts that should be remembered when reading this document are:

Go Get the MK8000 OPC Interface Specification Manual
If you haven't read the MK8000 OPC Interface Specification Manual, this document won't make sense. This document was written as a companion to the MK8000 OPC Interface Specification Manual containing explanations of concepts necessary to use this document, such as the significance of object states and commands, and what the 8-digit codes associated with each object represent.

"Quiet" Means Normal
"Quiet" is the normal state of the object. It indicates that the object is functioning normally and there is no presence of danger (i.e. alarm, fault, armed).

One State Hides Another
The object states are mutually exclusive. An object cannot be in more than one state at the same time, for example, Alarm and Armed. Only the object state with the highest priority can be seen at any given time. So in this example, the object would be displayed as in "Alarm". Note that there are also single states that represent a combination of situations, such as "Alarm & Tamper".

The Lower the ID Number, the Higher the Priority
All states are listed in the tables in descending order from highest to lowest priority.

2 CS440 OPC Object States

Each CS440 Object is listed in terms of OPC server representation with a brief explanation of what it is, followed by a table detailing all possible states for that object and commands for those states. After each table is a list of all possible causes of object states and a brief explanation of those causes.

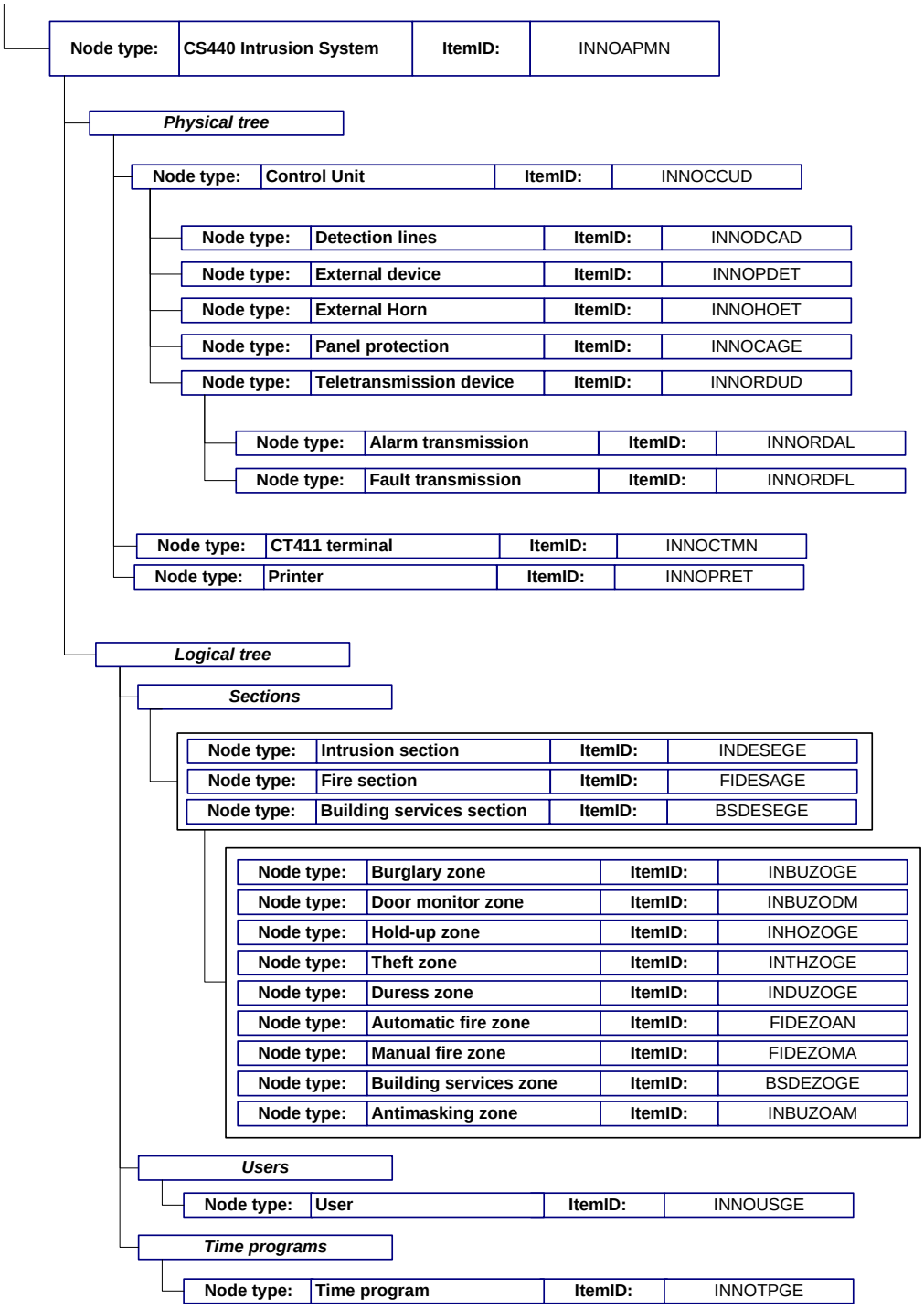

Fig. 1 CS440 Multi-state Model

2.1 Application (INNOAPMN)

The *Application* object represents the events related to the entire CS440 intrusion system and the terminal that controls it.

State	State ID	Command ID	
ALARM UNACK	500	1	Ack
		4 or 8	Arm / Disarm
ALARM UNRESET	502	2	Reset
		4 or 8	Arm / Disarm
PRE ALARM UNACK	800	1	Ack
		4 or 8	Arm / Disarm
PRE ALARM ACK	802	2	Reset
		4 or 8	Arm / Disarm
QUIET	1000	8	Disarm
		2048	Status Request
TEST	1100	4 or 8	Arm / Disarm
DISARMED	1300	4	Arm
ANOMALY UNACK	1352	1	Ack
		4 or 8	Arm / Disarm
ANOMALY ACK	1351	2	Reset
		4 or 8	Arm / Disarm
NOT ALIGNED	1396	-	-
ALIGNEMENT IN PROGRESS	1370	-	-
FAULT ACK	1999	-	-
VITALITY FAULT	2051	-	-

Alarm

This is a severe and high-risk event that indicates a possible attack on the security system via the control unit terminal. The following situations can cause alarm states:

Duress Alarm

A threatened user has entered the Duress password on a terminal.

Pre-Alarm

Code Alarm

An authorised user (one given special permissions) initiates this type of alarm when he/she has forgotten his/her password. It allows him/her to log on to the terminal and reset his/her password.

Keying Error (Code Violation)

This is an alarm that is sent when an individual enters the wrong password too many times.

Time Lock Violation

This is an alarm that is generated when a part of the security system has been disarmed by an authorised operator during a time lock period, i.e. a period of time when that type of exclusion (unlock) is not permitted according to the programmed time schedule.

Quiet

'Quiet' means system armed and no application alarm or tamper pending.

Test

This event indicates that the security system has been locally set into maintenance/revision mode.

This is typically done for technical tests.

Disarmed

This event indicates that the security system has been changed to disarmed or attended/day mode.

This is typically done during daytime or whenever the building to be protected does not require the system to detect intruders and the security sections are consequently disarmed. Note however that, depending on specific configurations, some security sections may also operate in attended/day mode or in same cases *only* in attended/day mode.

Anomaly

The anomaly event indicates at least one of the following conditions:

Data Network Fault

Communication between the MK8000 and the CS440 unit subsystem is down. The Data Network represents the state of the two connections to a loop network (Cerloop), i.e. the condition of data lines that connect the CS440 gateway with its two neighbouring nodes within the Cerloop ring topology.

Arm/disarm switching blocked

The system switching could not properly terminate because of some other events pending (e.g.: alarms/faults) that must first be addressed.

Fault

Fault is reported when communication between the control unit and an external device is broken.

2.2 Control Unit (INNOCCUD)

The *Control unit* object represents the events related to the CS440 control unit and to the general health of the physical subsystem.

State	State ID No.	Command ID No.	Command Name
QUIET	1000	-	
FAULT ACK	1999	-	
FAULT UNACK	2000	1	Ack

Quiet

'Quiet' means properly powered and functioning normally.

Fault

The fault event indicates at least one of the following conditions:

Power Supply Fault

This could be any kind of problem with the AC or DC power supply, such as a blown fuse or discharged battery.

Self-Test Failed

When the unit has an internal problem or is not working normally, a Fault is generated.

Battery Operation

When there is a problem with the AC power supply, the unit will automatically default to DC or battery power mode.

2.3 Detection Lines (INNODCAD)

The detection lines connect the intrusion detectors installed all over the protected building areas. The *Detection Lines* object represents the protection against tampering these lines.

State	State ID No.	Command ID No.	Command Name
TAMPER UNACK	900	1	Ack
TAMPER UNRESET	902	2	Reset
QUIET	1000	-	
DISARMED	1300	-	

Tamper

Sabotage
If the Detection Lines are sabotaged, a **Tamper** message is sent.

Quiet

'Quiet' means armed with no tampers.

Disarm

Tamper Detection Disabled
If tamper detection is disabled, then the **Disarm** condition is reported.

2.4 External Device (INNOPDET)

The *External Device* object represents the health of an external unit installed in the CS440 unit and reports its own faults.

State	State ID No.	Command ID No.	Command Name
QUIET	1000	-	
FAULT ACK	1999	-	
FAULT UNACK	2000	1	Ack

Quiet

'Quiet' means functioning normally.

Fault

External Equipment Fault
A technical problem was detected in the external equipment

2.5 External Horn (INNOHOET)

The *External Horn* object represents the alarm siren that can report its status conditions. The horn control is local to the CS440 unit.

State	State ID No.	Command ID No.	Command Name
ACTIVE	950	-	
QUIET	1000	-	
DISARMED	1300	-	

Active

Horn output active
Horn is in active state when an event occurs and results in siren output.

Quiet

'Quiet' means armed and not active.

Disarmed

Horn output turned off
The horn output can be turned off locally during situations such as maintenance.

2.6 Panel Protection (INNOCAGE)

The *Panel Protection* object represents the tampering protection of the CC440 physical cabinet.

State	State ID No.	Command ID No.	Command Name
TAMPER UNACK	900	1	Ack
		8	Disarm
TAMPER UNRESET	902	2	Reset
		8	Disarm
QUIET	1000	8	Disarm
DISARMED	1300	4	Arm

Tamper

Door tamper.
An alarm is generated if the cabinet door is opened or tampered with while the protection unit is armed.

Quiet

'Quiet' means armed with no tampers.

Disarmed

Tamper protection turned off
The tamper protection can be turned off before the cabinet door gets opened for maintenance. Disarmed reports this case.

2.7 Teletransmission Device (INNORDUD)

The *Teletransmission Device* object represents the state of the 'Remote transmission faulty' input, which can be activated by the remote transmission equipment connected to the CS440 control unit.

State	State ID No.	Command ID No.	Command Name
QUIET	1000	-	
FAULT ACK	1999	-	
FAULT UNACK	2000	1	Ack

Quiet

'Quiet' means functioning normally.

Fault

Fault is reported when there is a problem with the device.

2.8 Alarm Transmission (INNORDAL)

The *Alarm Transmission* object represents the status of the remote phone calls made after an alarm has been detected.

State	State ID No.	Command ID No.	Command Name
ACTIVE	950	-	
QUIET	1000	-	
ANOMALY ACK	1351	-	

Active

Alarm transmission active
An alarm has occurred and it is transmitting a call command to the phone dialler.

Quiet

'Quiet' means that there are no alarms to be transmitted.

Anomaly

Countdown Delay
An anomaly is generated when a countdown delay is initiated after an alarm (for example: to postpone calling the police for 3 minutes while an intrusion is verified as real and not false).

2.9 Fault Transmission (INNORDFL)

The *Fault Transmission* object represents the status of the remote calls following the detection of a fault.

State	State ID No.	Command ID No.	Command Name
ACTIVE	950	-	
QUIET	1000	-	
ANOMALY ACK	1351	-	

Active

Fault transmission active
A fault has occurred and it is transmitting a call command to the phone dialler.

Quiet

'Quiet' means that there are no faults to be transmitted.

Anomaly

Countdown Delay
An anomaly is generated when a countdown delay is initiated after a fault (for example: to postpone calling the technical support for 5 minutes while the fault event is verified as real and not false).

2.10 CT411 Terminal (INNOCTMN)

CS440 can be operated locally via *terminals,* i.e. panels equipped with a LCD display, pushbuttons, and leds.

CT411 is the most powerful terminal in the CS440 family and it can report abnormal conditions. Note that other, less sophisticated types of “CT” terminals can be used and they do not report such conditions.

State	State ID No.	Command ID No.	Command Name
QUIET	1000	-	
FAULT ACK	1999	-	
FAULT UNACK	2000	1	Ack

Quiet

‘Quiet’ means that there are no faults or anomalies concerning the terminal.

Fault

The fault event indicates the power supply fault condition:

Power Supply Fault

This could be any kind of problem with the AC or DC power supply, such as a blown fuse or discharged battery.

Battery Operation

When there is a problem with the AC power supply, the unit will automatically default to DC or battery power mode.

2.11 Printer (INNOPRET)

This object represents the state of the printer being used in the system control unit.

State	State ID No.	Command ID No.	Command Name
QUIET	1000	-	
DISARMED	1300	-	
FAULT ACK	1999	-	

Quiet

Printer is turned on and functioning normally

Disarmed

Printer function is turned off

Fault

The fault event indicates at least one of the following conditions:

Paper out

Printing mechanism failure

2.12 Users (INNOUSGE)

The *User* objects are the logical representation of the users defined in the CS440 system and therefore authorised to login and use the CT terminal.

State	State ID No.	Command ID No.	Command Name
ACTIVE	950	8	Disarm
QUIET	1000	8	Disarm
DISARMED	1300	4	Arm
ANOMALY ACK	1351	4 or 8	Arm or Disarm

Active

User is operating on CT
Active state indicates that the user has logged on to the CT terminal and is using the security system.

Quiet

Quiet means the user is properly defined as authorised and is not currently logged on.

Disarmed

User disabled
Disarmed means that the access authorisation for the user has been disabled

Anomaly

Default password
Anomaly indicates that the user has still associated the factory-default password. This is potentially risky situation.

2.13 Time Programs (INNOTPGE)

The *Time Program* objects represent the time schedules that tell the system when to activate different levels of security during times such as normal business hours, nights, weekends and holidays.

A time program can have only two states: **quiet** and **active**. It is programmed to become active in certain periods of the day. Depending on the local configurations, in such periods, some components of the system, e.g. security sections, are set armed.

State	State ID No.	Command ID No.	Command Name
QUIET	1000	-	
ACTIVE	950	-	

2.14 Sections

The *Section* objects are considered parts of the Application area (see 2.1 above). They can be switched *on* (armed) and *off* (disarmed) individually, by specific commands, or globally, by switching the Application Area *on* and *off*.

A Section is made up of Zones (see 2.15 below). The connected zones inherit whatever state the Section is set to. There are the following types of sections:

- Intrusion Section (INDESEGE)
- Building Services Section (BSDESEGE)
- Fire Section (FIDESEGE)

State	State ID No.	Command ID No.	Command Name
QUIET	1000	8	Disarm
		16	Test
TEST	1100	8	Disarm
		64	Quiet
DISARMED	1300	4	Arm
ANOMALY ACK	1351	4	Arm
		16	Test
		8	Disarm

Quiet

'Quiet' means section armed. The associated zones are also armed, unless they have been disconnected (see 2.15 below).

Test

Alarm Test

Test can be initiated directly from the Section to convert the classification of the alarm events concerning the associated zones: from real alarm to "test alarm".

Disarmed

Section is turned off.

When in this condition, the associated zones will not generate alarms. Tampers and faults can however be detected.

Anomaly

Section is turned erroneously off.

This is an event that is generated when the section has been disarmed by an authorised operator during a time lock period, i.e. a period of time when that type of exclusion is not permitted according to the programmed schedule.

2.15 Zones

The *Zone* object represents the actual intrusion detectors handled by CS440. The zones are the lowest hierarchical level that is visible to the user. Unless the individual zone has been disconnected, they assume the state of their parent Section.

There are the following types of zones:

- Burglary Zone (INBUZOGE)
- Building Services Zone (BSDEZOGE)
- Door Monitor Zone (INBUZODM)
- Anti Masking Zone (INBUZOAM)
- Hold-up Zone (INHOZOGE)
- Theft Zone (INTHZOGE)
- Duress Zone (INDUZOGE)
- Automatic Fire Zone (FIDEZOAN)
- Manual Fire Zone (FIDEZOMA)

State	State ID No.	Command ID No.	Command Name
ALARM&TAMPER UN-ACK	400	1	Ack
		128 or 256	Disconnect or Connect
ALARM&TAMPER UN-RESET	402	2	Reset
		128 or 256	Disconnect or Connect
ALARM UNACK	500	1	Ack
		128 or 256	Disconnect or Connect
ALARM ACK	501	128 or 256	Disconnect or Connect
ALARM UNRESET	502	2	Reset
		128 or 256	Disconnect or Connect
TAMPER UNACK	900	1	Ack
		128 or 256	Disconnect or Connect
TAMPER ACK	901	128 or 256	Disconnect or Connect
TAMPER UNRESET	902	2	Reset
		128 or 256	Disconnect or Connect
QUIET	1000	128	Disconnect
TEST	1100	128	Disconnect
TEST ALARM ACK	1111	128	Disconnect
MANUAL (Door Monitor Zone, Lock Supervision)	1316	-	-
ANOMALY ACK	1351	128	Disconnect
DISCONNECTED	1400	256	Connect

Alarm

Alarm types are configurable. For example, Fire and Plant monitoring can be signalled as general alarms, while Hold-up and Threat can be signalled as Hold-up.
Alarms can be combined with tampers if both conditions are active.

Tamper

As with Alarm types, **Tampers** are configurable. They can be combined with alarms if both conditions are active.

Bolt open

In certain configurations, this event indicates an anomaly on a monitored door that is closed but not locked (State: Tamper Ack State ID: 901).

Quiet

'Quiet' means connected with no alarm. The on/off state of the zone depends on the parent section.

Test

Detector zone in test
Test is used for checking that detector alarm responds.

Test alarm

Test alarm
An alarm has been detected while in test mode.

Manual

Lock Supervision
For Door Monitoring Zones, this event indicates an anomaly on a monitored door that is closed but not locked (Manual State ID: 1316).

Anomaly

Zone anomaly can be one the following conditions:

Zone not ready to switch on
In certain configurations, this event is reported when the parent section is commanded to switch on but the zone, if set on, would immediately be set in alarm.

Disconnected

Zone is disconnected
When in this condition, the associated zones will not generate any event. This is typically applied to zones equipped with faulty detectors waiting for technical repair.

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