AIDMX

Intelligent architectural lighting console — Professional DMX control

www.aidmxpro.com

Datasheet
Ref.: AIDMX-FT-001
Version: 1.0

AIDMX is a turnkey solution for **architectural DMX lighting control**, designed for municipalities, institutional buildings, businesses and heritage façades. It combines an on-site **control box** with a **cloud platform** to create, schedule and automate lighting scenes — with no DMX technical knowledge required from the operator.

1 SYSTEM ARCHITECTURE

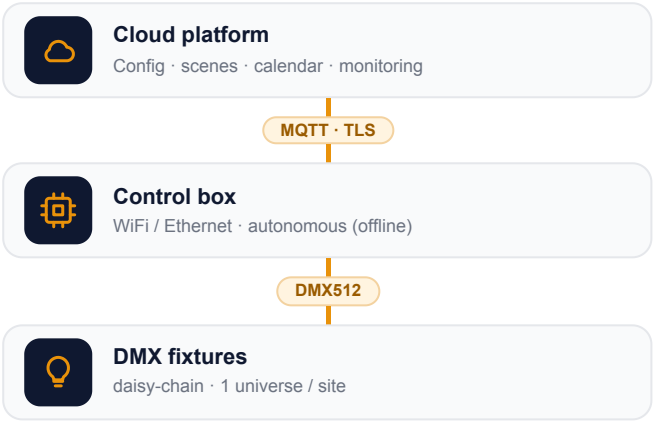
Overview

Distributed architecture across 3 layers:

- **Cloud platform** — configuration, scenes, calendar, monitoring.
- **Control box** (on site) — runs scenes autonomously, even offline.
- **DMX fixtures** — projectors / LED strips wired in a DMX512 chain.

Cloud ↔ box communication is over **MQTT** (encrypted). The box stores its programming locally: **lighting keeps running even if the Internet connection is lost**.

Block diagram



Standard DMX daisy-chain topology, 120 Ω termination recommended at end of line.

2 DMX CONTROL SPECIFICATIONS

CHARACTERISTIC	VALUE
Protocol	DMX512 (ANSI E1.11), 250 kbit/s
DMX universe	1 universe per site — **512 channels** (addresses 1 to 512)
Addressing	Automatic or manual, address conflict detection
Channel order	Configurable per site (RGB, GRB, BGR… / RGBW, GRBW, etc.) to match any wiring
Resolution	8 bits per channel (0–255)
Master intensity	Global master level per site (0–100%)

SUPPORTED FIXTURE TYPES

TYPE	CHANNELS	DESCRIPTION	MAX / SITE*
RGB	3	Red, Green, Blue	170
RGBW	4	Red, Green, Blue, White	128
Mono / Dimmer	1	Single-color dimmer	512
CCT (tunable white)	2	Warm / Cool white	256

* Theoretical maximum for a 512-channel universe, single type. Types can be mixed within the 512-channel limit.

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3 CONTROL BOX (ON SITE)

CHARACTERISTIC	VALUE
Type	Embedded DMX controller
DMX output	DMX512 interface
Network connectivity	WiFi (2.4/5 GHz) or **LAN version** (Ethernet RJ45)
Network configuration	Automatic DHCP by default. LAN version — **advanced settings**: static IP, subnet mask, gateway, DNS
Autonomy	Local execution of scenes and calendar — works offline
Updates	Remote OTA (over-the-air), no on-site intervention
Monitoring	Real-time status (online/offline, temperature, WiFi signal, storage)
Power	5 V DC via USB-C — power supply included (ETL listed, Class 2)
Dimensions	9 × 6 × 3 cm (90 × 60 × 30 mm)
Operating temperature	0 – 35 °C
Ingress protection	IP45
Mounting	Surface mount

4 SOFTWARE FEATURES

Scene creation

- Multi-step scenes with fade transitions and adjustable hold times.
- Color / intensity per fixture and per step.
- **AI-assisted generation**: describe a mood, the palette and sequence are proposed.
- 2D fixture map with building photo background, symmetry detection.
- Change history / undo.

Astronomical scheduling

- Triggering at **sunrise / sunset** (local calculation, no external service).
- Adjustable offset (e.g. turn on 30 min before sunset).
- Fixed times, daily / weekly / monthly / yearly recurrence.
- Time zone per site.

Operation

- Responsive web interface (computer, tablet, mobile).
- **Wall-mounted tablet remote** (kiosk mode) — simple control, no DMX knowledge.
- Multi-site and multi-organization, role and permission management.
- Multilingual: French / English / Spanish.

Monitoring & maintenance

- Real-time box monitoring.
- Timestamped audit log (6-month retention).
- Remote software updates (OTA).
- Configuration backup / restore.

5 CONTROL & ACCESS MODES

The site can be controlled in several ways depending on the user profile — all secure and synced in real time.

Computer / Web
Full console: configuration, scenes, calendar, monitoring

Smartphone
Remote control, biometric unlock

Wall tablet (option)
Kiosk mode: simple local control, no DMX knowledge

Secure access · real time

AIDMX Platform · www.aidmxpro.com · → Box → Fixtures

Smartphone remote

- Control the site from a phone, wherever you are.
- Protected by **biometric unlock** (fingerprint / face).
- Ideal for technicians and managers on the move.

Local wall tablet (optional)

- Wall-mounted tablet at the client site for **on-site control**.
- Simplified touch interface: scenes, colors, on/off.
- Locked kiosk mode — no DMX knowledge required.

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6 SECURITY & COMPLIANCE

Data security

- **AES-256-GCM** encryption of sensitive data (IP addresses, secrets).
- Hashed passwords (bcrypt), token authentication (JWT).
- Authenticated and encrypted box ↔ cloud communication (MQTT/TLS).
- Strict per-organization data isolation (multi-tenant).
- Access and action logging (audit trail).

Compliance

The system is based on the **DMX512 standard (ANSI E1.11)**.

Power supply (included): **ETL listed**, **Class 2** (NEC Class 2), USB-C connector.

Electrical compliance of connected fixtures is the responsibility of their respective manufacturers.

7 INSTALLATION REQUIREMENTS

ITEM	REQUIREMENT
DMX cabling	120 Ω cable (shielded twisted pairs), daisy-chain topology, 120 Ω termination recommended
DMX line length	Up to ~300 m (depending on cable); beyond, DMX splitter/repeater recommended
Network	Internet access (WiFi or Ethernet) for configuration and monitoring; not required for daily operation. LAN version supports static IP on managed networks (VLAN, firewall)
Box power	Standard wall outlet nearby (USB-C 5 V DC power supply included, ETL listed Class 2)
Fixtures	DMX512 compatible; record of addresses and channel count per fixture

8 USE CASES

Heritage façades · Municipal buildings · Churches & monuments · Hotels & retail · Bridges & structures · Event lighting · Parks & public spaces