Remote meter reading & supervision systems

specially designed for sites
with high densities of metering
devices or multiple-site entities

CUBE® TECHNOLOGIES

E³

e-cube
Efficient remote readings and supervision

Electricians
Integrators
Facility managers

E³Manager
administration console

E³Mobile Manager
for on-site checks

On-site or Cloud
data base

Weather
data

E³DataStation
data logger

Metering
units

Gas
meters

Water
meters

PLCs

Electric
meters

e-cube

Triple performance
Operating efficiency
Broad range of uses

setup
performance

system
performance

operating
performance

e-cube architecture
3 items at the core of the system

E³DataStation

E³DATASTATION: data concentrator equipped with on-board intelligence, capable of collecting, storing and calculating all data processed by all types of metering devices.

E³LINK

E³LINK: communication protocol that includes a mechanism for data recovery under any circumstances.

– Automatic data recovery in case of a network failure;

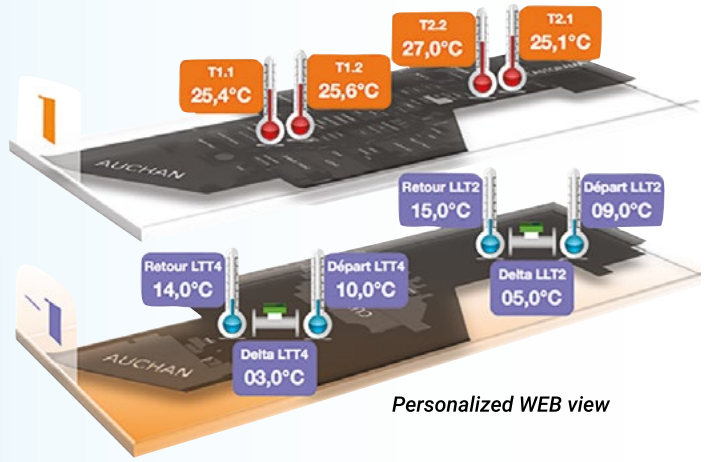– permanent and intermittent connection mode management.

E³MANAGER

E³MANAGER: data administration console.

– Configuration and individual back-ups for each *E³DataStation*;

– verification of proper operation of the *E³DataStations* and sensors alert mechanisms;

– data collected archived on SQL server or PostGreSQL (open source) base.

1. PERSONALIZATION

Settings	Individual client configurations can be pre-installed at the factory.
Customization	Inclusion of external components around the *E³DataStation*: 3G/4G router, radio bridging, pulse concentrators, power feeds.
WEB views	Development of technical WEB views for supervision.

Personalized WEB view

2. IMPLEMENTATION

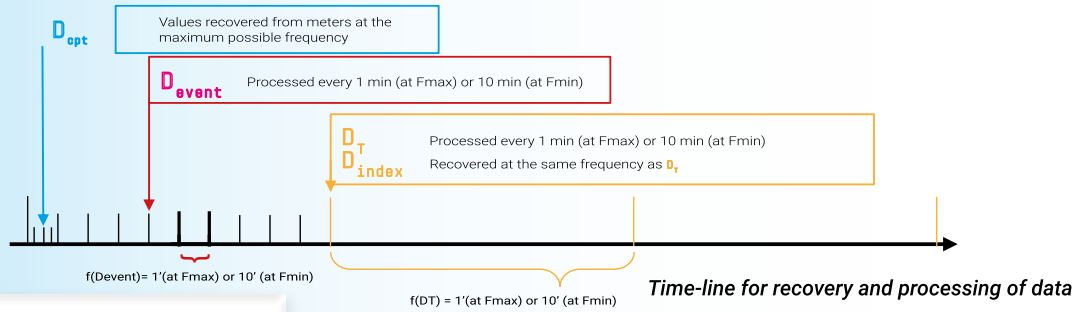|	
Pre-configuration of the *E³DataStation*	10 brands of metering devices and PLCs pre-configured in the *E³Manager* console.
	Any other additional brand or device on request.
Testing of ModBus meter connections	Smartphone application for on-site testing of the metering device connections.
Simplified procedure for exchanging metering devices	Automatic management of the indexes rotation.

setup
performance

3. TRANSFER

Protocols and types of connections	Connection links: RS485 ModBus, Mbus and Radio.
	Server connections: Ethernet, WiFi, 3G/4G.
	Data access via Web services or other protocols for direct access (SQL or PostGreSQL server).

D_{opt}

| Values recovered from meters at the maximum possible frequency |

D_{event} Processed every 1 min (at Fmax) or 10 min (at Fmin)

D_T
D_{index} Processed every 1 min (at Fmax) or 10 min (at Fmin)
Recovered at the same frequency as D_T

f(Devent)= 1'(at Fmax) or 10' (at Fmin)

f(DT) = 1'(at Fmax) or 10' (at Fmin)

Time-line for recovery and processing of data

4.RELEVANCE

Efficiency of the data collected

Configurable up-load-frequency (baseline 10' and 60').

Mechanism for automatic variation of the frequency of data collection based on exceeding pre-programmed thresholds.

Optimization of the data collected

Calculation in the *E³DataStation* of the average, maximum and minimum values for each period indexed.

5.AVAILABILITY

On-site storage, in the *E³DataStation*

Memory configurable with a maximum of 24 values per electrical meter.

Up to 2 years of index storage.

Client/server synchronization

2 native modules for data transmission to the server: constant or intermittent.

Secure CUBE protocol between the *E³DataStations* and the server with automatic synchronization launched by the *E³Data-Station*.
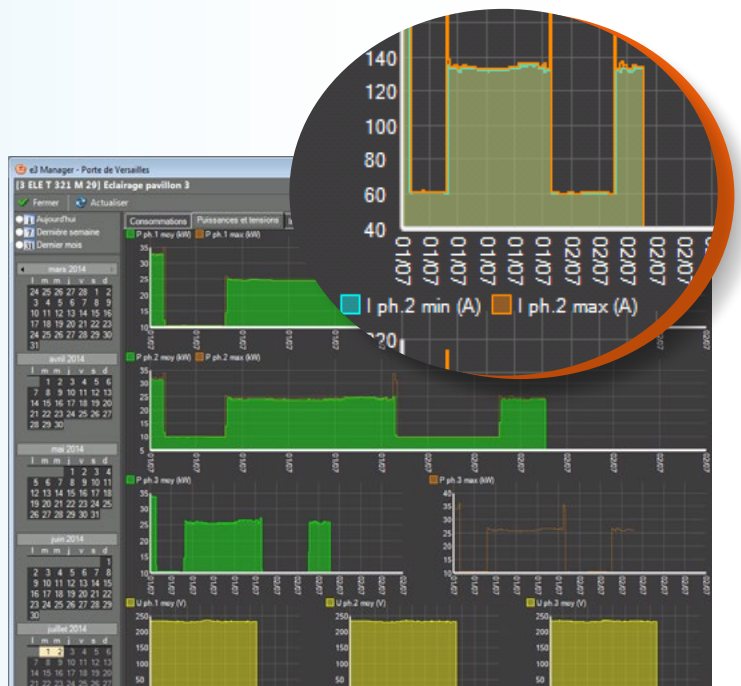
6.CONFIDENTIALITY

Encryption

Triple DES Data encryption between the *E³DataStation* and the server.

system
performance

View of current intensities

DataStation administration view

7.PROCESS MANAGEMENT

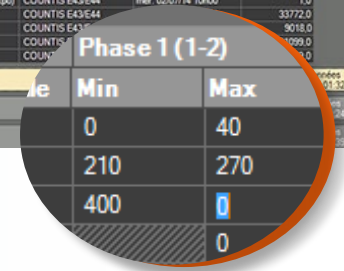|	
E³MANAGER: User-friendly console for the administration of multiple *E³DataStations*	Real-time supervision of the operational status of each *E³DataStation*.
	Real-time display of meter indexes.
Expertise of complex IT architectures	Audits/engineering for configuration/installation of OS and Data Bases by CUBE in-house technicians.
CUBE experience and major site referencies	*E³* systems deployed on major exhibition sites in France: more than 1,700 meter systems currently being monitored.
	1,000 connected terminals communicating in real time at a major exhibition site in Switzerland, equivalent to the deployment of 1,000 *E³DataStations*.

8.DATA RESTITUTION

Management of the data records	File creation with reference number and expiration date.
	Use of multiple TAGS for each metering device.
	Creation of constant virtual meters: grouping of meters by type, usage, age, place, etc..
Alert mechanisms	Programming of thresholds for each metering device on the *E³Manager* administration console.
	Display of alerts on the *E³Manager* administration console.
	Notification of alerts by e-mail to multiple contact groups.

operating
performance

9.OPERATIONAL FLEXIBILITY

Unrestricted choices of technologies and systems	CUBE is independent of any metering device manufacturer. CUBE guarantees the scalability of its systems.
Pricing policy	No hidden costs. No subscriptions. You own your own data!.

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