

# Advanced AGL and AGL Life Cycle *improvements with CEDD*

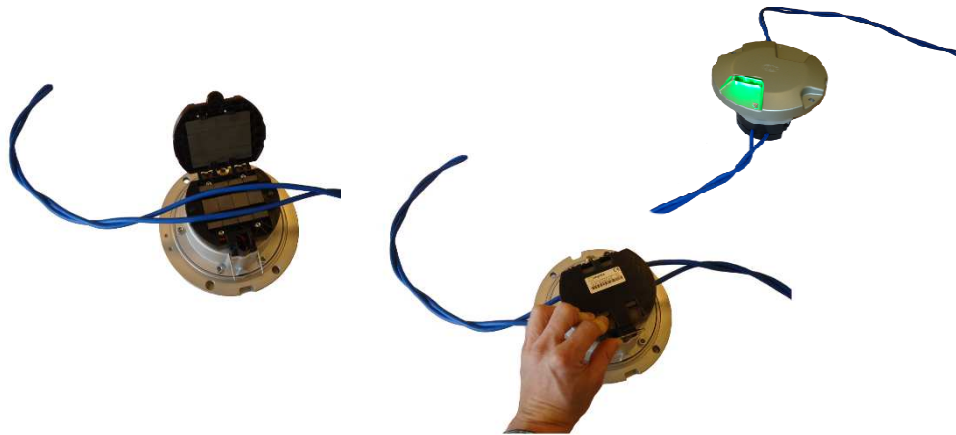
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# Airport Eelde installation

## > Configuration

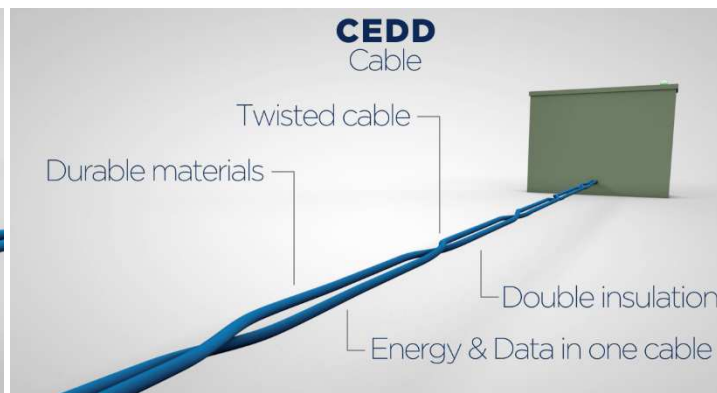
- > One CEDD base station for power and control
- > 15 Taxi Centreline LED elements equipped with CEDD node technology
- > 550 meter of CEDD cable
- > Installation from blank to full Operation 10 times faster then traditional installations and 100 % first time yield



# Contactless Energy and Data Distribution (CEDD)

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- CEDD is a Contactless EDD
- CEDD is an innovative contactless energy and communication technology
  - Energy and data transport are combined in a two-wired cable system, a base station and contactless user points
- Smart Connectivity system for harsh environments
  - This structured cable concept offers solutions in situations that require high safety and continuous operation



# The CEDD Solution Overcomes the Limitations of Traditional Systems

- Contactless
  - Fast and easy installation (hot pluggable)
  - Safe installation for electric applications (no electrical connection, spark free, low voltage)
  - Light Fixtures are sealed from water ingress and physical contact failures (water, oil, chemical resistant)
- Energy & Data Distribution
  - A smart power and communication platform for each light fixture for support smart and new AGL functions and smart asset management
  - Intelligent bi-directional Communication for “Follow the Green” and Smart Asset management
  - LED optimized energy management
  - Optimized lamp management
  - Lamp failure management



Simple & Easy



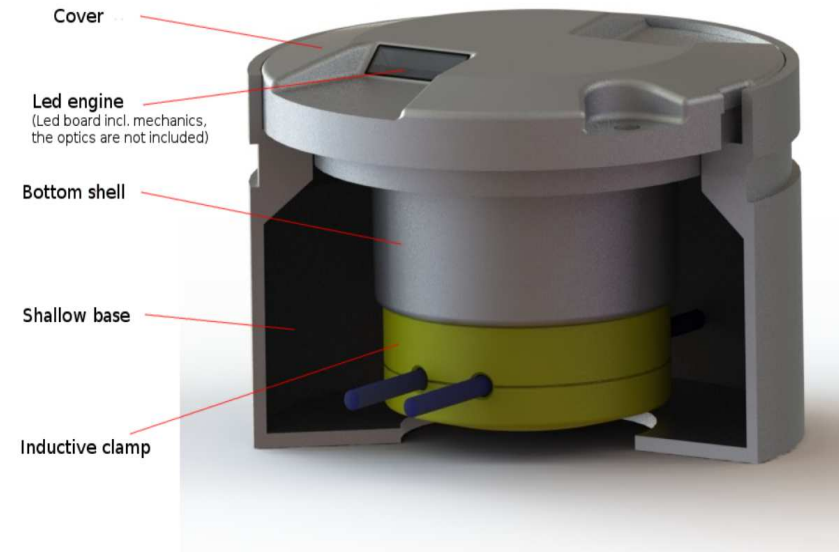
No cable connectors



Can be fitted to live operational circuits



Minimal operational downtime



## Contactless Energy & Data Distribution

# The CEDD Inductive Clamp is so Easy

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## > Installation of light



Simple & Easy



No cable connectors



Can be fitted to live operational circuits



Minimal operational downtime

Place the twisted pair Cable into the Inductive Clamp on the base of the Light Fixture

Connect the fixing Clamp to the base Unit above the twisted Pair cable

Click the Clamp into its position and lock it into that position



Insert cable



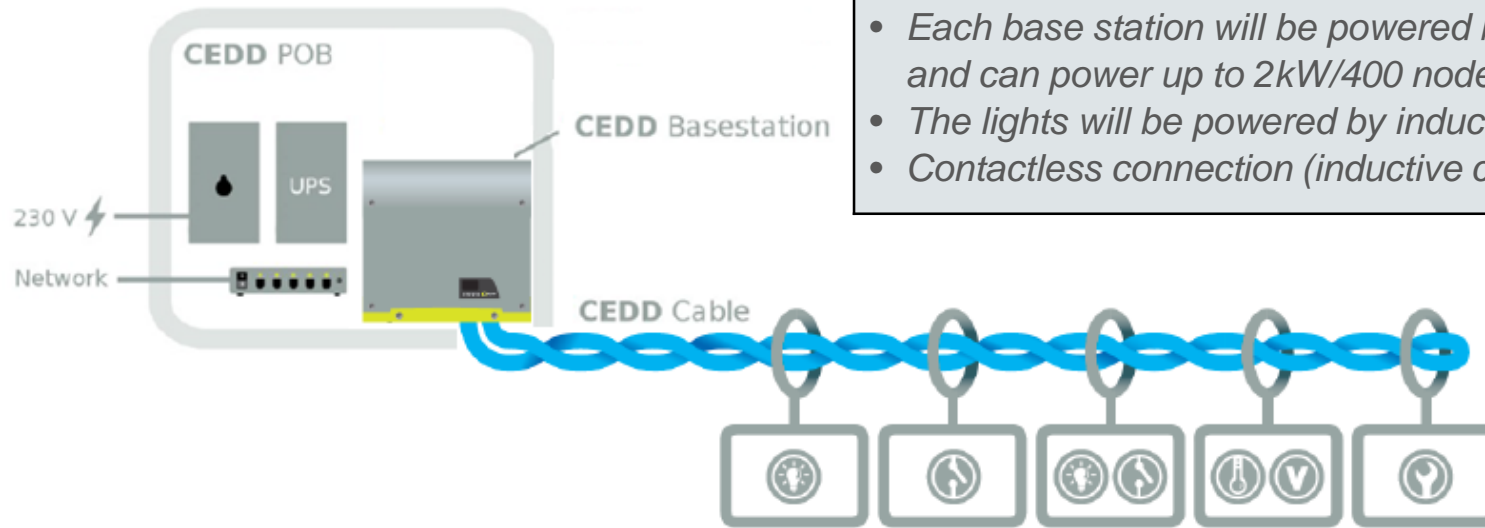
Connect



Click & Go

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# CEDD is a low voltage system



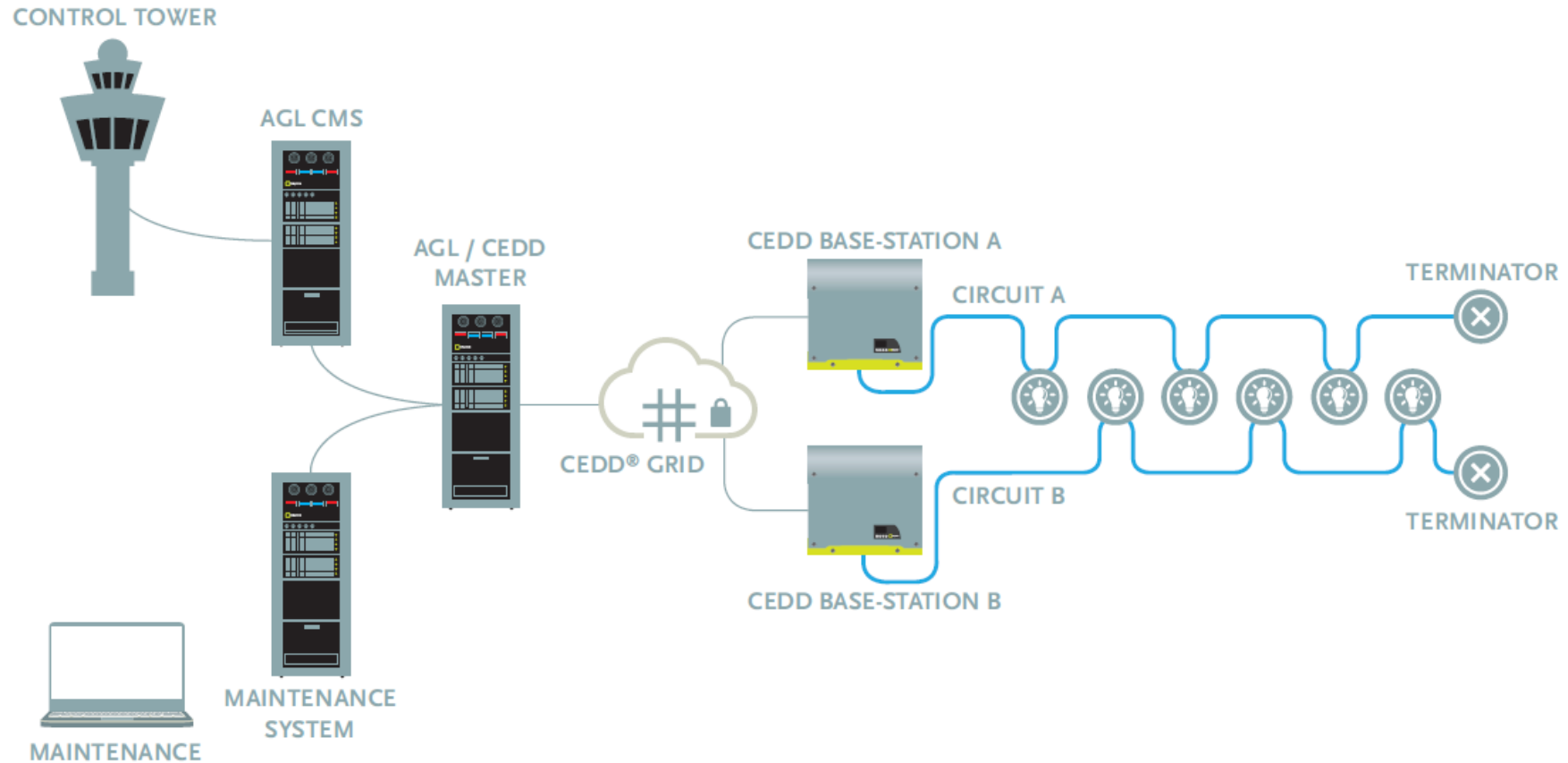
- Each base station will be powered by 230VAC, and can power up to 2kW/400 nodes over 2km
- The lights will be powered by induction
- Contactless connection (inductive clamp).



- There is no galvanic connection, so no open voltage applicable. No unsafe connection.
- Output voltage will be High Frequency AC thus less dangerous than low frequency AC
- The maximum voltage will be in the several hundreds Volt range
- Internal overvoltage limit on base-station
- Base-station is also controlling the current.

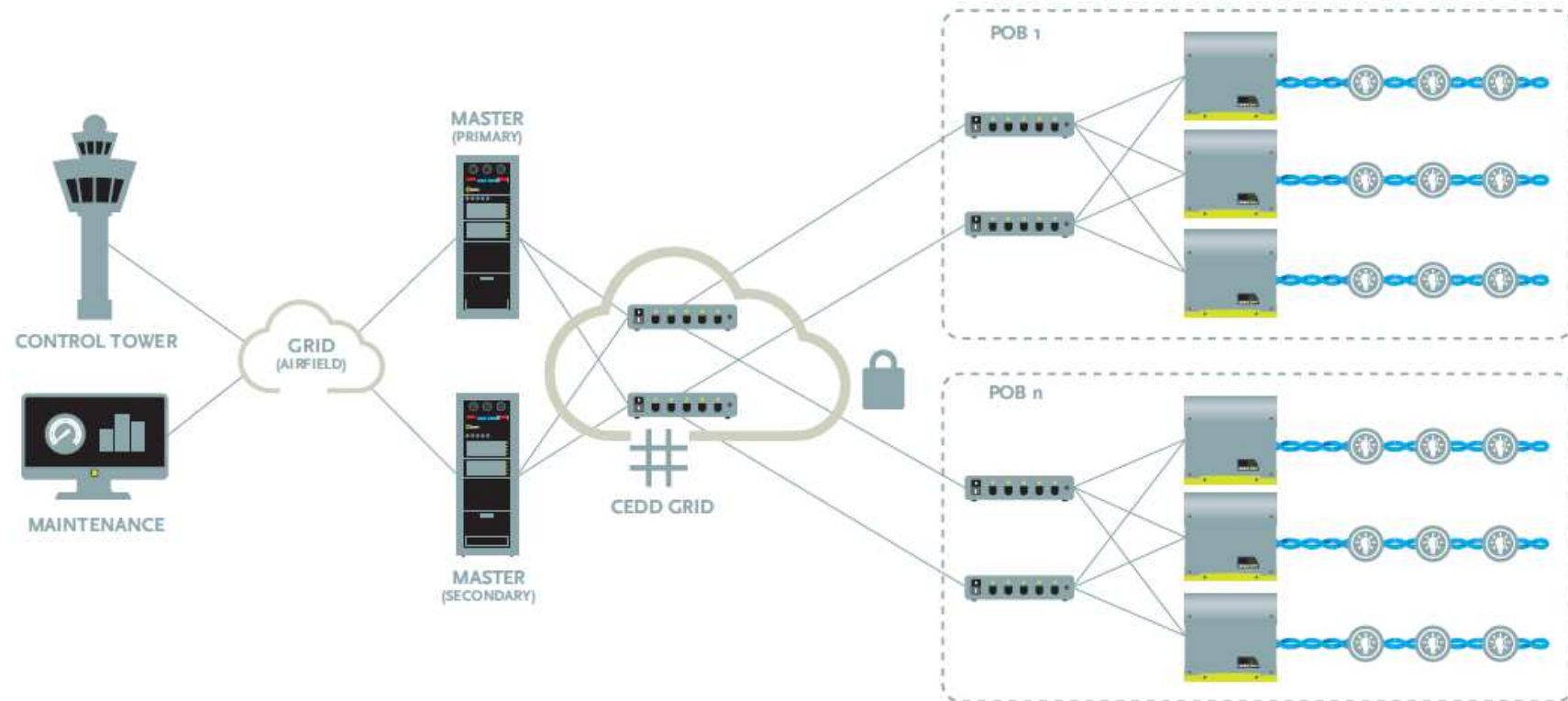
# CEDD AGL System

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- Communication between tower and asset/maintenance management software is done thru the CEDD® Master Controller
- AGL System AGL CMS/ MAINTENANCE SYSTEM and CEDD MASTER can be installed on one Industrial computer

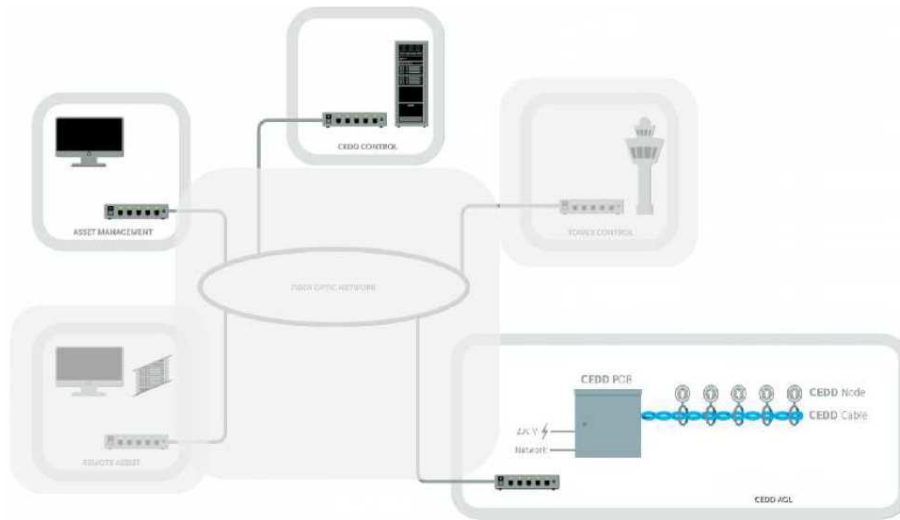
# CEDD System architecture



- Each base station will be connected on the network via Ethernet
- The CEDD fixtures will be controlled by the Base stations and the CEDD master



# CEDD is an open system for control and data management



- The CEDD fixtures will be controlled by the Base stations and the CEDD master
- There are 2 interfaces available at this moment based on Ethernet protocols; Modbus and XML
- Interfacing with existing PLC is possible
- Data will be distributed on the network

## Tower control and fast intrusion detection

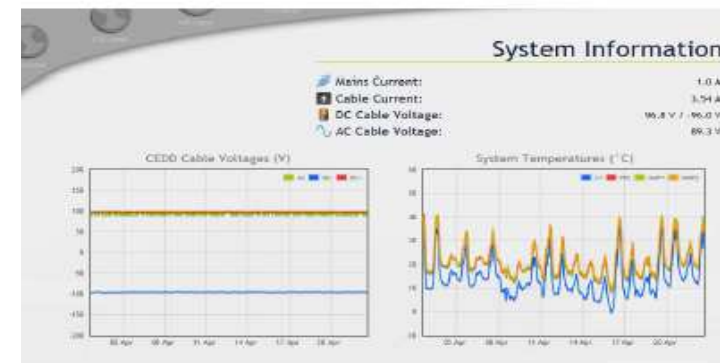
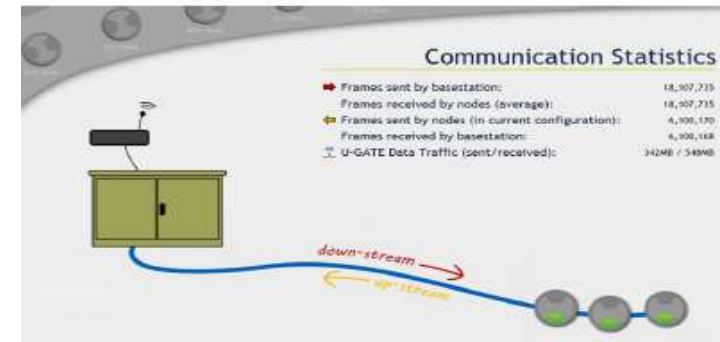
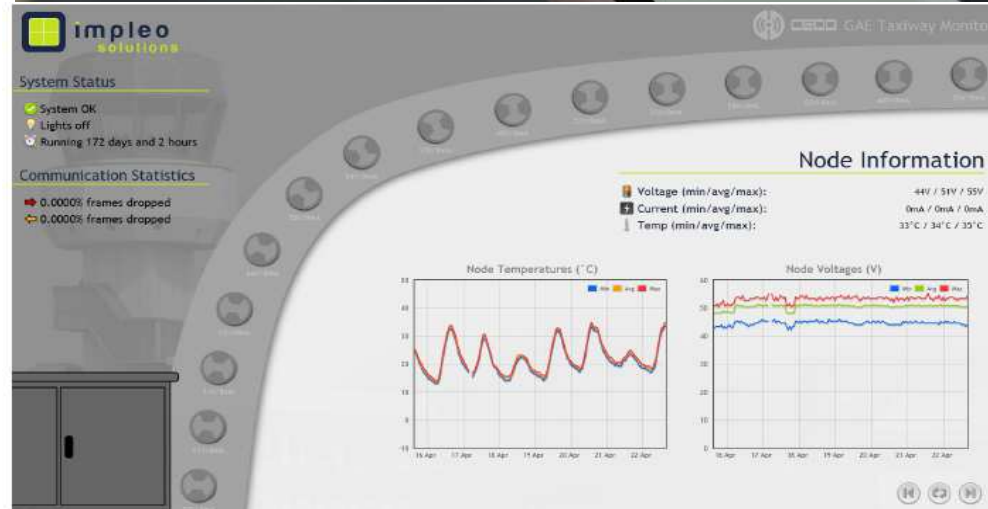
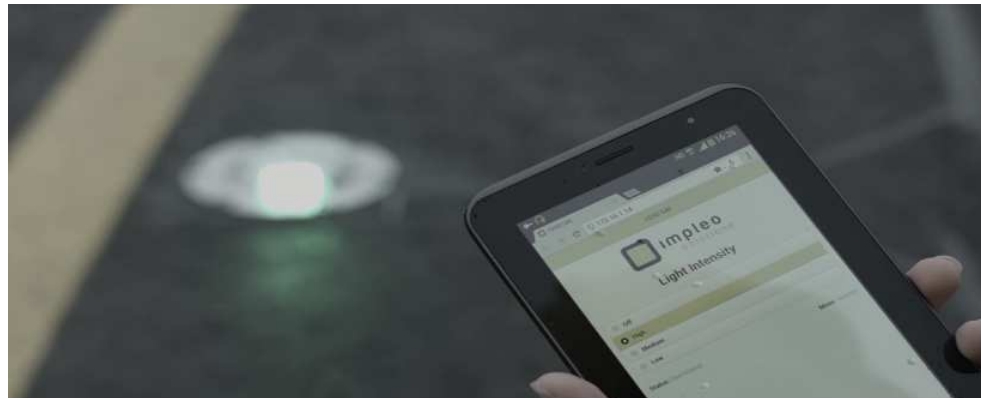


## System data logging and analysis



- Communication between tower and asset/maintenance management software is done thru the CEDD® Master Controller
- For the tower control software, ETHERNET protocols will ensure optimum use
- For the Asset management software, a database will contain all necessary information, an interface will display the data
- Assetmanagement, monitoring and logging via UWISE Operation Intelligence software package
- CEDD solution in combination with UWISE Operation software package will support Adaptive maintenance

# CEDD system offers true asset management capabilities



- Asset management, monitoring and logging via UWISE Operational Intelligence, a software package
- a database will contain all necessary information, an interface will display the data
- Adaptive maintenance made possible with the CEDD technology

# The CEDD connectivity solution

## Improves AGL Costs and functionality Drastically

- CEDD solution CAPEX - OPEX
  - Significant CAPEX improvements
  - Significant OPEX improvements
  - Minimal / no corrective maintenance
  - Preventive / adaptive maintenance
  - Less down time of runways – higher utilization rates per runway can save millions in CAPEX and OPEX for an airport
- CEDD supports the BEST IN CLASS ASSET management
  - CEDD is leading in maintenance 2.0
  - Intelligence, behavior insight and remote support
  - CEDD system manage sensors
  - CEDD system to manage more than lights

