remsdaq
EXTENDING THE BOUNDARIES OF TECHNOLOGY

Callisto nx

evolution of proven technology

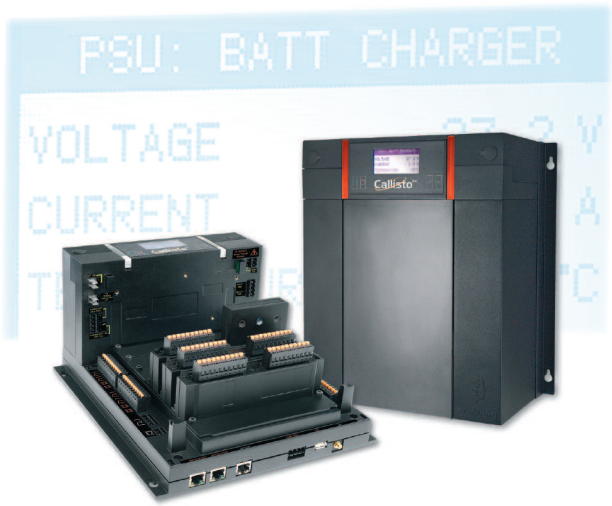
FEATURES

- IEC 61850 compliant
- Advanced AC capabilities with comprehensive fault detection
- Integrated protection functions
- Disturbance recording
- Power quality monitoring
- IEC 61131-3 logic
- Extensive library of communication protocols

This feature-rich building block for Utility Automation offers a single solution from a simple pole-top device to a fully integrated Computerised Substation Control System

Pole Top to...

With its flexible approach to I/O, Callisto[nx] offers cost effective technology for applications ranging from a conventional RTU to a sophisticated IEC 61850 implementation.



Compliant to the latest IEC 61850 standard, Callisto[nx] offers 0.1% accuracy for AC measurements, disturbance and event recording and a wealth of protection functions.

Two independent processors ensure consistent high performance with a powerful DSP dedicated to time-critical AC and protection functionality and a separate ARM9 processor managing higher level applications and communications.

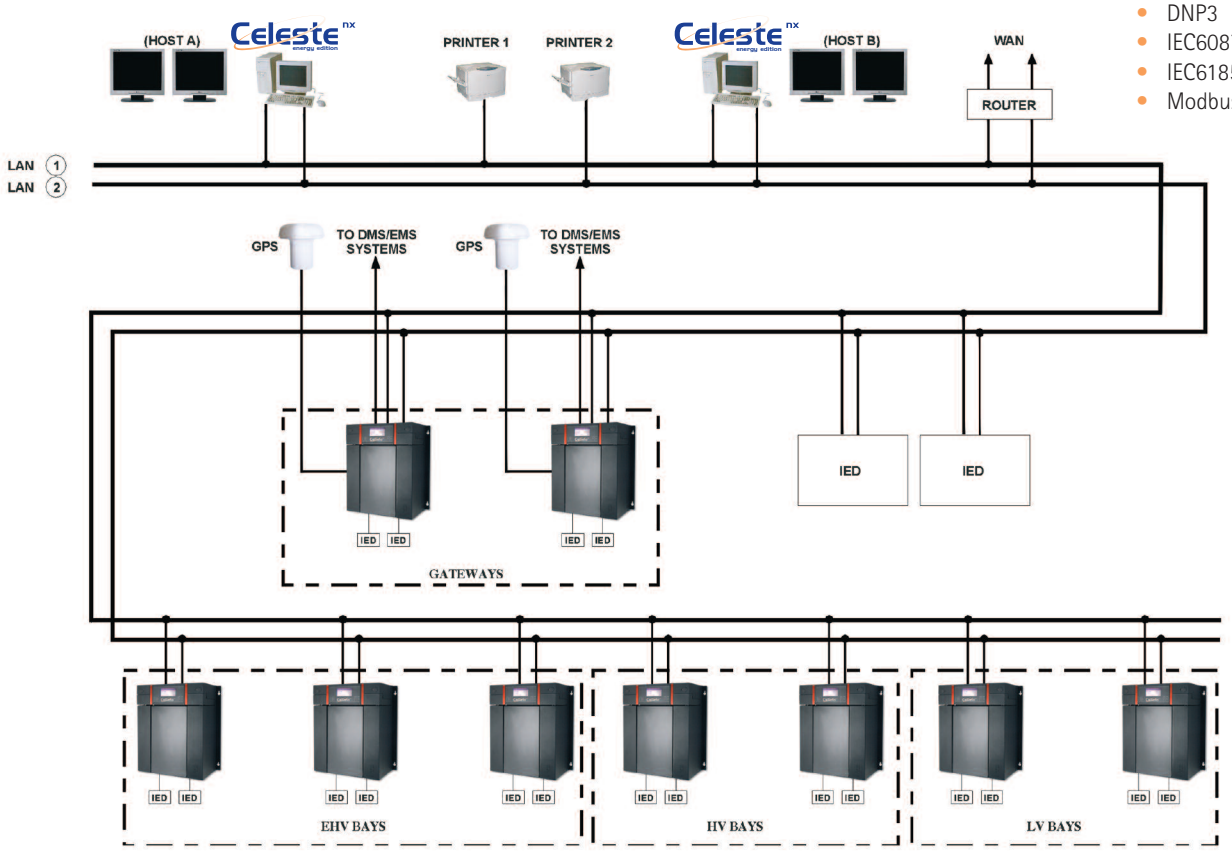
SOE time-stamping to 1ms is standard and the optional integrated GPS, which provides both time and position, ensures consistency across geographically remote installations.

Communications can be either through the integral Ethernet port or over traditional serial channels with a host of international standard protocols available for both mechanisms (for example, IEC 61850, DNP3.0, IEC 61870-5 and Modbus).

This high performing unit is backed by simple-to-use configuration tools, an industry standard IEC61131-3 logic application and secure web browser technology. These tools, along with the high contrast LCD display, ensure efficient deployment and ongoing ease of maintenance through common product knowledge to support installations from EHV through to LV networks.

Flexibility & Re

...Full Computerised Substation Control System



LAN Protocols

- DNP3
- IEC60870-5-104
- IEC61850
- Modbus

Bay Control Units Typically Feature:

- Transducerless AC connections
- High accuracy measurements (0.1% fsd)
- Integrated protection functions
- Fault data measurements up to 50 times over current
- Fault data in Comtrade format
- Secure controls
- Local autonomous automation
- High accuracy SOE (1ms system wide)
- Integration of serial IEDs into an IEC61850 environment

FEATURES

- Redundant gateways and time sources
- I/O optimised to bay requirements
- Supports both Station and Process buses
- Support of serial and IEC 61850 IEDs
- Open connectivity using industry standard protocols
- Local HMI option

esilience In Every Application

Product Features

Callisto nx

General:
- Operates as a standalone unit or as a distributed RTU in a networked system
- Substation automation for a range of devices
- IEC 61850 compliant
- Flexible I/O
- Advanced AC capabilities with comprehensive fault detection
- 50x full load operation
- Individual analysis to 50th harmonic
- Disturbance recording
- SOE handling and reporting, time-stamped to 1ms accuracy
- IEC 61131-3 logic
- High contrast LCD for local status indication
- Embedded web browser for viewing diagnostics and status information
- Offline, platform independent PC-based configuration tool

Base I/O:
- 16 optically isolated digital inputs[1]
- 6 digital outputs
- 2 DC analogue inputs[2]

Integral Communications Ports:
- 1 Ethernet port (10/100BaseTX)
- 2 isolated serial ports (1 x RS-232, 1 x RS-232/485)
- 1 USB port (version 2.0)

Expansion:
- Six slots for any I/O and serial communications expansion
- One slot for Ethernet expansion

Operating System:
- Embedded Linux

Memory:
- FLASH 32MB (Max)
- SDRAM 40MB (8MB of which is dedicated to the DSP)
- SD FLASH slot

Power Supply:
- Integrated power supply unit (non-isolated: 24V DC, isolated: 12V, 24V, 48V, 110V, 125V and 220V DC options)

LCD:
- High contrast 128x64 pixel display

Dimensions:
- 286mm x 255mm x 149mm

Options

I/O Expansion Modules:
- 16 optically isolated digital inputs[1]
- 6 digital outputs
- 4 DC analogue inputs[3]
- 8 DC analogue inputs[3]
- 3 AC voltage/3 AC current inputs (150/325V options; universal 1A/5A)
- 3 AC current inputs (universal 1A/5A)
- 6 AC current inputs (universal 1A/5A)

Communications Expansion Modules:
- 4 RS232/485 serial ports
- 4 FO serial ports
- 10/100 BaseT(X) Station bus (2 Ports)
- 100 Base FX Station bus (2 Ports)
- 10/100 BaseT(X) Station bus plus Process bus (2+2 Ports)
- 100 Base FX Station bus plus Process bus (2+2 Ports)

Power Supply Unit:
- Integrated intelligent battery charger

GPS:
- Integrated GPS receiver

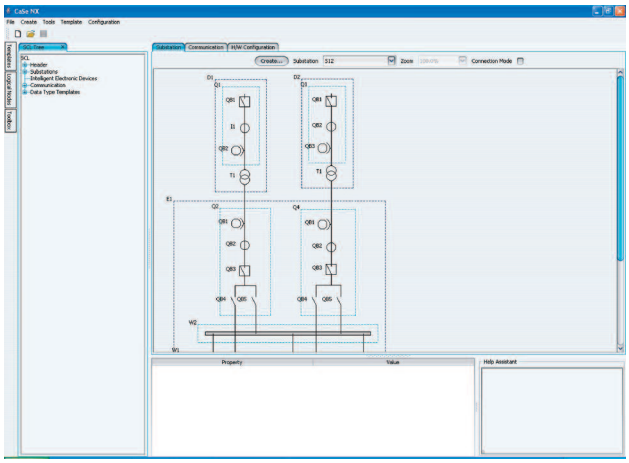
Memory:
- SD FLASH expansion card

Typical Applications

- Remote Terminal Unit
- SCADA
- Automation
- Programmable Logic Controller
- Events Recorder
- Power Quality Monitor
- Digital Fault Recorder
- Intelligent Electronic Device
- Plant Condition Monitor
- Electronic Meter
- Data Logger
- Trend Recorder
- Phasor Management Unit
- Data concentrator
- Communications Gateway
- Protocol Converter

[1]12V (8–18V), 24V (16–36V), 48V (30–72V), 110V (75–170V) and 220V (150–300V). [2]Unipolar 0 to 20mA. [3]Unipolar or bipolar, 0 to ±5V or 0 to ±20mA.

Engineers Tool Kit



CaSE nx

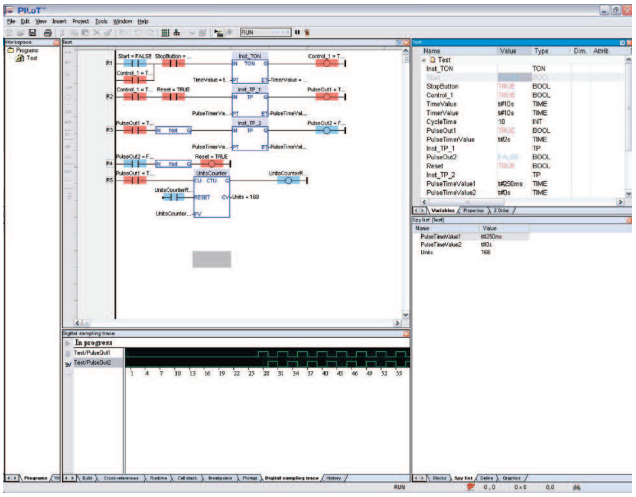
Callisto[nx] Configuration Tool:

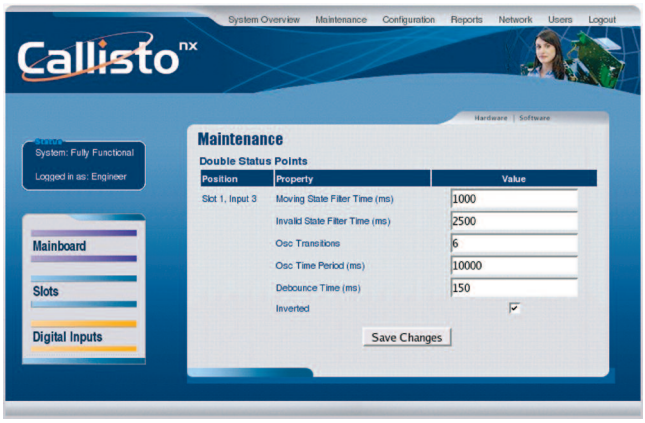
- PC-based
- Platform-independent
- Online/offline configuration
- View/edit/configure other IEC 61850 compliant devices
- Supports both download and upload of configuration data
- Extensive library of substation 'templates' for getting started
- Top-down approach to configuration, starting from the substation architecture

PILoT nx

IEC 61131-3 Logic Tool:

- Supports all 5 programming methodologies ('function block diagram', 'ladder diagram', 'instruction list', 'structured text' and 'sequential function chart')
- Automatic logic transfer between methodologies
- Integrated online/offline debugging and simulation
- Logic Editor available in English, German, French, Italian and Spanish





View nx

Web Server

View[nx], an integrated web server, makes it possible to browse Callisto[nx] locally or remotely to access performance and operation. Access is achieved using secure user and password identification on platform independent browsers such as Explorer 7, Firefox and Netscape. View[nx] enables the secure modification of the unit's configuration parameters and supports comprehensive diagnostic facilities for monitoring, exercising controls and viewing communications activities.

Compliances

Callisto^{nx} is CE marked to confirm compliance to European Commission directives.
Verification type testing is carried out by approved independent test houses and applicable certificates are available upon request.

EMC

General
- IEC 60870-2-1

Fast Transient Bursts
- IEC 61000-4-4 (Level 4, PSU: Level X, 4kV)
- IEC 801-4 (Level 4)
- IEC 60255-22-4 (Class 4)
- ANSI/IEEE C37.90.1

Oscillatory Transient
- IEC61000-4-12 (ring wave: Level 4, oscillatory wave: Level 3)
- ANSI/IEEE C37.90.1
- IEC 60255-22-1 (Class 3)

Surge Immunity
- IEC 61000-4-5 (Level 4, AC voltage inputs: Level 4 & Class 5)

High Voltage Impulse
- IEC 60060-1 (5kV, 0.5J)

Insulation and Isolation
- IEC 60255-5 (rated insulation 500V, 2.5kV dielectric, 5kV impulse)

Electrical Disturbances
- IEC 60255-22-1 (Class 3)

Electrostatic Discharge
- IEC 61000-4-2 (Level 4)
- IEC 60255-22-2 (Class 4)

Radiated Immunity
- IEC 61000-4-3 (Level X, 35V/m)
- IEC 60255-22-3 (Class 3)
- IEC 801-3 (Class 3)
- ENV 50204 (Level X, 35V/m)
- IEEE C37.90.2

Conducted Immunity
- IEC 61000-4-6 (Level 3)
- IEC 61000-4-16 (Level 4)

Harmonic Emissions/Flicker
- IEC 61000-3-2

Magnetic Field Immunity
- IEC 61000-4-8 (Level 4)

Pulse Magnetic Field
- IEC 61000-4-9 (Level 5)

Damped Oscillatory Magnetic Field
- IEC 61000-4-10 (Level 4)

Operating Voltage
- IEC60255-6

Voltage Dips/Fluctuations
- IEC 61000-4-11
- IEC 61000-3-3

DC Supply Interruption
- IEC 60255-11
- IEC 61000-4-29

AC Ripple on DC Supply
- IEC 60255-11 (12%)
- IEC 61000-4-17 (Level 4)

Generic Immunity
- EN 50082-1

Generic Immunity Industrial Environment
- IEC 61000-6-2

Radio Disturbance Conducted & Radiated
- EN 55022 (Class B) installed in typical enclosure

Low Voltage Directive
- 93/68/EEC

Environmental

General
- IEC 60870-2-2 (Class C3)

Temperature
- IEC 60068-2-1 (–40°C)
- IEC 60068-2-2 (+70°C)
- IEC 60068-2-14 (1°C/min)

Relative Humidity (non-condensing)
- IEC 60068-2-3 (95% at 40°C, 10 days)
  IEC 60068-2-30 (55°C, 6 days)

Composite Temperature/Humidity
- IEC 60068-2-38

Air Pressure
- IEC 60068-2-13 (55kPa and 110kPa)

Vibration
- IEC 60068-2-6 (2g)
- EC 60255-21-1 (Class 2)

Shock
- IEC 60068-2-27 (15g)
- IEC 60068-2-29 (15g)
- IEC 60255-21-2 (Class 2)

Seismic
- IEC 60255-21-3 (Class 2)

Free Fall Test (non-operational)
- IEC 60068-2-32

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