Ecolumiere®
Much more than lighting

Company profile

- Neodelis was founded in 2012 as an LED lighting distributor in Italy
- From 2014 to 2020 designed and developed Ecolumiere®
- In 2020 launched Ecolumiere® T8 tubes, ceiling and industrial lights
- In 2020 opened sales channel in Italy and won significant accounts
- From 2nd Qtr., 2021, expanding through distributor-partners in EMEA and US

Product Descriptions

- Ecolumiere® T8 LED 120 cm tube. To replace LED T8 standard tubes or fluorescent tubes, without need of specialist-skills
- Ecolumiere® T8 LED 120 cm tube. To replace LED T8 standard tubes or fluorescent tubes, without need of specialist skills
- Ceiling light. 120x30 and 60x60 cm ceiling and counter ceiling lights. Mounting as any other LED office light.
- Industrial lights. 50w and 100w industrial light. IP65 and dust-proof light for production plants and industrial use
- Ecolumiere® App to programme embedded parameter changes in the lights and download usage-data of any Ecolumiere® product
- Ecolumiere® web available interface to interrogate light usage data and download for reporting purposes

Target markets and use-cases – T8 tubes

Organisations that wish to reduce energy-costs and maintenance-costs:

Public sector
- public buildings
- schools
- sports halls

- Warehouses
- Manufacturing plants
- Supermarkets
- Open-plan offices

Target markets and use cases – Ceiling Light

Organisations that wish to reduce energy-costs and maintenance-costs in an aesthetically pleasing way:

- Open-plan offices
- Supermarkets
- Hospitals

Target markets and use-cases - Industrial Light

Organisations that require dust-proof and IP65 water-resistant lighting, up to 10m ceiling height

- Manufacturing
- Warehouses
- Car parks
- Covered walkways

The Technology behind Ecolumiere

- Each Ecolumiere® light includes:
  - Local control unit, automatically managing power and lamp behaviour
  - Local sensor – avoiding the installation of separate sensors throughout the premises
  - Local light communication for lamp mesh coordination and information exchange, configured to customer needs
  - Local Bluetooth communication to mobile phone, activated when this is in range
  - Communication to central cloud and lamp, via mobile phone or laptop via mobile phone hotspot
- Each Ecolumiere® can be ordered with customer-requirement settings. Changes to target lux, timing response to environment, minimum emission, installation height, can be made at any time after by customers post-installation
- Customers have access to the Ecolumiere® cloud, where customers can:
  - Configure light groups with different settings (office users, manufacturing users etc)
  - Configure with different privileges (site admin can add or remove nodes, some users might only be permitted to change the lamp groups settings)
  - Download each lamp wattage consumption (how many on/off session, how much energy was used during each session. For Example – Over a period of 10 days, the lamp has been switched on/off 20 times, overall it has consumed 2000 Watts, in the session X, (defined by a light being switched on and off, it consumed 20w and the session lasted 30 minutes)

Energy cost saving vs. unmanaged LED

Lamps type	N° LAMPS	Power (W)*	Average working hours	Daily Consumption (kW/h)	Daily energy cost	Day per month	Yearly energy cost	Lifetime	Hours per year	Years of life	Cost*	Total lamps cost	Maintenance cost to replace lamps	Yearly maintenance cost to replace lamps
LED standard ceiling lamp (2 stansard T8 LED tubes)	67	50	24,0	80,40	€ 18,97	30	€ 6.830,78	20.000	8.640	2,3	€ 30,00	€ 2.010,00	€ 40,00	€ 1.157,76
TOTAL	67			80,40			€ 6.830,78					€ 2.010,00		€ 1.157,76
LED ECOLUMIERE														
ECOLUMIERE ceiling lamps (2 Ecolumiere T8 LED tubes)	67	50	13,0	43,55	€ 10,28	30	€ 3.700,01	50.000	4.680	10,7	€ 152,00	€ 10.184,00	€ 40,00	€ 250,85
TOTAL	67			43,55			€ 3.700,01					€ 10.184,00		€ 250,85

* End User pricelist cost including APP and Cloud licensos

- Typical energy cost savings vs. standard unmanaged LED
  - 46% cost saving
  - 3131 Euro less cost per year
  - Minimum 10000 hours longer lifetime
  - 2 years return of investment (more than 8 years of NET saving)

NB- KW/h is at 0.23 Euros

Energy cost saving vs. DALI managed LED

Lamps type	N° LAMPS	Power (W)*	Average working hours	Daily Consumption (kW/h)	Daily energy cost	Day per month	Monthly energy cost		Yearly energy cost	Lifetime	Hours per year	Years of life	Cost including installation costs*	Total lamps cost	Yearly maintenance cost to replace lamps
LED DALI ceiling lamp ext. sensors	67	50	13,0	43,55	€ 10,28	30	€ 308,33		€ 3.700,01	20.000	4.680	4,3	€ 170,00	€ 11.390,00	€ 940,68
TOTAL	67			43,55			€ 308,33		€ 3.700,01					€ 11.390,00	€ 940,68
LED ECOLUMIERE															
ECOLUMIERE ceiling lamps	67	50	13,0	43,55	€ 10,28	30	€ 308,33		€ 3.700,01	50.000	4.680	10,7	€ 158,00	€ 10.586,00	€ 94,07
TOTAL	67			43,55			€ 308,33		€ 3.700,01					€ 10.586,00	€ 94,07
* End User pricelis cost including APP and Cloud licenses															

- Typical energy cost savings vs. DALI managed LED
  - Similar consumption excluding sensors, control units consumptions, which is lower with Ecolumiere
  - 10 % Lower buying cost
  - 80% saving in yearly maintenance of the system (control unit configuration, sensor replacement etc)
  - Double lifetime

NB- KW/h is at 0.23 in Euro

Customer benefits, delivered by Ecolumiere

- Ecolumiere lights communicates over the light spectrum:
  - They do not require additional cabling or power supply, unlike Wi-Fi or Dali (Digital Addressable Lighting Interface)
  - They do not require expensive specific power supplies
  - They are not affected by electromagnetic interference and can be used safely by hospitals and clinics where Wi-Fi communication interferes with MRI scanners etc.
  - They are self confined and customers do not have to define lamp location, only target light level. When installing DALI lights central control system, must be defined, creating extra installation work. and also, if the lamp fails, it will need to be reconfigured and cannot simply be replaced. With Ecolumiere, as the settings are uniform and can be replaced without being configured. Settings can be change via the Ecolumiere App.-, if necessary.
- Uniformity of light:
  - Each lamp controls the exact lux level in it's own area (adjusting to the ambient light) and is not influenced by light emitted by neighbouring lights. This creates a uniform light level.
  - Each lamp coordinates with the others to keep uniform lux level. Light level is uniform all over the entire premises
- User configuration-ability:
  - Information stored and sent to cloud by the lamp, allowing easy access via the Ecolumiere App to all reports, without need to access a central control unit (server)
  - Information exchanged within Ecolumiere lights provides seamless communication within lights which coordinate and work with the goal to reach the lighting needs set by the customer, (Lux level, duration, presence etc)

Typical Value Sale

Organisation	Profile	Lamp Type	Replacement of X or new installation	Volume installed
PAM	supermaket	Ceiling lamp	Replaced Neon lights	67
PAM	supermaket	Ceiling lamp	Replaced DALI lamps	67
Burgo	Paper making	Industrial lights	Replaced Sodium light	40
Municipalities Città di Cuneoo	3 Schools	T8	Replaced Neon lights	500
Città di Borgato Torinese	5 schools and one local council office	T8	Replaced Neon Lights	500
Hospital Humanitas	Warehouse of hospital	T8	Replaced Neon lights	100
Istituto di Candolo	Technical area of hospital	T8	Replaced Neon lights	100
Iveco	Truck manufacturer	T8	Replaced Neon lights	300

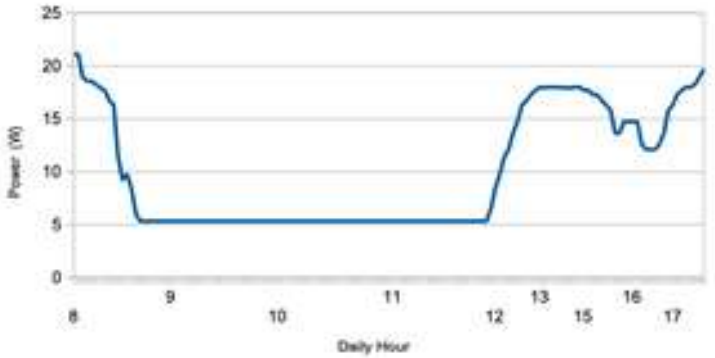
End User Pricing

	End User price
Ecolumiere T8 120 cm tube	€ 65,00
Ecolumiere T8 150 cm tube	€ 76,00
Ecolumiere Square 60x60 Ceiling light both counter-ceiling or ceiling mounted	€ 158,00
Ecolumiere 120x30 ceiling mounted light	€ 158,00
Ecolumiere Industrial 100 watt lamp	€ 590,00
APP and user license to access Neodelis Ecolumiere cloud	included

- Ex works Turin Italy
- Currency Euro

Case Studies

Comune di Borgaro Torinese



Typical daily power consumption iin a classroom

- Municipality of Borgaro Torinese
- Situation before Ecolumiere
  - 6 schools with old lighting and high consumptions due to unmanaged usage
  - 2 municipality building (local police and city hall) old (hard to modify electric network) and with stylish lamps
- Requests
  - In schools managing lights without having to change users behaviour and installing control units
  - In municipality building maintain actual lamps, no recabling but reducing energy consumption
- Ecolumiere was the solution
  - In school Neodelis replaced most of the lamps with similar style lamps already cabled for T8 LED and with Ecolumiere tubes.
  - In municipality building Neodelis modified the actual lamps to be able to fit T8 Ecolumiere tubes. Neodelis took charge also of the security recertification of the lamps in an external laboratory
- Results
  - In school more than 50% energy saving and very uniform and comfortable light for student
  - In municipality no changes in the building look and reduction of over 30% of energy consumption related to lighting

Patents

- Patent WO2015052613A1 “INTELLIGENT LIGHTING DEVICE, AND METHOD AND SYSTEM THEREOF”
    - It is about light communication within intelligent lights. Each lamp is able to exchange control signal to another lamp via light medium.

- Patent IT201800002501A1 “System and method of monitoring the structural stability of a building”
    - A network of intelligent lights able to measure the distance within each other and alert in case of movements and structural stabilities issues

- Patent IT2018000005632 “Dispositive and method to increase efficiency in plant growing LED lamps”
    - Using distance and light sensor using a dispositive and method to reduce the distance within LED lamps and growing plant with the goal to reduce power of the LED lamps used.

Future Product developments

- Horticulture - To integrate a sensor to reduce the energy needs of growing plants.
- Ceilings over 10m high - Increasing the maximum power over 100w
- People-counting sensor - Time Of Fly sensor counting people entering and leaving premises
- Carbon-Monoxide sensor - CO sensor alert in case of presence of dangerous gases

How to evaluate

- Thanks to simple installation and no requirement of cabling or additional configuration evaluate Ecolumiere solutions is very simple:
  - Option A. Buy 4 Ecolumiere tubes (at distributor price indicated) and Neodelis will provide for free the App. Tubes can be installed without recabling in a standard mechanical ballast luminaire with the stater provided by Neodelis for tests
  - Option B. Buy 2 Ecolumiere ceiling light (both ceiling or counter ceiling) (at distributor price indicated) and Neodelis will provide for free the APP and requested preconfigured light targets
  - Option C. Buy one 100w industrial light (at distributor price indicated) and simply power it with 220AC
- All the test lights provided by Neodelis can be pre-configured following customer requests for better making the tests during evaluation period. For example we can reduce reaction time in order the light react to sudden environment light changes faster then usual working Ecolumiere lights.