



MONARQ

Intelligent Control Solutions For Architectural Lighting

Full Turnkey Solutions • Remote Lighting Control
DMX Transceivers • Ethernet Converters
Direct Relay Control • LED Pixel Mapping Solutions



MARBLE ARCH, LONDON

INTRODUCTION

London-based Sundrax Electronics is a pioneering developer and manufacturer of hardware and software for smart city lighting control. Working in the field for more than 14 years, Sundrax Electronics has grown to become an industry leading and internationally recognized manufacturer of smart lighting products.

MONARQ system is Sundrax's recent, state-of-the-art development for fully intelligent remote management of architectural lighting integrated into telemetry systems of the Smart City street lighting network providing perfect IoT compatibility.

While constantly working on functional enhancement of **MONARQ**, we employ a dedicated and talented group of electronics engineers who work with the latest technologies, using cutting-edge tools to create lighting control systems providing seamless integration and highest reliability in wireless DMX control (Sundrax's BeDMX technology), ArtNet/sACN > DMX converters, LED drivers and individual pixel strip controllers.

Municipalities, maintenance companies, lighting designers, and facility managers will find **MONARQ** solutions useful to "take command" of all the lighting installations and move forward with timeless style, impeccable quality and passionate craftsmanship together with Sundrax.

Remote Control & Diagnostics

LIVE CONTROL & DIAGNOSTICS FOR ARCHITECTURAL AND STREET LIGHTING WORLDWIDE

Remote control, setup, diagnostic, programming, and scheduling of street lighting behavior through GSM and Ethernet. Real-time switching of lighting installations, power cabinets, individual luminaires or luminaire groups. Display of remote objects and their status on the map.



Live control



User management



Integration



Task management



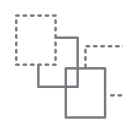
Reporting



Notifications



Scheduling



Configuring



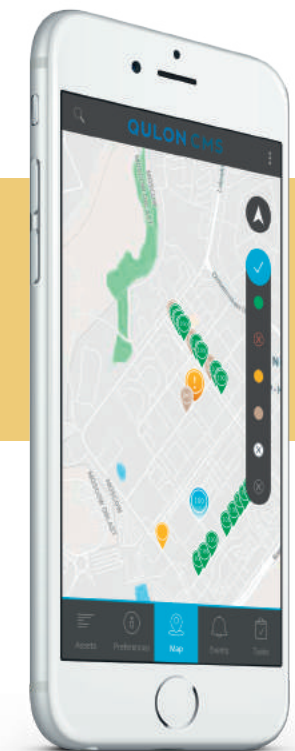
Live monitoring & management

OF YOUR REMOTE LIGHTING INSTALLATIONS



MONARQ supports Google Maps, OpenStreetMap, Yandex, Bing Maps, uploaded map files

View power consumption and system performance reports in tables and graphs
Weekly/daily/monthly email report scheduling
Immediate identification of failures and threshold exceeding
Alarm notifications through SMS and email



Live asset status on the map
Real-time switching and dimming
Remote diagnostics of network behaviour
Create and upload scenes remotely
Advanced scheduling
Triggering (motion sensors, weather stations)



Seamless integration

INTO THIRD-PARTY IoT NETWORKS

Smart City / IoT / M2M

API integration into Smart City networks provides perfect IoT compatibility. MONARQ seamlessly integrates with Smart Infrastructure and Smart Building software suites.

Street Lighting

Integration into Sundrax's QULON system for street lighting management is free. Full city lighting infrastructure in one software.

Sensors and cameras

Event-driven effects are available through motion sensors and weather stations. Snapshot cameras with GSM modules transfer live images of your lighting installations straight into software.



Task Management

COST-EFFECTIVE MAINTENANCE AND PLANNING

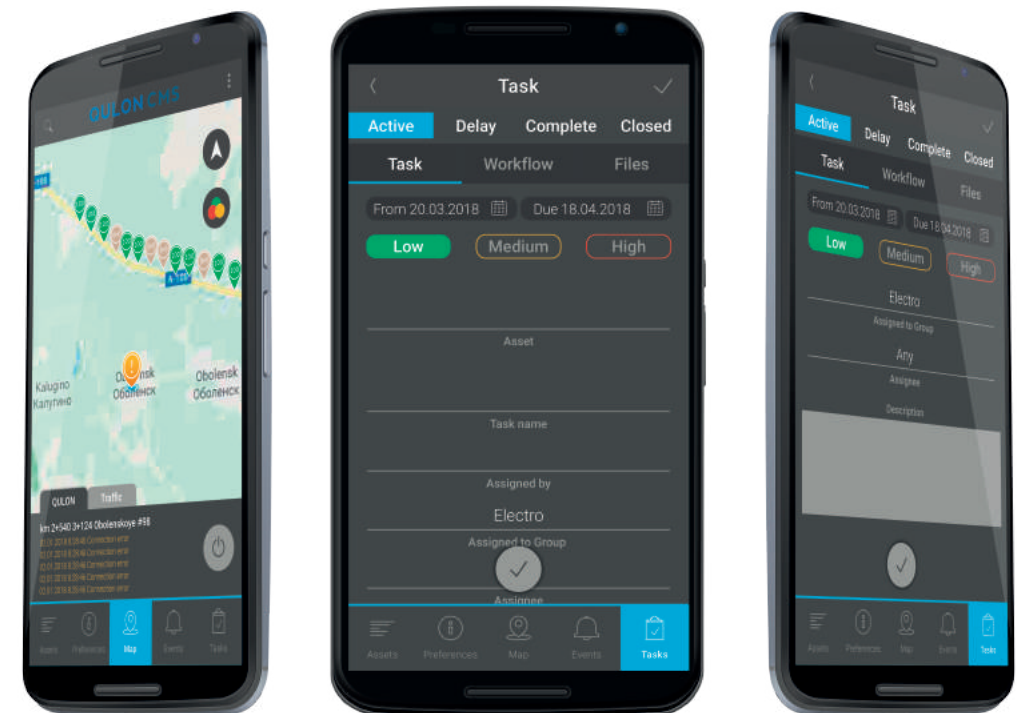
Allocate assets to maintenance crews

Plan and manage onsite inspections and maintenance works

Assign tasks automatically based on triggers

Task manager application for field workers

Maintenance costs statistics and reports



QULON MONARQ

CENTRAL PROCESSOR FOR REMOTE
LIGHTING CONTROL



Dimensions, mm: 210(W) x 105(H) x 75(D)
Operating Temperature: -40...+70°C
Rating: IP20 (individual waterproof box available)

Serial interface: RS-485, CAN
Radio channel: GSM 850/900/1800/1900
Lan: Ethernet 10/100 Base-TX
Setup: Remote via GSM/GPRS/3G

4 relay outputs
7 voltage control inputs
2 sensor inputs
2 or 4 DMX outputs
1x BeDMX output (2.4 GHz)
Ethernet interface
GPS/GLONASS

Full control and administration via GSM

Use GSM connection to upload standard scenarios for onsite lighting management or even control your installations live. Management via GSM adds more flexibility to administer your sites remotely and simplifies network access.

2048 DMX channels

Monitor and control up to 4 DMX universes (wired, wireless, and Ethernet-based) in any project type with no additional splitters or switchers. Use any combination of automatic, manual or scheduled inputs to create complex multi-functional installations.

Ethernet interface

Create Ethernet-based control network to send DMX or ArtNet/sACN data and expand the level of intelligence and incorporate your lighting fixtures into 'Internet of Things' for communication with other systems.

2 sensor inputs

Now your visual spectacles are adjustable to react to the data transmitted from external sensors, i.e. temperature, traffic, atmospheric pressure, wind speed, or sunlight. Let loose and relax.



DIN mounted case
Straightforward design for simple installation saving your time and money.

Key Features

On/off light scheduling

Independent control of each phase

Built-in GSM/GPRS/3G modem

Access to electric meter data via RS-485

Identification of electrical faults

Astronomical clock on board

Built-in backup power supply

Built-in AC power supply

Non-volatile memory for data storage

Withstand voltage up to 305 V

GPS/GLONASS onboard



GPS synchronization

MONARQ Mini

MONARQ Mini

MONARQ Mini

MONARQ Mini

MONARQ Mini

MONARQ Mini

CONTROL YOUR DMX LUMAIRES INDIVIDUALLY
THROUGH GSM

Key features:

Control and synchronize independent DMX luminaires by GSM

Upload scenarios remotely by GSM

Scenarios are stored in memory

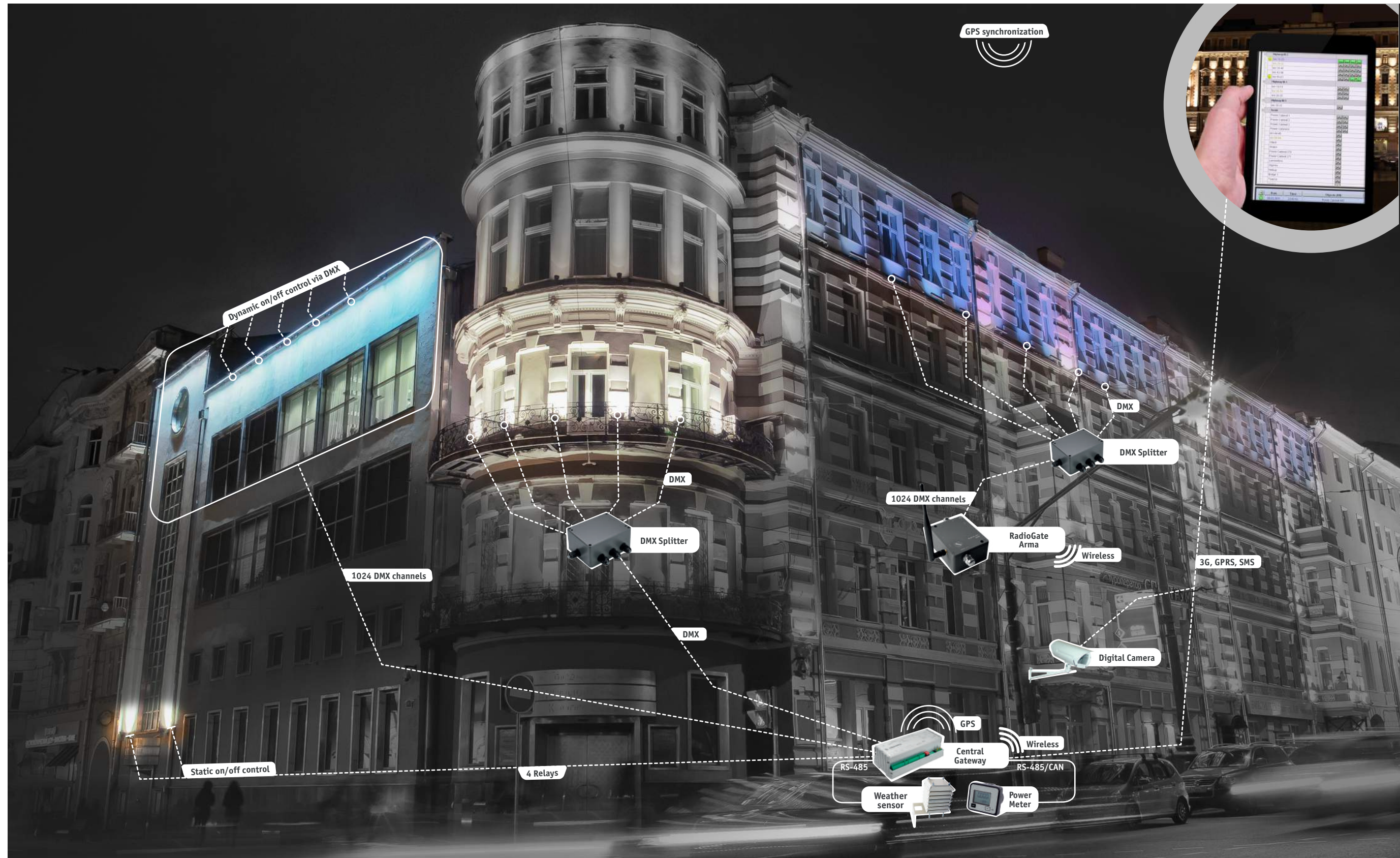
No additional wiring



MONARQ Mini is alternative controller for individual DMX luminaires mounted on top of the luminaire through NEMA socket, Zhaga socket or wiring. Mini connects and communicates directly to software by GSM. Hassle-free installation and no additional wiring makes it perfect solution for lighting of ancient buildings, important historical places, and monuments. Mini's appearance is customizable based on installation requirements.

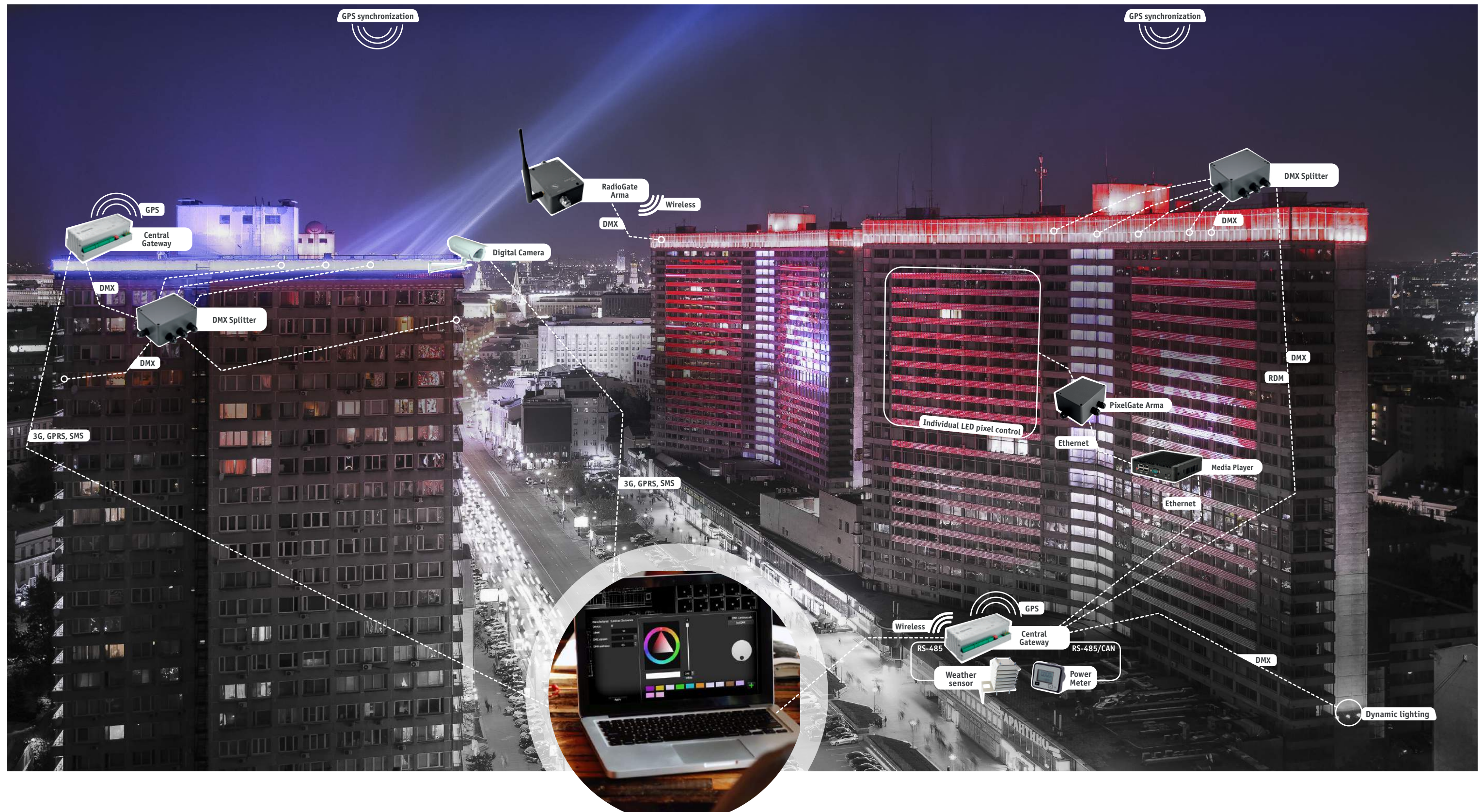
Static & Dynamic

REMOTE ARCHITECTURAL LIGHTING CONTROL FOR MIXED INSTALLATIONS
USING WIRELESS TRANSCIEVERS, DMX AND DIRECT RELAY CONTROL



Full turnkey solution

FOR REMOTE ARCHITECTURAL LIGHTING CONTROL & MONITORING



ArtGate Arma

Outdoor bidirectional DMX512-Ethernet converter, splitter, booster, intelligent merger in thick metal case (IP65). Supports wide range of network protocols for DMX data transmission: ArtNet I,II,III,4, sACN draft/release, KiNet v1, v2, RTrPL. DMX512 data streams received by ArtGate Arma are transmitted through Ethernet LAN in 10/100Base-T mode and vice versa. Carefully crafted "off-track" enclosure is excellent for any outdoor installations under any weather conditions. It is time to relax and be confident that your outdoor installations are well-handled.



Housing: solid metal case
Dimensions, mm: 171(D) x 55(H) x 71(W)
Operating Temperature: -40...+70°C
Power supply: ~100-270 VAC, 50/60 Hz

Supported protocols: DMX512, RDM, ArtNet I,II,III,4, sACN draft/release, KiNet v1,v2, RTrPL
Ethernet: 2 ports, 10/100 Base TX
Setup: Web interface
Indication: LEDs for DMX and Ethernet activity
PoE available



PoE available for stand-alone installations

2 Ethernet ports and internal switcher to chain devices

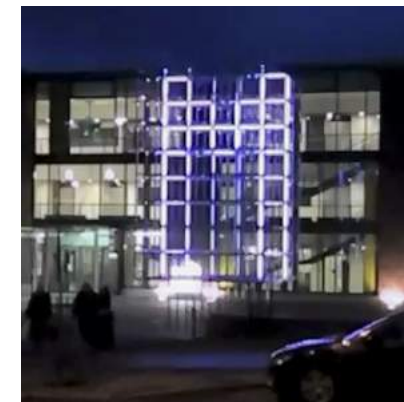
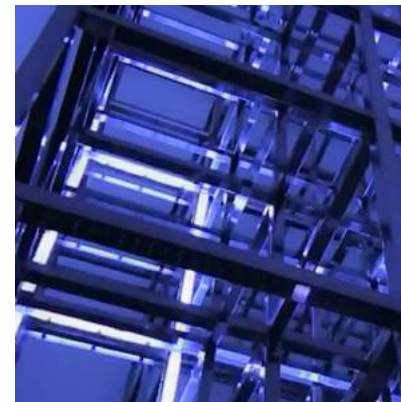
Software-configurable parameters of DMX signal (break, mab, length of frame)

Configurable DMX port direction (input, output, output with loopback)

Ready for severe weather conditions (IP65)

OMNIA

The concept of OMNIA installation in Espoo relies on full interaction with audience. Façade of the building acts as free billboard for personal messages. People send text messages to special number and then enjoy them transmitted letter by letter on the full façade of OMNIA building.



Espoo, Finland



>be DMX

WIRELESS CONTROL
WITH BE-DMX TECHNOLOGY BY SUNDRA

BeDMX is a 2.4GHz wireless technology specifically developed by Sundrax Electronics to exchange DMX/RDM or ArtNet/sACN signal with RadioGates transceivers. BeDMX technology provides bidirectional communication with Adaptive Frequency Hopping (AFH) and long-range transmission up to 1500 m. AFH helps to avoid disturbance from any other wireless equipment by a hop rate of 1600 hops per second so you stay calm and sure that your installation works with no surprises.

No need for cabling

Bidirectional communication provides diagnostics

Multiple universes in a network

Unbreakable long range connection

No interference from devices using 2.4 GHz



Dimensions, mm: 115(W) x 55(H) x 90(D)
Operating Temperature: -40...+70°C
Rating: IP65 (outdoor use)

1, 2 or 4 isolated DMX ports
BeDMX wireless channel (2.4 GHz)
Communication protocol: Bluetooth 5.0
Supports DMX512 and RDM
One-button programming

Power supply: ~100-250 VAC or 12-24 VDC
Max current consumption: 0.1 A

RadioGate Plus Arma only:
Supports ArtNet I, II, III, IV, sACN draft, release, KiNet v1, v2, RTTrPL
Ethernet port
Simple web interface



RadioGate Arma

WIRELESS DMX TRANSCEIVER

All in one

RadioGates are transceivers meaning that they act as transmitter AND receiver at the same time. No need to guess how many transmitters and receivers you need or to switch between modes. All RadioGates are bi-directional supporting Remote Device Management (RDM) protocol for two-way communication

Easy monitoring and configuration

Simple single button configuration and LED indication save your nerves and time. Create advanced multi-universe installations within seconds and enjoy resistant cable-free connection with RadioGates.

Support of Ethernet protocols

RadioGate Plus Arma supports many DMX-Ethernet communication protocols such as ArtNet (1,2,3,4), sACN (Draft, Release), KiNet (v1,v2), RTTrPL. Integrated Ethernet converter and merger lets you create complex installations with multiple send-convert-and-receive combinations. In addition to AC power RadioGate Plus Arma has PoE power supply and optional DC modification.

Back-ups within a second

If one of your DMX devices dies in the middle of a show you can seamlessly switch to a backup RadioGate in a second with no interruption to a running show.

WIRELESS DMX TRANSCEIVER + ETHERNET NODE



DMX Bi-Direct



Supports RDM



UltraStart



Galvanically Isolated Ports



Natural Heat Convection



Highest Ingress Protection



Back-up Transmitter

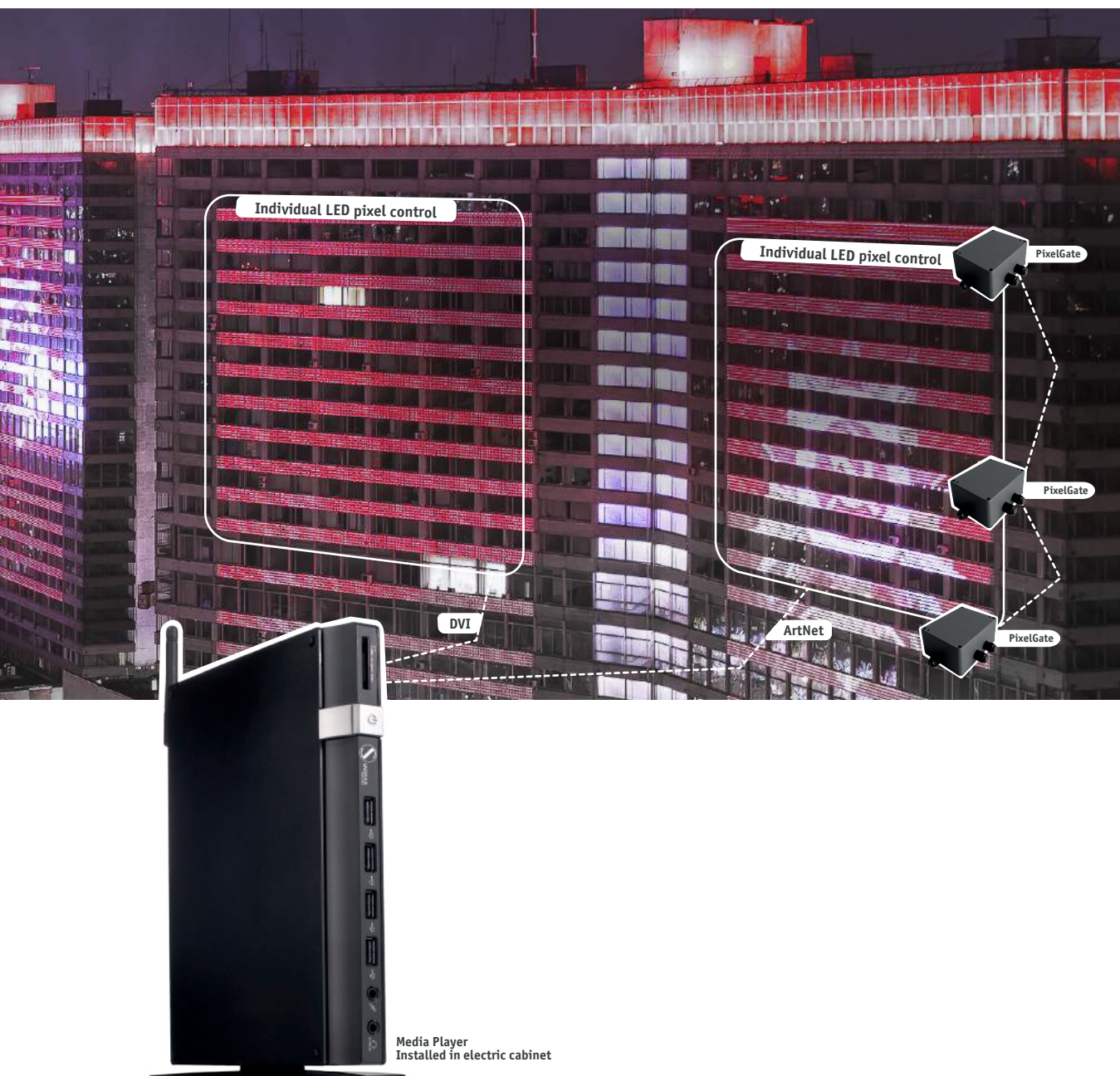


Power over Ethernet

Media Player

LED PIXEL MAPPING

Small scale server optimized for cabinet installation. Provides fast connectivity, hosting, remote setup and control for outdoor LED installations and shows with its dual display output via DVI or ArtNet/sACN.



Media Player
Installed in electric cabinet

Supported protocols: ArtNet, sACN
Card Reader: 4-in-1: SD/SDHC/SDXC/MMC
Memory: 2 GB Up to 4 GB DDR3 at 1333MHz
Storage: 320GB Up to 500GB SATA II (5400RPM), up to 32GB SSD
Dimensions, mm: 219(W) x 172.5(H) x 29(D)
Mass: 0.69 kg
Mounting: VESA bracket or surface

PixelGate Arma

INDIVIDUAL LED PIXEL CONTROLLER



Video mapping and live effects on large-scale RGB LED walls of any complexity are now handled by our excellent PixelGates. PixelGate Arma is a pixel strip controller developed for individual pixel control at indoor and outdoor installations when you need to convert ArtNet (DMX over Ethernet) or ACN data to your LED strip protocol.

Each PixelGate Arma directly converts up to 16 DMX universes into SPI to control 2,730 RGB pixels supporting up to 8 separate LED outputs. 2 Ethernet ports and integrated switcher allows chaining of multiple PixelGates to enlarge the number of controlled pixels.

IP65 case makes devices perfectly resistant to water, dust, fog, and smoke which is crucial for LED mapped installations located outdoors.

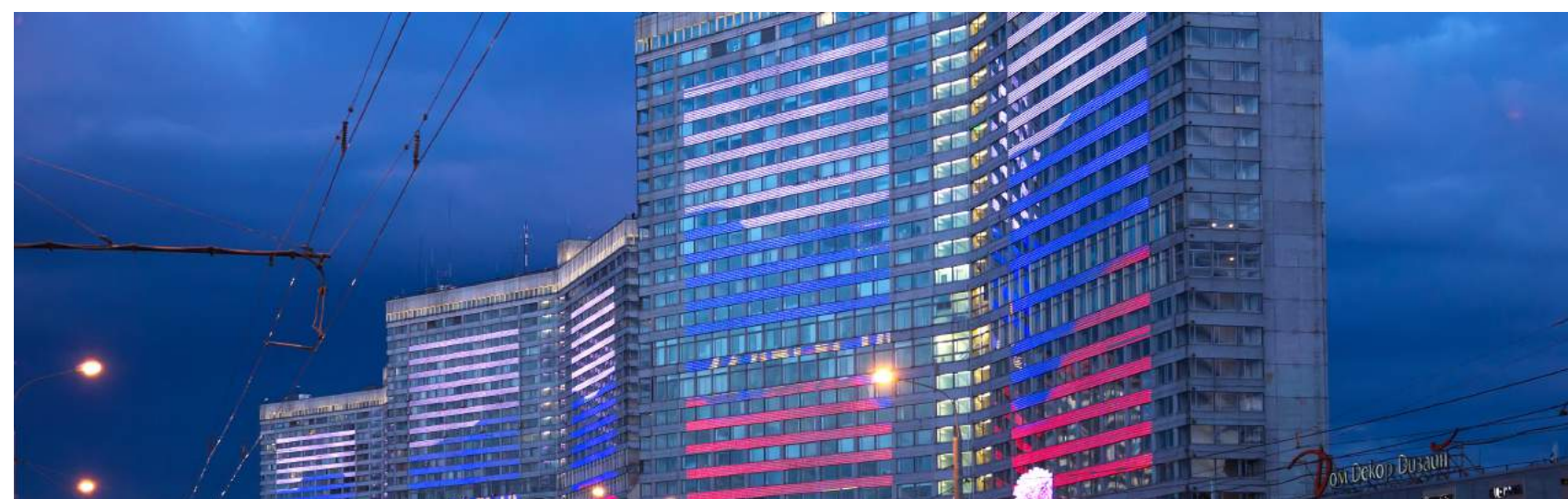
2 Ethernet ports
and internal switcher
to chain devices

Waterproof
metal casing

Supports any ArtNet
or sACN controlling
software

Seamless pixel mapping
for large LED installations

Remote firmware changing
to support specific LED strips
that you use



User-Friendly
Web Interface



UltraStart



Natural Heat
Convection



Highest Ingress
Protection



Splitter DUO Arma

DOUBLE-INPUT DMX SPLITTER/REPEATER



Housing: solid metal case
Dimensions, mm: 115(W) x 55(H) x 90(D)
Operating Temperature: -40...+70°C
Power supply: ~100-270 VAC, 50/60 Hz

Supported protocols: DMX512, RDM
DMX input ports: 2 isolated
DMX output ports: 5 isolated
Setup: by DIP switchers
Indication: LED for DMX input



Supports RDM for diagnostics | 6 configurable DMX ports (1-to-5 or two separate 1-to-2 splitters) | Ready for severe weather conditions (IP65) | Star topology connection of devices | Increases the number of devices and cable length

Housing: DIN mounted metal/ plastic case
Dimensions, mm: 142(W) x 105(H) x 75(D)
Operating Temperature: -40...+70°C
Power supply: 12/24 VDC

Control interface: DMX512
Supported protocols: DMX512, RDM
LED outputs: 4 or 8
DMX512 interfaces: 1
Setup: by DIP switchers
Indication: LED for DMX activity



LEDGate DIN

COMPACT LED DRIVER



Smooth stepless light regulation for LED luminaires and strips | Controls and dims 8 output lines via DMX | Supports RDM for diagnostics

ArtGate DIN

DIN-rail mount bidirectional DMX512-Ethernet converter, splitter, booster, intelligent merger with 2 Ethernet inputs and 8 bidirectional DMX inputs. User-friendly web interface provides remote DMX signal timing setup, port configuration, and other parameters, as well as firmware update. DIN rail enclosure makes the device ideal for fixed architectural installations.

Housing: DIN mounted metal/ plastic case
Dimensions, mm: 142(W) x 105(H) x 75(D)
Operating Temperature: -40...+70°C
Power supply: ~100-270 VAC, 50/60 Hz
Supported protocols: DMX512, RDM, ArtNet I,II,III,4, sACN draft/release, KiNet v1,v2, RTrPL
Ethernet port: 1 or 2 10/100 Base-TX
DMX connectors: Terminal blocks 15 EDGV
DMX ports: 4 or 8 isolated
Setup: Web interface
Indication: LED for DMX and Ethernet activity
Trigger inputs: 2



Unlimited quantity of configuration profiles | Controls and dims 4 output lines via DMX | Supports RDM for diagnostics | 2 Ethernet ports with PoE to enable cascading | Trigger inputs for external events and alarms



QULON Meteo

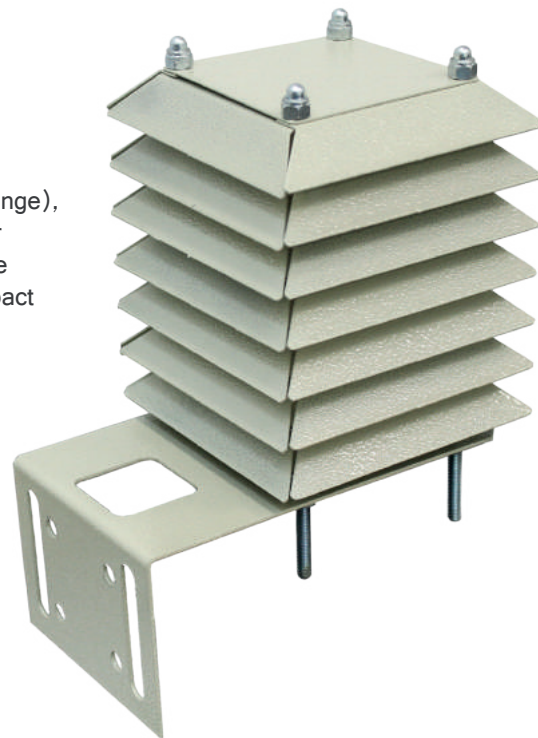
TEMPERATURE, HUMIDITY AND PRESSURE SENSOR

Qulon Meteo provides information about air temperature (-40°C ... $+70^{\circ}\text{C}$ range), relative humidity and atmospheric pressure which can be used as a trigger for architectural lighting scenarios. Easy pole mounting installation. Remote control and monitoring. Integrated into lighting management system. Compact and accurate as a Swiss watch.

Housing: Solid plastic & metal cover
Dimensions, mm: 91(W) x 64(H) x 34(D)
Mass: 0.2 kg
Mounting: Pole
Operating Temperature: $-40\ldots+70^{\circ}\text{C}$

Power supply: 10-48 VDC
Input Power (max): 5 W

Serial interface: RS-485 (MODBUS RTU)
Setup: Remote via QULON MONARQ
Connectors: screw terminals



QULON Photo

HI-RES POLE MOUNT CAMERA

Qulon Photo designed to monitor lighting installations remotely and transmit high-resolution photos to the control room. Snapshots from fully autonomous Qulon Photo are sent via built-in GSM/3G/HSPA modem. Night vision available. Integrated into lighting management system.

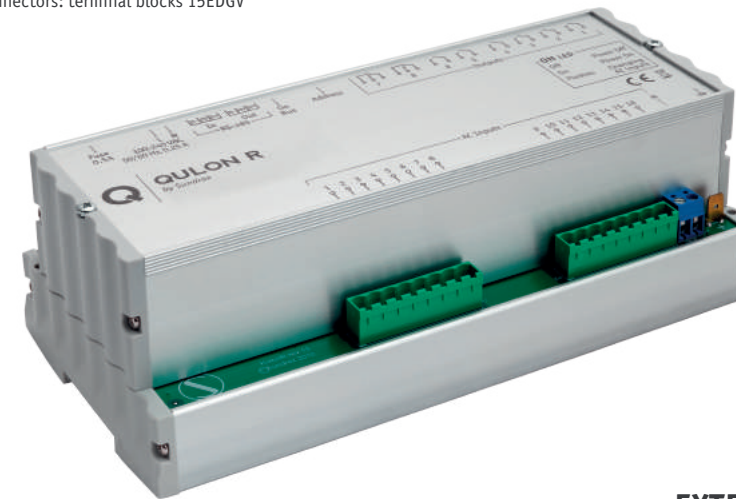
Housing: Metal thermo cover
Dimensions, mm: 350(W) x 107(H) x 118(D)
Mass: 1.8 kg
Mounting: Pole
Operating Temperature: $-40\ldots+70^{\circ}\text{C}$
Power supply: $\sim 100-270$ VAC, 50/60 Hz
Input Power (max): 5 W
Serial interface: RS-485 (MODBUS RTU)
Setup: Remote via QULON MONARQ
Connectors: screw terminals
Wireless channel



Housing: Metal/plastic case
Dimensions, mm: 210(W) x 105(H) x 75(D)
Mass: 0.6 kg
Mounting: DIN-rail in the power cabinet (12 modules)
Num. of inputs: 16
Num. of outputs: 8

Input Voltage: $\sim 100-270$ V, 50/60 Hz
Input Power (max): 5 W

Serial interface: RS-485
Setup: Remote via QULON MONARQ, DIP switchers
Connectors: terminal blocks 15EDGV



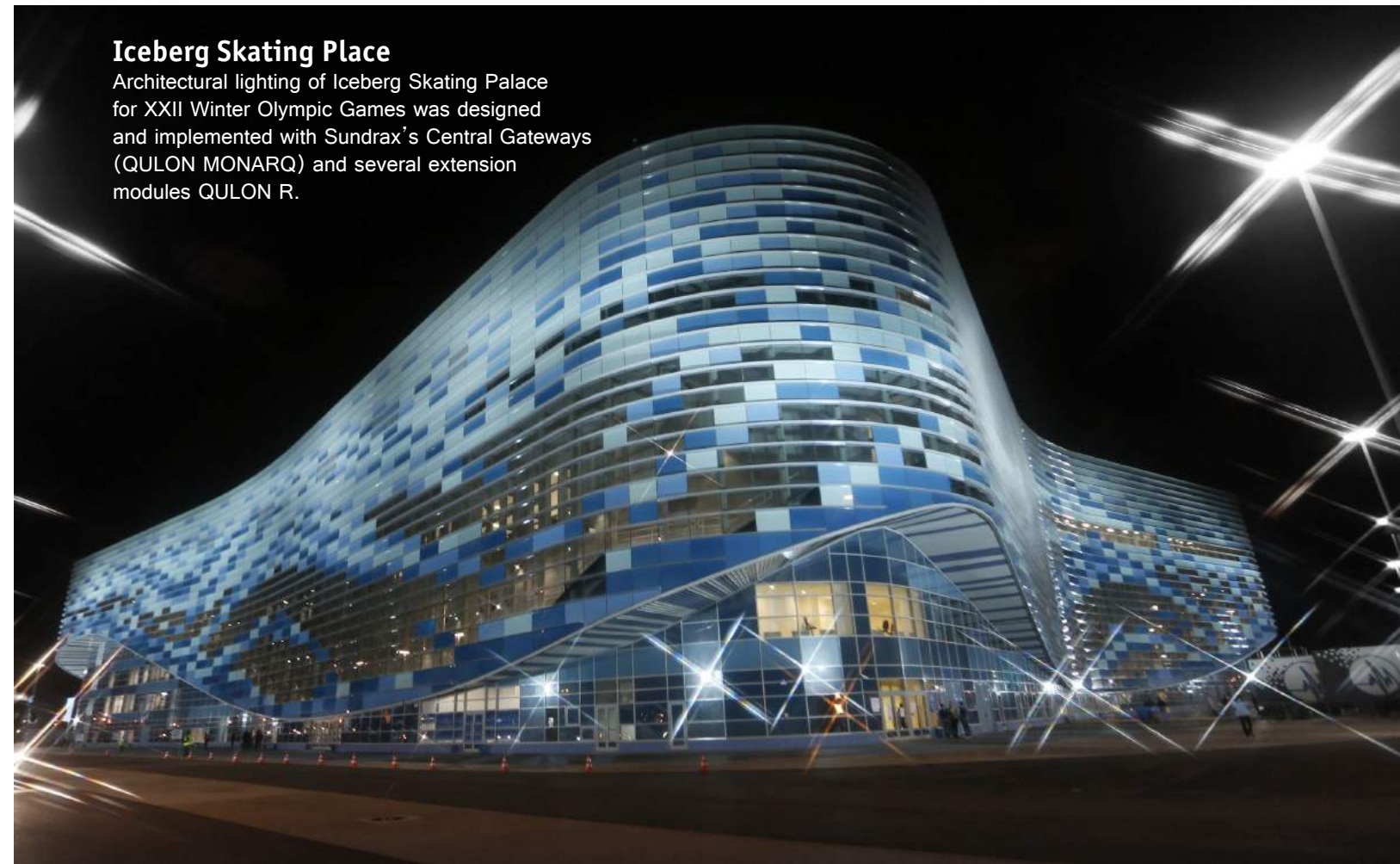
QULON R

EXTENSION MODULE FOR LIGHTING CONTROL

Qulon R is additional extension module to Qulon Central Control and Monitoring System and MONARQ system for architectural lighting control providing additional 16 independent inputs and 8 relay outputs to the Central Gateway (QULON MONARQ).

Iceberg Skating Place

Architectural lighting of Iceberg Skating Palace for XXII Winter Olympic Games was designed and implemented with Sundrax's Central Gateways (QULON MONARQ) and several extension modules QULON R.



All-In-One Street + Architectural

GAN RIVER LIGHTING MANAGEMENT CONCEPT

Sundrax Electronics is pioneer in street and architectural lighting management integration under one single powerful software and database.

QULON System provides unique opportunity to centralize remote management of road & street lighting while MONARQ System is seamlessly integrated into QULON software to manage your architectural and façade lighting through all-in-one solution.

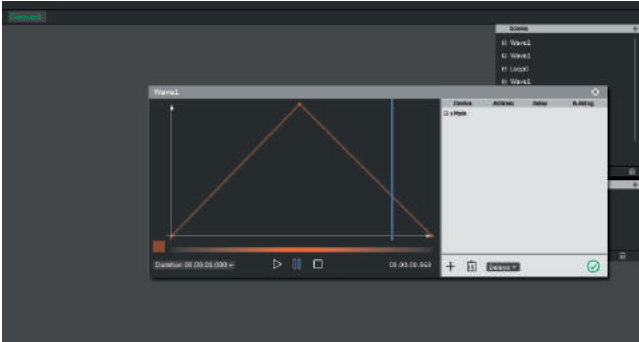


Light Coder

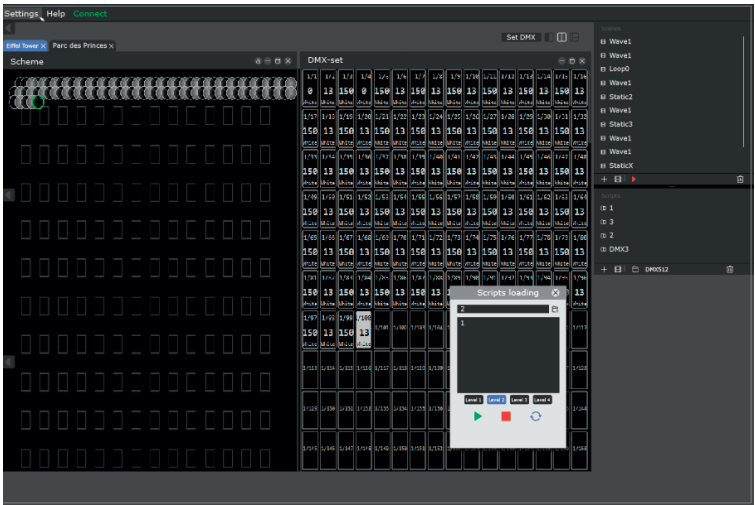
**VISUALIZING SOFTWARE
FOR ARCHITECTURAL LIGHTING DESIGNERS**

Light Coder is special software developed by Sundrax for professional lighting designers to create, edit and play architectural and art lighting scenarios in a quick way. Straightforward design and flexible import/export parameters save your time and nerves for pure creative work. A must have for live lighting design and real-time preview.

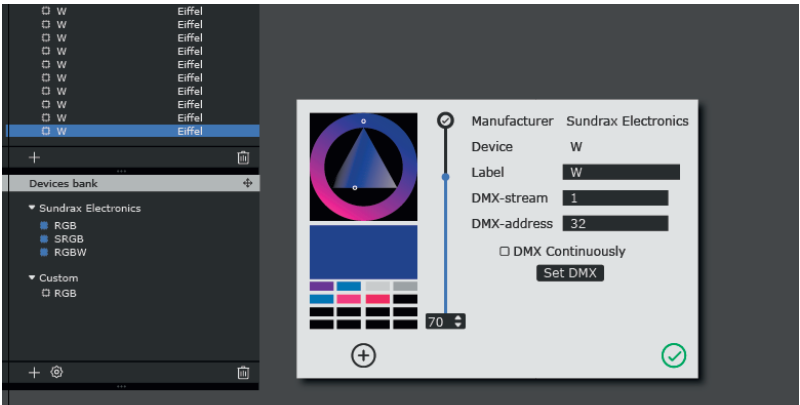
Visual playback and scenario planning



Real-time editing tools

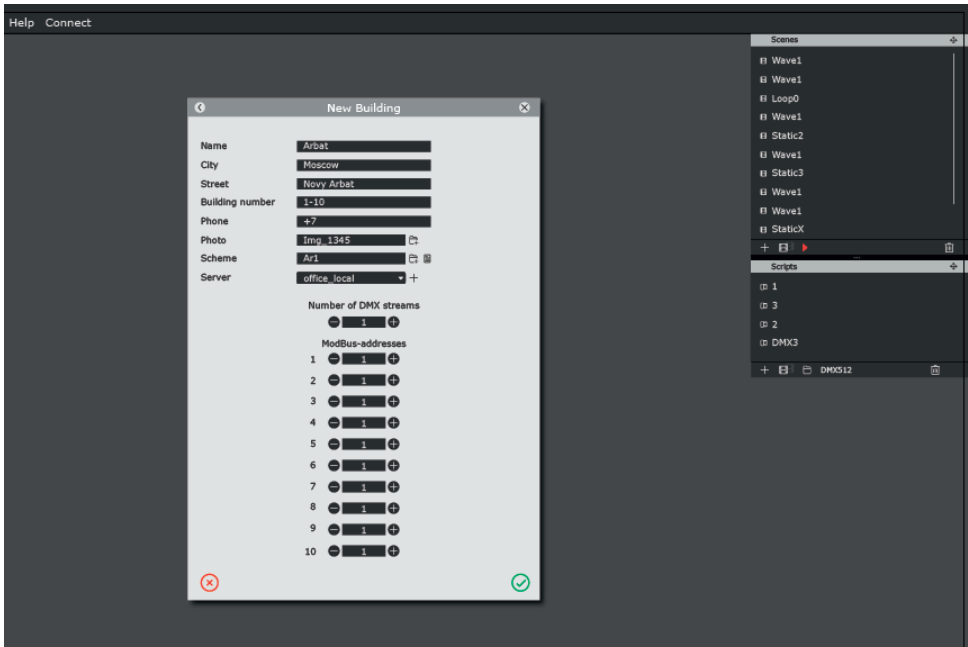


Full Integration into City Lighting Management System



Simple workflow

No special
prior training required



- Edit live
- Export scenarios
- Control status on the map



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