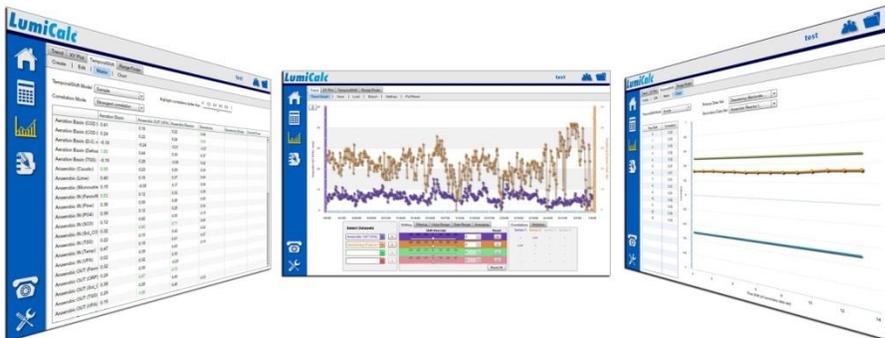


### Product Overview

LumiCalc is a hybrid cloud-based data analysis and collaboration application. Combining the best of both desktop and cloud based application worlds, LumiCalc provides the flexibility of desktop software with the reliability and secure data sharing capabilities of cloud computing.



This **time-saving** new tool delivers significant benefit for all water processes, including wastewater treatment, industrial manufacturing processes, chemical product manufacturing, energy applications, and water treatment. Combined with LuminUltra's 2<sup>nd</sup> Generation ATP test kit product line, this powerful tool will allow you to:

- ✓ Gain early warning of when processes deviate from control targets that can impact your bottom line.
- ✓ Filter the mass of data to only those parameters that are important to you in your position.
- ✓ Gain controlled access to your process information in real-time through a user-friendly interface.
- ✓ Collaborate with your colleagues and LuminUltra's experienced support staff to solve problems quickly, efficiently, and proactively.
- ✓ Identify opportunities for improvement through revolutionary data analysis tools.
- ✓ Operate and control LuminUltra's PhotonMaster™ luminometer.

### Features & Benefits

**Data Input and Management:** LumiCalc has been designed to operate the PhotonMaster luminometer to greatly simplify ATP data collection. LumiCalc is also capable of reading formatted spreadsheet files for quick and easy input of all your data for further analyses. For your convenience, you can also input ATP test data from any luminometer manually.

**Data Graphing & Analysis:** LumiCalc has been designed using state-of-the-art statistical process analysis and graphical tools, which allow the delivery of complex data in an easy to understand, aesthetically-pleasing format. Gone are the days of pouring over countless rows and columns of data trying to find the 'needle in the haystack'. By leveraging the power of 2<sup>nd</sup> Generation ATP technology in conjunction with a superior graphical interface, users can now mine their data in record time to determine the true state of their processes!



**Tremendous Time Savings:** Current methods of data analysis and management generally involves the use of spreadsheets, which is a time consuming and complicated process requiring that the user scan over endless rows and columns of data. Then, the user must spend hours generating customized graphs or complicated mathematical formulas to develop findings and share with colleagues. LumiCalc reduces **hours to minutes** through a user-friendly graphical interface that delivers the content you need, which you can then share with a click of a button. LumiCalc will even provide you with an estimate of time saved over traditional analytical methods!

**Power in Collaboration:** LumiCalc leverages today's collaboration standards to allow for immediate sharing of information among co-workers or authorized users, directly within the software. Found an interesting item within a graph that requires a closer look? LumiCalc's powerful collaboration features provide a secure means of discussing your data with your team in real-time to quickly solve issues and take action.

**Security:** In today's world, security of your data is extremely important. Standard methods of sharing raw spreadsheet files and reports via email or removable media create significant security risks. All collaboration within LumiCalc is done using highly-secure encrypted transfers, and best of all, your data is backed up at all times to ensure protection against system failure.

## Comparing LumiCalc to Conventional Methods

Conventional methods of data analysis and management include using complicated systems to collect and store data from various sensors and off-line measurements. User interaction with this data is generally via spreadsheets, which require error-prone and time consuming data review methods. Furthermore, raw files and reports are emailed or copied to portable media devices, which creates security risks.

By contrast, LumiCalc empowers its users through a unified data management and analysis system that will integrate and compile data from your current systems into a single location. Rather than scanning over endless rows and columns of data to determine the status of your process, LumiCalc provides user-friendly graphic interfaces to deliver the content you need, when you need it.

LumiCalc provides enhanced security by allowing data to be shared with others via highly secured, encrypted methods. **You always maintain control of your data, because it stays on your computer unless you authorize it to be shared.** For redundancy, your data can also be backed-up to the LumiCalc cloud server where it is stored securely and can be retrieved by you if something should happen to your computer.

Using the principle, you can choose to share your data with anyone you choose by creating a copy of your data and storing it on a secure server location. You choose and manage who can have access to your shared data and can revoke permissions or remove your data at any time. Unlike email, your data is secure at all times.

## Product Comparison – Free vs. Paid

For your convenience, we offer two options for the use of LumiCalc:

- ✓ **Free** – the free version of LumiCalc is provided by default to all current LuminUltra customers\* holding valid accounts. All users accessing the free version are provided with an introductory 30-day free trial of the full version to explore the full power of LumiCalc. Note that the free version is sufficient to operate the PhotonMaster luminometer.  
\*Purchased equipment or supplies within the last six (6) months. Conditions subject to change.
- ✓ **Paid / Full** – the full version of LumiCalc is provided to users that pay for a license and allows access to the most powerful functions in LumiCalc, such as **Collaboration**, **Backup**, and **Correlation Finder**, plus you will gain immediate access to new program modules as they become available! Choose from three license types:

## Product Fact Sheet – LumiCalc Software Platform



- Monthly – pay on a month-to-month basis for maximum convenience.
- Annual – pay for a 1-year license and get two months free!
- Lifetime – purchase the software outright to achieve the greatest savings!

The following table compares the Free and Paid / Full versions of LumiCalc.

Feature	Free	Paid
<b>Site Management</b> Create individual databases or 'sites'. Users have full control over the sites that they own.	✓	✓
<b>Language</b> Choose your preferred language for LumiCalc from the list that we are constantly updating!	✓	✓
<b>Automatic Updates</b> When updates become available, you will be notified to download the latest version.	✓	✓
<b>Interactive Training</b> Utilize our built-in, interactive training videos and instructions to use LumiCalc to maximum benefit.	✓	✓
<b>Home Dashboard</b> User customizable dashboard providing a quick overview of the state of your process.	✓	✓
<b>Data Input &amp; PhotonMaster Control</b> Input ATP data with ease as well as other process data, even by spreadsheet import.	✓	✓
<b>Capture Actions</b> As you perform ATP tests, LumiCalc will analyze the results and recommend action.	✓	✓
<b>Data Export</b> Export your data to spreadsheet to perform different types of analyses in other software.	✓	✓
<b>Calculations &amp; Alarms</b> Create calculated values and assign alarm values to alert you of any process issues.	✓	✓
<b>Graphing &amp; Analysis</b> Powerful yet simple graphical trending and analysis tool provides deep investigation capabilities.	✓	✓
<b>XY Plot</b> Compare two dataset variables using the built in XY scatterplot charting tool.	✓	✓
<b>Bar Chart</b> Quickly and easily display and compare your collected data from each day's testing.	✓	✓
<b>Basic Support</b> Contact us directly and our support staff will be happy to assist you with software usage.	✓	✓
<b>Share, Chat &amp; Collaborate</b> Securely share your data with your colleagues to get assistance and demonstrate findings.		✓
<b>Backup</b> Protect against the unexpected via secure backup of your data to the LumiCalc online server.		✓
<b>Correlation Finder</b> Find relationships between data sets in <u>minutes</u> instead of <b>days</b> using this powerful tool!		✓
<b>Save Charts to JPEG</b> Save charts to high-resolution JPEG for use in creating reports, slideshows, PDF's, email, or print.		✓
<b>Save Chart Data to Spreadsheet</b> Quickly analyze your data and then export to a spreadsheet file for further analysis.		✓
<b>Journal</b> Keep detailed logs of activities related to your process.		✓
<b>Advanced Support</b> Front-of-the-line support plus access to in-house experts for interpretation assistance.		✓
<b>Immediate Access to New Functionality</b> Get immediate access to new features and modules.		✓

### Using LumiCalc

To begin using LumiCalc, follow these basic steps:

1. **System Requirements:** Ensure your selected device meets the following minimum requirements.
  - a. **LumiCalc Operating Requirements:** Microsoft® Windows® XP, Windows Server® 2003, Windows Server 2008, Windows Vista® Home Premium, Business, Ultimate, or Enterprise (32 or 64 bit editions) with Service Pack 2, Windows 7, or Windows 8. 2.33GHz or faster x86-compatible processor, or Intel Atom™ 1.6GHz or faster processor for netbook class devices. 512MB of RAM (1GB recommended). LumiCalc is an Adobe Air application, which means that it also requires Adobe Flash® and Oracle Java to be installed on the operating device.
  - b. **PhotonMaster Hardware Requirements:** Requires a standard USB-port plugged on a Windows PC (netbook, laptop, or desktop) or Mac OS product running Microsoft Windows on BootCamp.
2. **Sign Up for a LumiCalc Account:** Navigate to <http://www.lumicalc.com> using an internet browser on the computer with which you intend to operate your PhotonMaster (e.g. Internet Explorer, Firefox, Chrome, etc.). Fill out the pertinent details that are requested and supply a valid email address. A verification email will be sent to the specified email address.

**NOTE:** If you do not receive the email in your inbox, check your Junk Mail filter. Place the sending email address on your safe list (as a trusted email address) to ensure future communications are not impeded. As well, it is recommended that you contact your system administrator to ‘whitelist’ emails from the lumicalc.com server in controlled email environments such as Microsoft Exchange and Google Gmail.

3. **Download and Install LumiCalc:** Follow the instructions in the verification email to download and install the LumiCalc software platform on your computer. Note that the installation application will also install the required PhotonMaster drivers and Adobe Flash if it is not already installed on your computer. ***If you do not have administrative privileges on your computer, please contact your system (IT) administrator to enable the installation.*** Note that one user can have a maximum of two installations (i.e. laptop and desktop), and only one account can be installed per computer.
4. **Run LumiCalc:** When prompted, plug a PhotonMaster luminometer into your device. Follow the on-screen instructions; once the PhotonMaster is plugged in, the installation process has begun and will prompt you for details to set up your unit. You can operate LumiCalc when connected to the internet or not, and your data is stored on your computer unless you choose to utilize secure upload to the LumiCalc server for collaboration or backup. If you are using a firewall, you may have to add LumiCalc as a ‘safe’ program for reliable operation.

### LumiCalc Application Security

LumiCalc is a hybrid cloud application combining the best elements of both desktop and cloud-based software. This section provides an overview of LumiCalc’s various security features. In addition to the following details, all communications between LumiCalc and the server are done via an SSL connection which provides point to point data encryption while in transit. Your data is stored locally on your computer unless you choose to share or backup, in which case a copy is stored on our secure server. The following layers of security are inherent in LumiCalc:

#### User Accounts & Login

1. A user account must be created and valid to use LumiCalc.
2. Accounts are created at <http://www.lumicalc.com> by user or by a LumiCalc administrator.
  - a. All accounts must contain an email address and password.

- b. Accounts must be verified via a confirmation link in the email (this ensures that the email address used to register is in fact real and owned by the user who has signed up).
  - c. In the case where an administrator creates an account on behalf of a user, the user will receive a welcome email with a link to setup their password (the password is never known to the administrator).
3. Passwords are stored in the server side database and not viewable by server administrators.
4. Users must enter a valid email address and password when activating LumiCalc for the first time.

### Authentication

1. Registered users only need to enter their email and password the first time they use LumiCalc.
2. Once the user is authenticated, a token is created on your computer and used for all subsequent requests.
3. Each time LumiCalc starts it automatically authenticates the user with their token, and then provides a new token for the next request.

### Installations

1. A user can have 2 concurrent installations of LumiCalc. (e.g. support for desktop and laptop).
2. An installation ID is created and stored on the client and saved on the server.
3. When LumiCalc starts, it will check the local installation ID against the server to confirm validity.
4. If a user tries to make copies of the program and use it on multiple machines, the authentication token would be out of date and a password would be required each time.
5. Only one account can be installed and used on a single device.

## LumiCalc.com (Cloud Server) Security

The following points discuss security measures inherent with the LumiCalc cloud server.

### SSL/TLS Encrypted Secure Connection

Communications between LumiCalc and the server are done via an SSL connection which provides point to point data encryption while in transit over the network.

### Data Center Security

- **SECURITY ON-SITE:** Data center access is strictly limited to technical staff. Electronic security systems control data center access and are accompanied by a full complement of motion detecting security cameras which monitor the entire facility. The data center facility external walls are reinforced poured concrete. A fully managed facility with level 3 technicians on site 24 hours per day, allowing incident response times to be kept to a minimum.
- **POWER SYSTEM:** Power systems feature extensive fault tolerance and resilience at every layer. Incoming service is routed underground to a dedicated on-site transformer. This system routes to an automatic transfer switch which monitors power quality, and automatically transfers to emergency generators in the event they are needed. Each facility is also protected by one or more uninterruptible Power Supplies (UPS), featuring redundant battery cabinets and full maintenance bypass cabinets allowing for service and upgrades without interruption of power to the server. Liebert Precision power distribution units handle final power transformation and distribution to racks, ensuring clean consistent power to data center equipment. Each facility has multiple emergency generators waiting on standby, featuring over 24 hours of autonomous runtime before requiring re-fuelling. Each generator is test run at least once a week to ensure they are ready in the event they are needed.

Generator power is activated automatically in the event of a utility failure by the transfer switch. The data center load is maintained by the UPS units with at least 15 minutes of capacity, however this is not necessary as the generator is active and up to speed within 10 seconds of a power failure.

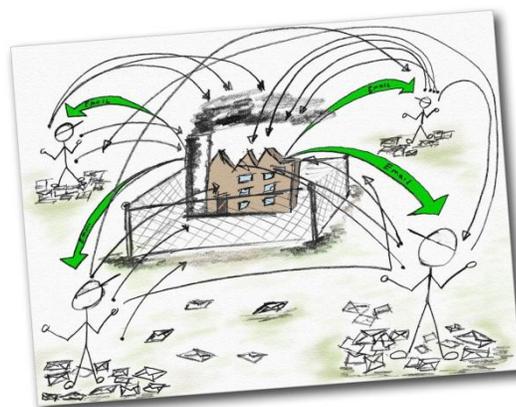
- **COOLING:** Environmental processing systems include redundant Liebert Precision 22 ton up flow air conditioning units. Temperature and humidity are precisely regulated year round to ensure optimal equipment reliability. Each unit contains independent compressors and cooling loops to further enhance fault tolerance and reliability. Air filtration systems actively remove foreign particulates from circulation and cycle the entire data center air supply in a matter of minutes.

### Off-Site Backup Redundancy

For additional redundancy, all server data is regularly backed up. This provides three layers of data redundancy – **Client, Cloud Backup Copy, and Server Backup Copy**. Backups are located at a different data center operated by the same company in a different geographical location.

### What Does it All Mean?

LumiCalc is a safer alternative to current methods. The number one method of sharing data is by email, which is highly insecure. Often, emailing a colleague in the next office involves sending the message outside the building through dozens of servers and routing equipment around the world and back again. The message can be potentially cached at points along the route, meaning a copy of your email and data can sit on a server beyond your control. Email messages can be intercepted and read by networking personal and others along the transmission route, because the messages are almost never encrypted or password protected.



Sharing data on removable media is slow, cumbersome and not secure in most cases unless strict steps are taken to encrypt and password protect the contents of the media. Most easily implemented security on these devices can be quickly circumvented. The majority of users simply do not know how or have the time to implement the required security measures – it simply isn't practical in real life.

With LumiCalc, **you** dictate what will happen to your data. **You have full control**. It will not be shared, sold or stored elsewhere for any purpose other than backup and the safety and security of your property. Only authorized personnel have access to your data and all access is logged. At any time, you have the control to activate or deactivate a shared user within your sites. When you share data with a user, they cannot export or copy. They can read and make changes, but you control what happens. **At no time ever will your data be visible to anyone outside of those you authorize.**

LumiCalc has been designed from the ground up to offer the highest level of data security and most convenience possible to users. Because your data is held in a centralized secure facility under lock and key, access to your data is strictly controlled, monitored and logged. All the technical details have been taken care of for you so that you can get down to business, which is running your facility. We fully understand the importance of your data and take every measure to ensure it is secure while providing to you indispensable tools that will allow your data to be utilized like never before!