

SCADA for Electricity Distribution and Generation Automation

Overview

The automation of the power grid requires the use of SCADA systems for local and remote control of each substation or generation plant. **iControl** application can be adapted to any customer need, from small substations to complete grids, always working on a same environment.

iControl is specially designed for the energy sector, with a simple interface for its operation and configuration, fitting on any utility control need, regardless of the communication protocol, the type of RTU to connect to, or the architecture (standalone, client/server or redundant), thanks to the use of several standard protocols which allow the complete interoperability between vendors.

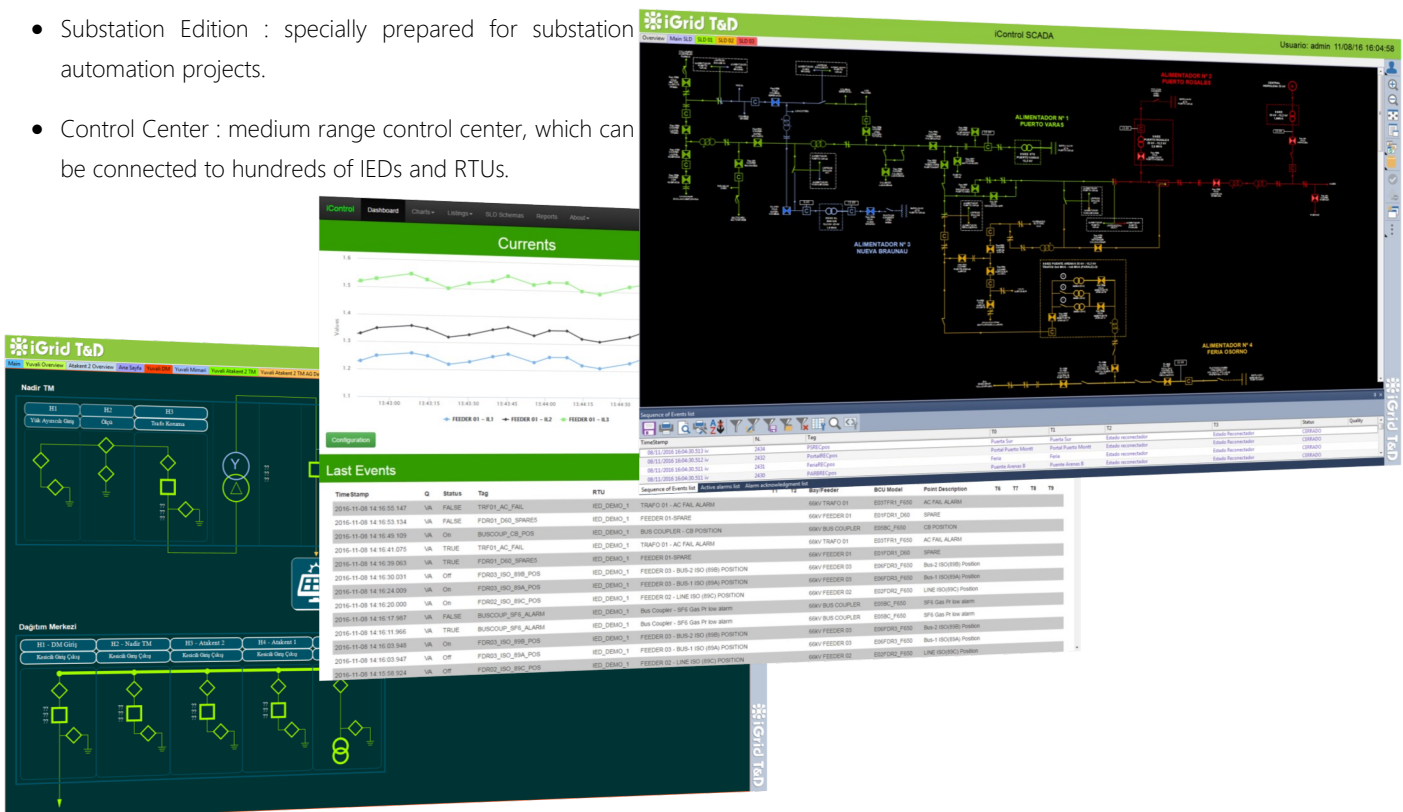
Editions

iControl offers a wide range of editions, with different capabilities and features in order to be adapted to the project requirements, on both price and performances :

- HMI : for controlling locally a substation bay.
- Substation Edition : specially prepared for substation automation projects.
- Control Center : medium range control center, which can be connected to hundreds of IEDs and RTUs.

Features

- SCADA focused on the control of energy projects.
- Easy to use SCADA system fitting any project's needs.
- Manage multiple communication protocols simultaneously, both master and slave, from simple Modbus to IEC 61850 (MMS & GOOSE), or control center based, like IEC60870-5-104/101, Modbus or DNP3.0.
- Allows adaption to any schema or architecture, from standalone systems, to complex redundant schemas with remote clients and SQL data storage.
- Generation of customized reports, which can be triggered periodically or due to any kind of event/alarm.
- iControl web viewer gives the flexibility to display the SCADA in real time using an Internet browser, but with all the safety requirements to block any dangerous activity.



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Busbar coloring

Also known as Topological Coloring or Automatic Line Coloring (ALC), allows easy automatic coloring of electrical lines based on topology of the grid and voltage level. Lines (busbars and connections) and graphical components (circuit breakers, isolators, transformers, etc.) are colored using pre-configured colors, based on the energization status: energized (under power), not energized (not feeded), and grounded. In the energized case, the lines and elements may be colored using two modes:

- Energy-based: coloring according to voltage level. Lines may be displayed in different colors depending on voltage level.
- Flow-based: coloring according to the power flow. This mode allows viewing power flows (one single color per flow) when lines are energized. For example, this mode allows to display the part of the grid being supplied by the same incoming feeder with the same color.

Client/server architecture

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Redundancy

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IEC61131-3 PLC Automation

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Smart Zoom

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Easy switch from edition to runtime mode

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SQL and reporting

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iControl Web Viewer

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Features Description							
● Included feature ○ Optional feature Contact iGrid T&D for other iControl edition options.		HMI	Substation Automation Lite	Substation Automation Plus	Control Center Lite	Control Center Mid	Control Center Plus
Data Storage	CSV Data Storage	●	●	●	●	●	●
	SQL event logging + advanced reporting		○	●	●	●	●
	iControl Web server		○	○	○	●	●
Maintenance	E-mail alarms	●	●	●	●	●	●
	SMS alarms (needs an external SMS send system)				●	●	●
Number of RTUs and IO points	Up to 1 RTU / 1500 IO (for HMI iControl Edition)	●					
	Up to 3 RTU / 6.000 IO		●	●			
	Up to 6.000 I/O (unlimited RTU)				●		
	Up to 200 RTU / 15.000 IO					●	
	Up to 8000 RTU / 450.000 IO						●
Communication Protocols	Master/Slave IEC60870-5-101 Master/Slave IEC60870-5-104 Master/Slave DNP3.0 Master/Slave ModbusRTU Master/Slave ModbusTCP/UDP Master JBUS Master IEC60870-5-103 Master IEC60870-5-102 Master DLMS Master ProfibusDP Master Procome Master IEC62056-21 Master/Slave SNMP	●	●	●	●	●	●
	Client/Server IEC61850 MMS Publisher/Subscriber IEC61850 GOOSE	○	○	○	○	○	○
IEC61131-3	PLC Automation	●	●	●	●	●	●
Busbar coloring	Automatic Line Coloring	○	●	●	●	●	●
System architecture	Standalone	●	●				
	Client/server architecture: server + 2 clients		○		●		
	Server redundancy: main and hot standby servers + 1 client			●	○	●	
	Server redundancy: main and hot standby servers + 5 clients						●
Expansion options	Up to 2500 IO points	○					
	Up to 15.000 I/O points		○	○	○		
	Additional floating client		○	○	○	○	○

Specification Sheet

General	Configuration & Maintenance	Easy configuration with our free iConf tool. Command console with complete information of packet exchange, on all available protocols.	
	Edition and Runtime mode	Switching between the Edition and Runtime modes without disconnecting the system's operation.	
	Web Browser Viewer	iControl offers the option to display all the SCADA information, including schemas, listings and trends on web browser.	
	Multilanguage support	Can be easily translated to any language and alphabet.	
Architecture	Standalone	iControl is installed on a Windows based computer, used for all tasks : communication, operation, edition & storage.	
	Client/server	iControl server collects & stores all field data, using the available protocols. Listings and graphical information is offered to the iControl Clients, from where the users can operate the system. RTUs & IEDs communicate only with the server, while the operation console can be distributed on several other clients, using native applications or web browsers.	
	Redundancy	iControl can be deployed on a hot-standby configuration, with redundant servers and data bases to improve the system reliability.	
iGComms Software Application (communication front end)	Protocol communication stack	Master/Slave IEC60870-5-101 Master/Slave DNP3.0 (serial, UDP, TCP) Master/Slave Modbus TCP/UDP Master IEC60870-5-102 Master Profibus DP Master IEC62056-21 IEC61850 MMS Client/Server	Master/Slave IEC60870-5-104 Master/Slave ModbusRTU Master IEC60870-5-103 Master DLMS Master Procome SNMP Agent/Manager IEC61850 GOOSE Publisher/Subscriber
	Security	IEC 62351-3 and IEC 62351-5 support, including TLS/SSL and VPN connections.	
	IEC61131-3	Logic and PLC programming is available in iControl applications.	
	Calculations and formulas	Using iConf and LUA language simple and complex formulas can be setup.	
System	Server requirements	iControl is a low resources consumer, allowing to be executed on any computer using Windows or Windows Server, with hard disk and memory adapted to the installed features.	
Storage	CSV	Automatic storage of the sequence of events, for both digital and analog points, using CSV files, which can be opened with Excel.	
	SQL	Use of SQL data bases to store all the information gathered by iControl, making easy its later analysis.	
	Reporting	Creation of tailored reports can be automatically triggered by an event/alarm, or periodically generated. Reports are stored in the server and can be sent by email.	
Signals	Listings	User can display information in different kind of listings : • Sequence of events list • Active Alarms list • Alarm acknowledgment list • Historical events list • History of measurements list	
	Trends	User defined graphical trends can be used by the operator at any time during operation. Besides the system administrator can easily attach charts to the schemas.	
	Type of signals	Support of digital inputs, digital commands, counters, analog inputs and set points.	

Ordering information	iControl#iiiiii.abccisttw		
	iControl Edition HMI000 : HMI Edition SALite : Substation Automation Edition SAPlus : Substation Automation Edition Plus CClite : Control Center Edition Lite CCmidx : Control Center Edition Mid CCplus : Control Center Edition Plus		iControl options • a - architecture • a StandAlone • s Client/server • r Redundant • b - busbar • 0 None • b busbar coloring • cc - clients • 00 None • 01 Extra client • 02 Extra clients • nn Required extra clients. • i - IEC61850 • 0 None • i client/server license • s - SQL database • e CSV reporting • m mySQL reporting • tt - tags • 00 None • 03 +3000 extra tags • 15 +15000 extra tags • w - webserver • 0 None • w iControlWeb