ORBIS TECNOLOGÍA ELÉCTRICA S.A. designs and develops products based on the open PRIME (PoweRline Intelligent Metering Evolution) specification, the obtaining of the Product Certification Status for the DOMOTAX TeLeGeST PRIME within the PRIME alliance guarantees total interoperability and the following benefits within the electricity market.

TeLeGeST is a complete telemanagement system, with its basic application field being the residential market. This design, which is based on the new information, electronic and communications technologies, enables the DOMOTAX TeLeGeST PRIME to be catalogued as a SMART METER which, together with the TeLeGeST PRIME 9710 Concentrator forms part of a SMART GRID with high adaptation capability to the new European regulatory framework, mainly because of its DLMS standard communications protocol. The telemanagement system allows the exchange of information and operations between the Electrical Distribution systems, the concentrators and meters.

**The most noteworthy characteristics are::**

- Bidirectional communications
- Information management
- Power management
- Concentrated and Demanded Power control
- Supply Switch-on and Switch-off management
- Antifraud management

ORBIS TECNOLOGÍA ELÉCTRICA S.A. is actively participating in the STAR project, providing its knowledge of the DLMS COSEM protocol and obtaining tenders within the supply of one million meters for 2012, framed within the smart grid deployment, the investment for which is approximately 2,000 million Euros until 2018.

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Red Eléctrica Española Control Center



# Telemanagement System
# TELEGEST

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PRIME ALLIANCE™

SISTEMA DE TELEGESTIÓN

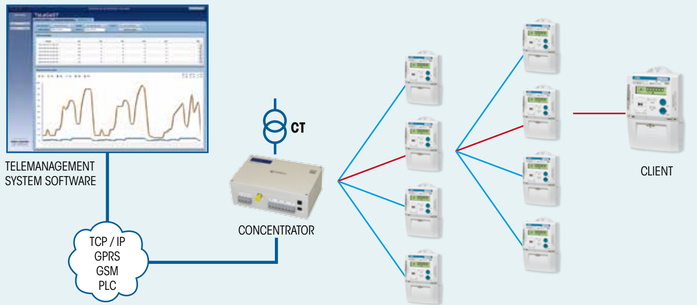
# TELEGEST

The TELEGEST Telemanagement System is a technological information and communications system that enables smart-reading and telemanagement of smart meters which, together with the concentrator, make up a smart grid.

## WHATISITPURPOSE

To technologically transform the low-voltage electricity distribution grid and prepare it to take care of the future needs of society, such as improving electricity supplies and power usage efficiency.

## TELEGEST TELEMANAGEMENT SYSTEM




## Advantages for the distribution grid

### MAINTENANCE

- Operational efficiency.
- Simple adaptation to changes.
- Grid status control.
- Automatic report production. Programmed process monitoring.
- Supply switch on/switch off.
- Loss balances.
- Immediate installation without any additional wiring.

## Advantages for the supplier

### BILLING

- Automatic management of reading data acquisition.
- Remote reading and billing.
- Real-time power registration cancellation and modification.
- True billing, not estimates.
- Remote fraud detection.
- Customer care improvement.

## Advantages for the client

### END CONSUMER

- Obtaining the hourly, daily and monthly profile.
- Real-time querying of consumption and demanded power.
- True billing, not estimates.
- Contracted power modification without having to replace the MCB

### Environmental respect, future commitment

Awareness of electricity consumption guidelines by all of us allows for a new equitable relationship of knowledge that will undoubtedly involve new proactive communications for power consumption reduction and enhanced energy efficiency. Smart grids provide the technological solution for taking advantage of this new model for communication between supplier and the consumer client.

**Electricity Control Centre (Cecoel) and Control Centre for the Special Regime /Cecre) of the Spanish Electricity Grid**

The Cecoel is the Control Centre responsible for the real time operation and coordinated supervision of the generation and transport installations for the Spanish Electricity System. The Cecre is the control centre from which the generation of the renewable energy producers installed in our country are managed and controlled. It also allows maximum renewable energy production, especially wind power, to be integrated into the electricity system under safe conditions.

# TECHNICAL SPECIFICATIONS

## DOMOTAX TeLeGeST PRIME

MULTIFUNCTION PLC METERS FOR AMM (Advanced Metering Management)

## CONCENTRATOR TeLeGeST PRIME 9710

DATA CONCENTRATOR + LOW-VOLTAGE SUPERVISION

| ELECTRICAL SPECIFICATIONS | |
|---|---|
| Reference voltage | 230 Vc.a. |
| Minimum operating voltage | 101 Vc.a. |
| Maximum operating voltage | 276 Vc.a. |
| Maximum operating voltage | 440 Vc.a. (during six hours) |
| Reference frequency | 50 Hz |

| METERING SPECIFICATIONS | |
|---|---|
| Minimum number of diode pulses | |
| LED pulses for taking the reading | 1 for I ≤ 50% Ib with cosφ=1<br>3 for I > 50% Ib with cosφ=1 |
| Metering technology | Shunt |

| METERING PRECISION | |
|---|---|
| **ACTIVE** | |
| Active precision class | B in accordance with EN 50470-3 |
| Low current active precision | < 1% for I >100mA cosφ=1 |
| Start-up current | 20 mA cosφ=1 |
| Minimum current | 0.1 A |
| Transition current | 1 A |
| Reference current | 10 A |
| Maximum current | 60 A |
| **REACTIVE** | |
| Reactive precision class | 2 in accordance with EN 62053-23 |
| Low current reactive precision | < 2% for I >150 mA senφ=0.34 |

| WEATHER CONDITIONS | |
|---|---|
| Operating temperature | -25 °C to +70 °C |

| CLOCK PRECISION | |
|---|---|
| Running precision | ≤ ± 0.5 s/24 h at 23 °C quartz-controlled |
| Pressure variation with temperature | ≤ 0.15 s/°C/24 h |
| Backup power | 6 hours (supercap). 3 years (lithium battery) |

| MECHANICAL SPECIFICATIONS | |
|---|---|
| Casing protection type | IP 51 |
| Junction box dimensions | According to DIN 43857 |
| Dimensions | 203.4 x 129 x 63.8 mm |
| Option with transparent terminal cover | 163 x 129 x 63.8 mm |

| TARIFFING SYSTEM | |
|---|---|
| Tariff periods | Up to 6 |
| Special day (holidays) | Up to 30 |
| Period changes | Up to 12 |
| Number of maximeters | 6, one for each tariff period |

| POWER BREAKER SPECIFICATIONS | |
|---|---|
| Breaker type | Omnipolar. two poles (phase and neutral) |
| Maximum current rating | 80 A |
| Number of guaranteed operations | 10,000 with I = 63 A cosφ =1 |

| PLC COMMUNICATIONS | |
|---|---|
| Physical level and MAC | PRIME |
| Link level | IEC-61334-4-32 |
| Application level | DLMS |

| GENERAL SPECIFICATIONS | |
|---|---|
| Operating temperature | -40°C to +70°C |
| Power supply | 120 to 264 Vac at 50/60 Hz |
| Consumption | 2.8 W max. 2.4 typical |
| Protection | IP 20 in accordance with IEC 60529 |
| Dimensions | 240 x 160 x 90 mm |
| Casing | Plastic |
| Mounting | DIN rail according to IEC 60715 |

| PLC COMMUNICATIONS | |
|---|---|
| PRIME network operation | As base node |
| Signal injection connection | Direct connection to low voltage grid<br>Coaxial BNC cable |
| PRIME information | PIB support |
| Protocol | PRIME PHY & MAC |
| Frequency band | CENELEC-A (3kHz-95kHz) |
| Modulation | OFDM according to PRIME |

| COMMUNICATIONS PROTOCOLS | |
|---|---|
| Ethernet | TCP/IP, HTPP, FTP, SCP, SNMP |
| Remote management | SNMPv3, Webservices, Webserver, SSH |

| DEVICE MANAGEMENT | |
|---|---|
| Local administration | Console port, Ethernet 10/100 Base T |

| PROTOCOL | |
|---|---|
| Reading, control and configuration | DLMS/COSEM (IEC 62056) |

| ADDITIONAL SPECIFICATIONS | |
|---|---|
| Data concentrator | Integrated |
| Low-voltage supervision | Integrated |
| Current sensors | Statistics of communications |
| Meter | Discovery and automatic recording |
| Concentrator synchronisation | Cumulative and programmable (time/priority) |
| STG | XML interface between concentrator and STG |

| OTHER MODELS AND ACCESSORIES |
|---|
| 9711 repeater with SBT |
| 9610 concentrator without SBT |
| 9611 repeater without SBT |
| 9710 concentrator with SBT + router 3G + RJ45 Ethernet cable |
| 9610 concentrator without SBT + router 3G + RJ45 Ethernet cable |
| Inside IP43 or outside IP65 cabinet + protections for 9710 with SBT |
| Inside IP43 or outside IP65 cabinet + protections for 9610 without SBT |
| Inside IP43 or outside IP65 cabinet + protections for 9710 and 9711 repeater with SBT |
| Inside IP43 or outside IP65 cabinet + protections for 9610 and 9611 repeater without SBT |

*SBT: Low-voltage supervision*