

**Environmental Engineering (EE);  
Monitoring and Control Interface for Infrastructure Equipment  
(Power, Cooling and Building Environment Systems used in  
Telecommunication Networks);  
Part 7: Other utilities system  
control and monitoring information model**

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## Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Environmental Engineering (EE), and is now submitted for the ETSI standards Membership Approval Procedure.

The present document is part 7 of a multi-part deliverable covering Monitoring and control interface for infrastructure equipment (Power, Cooling and environment systems used in telecommunication networks), as identified below:

- Part 1: "Generic Interface";
- Part 2: "DC power system control and monitoring information model";
- Part 3: "AC UPS power system control and monitoring information model";
- Part 4: "AC distribution power system control and monitoring information model";
- Part 5: "AC diesel back-up generator system control and monitoring information model";
- Part 6: "Air conditioning system control and monitoring information model";
- Part 7: "Other utilities system control and monitoring information model";**
- Part 8: "Remote Power Feeding System control and monitoring information model".

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# 1 Scope

The present document applies to monitoring and control of other utilities for telecommunication equipment.

The present document defines:

- The monitored and controlled other utilities system architectures.
- The minimum set of exchanged information required at the interface, described in "natural language" in text tables.
- The XML files with tags and variables corresponding to the data in the tables.

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# 2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

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## 2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] ETSI ES 202 336-1: "Environmental Engineering (EE); Monitoring and Control Interface for Infrastructure Equipment (Power, Cooling and Building Environment Systems used in Telecommunication Networks); Part 1: Generic Interface".
- [2] IETF RFC 4566: "Session Description Protocol".

## 2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

- [i.1] IEEE 802 (part 1 to part 11): "IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture".
- [i.2] ISO/IEC 8879:1986: "Information processing -- Text and office systems -- Standard Generalized Markup Language (SGML)".

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**alarm:** any information signalling abnormal state, i.e. different to specified normal state of hardware, software, environment condition (temperature, humidity, etc.)

NOTE: The alarm signal shall be understood by itself by an operator and shall always have at least one severity qualification or codification (colour, level, etc.).

EXAMPLE: Rectifier failure, battery low volage, etc.

**alarm loop:** electrical loop which open or closed state correspond to alarm start (set) or end (clear) state

**alarm message:** text parts of the alarm structure

**alarm structure:** organized set of information fields in an alarm data frame (time stamp, set/clear, text, etc.)

**Control Unit (CU):** integrated unit in an equipment to monitor and control this equipment through sensors and actuators

**Data Gathering Unit (DGU):** functional unit used for several functions:

- collect serial, digital, and analog data from several equipment;
- option to send (output) serial or digital commands;
- forward/receive information to/from the Local/Remote Management Application via agreed protocols;
- mediation between interfaces and protocols.

NOTE: This function may be integrated as part of specific equipment.

**ethernet:** LAN protocol

NOTE: Equivalent to IEEE 802.1 to 11 [i.1].

**event:** any information signalling a change of state which is not an alarm: e.g. battery test, change of state of battery charge

NOTE: The event signal is be understood by itself by an operator and is always have at least one severity qualification or codification (color, level, etc.). It is be transmitted in a formatted structure with text message and other fields like for alarm, e.g. an event can be coded as an alarm with severity "0".

**eXtensible Mark-up Language (XML):** application profile or restricted form of SGML

NOTE: By construction, XML documents are conforming SGML the Standard Generalized Markup Language (ISO/IEC 8879 [i.2]). documents. XML is designed to describe data and focus on what data is. XML is discerned from the well known Hypertext Transfer Mark-up Language (HTML) which was designed to display data and to focus on how data looks.

**Extensible Style sheet Language (XSL):** language for expressing style sheets

NOTE: It consists of two parts, a language for transforming XML documents, and an XML vocabulary for specifying formatting semantics. An XSL style sheet specifies the presentation of a class of XML documents by describing how an instance of the class is transformed into an XML document that uses the formatting vocabulary.

**infrastructure equipment:** power, cooling and building environment systems used in telecommunications centres and access networks locations

EXAMPLE: Cabinets, shelters, underground locations, etc.

**object:** class description of items that accept a set of properties or functions

NOTE: Generic objects can include more specific items and inherit from their properties. If correctly structured, object programming can allow the system to evolve, i.e. be more future-proof. The code should intrinsically be open and structured.

**warning:** low severity alarm

**World Wide Web Consortium (W3C):** consortium founded in October 1994 to develop common interoperable protocols and promote World Wide Web

NOTE: See <http://www.w3c.org>.

**XCU:** CU enabled to communicate using XML interface as defined in the present document

**XML Schema Definition (XSD):** new more detailed XML description compared to the previous one, the DTD

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CIF	Common Intermediate Format
CU	Control Unit of an equipment
CUE	Current Using Equipment
D1	4 CIF
DGU	Data Gathering Unit
DTD	Document Type Definition
FTP	File Transfer Protocol
HTML	Hypertext Transfer Make-up Language
HTTP	Hypertext Transfer Protocol
IP	Internet Protocol
LAN	Local Array Network
PTZ	Pan/Tilt/Zoom
PTZ	Pan Tilt Zoom
QCIF	Quarter Common Intermediate Format
QVGA	Quart VGA
RTSP	Real Time Streaming Protocol
RTSP	Real Time Streaming Protocol
SDP	Session Description Protocol
SGML	Standard Generalized Markup Language
TCP	Transmission Control Protocol for IP
URL	Uniform Resource Locator
VGA	Video Graphics Array
XCU	XML enabled CU
XCU	XML enabled CU
XML	eXtensible Markup Language (see W3C)

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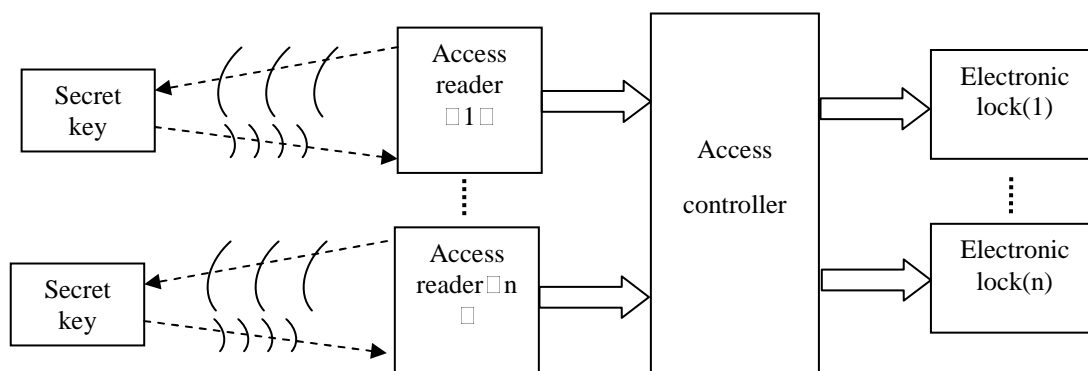
## 4 Other utilities system

Other utilities system includes access control system and video monitor system which ensure the safety and reliability of telecommunication equipment.

Access control system is used to authenticate and control electronic lock. The main elements of access system are:

- secret key (inductive card, dactylogram, retina,...);
- access reader;
- access controller;
- electronic lock, which is depicted in figure 1.

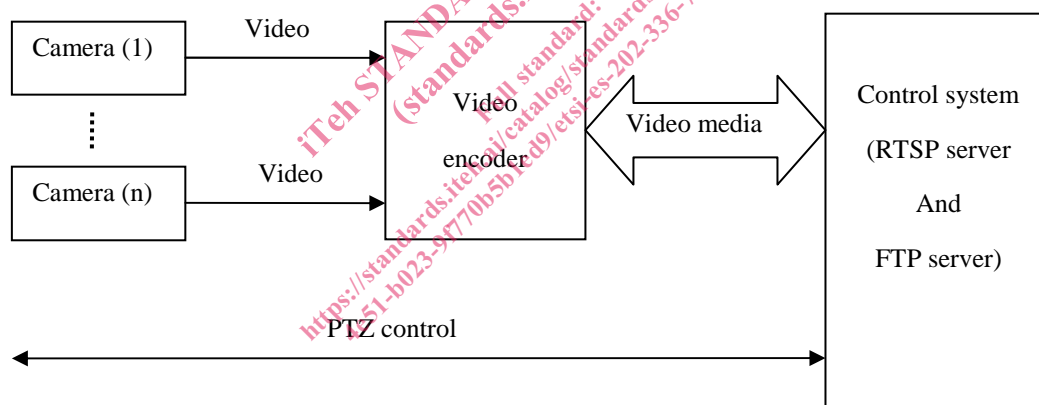
Secret key keep user information, access reader receive and decrypt user information, access controller receive decrypted data from access reader, and control the on/off of electronic lock after authentication.



**Figure 1: Access control system**

Video monitor system includes control system, video encoder and camera which is depicted in figure 2. Camera capture analog video signal, video encoder encode analog signal to digital video code such as H.264, H.263, Mpeg4, etc., control system includes RTSP server, FTP server and PTZ control signal. RTSP server create and transfer stream media, FTP server transfer record file of video and picture.

The present document only describe the SDP file of RTSP server compliance to RFC 4566 [2] and FTP server URL with XML language.



**Figure 2: Video monitor system**

Table A.1 (Table Environment in annex A) corresponds to access control system mandatory data that shall be provided for different types of equipment rooms environment monitor, and table B.1 (see annex B) includes data that should be provided in addition to mandatory one.

Table A.2 (Table Environment in annex A) corresponds to video monitor system mandatory data that shall be provided for different types of equipment rooms environment monitor, and table B.2 (see annex B) includes data that should be provided in addition to mandatory one.



## Annex A (normative): Summary of mandatory monitoring/supervision information and functions

This annex gathers the information needed on the Remote Monitoring Application for different types of building environment. It specifies the mandatory requirements that must be provided in all cases.

When an optional alarm that requires a parameter set is present, the corresponding parameter set is mandatory in the control section in order to allow remote adjustment under appropriate login procedure..

According to their types (Description, Alarm, Data, etc.), as defined in ES 202 336-1 [1] the information shall be provided by the Control Unit (XCU).

NOTE: If there is no XCU this data will be provided by the Data Gathering Unit (DGU).

When a CU has a field bus connected to the DGU, at least, the DGU shall store data (record measurements, log files). The XCU which has the XML interface over Ethernet TCP/IP, shall store these data.

### A.1 Other utilities system

#### A.1.1 Table for access control system

Table A.1: Minimum set of monitored information

Type	Monitored information	Explanation
description	Access system information	
alarm	Door open timeout	Door open time exceed configured time
	Partial network failure (high error rate, XCU-DGU link fault, etc.) XCU reset	
event	Door open/close	
	Alarm setup and clear	
data	None	
data record	Open door record	Who at what time open door
config	Add user	User data format: card ID, password, door rights list
	Delete user	
	Setup system date and time	
control	Open/close door	
	XCU program download with default to previous release	
	All XCU alarm/event/test/command parameters (time-out, counter, thresholds, ...) if any	
	Default values resetting (safe value for XCU)	