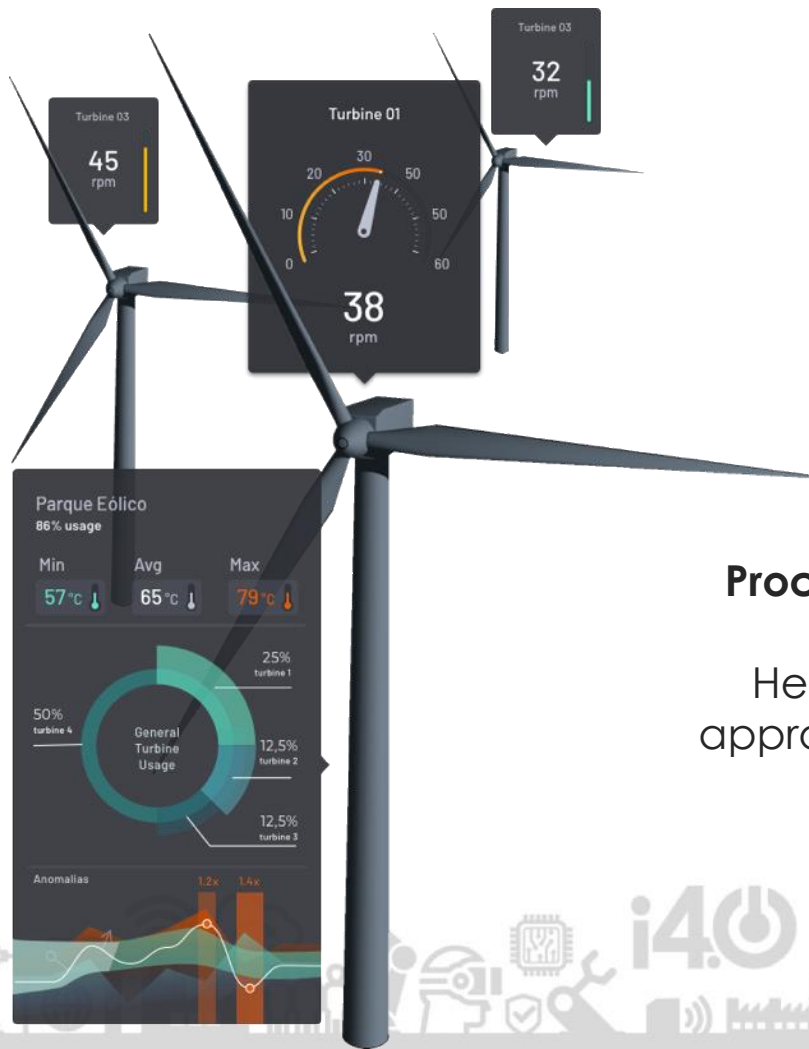


LUMEN

WEB PLATFORM

by GROUPE SNEF





LUMEN

WEB PLATFORM

A platform for
Process Optimization and **Digital Control**.

Here, the physical world of production
approaches the virtual world of information
technology.



LUMEN

WEB PLATFORM



Lumen IOT Connect

APP for OSISoft integration, OPC UA/DA, Flat-File, SOA, rest-api, SAP-PI/PO, BIM-IFC format, among others



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3D

MANUFATURA ADITIVA



IA

INTELIGÊNCIA ARTIFICIAL



IoT

INTERNET DAS COISAS



SynBio

BIOLOGIA SINTÉTICA



CPS

SISTEMAS CIBER-FÍSICOS





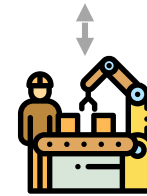
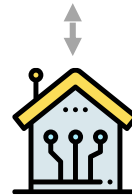
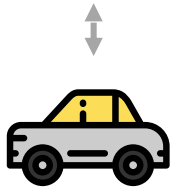
Lumen IoT Connect

APP for
OSISoft integration, OPC UA/DA, Flat-File,
SOA, rest-api, SAP-PI/PO, BIM-IFC format,
among others

The Lumen IoT Connect is a service manager that allows easy and secure connection of devices to applications and other devices.

Identifier	Label
caldeira	Caldeira
motores-war...	Motores
caldeira-oil	Caldeira

Label	Key	Type	Unit
PT001	pt001	Number	Select unit
SM001	sm001	Number	Select unit
SM002	sm002	Number	Select unit
FT003	ft003	Number	Select unit
TE001	te001	Number	Select unit
V001	v001	Number	Select unit
YV004A	yv004a	Boolean	Select unit
YV004B	yv004b	Boolean	Select unit
YV004C	yv004c	Boolean	Select unit





Lumen Analytics

Analyze your KPIs, metrics, and goals. Create and share reports with real-time data.

Understand the behavior of your data to better evaluate performance, production, and more.

Lumen Analytics Add filter + Download Refresh Last 90 days

My Analysis
 Analytics OEE Save Analysis +

Aggregations
 time, 5m Aggregation by +

Metrics
 Duration, Max Torque 3, Min Torque 4, Sum Torque 5, Mean Add metric +

Timestamp	Count	Torque 3, min	Torque 5, mean	Duration, max	Torque 4, sum
1 2019-03-07 14:55:00	38	14.00 s	14.00 s	1.235e+4 ms	456.0 s
2 2019-03-07 15:00:00	19	14.00 s	14.00 s	1.235e+4 ms	228.0 s
3 2019-03-07 15:05:00	323	14.00 s	14.00 s	1.235e+4 ms	3876 s
4 2019-03-11 17:55:00	10	14.00 s	14.00 s	2.432e+4 ms	130.0 s
5 2019-03-11 18:00:00	15	14.00 s	14.00 s	2.432e+4 ms	195.0 s
6 2019-03-12 08:10:00	10	14.00 s	14.00 s	2.432e+4 ms	130.0 s
7 2019-03-12 09:05:00	26	14.00 s	14.00 s	2.432e+4 ms	338.0 s
8 2019-03-12 09:10:00	4	14.00 s	14.00 s	2.432e+4 ms	52.00 s
9 2019-03-12 18:05:00	26	14.00 s	14.00 s	2.432e+4 ms	338.0 s
10 2019-03-13 11:40:00	2	14.00 s	14.00 s	2.432e+4 ms	26.00 s
11 2019-03-13 14:40:00	1	14.00 s	14.00 s	2.432e+4 ms	13.00 s
12 2019-03-13 14:45:00	2	14.00 s	14.00 s	2.432e+4 ms	26.00 s
13 2019-03-13 14:55:00	4	14.00 s	14.00 s	2.432e+4 ms	52.00 s
14 2019-03-13 15:00:00	2	14.00 s	14.00 s	2.432e+4 ms	26.00 s
15 2019-03-13 15:30:00	57	14.00 s	14.00 s	2.432e+4 ms	741.0 s
16 2019-03-13 15:55:00	3	14.00 s	14.00 s	2.432e+4 ms	39.00 s

Graphic Style

Enable	Lock	Attribute	Unit	Precision
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Timestamp		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Count		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Torque 3, min	s	4

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 Duration, Max Torque 3, Min Torque 4, Sum Torque 5, Mean Add metric +

Timestamp	Count	Torque 3, min	Torque 5, mean	Duration, max	Torque 4, sum
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My Analysis
 Analytics OEE Save Analysis +

Aggregations
 time, 5m Aggregation by +

Metrics
 Duration, Max Torque 3, Min Torque 4, Sum Torque 5, Mean Add metric +

Graphic Style

Enable	Attribute	Unit	Color	Line
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<input checked="" type="checkbox"/>	Torque 3, min	s	Default	<input type="checkbox"/>



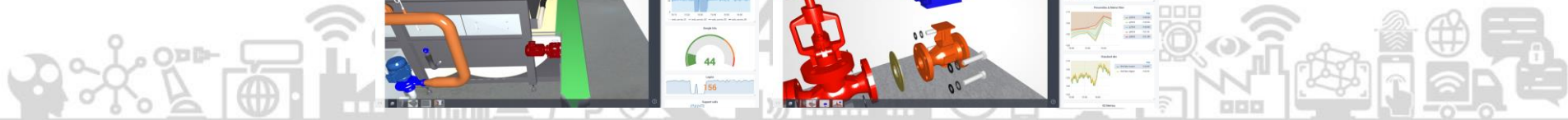
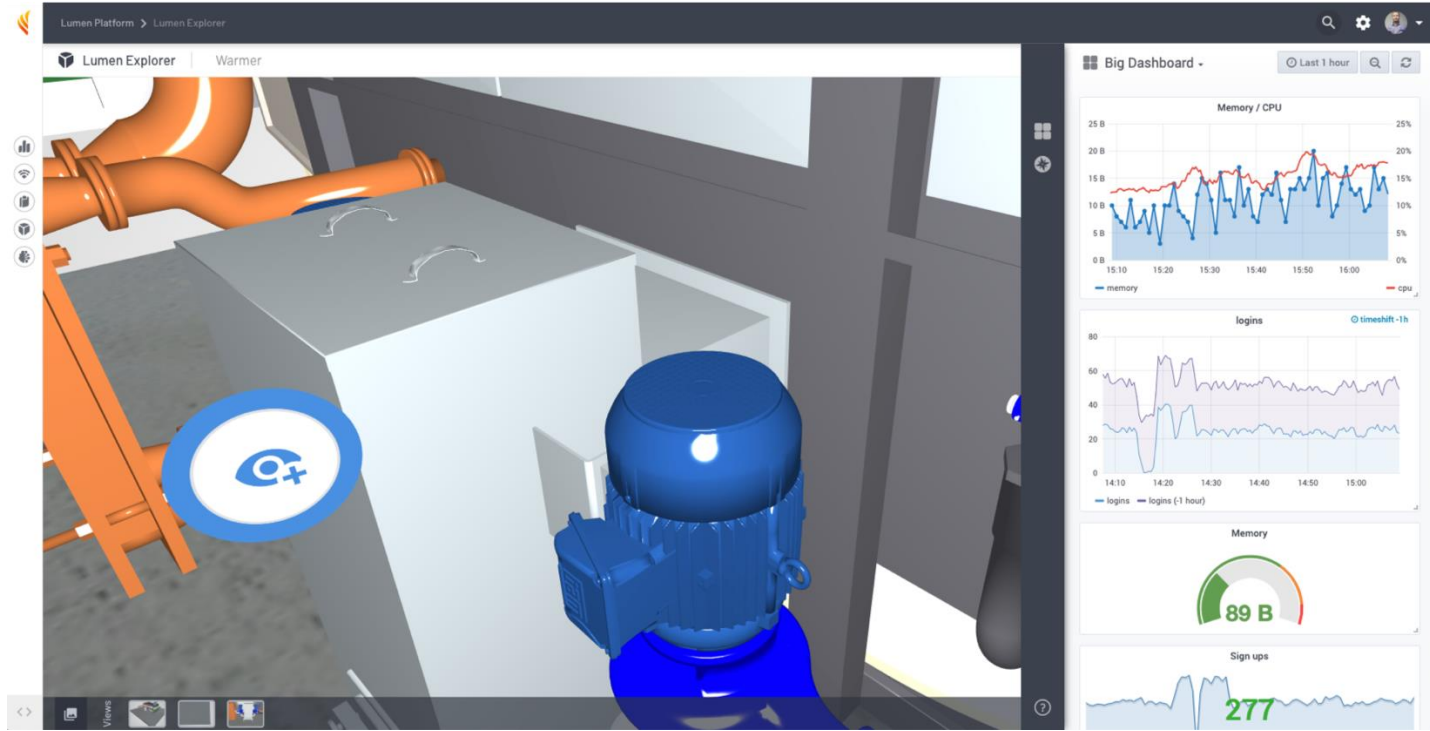


Lumen Analytics

Analyze your KPIs, metrics, and goals. Create and share reports with real-time data.

Lumen Analytics allows you to query, visualize, alert on and understand your metrics no matter where they are stored. Create, explore, and share dashboards with your team and foster a data driven culture.

Grafana and Kibana Integration





Lumen Cognitive

App for Predictive control and process optimization

The Time Series Forecasting is closely integrated with the **Lumen Cognitive**. The data are extracted from the Lumen Cognitive for analysis and the results of the anomalies are displayed in the Lumen panels.

Weekday	0.01	0.1%	Adjustment	SEATS	QS	0
AO2001	0.26		ADIMA	(0.1,1)(0.1,1)	H0: no seasonality in final series	





Lumen Cognitive

App for Predictive control and process optimization

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1. Data collection with constant periods
2. Analysis of autocorrelation and correlation between variables
3. Stationary Research
4. Using the ADF method, Augmented Dickey-Fuller
5. Correction of the faces (p, d, q) (P, D, Q) of ARIMA
6. Assume positive correlation of gains and opportunities
7. Analysis of results
8. Support for decision making
9. Search for correlation and autocorrelation in the
 1. Presentations of the Standards
 2. Additive Outlier (AO)
 3. Innovation Outlier (IO)
 4. Level Shift (LS)
 5. Temporary change (TC)
 6. Seasonal Level Shift (SLS)
 7. Possible changes:
 8. Equipment Adjustment
 9. Control mesh, e.g. PID
 10. Cleaning and / or exchange of equipment, e.g. Filter, or total exchange of equipment
 11. Change of parameters for seasonality in the process, eg Schedules of the Day, energy use, human resources, calibrations or equipment calibrations
 12. Entropy, e.g. underutilized equipment (misuse), wear.





Lumen Cognitive

App for Predictive control and
process optimization

The Time Series Forecasting is closely integrated with the **Lumen Cognitive**. The data are extracted from the Lumen Cognitive for analysis and the results of the anomalies are displayed in the Lumen panels.

Understanding the outliers is critical in a data analysis for at least two aspects:

Outliers can bias the entire result of an analysis;

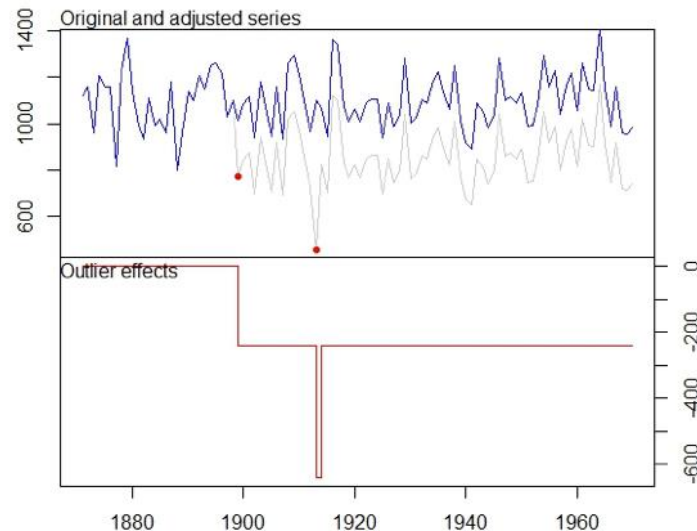
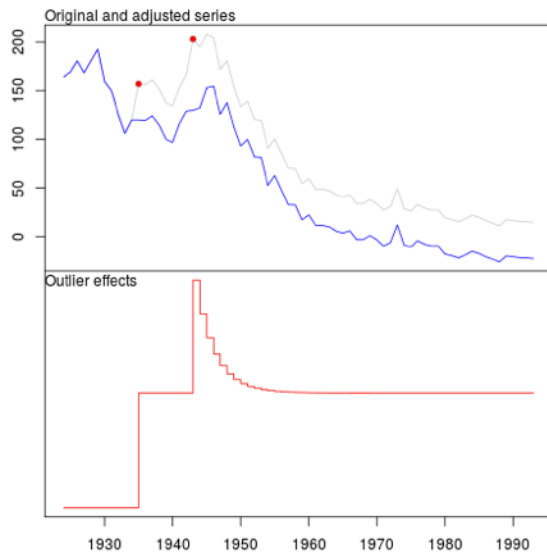
- The behavior of outliers may be just what is being sought.
- Outliers have several other names, such as: discrepant data, out-of-curve points, unusual observations, anomalies, atypical values, among others.





Lumen Cognitive

App for Predictive control and process optimization

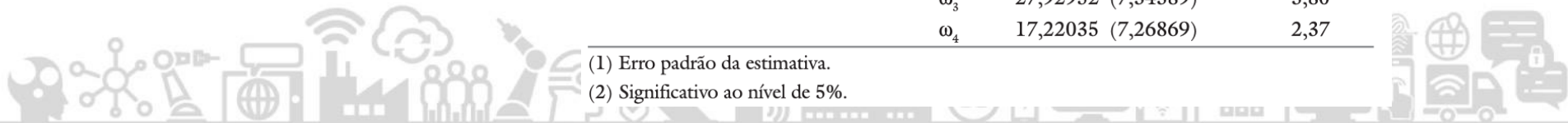


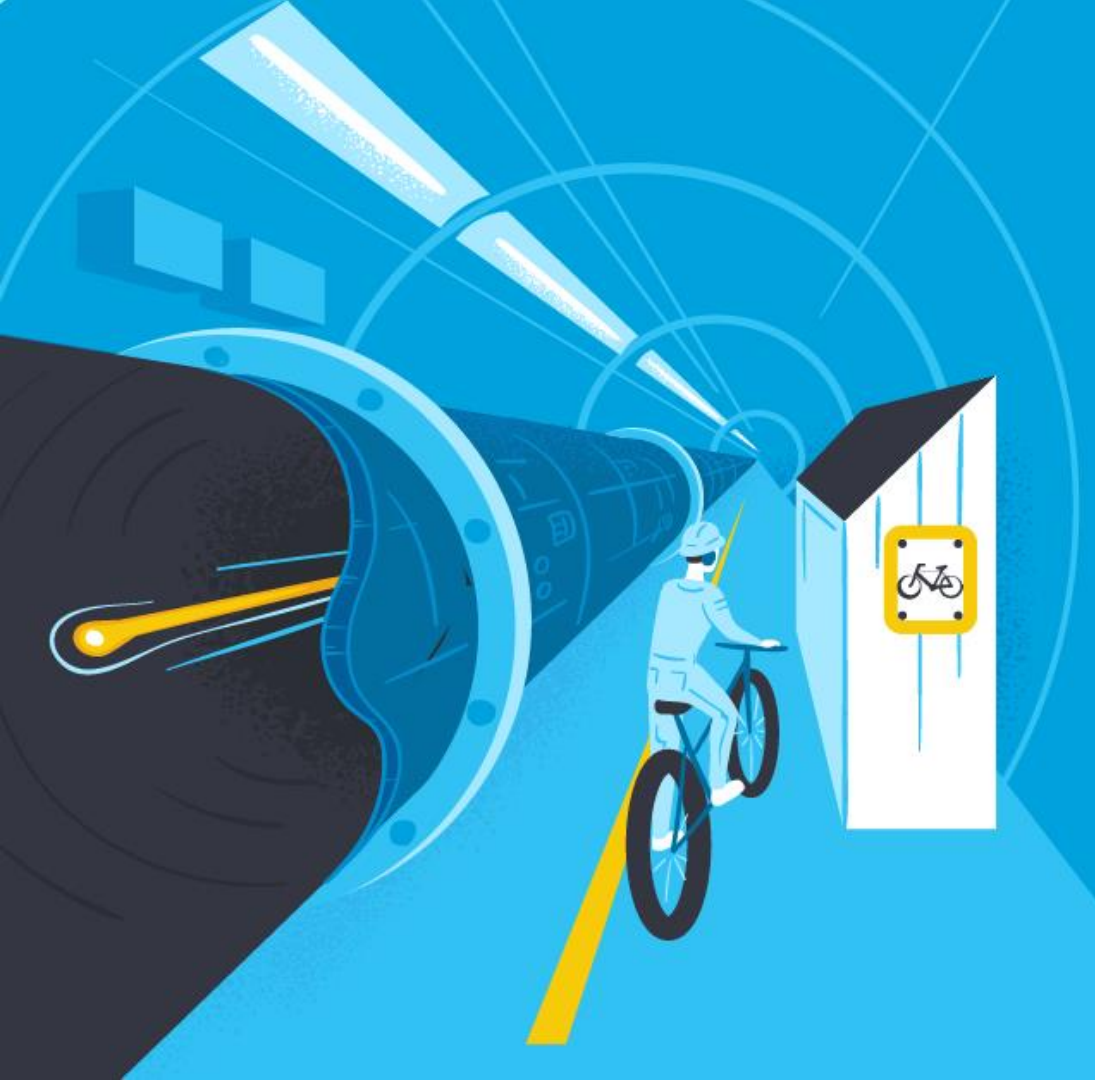
The Time Series Forecasting is closely integrated with the **Lumen Cognitive**. The data are extracted from the Lumen Cognitive for analysis and the results of the anomalies are displayed in the Lumen panels.

Modelo	Série	Parâmetro	Estimativa ⁽¹⁾	Teste $t^{(2)}$
ARIMA (1,1,4)	IPR	ϕ_1	0,24031 (0,08261)	2,91
		θ_4	0,19528 (0,08202)	2,38
	INT10/69 _t	ω_0	37,00175 (7,09651)	5,21
	INT05/76 _t	ω_0	25,37457 (7,02618)	3,61
	INT03/77 _t	ω_0	72,79553 (7,10295)	10,25
		ω_2	59,14859 (7,24424)	8,16
		ω_3	27,92952 (7,34389)	3,80
		ω_4	17,22035 (7,26869)	2,37

(1) Erro padrão da estimativa.

(2) Significativo ao nível de 5%.





Elasticsearch is a distributed RESTful search and analysis engine capable of solving a growing number of use cases. Like the heart of Elastic Stack, it stores your data centrally so you can discover what's expected and discover the unexpected.



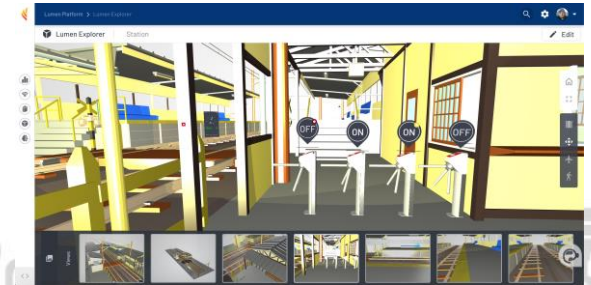


Lumen Explorer

App for Digital Twin in 3D
AR - VR - SR

Several factors have now converged to bring the concept of the digital twin to the front line as a disruptive trend that will have an increasingly broader and deeper impact over the next five years.

- Maintenance 4.0
- Operator 4.0
- Simulation & O
- BIM
- SE - Searching Engine





Lumen Explorer

App for Digital Twin in 3D
AR - VR - SR

Create beautiful scenes, billboard, links to documents, explode objects and more.

The screenshot displays the Lumen Explorer web platform interface. The top navigation bar shows "Lumen Platform > Lumen Explorer" and includes search, settings, and user profile icons. Below the navigation bar, there are "Preview" and "Save" buttons. The main content area is divided into a left sidebar and a central 3D view.

Left Sidebar:

- Objects:**
 - caldeira
 - Pins
 - text
 - sm001
 - sm002
 - ft003
 - te001 (selected)
 - v001
 - yv004A
 - yv004B
 - yv004C
 - document
 - pt001-m...
 - text on

Below the object list, there are input fields for "te001", "POSITION" (2, -4, 1.7), "MODE" (Float), and "Pin properties" (Value: Caldeira.TE001).

Central 3D View:

The 3D view shows a detailed model of a boiler system. A central component is highlighted with a blue box, displaying a temperature reading of "TE001 73 °C". Other components are labeled with "ON" and "OFF" indicators. A blue arrow points upwards from the temperature display, and a red arrow points to the right. The interface includes various interaction icons on the left and right sides.

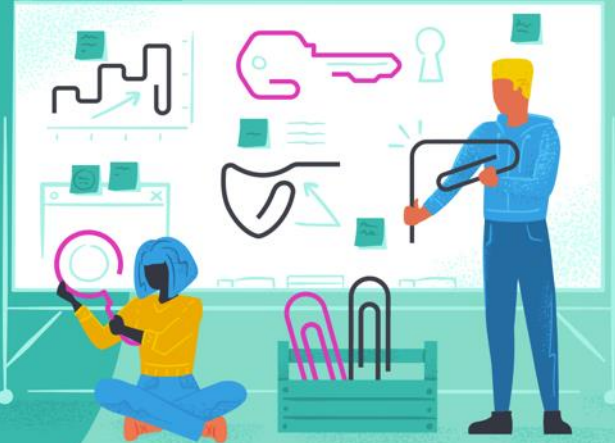
Bottom Inset:

A smaller inset screenshot shows a different view of the boiler system, focusing on a blue component. A blue button labeled "Open Details" is overlaid on the scene. The interface includes a search bar, settings, and user profile icons at the top, and a navigation bar at the bottom.



IT, Depends

It's pretty complicated to make some things simple, and even more complicated to make other things possible. We embrace and value the knowledge required to do both.





Lumen DOCS

App for knowledge management based on Data and Document Searching Engine

Search engine with automated tracking, OCR, tagging and instant full text search, VIDEO.



Lumen Platform > Lumen Explorer

Lumen Explorer | Caldeira

Weg document

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www.weg.net | Weg

1.2.5 Fator de Potência

O fator de potência, indicado por $\cos \phi$, onde ϕ é o ângulo de defasagem na tensão em relação à corrente, é a relação entre a potência ativa (P) e a potência aparente (S) (figura 1.2).

$$\cos \phi = \frac{P}{S} = \frac{P \text{ (kW)}}{3 \cdot U \cdot I}$$

Assim,
 = Carga Resistiva: $\cos \phi = 1$
 = Carga Indutiva: $\cos \phi$ e atrasado
 = Carga Capacitiva: $\cos \phi$ e adiantado

Nota: os termos, atrasado e adiantado, referem-se ao ângulo da corrente em relação à tensão.

Um motor não consome apenas potência ativa que é depois convertida em trabalho mecânico e calor (perdas), mas também potência reativa, necessária para magnetização, mas que não produz trabalho. No diagrama da figura 1.3, o vetor P representa a potência ativa e o Q a potência reativa, que somadas resultam na potência aparente S.

Importância do fator de potência

Utilizando-se da tabela 1.2, na interseção da linha 0,87 com a coluna de 0,95, obtém-se o valor de 0,238, que multiplicado pela potência absorvida da rede pelo motor em kW, resulta no valor da potência reativa necessária para elevar-se o fator de potência de 0,87 para 0,95.

Exemplo:
 Um motor elétrico, trifásico de 100 cv (75 kW), IV polos, operando com 100% da potência nominal, com fator de potência original de 0,87 e rendimento de 93,5%. Deve-se calcular a potência reativa necessária para elevar o fator de potência para 0,95.

Solução:
 Utilizando-se da tabela 1.2, na interseção da linha 0,87 com a coluna de 0,95, obtém-se o valor de 0,238, que multiplicado pela potência absorvida da rede pelo motor em kW, resulta no valor da potência reativa necessária para elevar-se o fator de potência de 0,87 para 0,95.

$$Q = P \left[\frac{1}{\cos \phi_1} - \frac{1}{\cos \phi_2} \right] \times 100\%$$

Rend. %
 = 93,5%
 Q = 18,735 kVAr

Ónde: Q = Potência reativa do banco de capacitores a ser instalado
 P (kW) = Potência nominal do motor
 Rend. % = Rendimento do motor

Figura 1.3 - O fator de potência é determinado medindo-se a potência de entrada à tensão e a corrente de carga nominal.

Visando otimizar o aproveitamento do sistema elétrico brasileiro, reduzindo o trânsito de energia reativa nas linhas de transmissão, subtransmissão e distribuição, a portaria do DNAEE número 85, de 25 de março de 1992, determina que o fator de potência de referência das cargas passe de 0,85 para 0,92. A mudança do fator de potência, dá maior disponibilidade de potência ativa no sistema, já que a energia reativa limita a



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Perform a Google-like search through your documents and images contents



Tagging

Tag your documents to easily find what you need



Formats

supports all popular document formats



OCR

Performs OCR on your images and PDFs

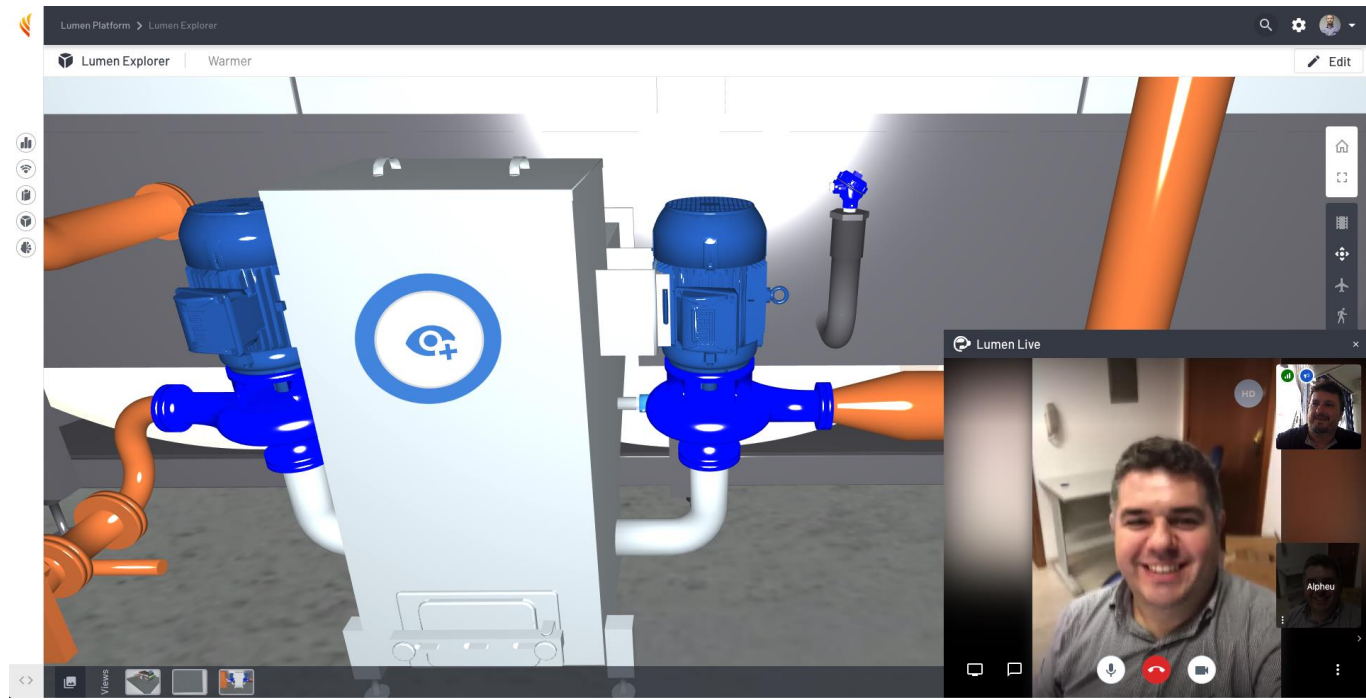


Lumen Live

Communicate and collaborate using team chat and switch to video or audio calls

At Lumen Live, we believe every video chat should look and sound amazing, between two people or 200. Whether you want to build your own massively multi-user video conference client.

- take pictures
- create videos
- real-time maintenance with helpdesk
- Share scenes in 3D
- Share documentation



Secure, Simple and Scalable Video Conferences

Multuser video XMPP server component

Recording and live streaming

library for secure audio/video communication



Be intuitive, simple and for everyone

LUMEN
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