

# CONTROL SYSTEMS



**Combustion Control  
Burner Management Control  
Balance of Plant Equipment Control  
Supervisory Control and Data Acquisition**

# CONTROL SYSTEMS

## Lipten Energy Plant Control Systems – *A Smarter Control Panel*

Just as your brain keeps your heart pumping, your lungs filled with air and your body in motion, your energy plant's central control system keeps your facility alive.

With dozens of new energy centers constructed, and hundreds more upgraded, at Lipten, we understand the importance your central energy plant control system plays in the "health" of your facility. So much so, that we design, engineer, build and program all of our energy control systems.



Lipten is an industry leader in the design and development of central energy plant control systems, with nearly 30 years experience and more than 400 CombustionPac™ installations in the field.

Lipten control panels set the standard for industry with their larger color touchscreen interfaces with trending and data logging, intuitive controls, rugged NEMA enclosures and the use of non-proprietary, off-the-shelf PLC components.

And, with the all new line of LT series control systems, you could say that our control panels aren't just engineered better, but engineered "smarter".

*COMBUSTIONPAC™ LT*

*MASTERPAC™ LT*

*COMBUSTIONPAC™*

*MASTERPAC™*

*SCADAPAC™*



Single Point Positioning

Parallel Positioning

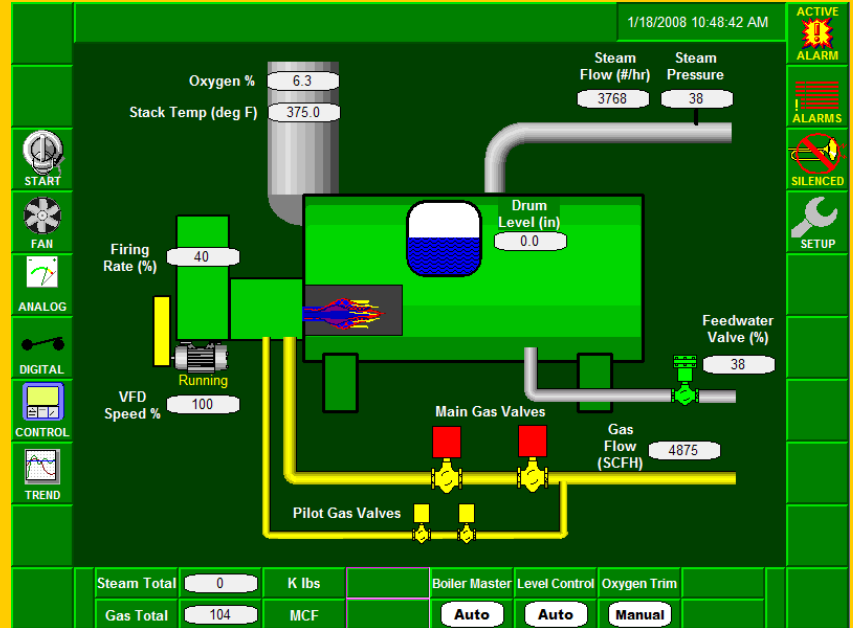
Cross Limited Full Metering

## STANDARD FEATURES

- Integrated Burner Management System
- Single Point combustion control
- PLC based BMS and CCS
- Rugged NEMA 12 enclosure
- 10" Color Touch Screen
- Fully adjustable pre-purge and post purge times
- Ethernet Communications
- NFPA 85 compliant

## OPTIONS

- Parallel Positioning combustion control
  - air damper actuator
  - register actuator
- Full Metered combustion control
  - Air Flow meter
  - Gas Flow meter
- Drum level control (1 or 2 element)
  - Drum Level Transmitter
  - Steam Flow meter
- Oxygen Trim
- Dual fuels w/ atomizing media control
- Combustion Air Fan VFD



Based on micro-sized programmable logic controllers, the **COMBUSTIONPAC™ LT** brings a new level of flexibility to packaged boiler control systems. Straightforward configuration templates on the versatile touch screen interface allow fast setup for a variety of boiler arrangements. From simple jackshaft control to full-metered with Oxygen trim, the **COMBUSTIONPAC™ LT** can cover a wide range of combustion control scenarios. Add one or two element drum level control and the **COMBUSTIONPAC™ LT** is up to most any boiler control task.

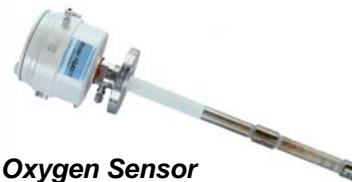
## ACCESSORIES



UV Flame Scanner



Control Actuator



Oxygen Sensor



Differential Pressure Transmitter



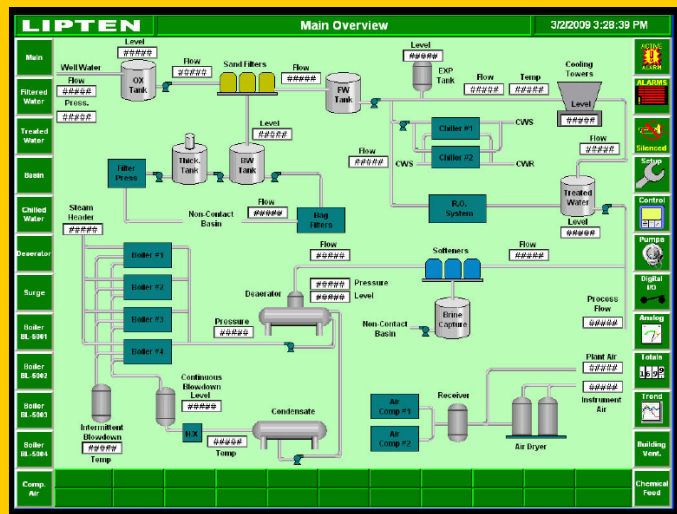
IR Flame Scanner



Pressure Transmitter

## STANDARD FEATURES

- Programmable Logic Controller Based
- 10" Touch Screen Operator Interface
- Ethernet Communications
- Alarm Horn & Beacon
- Rugged NEMA Enclosure
- Trending, Alarms & Data Display
- Control Faceplate Tuning & Monitoring
- Fast Turnaround
- 12-month Warranty



## CUSTOMIZABLE CONTROLS

- Plant Master Functions
- Feedwater Control
- Boiler Lead/Lag Control
- Deaerator Tank Control
- Surge Tank Control
- Emergency Generator Monitor
- Custom Labeling and Packaging

The **MASTERPAC™LT** system brings balance of plant control to a new smaller form factor. While not as powerful as its big brother, it still brings a rounded suite of control features to meet the needs of many energy plants.

The **MASTERPAC™LT** integrates Plant Master Steam Header Pressure Control or Hot Water Generation Master Temperature Control with fired unit Load Demand. The system is also capable of control and monitoring functions over other balance of plant systems such as deaerators and condensate receivers. Through a large 10" color touch screen display, access to all operating and control parameters are available. Like all Lipten Control Systems, standard hardware is utilized to keep costs low, while offering the greatest flexibility and availability.

A Lipten **MASTERPAC™LT** can also capture data which can be exported to a building control or SCADA system and processed to generate reports, record and tune loops for optimum efficiency.

## AVAILABLE OPTIONS

- Alternate PLC Manufacturers
- 480V/3/60 Fused Power
- Disconnect
- Electric/Pneumatic Actuators
- Instrumentation
- Control Valves & Actuators
- Communication Protocols
- Extended Warranty
- Startup & Commissioning Services
- Procurement of Equipment
- Turnkey Applications
- Custom Applications

- **Single Point Positioning**
- **Parallel Positioning**
- **Full Metering**
- **Cross-Limited Metering**

With over 400 units in the field and nearly 30 years experience, Lipten leads the industry in providing standard Programmable Logic Controls in combustion applications. The ability to use embedded trend graphs combined with real-time boiler status allow for optimum combustion controls, improved fuel efficiency and reduced emissions through the Combustion Control and NFPA compliant Burner Management System.

A color touchscreen display provides a single point graphical interface to all boiler operating controls, which simplifies operation. The use of standard off-the-shelf PLC components and Ethernet communications help keep initial costs down while assuring the availability of parts for future system upgrades.

A Lipten **COMBUSTIONPAC™** Boiler Control System can be tailored to meet any need including gaseous, liquid or solid fuels, steam or hot water generation, and multiple burners. It is truly the most flexible boiler control system on the market.



- **Plant Master Control**
- **Feedwater Control**
- **Treated Water Control**
- **Steam Header Pressure Control**
- **Condensate Return Control**
- **Sampling System Control**

**MASTERPAC™** Control systems integrate Plant Master Steam Header Pressure Control or Hot Water Generation Master Temperature Control with fired unit Load Demand.

The Systems are also capable of complete control and monitoring functions over all Balance of Plant systems through a graphical interface on a color touchscreen display. Access to all operating and control parameters are available through this interface.

While you can count on improvements in overall operations, a Lipten **MASTERPAC™** Control System can also improve tuning through its ability to capture data which can be utilized by your SCADA system. This data can be exported and processed to generate reports, tune loops and record for optimum efficiency.

And, like all Lipten Control Systems, standard hardware is utilized to keep costs low, while offering the greatest flexibility and availability.

## CUSTOMIZED CONTROLS

- **Local Boiler Control**
- **Feedwater Control**
- **Air/Fuel Control**
- **Oxygen Trim Control**
- **Local Trending & Alarming Packages**
- **DCS Interface**
- **Coordinated Lead-Lag Systems**
- **Remote I/O Communications**
- **Custom Labeling and Packaging**
- **Optional NEMA 4X Stainless Steel Enclosure (shown)**

## CUSTOMIZED CONTROLS

- **Plant Master Functions**
- **Feedwater Control**
- **Boiler Lead/Lag Control**
- **Softener System Control**
- **Reverse Osmosis Control**
- **Deaerator Tank Control**
- **Surge Tank Control**
- **Fuel Oil Tank Management**
- **Emergency Generator Monitor**
- **Remote Panels**
- **Custom Labeling and Packaging**
- **Chiller Monitoring**



- Boiler Overview
- Balance of Plant Overview
- Facility Overview
- Cooling Tower Overview
- Chiller Overview
- Compressor Overview
- Fuel Oil Storage Overview

A complete Powerhouse Supervisory Control and Data Acquisition (SCADA) System rounds out Lipten Company's control system offerings. As always, each system is designed using standard PC hardware, standard Windows Operating Systems and industry standard HMI (Human Machine Interface) software platforms to keep costs down, maximize system flexibility and component availability.

With the Lipten **SCADAPAC™** system, complete facility monitoring and control can be accomplished from a central control room or from a remote location. Data capture and historical archiving of real time data can be exported for analysis. Multiple data trending allows operators to optimize the tuning loop or to utilize historical data to aid in identifying changes to systems operations.

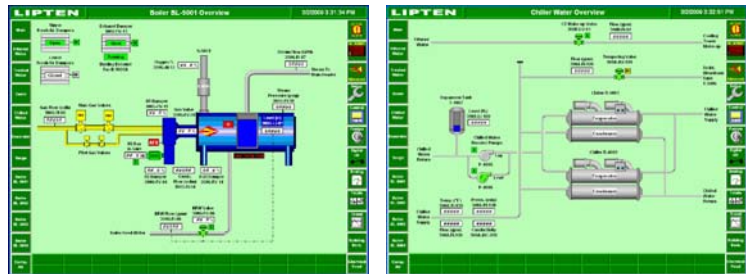


When one of our off-the-shelf control package simply can't meet your requirements Lipten can provide a ground up custom design for the exact solution to your Energy Center control needs.

Our custom designed control systems employ the latest digital controls technology (PLC, DCS & SLC), which can be interfaced with other systems to enhance overall efficiency. These systems are designed in close



cooperation with your engineers after a careful assessment of your needs. Your system is built and factory tested to the most stringent requirements.

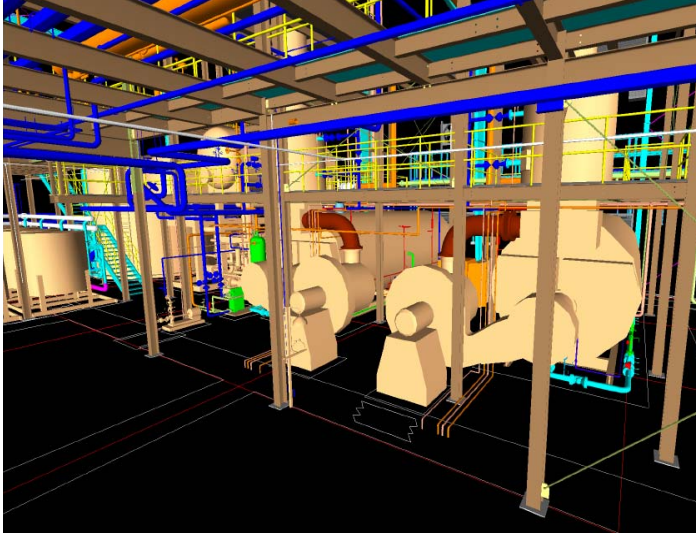


Meanwhile, Lipten's talented software professionals develop the PLC logic programs and HMI screens that



bring your plant floor to your fingertips. After that is done, we will train your operations personnel, provide complete and concise documentation and offer all other necessary assistance to assure your facility operates just the way you want it.

# THE LIPTEN ADVANTAGE



From concept to construction, Lipten has earned the reputation within the industry as the “Hands-On EPC Energy Solutions™” company, helping hundreds of clients across North America achieve their goals.

From Central Energy Plant Control Systems to turnkey Bio-Mass Energy Center EPC solutions, Lipten is your best choice. By providing better engineering, quotes that encompass all foreseeable costs, and project engineers that take total ownership at every phase of a project, Lipten’s experienced staff deliver innovative solutions that work.

Lipten’s 40-year record of success encompasses over 500 EPC projects for an array of institutional, municipal and industrial energy centers across the U.S. and Canada. Helping our clients implement the latest breakthrough technologies has always been an integral part of our comprehensive service.

Energy prices are continuing to rise almost daily forcing companies to reassess their energy center’s cost model. Be it coal, gas or biomass, we can offer the products and designs that achieve optimum efficiencies.



Contact your Lipten representative to find out how you could be reducing your energy center’s costs by upgrading your operations today.

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supervisory control and data acquisition

biomass

boiler control systems

turnkey

central energy plant control systems

*SCADA*PAC™

*MASTER*PAC™ *LT*

steam

touch screen

design build

procurement

CAD

coal

[www.lipten.com](http://www.lipten.com)

boilers

**Energy Solutions**

combustion control

construction

*COMBUSTION*PAC™ *LT*

NEMA

accountability

energy centers

*MASTER*PAC™

EPC

chillers

*COMBUSTION*PAC™

engineering

balance of plant equipment control

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