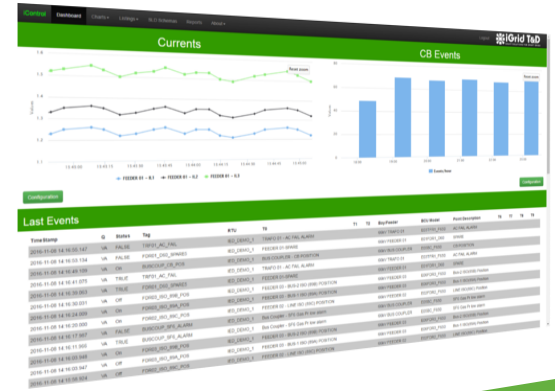
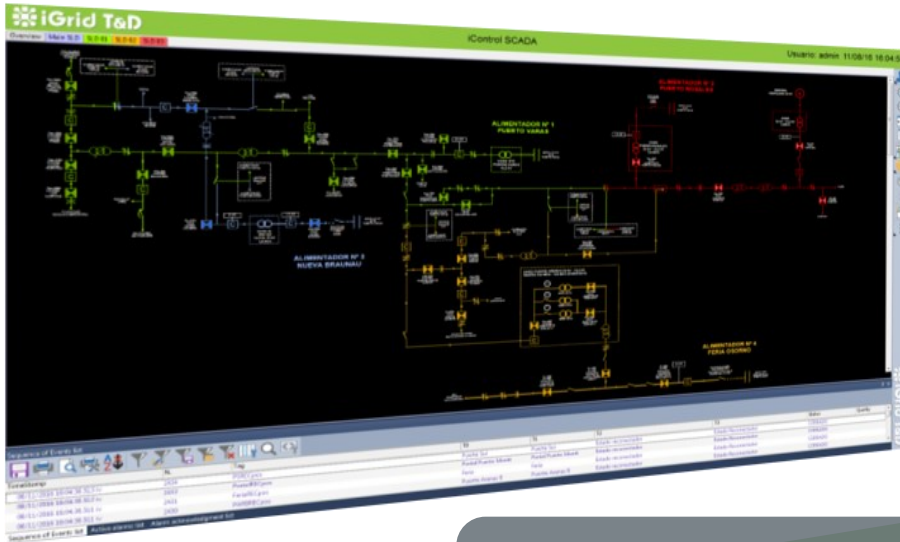




# iControl SCADA



Flexible control and automation software designed for substations, distribution grids and generation plants

## Highlights

- Easy-to-use SCADA HMI control software with all recommended features for energy applications, fulfilling industry requirements and particular demands
- Optimal Adaptation to any schema or architecture, from standalone systems to complex redundant schemas with remote clients and SQL data storage
- Generate customized reports, which can be triggered periodically or by any kind of event/ alarm
- Manage multiple communication protocols at the same time – from simple Modbus to IEC 61850 (MMS & GOOSE), both master and slave, including common protocols for control center communication, such as IEC 60870-5-104/101, DNP3.0 or OPC UA
- Display the SCADA in real time with an Internet browser using the iControl web viewer, which blocks any unwanted/ dangerous activity with integrated safety measures

## Overview

Supervisory Control and Data Acquisition (SCADA) systems are fundamental for the automation and local/remote control of generation plants and substations. iControl SCADA software is adaptable to any application requirements, from small substations and power plants to full medium voltage grids, always working in the same environment.

Our SCADA automation systems provide an intelligent HMI for real-time monitoring and control, as well as advanced data acquisition, regardless of the communication protocol, the RTU to connect to, or the architecture (standalone, client/server or redundant) in place. iControl SCADA guarantees complete interoperability and unites all important functionalities for power distribution networks, such as single-line diagrams, playback event reproduction, quality of service calculations (SAIDI & SAIFI ratios), templates or SQL database and alarm/event management. It was specifically designed for the energy sector, allowing us to create a simple and intuitive interface for the operation and configuration of substation automation systems (SAS) and distribution control centers.

## Busbar Coloring

Busbar coloring or topologic coloring is a feature that offers automatic power line coloring (ALC) based on grid topology and voltage level. The user can assign colors to the different energization statuses: energized (under power), not energized (not fed), and grounded. The lines (busbars and connections) and graphical components (circuit breakers, transformers, isolators etc.) are then colored accordingly.

In the energized case, the lines and elements may be displayed in two different modes:

*Energy-based* – coloring according to voltage level

*Flow-based* – coloring according to power flow

The latter allows distinguishing different power flows by color (one color per flow), i.e. display parts of the grid supplied by the same incoming feeder with the same color.

## Smart Zoom

The iControl smart or decluttering zoom provides an intelligent, clear overview of the entire grid, showing or hiding elements according to the applied the zoom.

## iControl Web Viewer

iControl can be monitored remotely via its web application, allowing to review all single line diagrams, schemas, listings and historical data in a comfortable way.

## IEC61131-3 PLC Automation

The iControl application includes PLC automation sequences which can be programmed using the iConfPLC software, (included in our free iConf tool) based on the IEC 61131-3 standard.

## SQL and Reporting

All the information collected and generated by iControl can be stored in an SQL database for system analyses and reporting.

iControl can also generate customizable reports by itself, which can be sent to maintenance teams, managers or engineering departments.

## Easy Switch from Edition to Runtime Mode

iControl does not require a special license to build or modify a project, but it does require the corresponding user level.

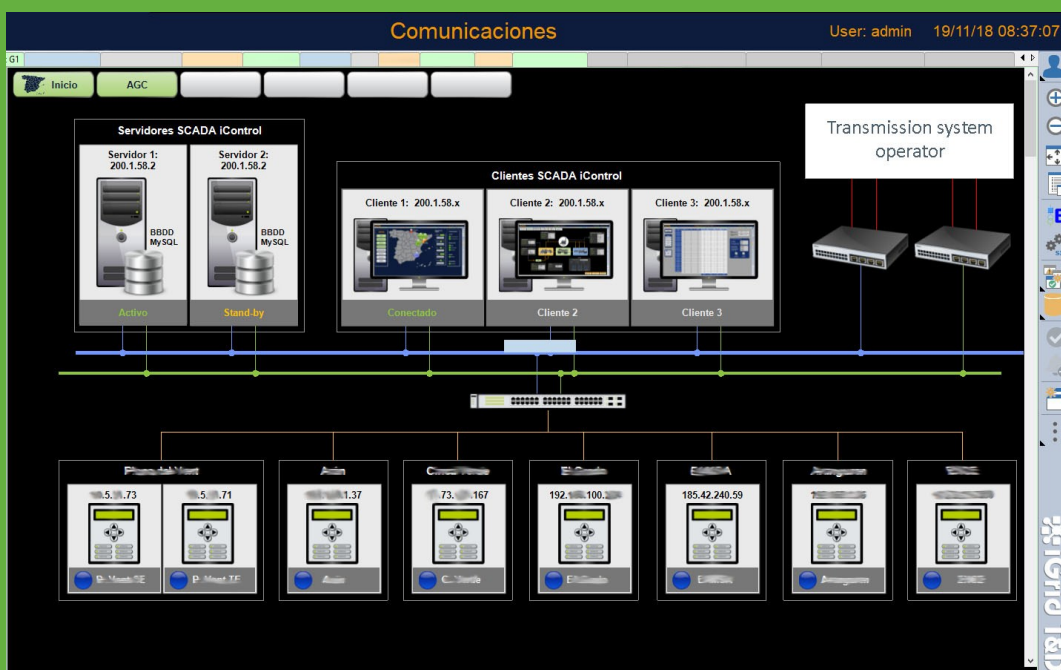
This feature is a big advantage during deployments, as the system can be modified directly on the server, without the need of any extra engineering terminal, and without losing communication with field devices.

## Client/Server Architecture

iControl can be deployed as a standalone system or in a client/server architecture, in which all the information is gathered and stored on the server station, with one or several system operators connected to the locally or remotely accessible client terminals.

## Redundancy

Critical systems depend on redundancy capabilities to ensure the necessary reliability. With iControl you can add hot-standby servers to client/server architectures. The switchover can either be triggered automatically by the active device or manually by the operator. IEDs and iControl clients are always connected to both servers, and switched automatically during switchover.



iControl can show the entire communication network in a visual schema

This makes it is easy to see the connection status of all IEDs even at short glance.

Action-calling elements, like buttons and links, allow to navigate quickly between

- Included feature
- Optional feature

|  | HMI | Substation Automation Lite | Substation Automation Plus | Control Center Lite | Control Center Smart | Control Center Plus |
|--|-----|----------------------------|----------------------------|---------------------|----------------------|---------------------|
|--|-----|----------------------------|----------------------------|---------------------|----------------------|---------------------|

Contact iGrid T&D for other configurations

### Data Storage

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| CSV Data Storage                       | ● | ● | ● | ● | ● | ● |
| SQL event logging + advanced reporting |   | ○ | ● | ● | ● | ● |
| iControl Web server                    |   | ○ | ○ | ● | ● | ● |

### Maintenance

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| E-mail alarms                             | ● | ● | ● | ● | ● | ● |
| SMS alarms (needs an external SMS system) |   |   |   | ● | ● | ● |

### Number of IEDs/ Master Stations and IO Points

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| Up to 6 IEDs/ 750 IO (for HMI iControl Edition) | ● |   |   |   |   |   |
| Up to 32 IEDs / 6.000 IO                        |   | ● |   |   |   |   |
| Up to 150 IEDs / 3 master stations/ 15.000 IO   |   |   | ● |   |   |   |
| Up to 150 IEDs/ 3 master stations/ 6.000 IO     |   |   |   | ● |   |   |
| Up to 500 IEDs/ 8 master stations/ 15.000 IO    |   |   |   |   | ● |   |
| >500 IEDs / >150.000 IO                         |   |   |   |   |   | ○ |

### Communication Protocols

|   |  |                |                |   |   |   |   |
|---|--|----------------|----------------|---|---|---|---|
| Master/Slave IEC60870-5-101<br>Master/Slave IEC60870-5-102<br>Master/Slave IEC60870-5-103<br>Master/Slave IEC60870-5-104<br>Master/Slave ModbusRTU<br>Master/Slave ModbusTCP/<br>UDPMaster/Slave DNP3.0 | Master JBUS<br>Master DLMS<br>Master ProfibusDP<br>Master Procome<br>Master IEC62056-21<br>Master/Slave SNMP | Only<br>Master | Only<br>Master | ● | ● | ● | ● |
| Client/Server IEC61850 MMS  |  | ○              | ○              | ○ | ○ | ○ | ○ |
| Publisher/Subscriber IEC61850 GOOSE   |  | ○              | ○              | ○ | ○ | ○ | ○ |
| File transfer   |  |                | ○              | ○ | ○ | ○ | ○ |
| TASE2.0 / ICCP / IEC 60870-6  |  |                |                | ○ | ○ | ○ | ○ |
| OPC UA client   |  | ○              | ○              | ○ | ○ | ○ | ○ |

### PLC Automation and Busbar Coloring

|                         |   |   |   |   |   |   |
|-------------------------|---|---|---|---|---|---|
| PLC Automation          |   | ● | ● | ● | ● | ● |
| Automatic Line Coloring | ● | ● | ● | ● | ● | ● |

### System Architecture

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| Standalone   | ● | ● | ● |   |   |   |
| Client/server architecture: Server + 1 client        |   | ○ | ● | ● |   |   |
| Redundancy: main and hot-standby servers + 1 client  |   |   | ● |   | ● |   |
| Redundancy: main and hot-standby servers + 5 clients |   |   |   |   |   | ● |

### Extension Options

|                            |   |   |   |   |   |   |
|----------------------------|---|---|---|---|---|---|
| Up to 2500 IO points       | ○ |   |   |   |   |   |
| Up to 15.000 I/O points    |   | ○ | ○ | ○ |   |   |
| Additional floating client |   | ○ | ○ | ○ | ○ | ○ |



## Protocol Stack

|   |                                      |
|---|--------------------------------------|
| Master/Slave IEC 60870-5-101                  | Master/Slave IEC 60870-5-104         |
| Master/Slave Modbus TCP/UDP and JBUS (master) | Master/Slave ModbusRTU               |
| Master/Slave DNP3.0 (serial, UDP, TCP)        | Master IEC 60870-5-103               |
| Master IEC 60870-5-102                        | Master DLMS                          |
| Master Profibus DP                            | Master Spabus, Mlink, Procome        |
| Master IEC 62056-21                           | SNMP Agent/Manager                   |
| IEC 61850 MMS Client/Server                   | IEC 61850 GOOSE Publisher/Subscriber |

## General

- Simple configuration and maintenance** with our free iConf tool.  
Command console with full packet exchange information, with all available protocols
- Quick switching between the edition and runtime** modes without interrupting the operation
- Web viewer** with iControl you can display all the SCADA information (including schemas, listings and trends) on a web browser
- Multilingual** easily translatable to any language and alphabet
- Low resource consumer**, executable on any computer using Windows or Windows Server

## iGComms Software Application (Communication Front End)

- Security** IEC 62351-3 and IEC 62351-5 support, including TLS/SSL, SSH and VPN connections
- IEC61131-3 automation** logic and PLC programming, with LD, FBD, ST and SFC editor
- LUA language** can be used to create simple and complex logic and mathematical expressions

## Data Storage

- CSV file** to automatically store the sequence of events (SOE) of digital and analog points
- SQL** all collected data can be stored in SQL data bases to facilitate posterior analyses
- Reporting** customized reporting can be automatically triggered by an event/alarm, or periodically generated. Reports are stored on the server and can be sent by email

## Architecture

- Redundancy** deployable on a hot-standby configuration, with redundant servers and data bases to improve system reliability
- Client/Server** the iControl server collects & stores all field data with all supported protocols.  
The iControl Client is used to operate the system and provides the lists and graphs.  
RTUs & IEDs only communicate with the server, while the operation console can be distributed on several clients, using native applications or web browsers.

**Standalone** iControl runs on windows computers and has all the functionalities to manage an entire project:

## Signals

**Multiple list options** to display collected information:

- Sequence of events
- Active alarms
- Alarm acknowledgment
- Historical events

**Trend charts** can be user-defined, simply attached to schemas and viewed by the operator at any time during operation

**Signal types** supported by the SCADA include: digital inputs, digital commands, counters, analog inputs and set points

# Ordering Information

iControl#iiiiii

| iControl Version |                            |
|------------------|----------------------------|
| HMI000           | HMI                        |
| SALite           | Substation Automation      |
| SAPlus           | Substation Automation Plus |
| CCLite           | Control Center Lite        |
| CCsmart          | Control Center Smart       |
| CCplus           | Control Center Plus        |

## Simple Configuration with iConf

iConf has been specifically developed for electrical applications, saving you lots of time and money throughout the control system set-up and maintenance tasks, whilst also minimizing your project risks. **Upload** and **download** your configurations, import or scan **SCL files (61850)** and create your own templates.

## Optional Features

- Tags**  
adjust the number of tags to your needs
- IEC 61850**  
choose to have IEC 61850 capabilities
- Web Server**  
access your SCADA through the secured
- SQL Database**  
store your data comfortably with my SQL reporting
- Clients**  
add as many extra clients as you want