



LYNX

Supervisory Control And Data Acquisition Distribution Management System Energy Management System

Introduction

Software applications developed by GILLAM-FEI in the field of remote control have first-rated competitive advantages, resulting from more than thirty years of developments.

The kernel of this application suite is the **LYNX**, a software dedicated to the supervision and control of devices from operator stations (RTU or PLC), either produced by GILLAM-FEI or supplied by other manufacturers. **LYNX** allows data collecting and processing (including analysis of outages affecting grids). The hardware and software configurations allow to meet the most stringent requirements in terms of reliability and user interface.



A multi-sector application

The **LYNX** software is a **SCADA** application dedicated to the remote control of several types of networks : mainly **electricity, gas and water distribution** networks. Indeed, **LYNX is an object-oriented application**, allowing to manage different types of objects for different types of networks. The system allows from **a unique database** to manage **these different techniques** simultaneously. The definition of **users rights** is managed partly from the technique associated to it.

- **For electricity distribution networks** : objects such as circuit breakers, disconnectors, bus bars and any other object related to electrical networks
- **For the remote control of Middle Voltage and Low Voltage electricity distribution in the airports** : objects specific to this type of application such as protection relays and lighting areas are added and managed by our application.
- **For water distribution networks** : water extraction, wastewater treatment plants. In addition to the functions specific to this type of processes (extraction, filtering, ozonation, distribution, ...), the system can also perform the control of the high voltage supply for this type of power plant.
- **To control remotely hydroelectric power plants** : valves adjustment, adjusters positions, screen raking, regulation of turbines, etc...)
- **To control remotely gas networks** : valves, pressure transducers, flows, etc...



- **For remote control of the electric traction fixed facilities for railways networks:** Objects specific to this application type such as catenaries network sections are also managed by our application.
- **For building management :** breaking and entering, supervision, intrusion, fire detection, air conditioning, ...
- **For remote management of data transmission networks.**
- **For remote management of multi-tasks infrastructures :** Electricity, Water, Gas and remote control in the same field, etc 0

Remote control, support to the control

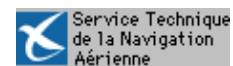
- **A complete application suite : LYNX is composed of a real time supervisor, off-line environment for the simulation, drawing editor tool, and a parameterization tool for data base edition.**
- **Users access rights :** the different modules as well as the multi-tasks have a high secured access.
- **Intuitive interface :** the drop-down menus of the banner call the main functions. A customized pop-up by type of object allows the actions.
- **Standard Lists :** All lists allow sorting, printing and export to Windows softwares. The content of these lists is configurable. Among these ones: Log book, black box, alarms, objects, stations, ...
- **User lists :** The software allows the operator to create its own user lists.
- **Analog input recording :** The AI are recorded and can be displayed either graphically or tabular.
- **Analog input real time display :** the AI can be displayed in real time in various formats : value, vu-meter, graph-bars, graphic or animated objects.
- **Alarms management :** The setting off the alarm starts up a buzzer, blinking and colours the concerned object in the drawing, increments the call button of the alarms list, logs the log book and the concerned lists with a 1/1000 seconds timestamping.
- **Navigation :** Very complete functions allow to navigate in the pictures : navigator, progressive zoom, call button, ...
- **The System status map :** this dynamic drawing supervises every devices of the system.



Privileged Partners



Some main Customers

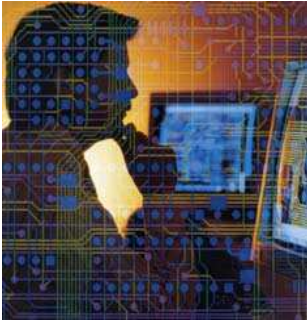


Mont Saint-Martin 58—B-4000 LIEGE—BELGIUM
 Tel.: +32 (0) 4 232 95 95—Fax : +32 (0) 4 223 42 76
 Email : info@gillam-fei.be—internet : www.gillam-fei.be



A complete software application suite LYNX SCADA / EMS / DMS Modules

The **LYNX** software is built on a open and modular architecture, and on a high structured relational data model, allowing the system to be flexible and powerful. It is composed of several complementary modules enabling data collections as well as their processing with advanced DMS/EMS functionalities.



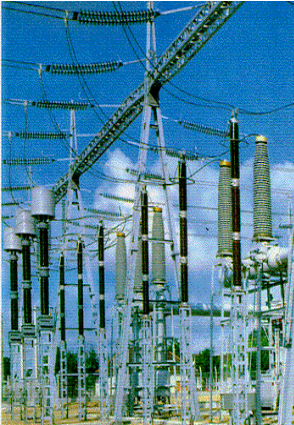
SCADA Modules :

- **Lynx RT** : kernel of the application, it includes the DynSpv monitoring and control software
- **Lynx M/S** : master/slave function to handle the configurations with redundant servers
- **Lynx DTKON** : on-line version of « Development tool kit » which includes the DynCad drawing tool as well as the Data base manager system MenuElec and MenuSystem
- **Lynx DTKOF** : off-line version of « Development tool kit » which includes the DynCad drawing tool as well as the Data base manager system MenuElec and MenuSystem
- **Lynx ARCHI** : module which enables to manage the storage of long-term analogue measurements
- **Lynx PO** : the operator workstation module is used for any additional graphical user interface
- **Lynx DEPORT** : for deported operator stations
- **Lynx WEB** : for connection via internet explorer
- **Lynx VERBD** : the database release management module is used in common with an off-line management of the data configuration
- **Lynx CFE** : the communication drivers are numerous and available upon request
- **Lynx MCO** the operator book module enables to manage in optimum conditions the link between one operator and another one
- **Lynx SOE** : the sequence of events module enables to create complex sequences of actions to run them afterwards in real time

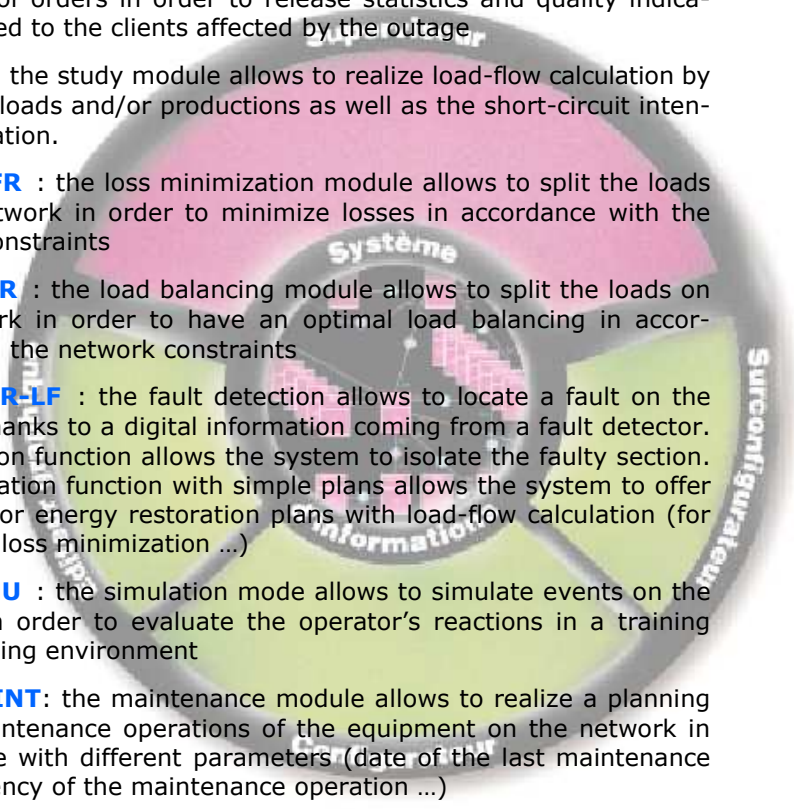


A complete software application suite LYNX SCADA / EMS / DMS Modules

DMS/EMS Module :



- **Lynx COLO** : the dynamic colouring allows to manage topology/ voltage follow-up according to different criteria (colouring by feeder, by transformer, by voltage levels ...)
- **Lynx TRA** : the trace allows to follow the upstream or downstream propagation on the grid, according a selected segment
- **Lynx OM** : the quality module allows the recording of every event following a tripping on the network until the complete restoration of the part affected by the event. This tool allows then to re-play the sequence of orders in order to release statistics and quality indications related to the clients affected by the outage.
- **Lynx LF** : the study module allows to realize load-flow calculation by modifying loads and/or productions as well as the short-circuit intensity calculation.
- **Lynx LMFR** : the loss minimization module allows to split the loads on the network in order to minimize losses in accordance with the network constraints
- **Lynx LBF** : the load balancing module allows to split the loads on the network in order to have an optimal load balancing in accordance with the network constraints
- **Lynx FDIR-LF** : the fault detection allows to locate a fault on the network thanks to a digital information coming from a fault detector. The isolation function allows the system to isolate the faulty section. The restoration function with simple plans allows the system to offer the operator energy restoration plans with load-flow calculation (for example : loss minimization ...)
- **Lynx SIMU** : the simulation mode allows to simulate events on the network in order to evaluate the operator's reactions in a training and schooling environment
- **Lynx MAINT** : the maintenance module allows to realize a planning of the maintenance operations of the equipment on the network in accordance with different parameters (date of the last maintenance and frequency of the maintenance operation ...)
- **Lynx DELEST** : the load shedding module allows to realize a weighted unloading/reloading of the loads in accordance with ranks assigned to different kinds of clients
- **Lynx ET** : state estimator module for HV and MV networks allows to calculate a quality index of input values (topology, measures) and to calculate an estimate of the observed data





LYNX SCADA / DMS / EMS Strong Assets

Openness and modularity

- Standard design possibilities : C, C++, TCL/TK
- Possibility of managing multiple standard/proprietary protocols
- Complete solution
- Open and modular application
- Easy interfacing with existing data
- Upgradable hardware architecture
- Object oriented technology (circuit breakers, transformers, relays, valves, ...)
- Possibility to manage several hundred thousands of objects/points
- Modular application / possibility to manage and import existing database
- Interoperability with other relational database (Oracle, ...)
- Possibility to manage and import existing database, for example LS 3000, LS3200, Micro-SCADA, SPECTRUM, TG8000
- Recovery of map files (in a DXF format) from Autocad
- Interface with market software modules (PRAO, software for network planning, GIS)
- WEB interfaces for data consulting, the configuration and treatment if allowed.
- Remote maintenance possibility (via VPN or RTC connection)

A standard and upgradable architecture

- Client—Server Architecture
- UNIX / LINUX operating system for server, Linux/Windows for all operator station
- Hardware used from state of the art manufacturer (HP, Dell, ...) : servers, workstations, laptops, laser printers, dot-matrix printers
- X11 graphical interface
- Relational database used : POSTGRESQL (without any associated licence cost)
- Data transfer through ODBC links between Lynx and office standard applications
- Redundant acquisition and application servers (hot stand-by)
- Possibility to use an archiving server
- Possibility of integration at simple or redundant LAN Ethernet network
- On the field laptops
- Deployed operators stations
- Interface with other remote control systems via standard protocols
- External Synchronization (GPS, DCF77, ...)
- Multi-screen operator stations, management of retroprojection and/or alphanumeric displays management

Management of standard and proprietary protocols

- Standard protocols management with RTU's : ISO/IEC 60870-5-1, ISO/IEC 60870-5-3, ISO/IEC 60870-5-4, DNP 3.0, Modbus, HNZ PA4, PA20, JBUS time stamped or not, S-BUS, SNMP, TCP/IP
- Exchanges between control centres : ICPP Tase 2 and TCP/IP
- Proprietary protocols management with RTU's : TELEGYR (TG709, TG800, TG809), SIEMENS S5 et S7, ABB RP571, SAIA