

V-SPEC RANGE · OUTDOOR FIXED DISPLAY

LDC960XXWPR-V Series

Outdoor Fixed Display · User Manual

Installation, commissioning and field maintenance for the 960 mm LDC960XXWPR-V cabinet in P6.67, P8 and P10. Front and rear serviceable, right-angle and small-radius curve capable. Written for qualified installers and service technicians.



♦ V-SPEC TIER · -V

VERSION 1.0

A4 · 18 PP

EN-AU

960mm

CABINET WIDTH

101mm

CABINET DEPTH

26kg

960 × 960 CABINET

10000nit

PEAK BRIGHTNESS

ABOUT THIS MANUAL

Composition, installation, commissioning and maintenance in one document

This manual covers the technical composition, performance, installation, commissioning and maintenance of the LDC960XXWPR-V Series. It applies to the 960 mm cabinet family in three heights — 960 × 960, 960 × 640 and 960 × 1280 — across pixel pitches P6.67, P8 and P10.

Who this manual is for

Qualified LED installers, structural riggers, licensed electricians and service technicians engaged by Aurora or an Aurora channel partner.

Read this first

Section 01 is mandatory reading before unpacking. This product is for professional use only and is not suitable for domestic installation.

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DOCUMENT CONTROL

Document	AUR-UM-LDC960XXWPR-V
Version	V1.0 · August 2026
Product range	V-SPEC · SKU suffix -V
Pitch codes	XX = 67 · 80 · 100

READING THE MODEL CODE

LDC960XXWPR-V

960 cabinet width in mm · **XX** pixel pitch × 10 (67 = P6.67, 80 = P8, 100 = P10) · **WPR** weatherproof rental-frame cabinet · **-V** V-SPEC range.

Front & rear service

V-SPEC range

5VB fire rating

SECTION 01

01

Safety Information

Read in full before installing, energising, operating or maintaining the product. Fire, falls and electric shock carry a risk of serious injury or death.

PROFESSIONAL USE ONLY

This product is intended for professional installation and is not suitable for domestic use. Understand every warning symbol in this manual and on the product itself, and follow the protective measures listed below without exception.

HAZARD	REQUIRED PRECAUTIONS
Electric shock	Connect only to a 100–240 V supply at 50–60 Hz. Keep the earth conductor connected at all times and isolate the supply whenever the display is not in operation. Confirm all equipment is in sound condition before use. Never use a damaged, defective or overheated lead or plug. Do not open any cover.
Fire	Do not modify the product in any way not described in this manual. Do not operate at full power where the ambient temperature is above 40 °C or below –20 °C.
Injury	Barricade the work area or restrict access whenever the product is being installed, serviced or moved. Confirm all external covers and hardware are correctly locked. When rigging, install from the top down and dismantle from the bottom up.
Earthing & leakage	Combining power boxes across an array increases total leakage current. The installation must be correctly earthed to the project specification to avoid the shock risk that high leakage current creates. The product must be earthed.
Power and data leads	The power and data leads supplied with the system carry specific protection and are not user-serviceable. A damaged lead must be replaced, never repaired.

Operating window

–20 °C to +40 °C ambient. Outside this range, do not run the display at full power.

Supply

100–240 V AC, 50–60 Hz, with overload and earth-fault protection at the distribution board.

Certification

ETL · FCC · CE · CB · RoHS

SITE HANDOVER

Record the earth-continuity result, supply configuration and isolation point in the project handover pack before the array is energised for the first time.

SECTION 02

02 Product Features

A 960 mm weatherproof cabinet built for permanent outdoor installation — serviceable from either face, and capable of right-angle and small-radius curved builds.

Front and rear service

Modules and the power box can be reached from either face, so the cabinet suits both wall-fixed and access-restricted installations.

Thermal design

An optimised heat-dissipation path holds junction temperature down and materially extends service life.

Geometry

Right-angle splicing for corner wraps, and small-radius curves over an otherwise straight screen line.

Fire rating

Whole-product 5VB rating — the highest UL 94 classification applied to the enclosure.

Brightness headroom

Up to 10,000 cd/m², holding a legible image in direct sun on P8 and P10 builds.

EMC

Class B emissions, suited to installations near sensitive receiving equipment.

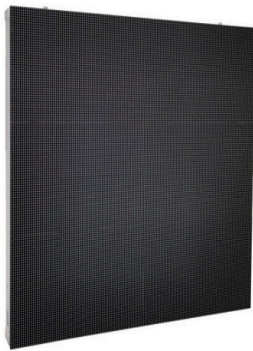


FIG 02.1 — INSTALLED SCREEN



FIG 02.2 — INSTALLED SCREEN

03 SECTION 03 Specifications

Figures below are for the 960 × 960 cabinet. Module data applies to every cabinet height in the family.

PARAMETER	LDC96067WPR-V	LDC96080WPR-V	LDC960100WPR-V
Pixel pitch	6.667 mm	8.0 mm	10.0 mm
Pixel density	22,500 dot/m ²	15,625 dot/m ²	10,000 dot/m ²
LED package	SMD2727	SMD3535	SMD3535
Module size	480 × 320 mm	480 × 320 mm	480 × 320 mm
Module resolution	72 × 48 px	60 × 40 px	48 × 32 px
Cabinet resolution	144 × 144 px	120 × 120 px	96 × 96 px
Scan rate	1/6	1/3	1/2
Brightness	7,000 cd/m ²	10,000 cd/m ²	10,000 cd/m ²
Module weight	2.5 kg	2.5 kg	2.5 kg
Module thickness	23.5 mm	23.5 mm	23.5 mm
Cabinet power — maximum	580 W	550 W	550 W
Cabinet power — average	200 W	190 W	190 W

COMMON TO ALL PITCHES

Cabinet size	960 × 960 mm (960 × 640 and 960 × 1280 also available)
Cabinet weight	26 kg (960 × 960)
Cabinet thickness	101.2 mm
Greyscale	14 bit
Refresh rate	3,840 Hz
Viewing angle	160° horizontal · 140° vertical
Input voltage	110–220 V / 200–240 V AC
Operating temperature	–20 °C to +40 °C
Storage temperature	–40 °C to +80 °C
Operating humidity	10 % to 90 % RH
Ingress protection	To be confirmed against the current factory specification
Service life	50,000 hours

CABINET RESOLUTION

Cabinet resolutions are derived from cabinet size ÷ pixel pitch. For the alternative heights: 960 × 640 gives 144 × 96, 120 × 80 or 96 × 64 px; 960 × 1280 gives 144 × 192, 120 × 160 or 96 × 128 px, by pitch.

SECTION 04

04 Cabinet Dimensions

Three cabinet heights share the 960 mm width, the 101.2 mm depth and the same fixing pattern, so they mix freely within one array.

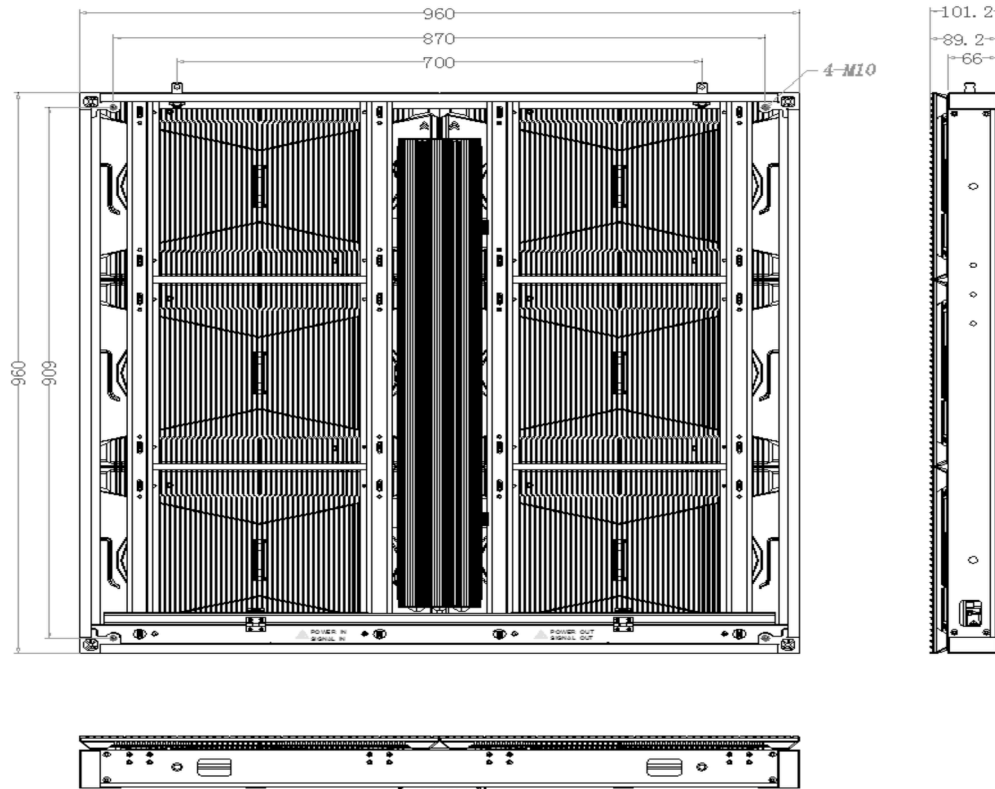


FIG 04.1 – 960 × 960 CABINET, FRONT ELEVATION AND SIDE VIEW

CABINET	MODULES	P6.67	P8	P10
960 × 960 mm	6 (2 × 3)	144 × 144 px	120 × 120 px	96 × 96 px
960 × 640 mm	4 (2 × 2)	144 × 96 px	120 × 80 px	96 × 64 px
960 × 1280 mm	8 (2 × 4)	144 × 192 px	120 × 160 px	96 × 128 px

FIXING CENTRES

Cabinet fixing uses 4 × M10 positions. Confirm the setting-out against the project installation drawings before the steelwork is cut — the drawing above is the product reference, not the project setting-out.

SECTION 04 · CONTINUED

Alternative cabinet heights

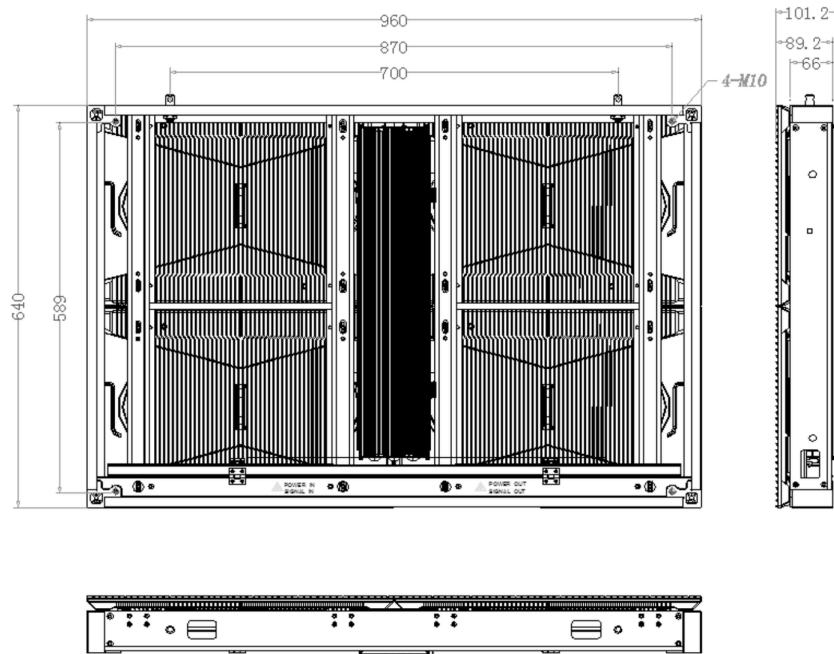


FIG 04.2 – 960 × 640 CABINET

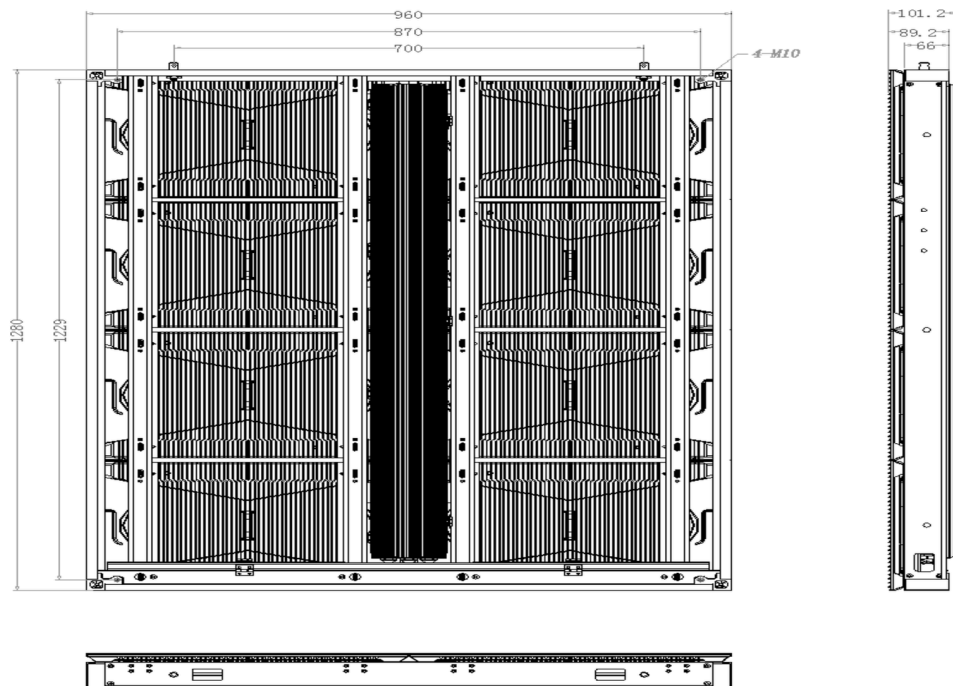


FIG 04.3 – 960 × 1280 CABINET

MIXING CABINET HEIGHTS

Cabinet weight and power draw scale with module count. Confirm the loaded weight and per-phase current for any mixed-height array with Aurora before the supporting steelwork and distribution are finalised.

SECTION 05

05 Cabinet Structure

Identify these parts before starting the installation. The 960 × 960 cabinet is shown; the other heights differ only in module count.

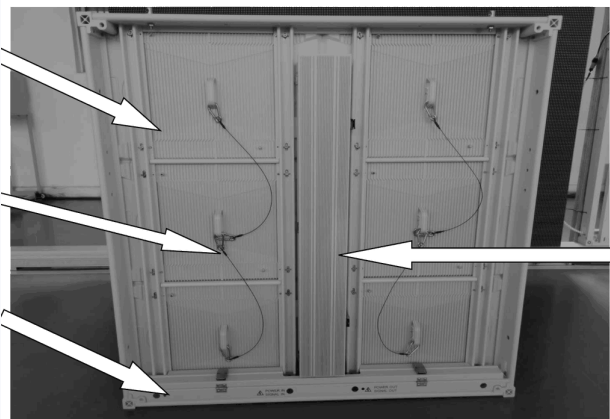


FIG 05.1 – CABINET ASSEMBLY

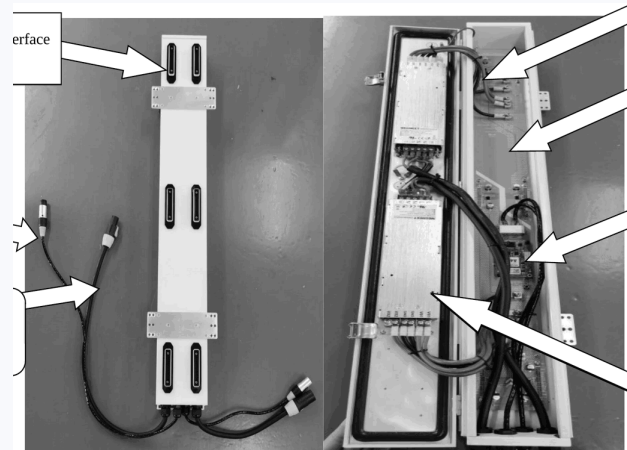


FIG 05.2 – POWER BOX INTERNALS

REF	COMPONENT	FUNCTION
A	LED module	Front- or rear-removable display module, 480 × 320 mm
B	Cabinet	Die-cast frame carrying the modules, power box and inter-cabinet fixings
C	Power box	Removable assembly housing the power supply, hub card and receiving card
D	Safety rope	Secondary retention between module and cabinet during service
E	Receiving card	NovaStar A4s — receives the data stream and drives the modules
F	Hub card	Distributes data and power from the receiving card to each module
G	Pin-row interface / pressure plate	Module-to-hub connection and its retaining plate
H	Inter-cabinet leads	No. 10 silicone power lead and network cable linking adjacent cabinets

HANDLING

Lift cabinets by the frame, never by a module face. Keep the safety rope engaged whenever a module is out of its cabinet.

06

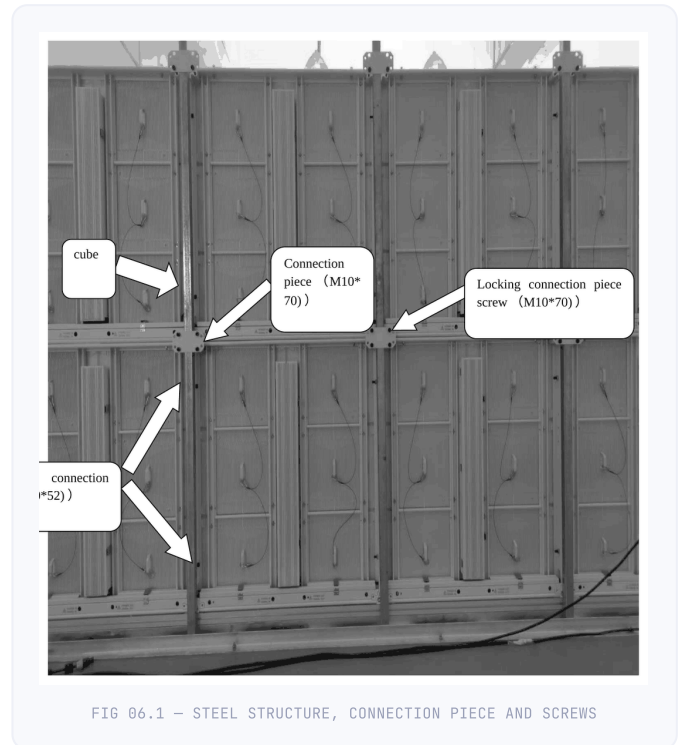
SECTION 06

Installation

Fixed installation: steel structure, connection pieces and screws. Always build to the project installation drawings.

6.1 Fixed installation method

- 1 Set out the steel structure**
 Fabricate and set out the supporting steelwork to the project structural drawings, allowing for the cabinet fixing centres.
- 2 Land the first cabinet**
 Offer the cabinet up to the steelwork and fix it with M10 × 52 cabinet connection screws. Bring the first row dead level — every row above inherits its accuracy.
- 3 Add the connection pieces**
 Fit the connection piece between adjacent cabinets and lock it with the M10 × 70 locking screws.
- 4 Work across and up**
 Repeat across the row, then upward. When rigging, install from the top down and dismantle from the bottom up.
- 5 Check and seal**
 Confirm every seam, verify all covers and hardware are locked, then dress and secure the inter-cabinet power and network leads.



REFERENCE ONLY

The sequence above is indicative. For a specific project, install to the drawings issued by Aurora and to the structural engineer's fixing schedule.

SECTION 06 · CONTINUED

6.2 Connection pieces

Two connection pieces are available. Choose the one matching the maintenance access designed for the installation — the geometry differs, and they are not interchangeable within one array.

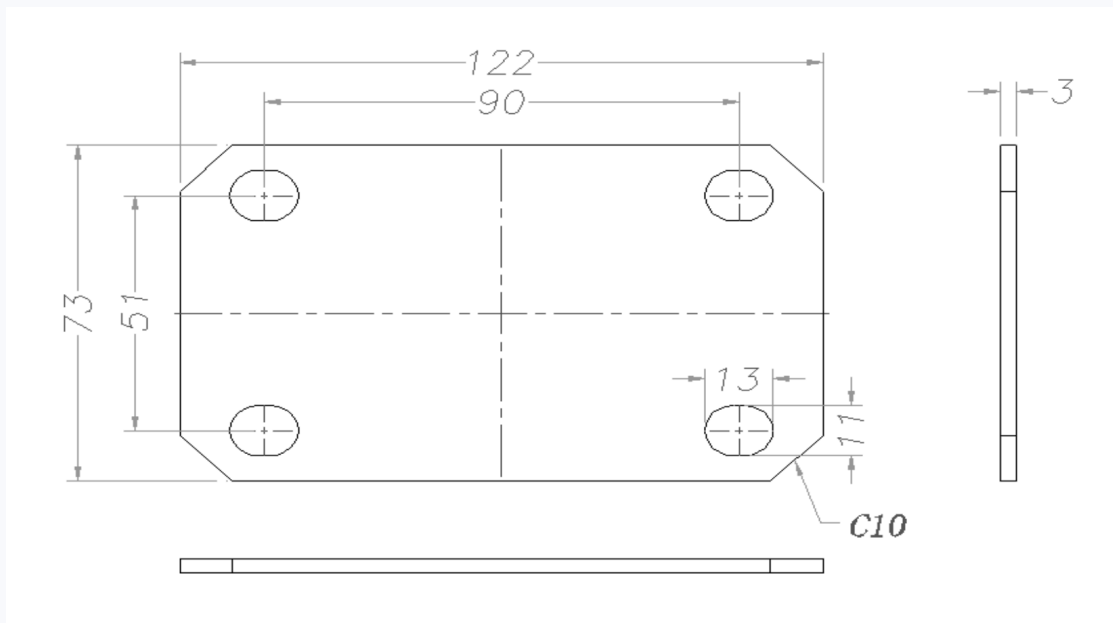


FIG 06.2 – FRONT MAINTENANCE CONNECTION PIECE, DIMENSIONAL DRAWING

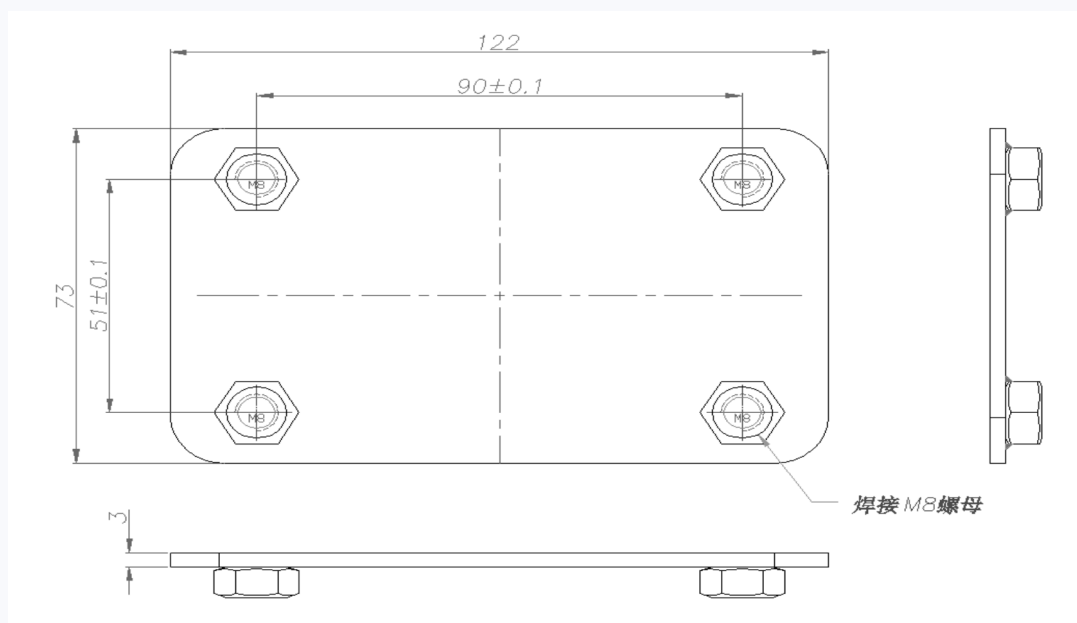


FIG 06.3 – REAR MAINTENANCE CONNECTION PIECE, DIMENSIONAL DRAWING

SPECIFY AT ORDER

Front or rear maintenance is a design decision made at order stage — it determines the connection piece, the screw set and the clearance required behind the screen. Confirm it before the steelwork is fabricated.

SECTION 06 · CONTINUED

6.3 Screws

Three fixings are used across the installation. Check each against the drawing below before assembly — the two locking screws differ in length and head type by maintenance direction.

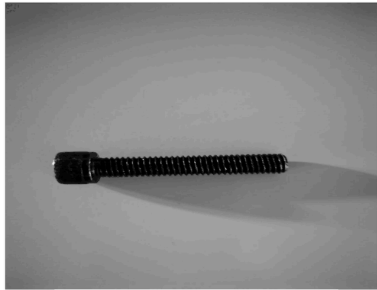


FIG 06.4 — M10 × 52

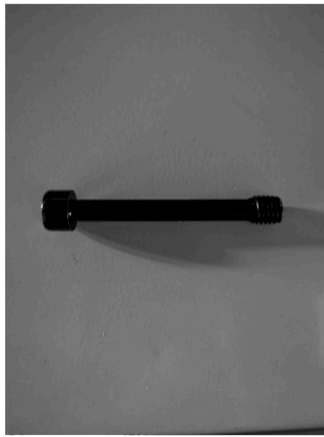


FIG 06.5 — M10 × 70



FIG 06.6 — M8 × 95

FIXING	APPLICATION	NOTES
M10 hexagon socket × 52	Cabinet to cabinet	Standard inter-cabinet connection screw across the array
M10 hexagon × 70	Locking connection piece — rear maintenance	Used with the rear maintenance connection piece
M8 hexagon × 95	Locking connection piece — front maintenance	Used with the front maintenance connection piece

DO NOT SUBSTITUTE

Only the fixings specified above may be used. Substituting length, grade or head type compromises both the structural connection and the panel seam.

SECTION 06 · CONTINUED

6.4 Tools

Module extraction tools are pitch-specific. Confirm which tool the site holds before a service visit — the wrong tool will not engage the module maintenance mechanism.

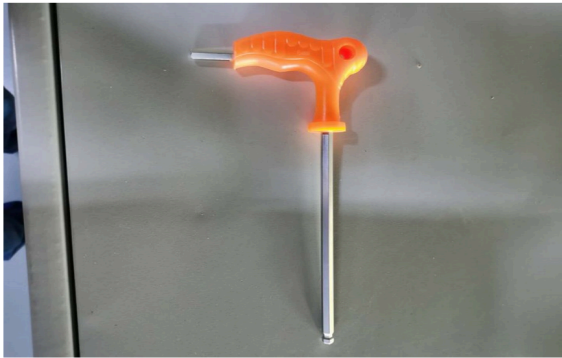


FIG 06.7 – LOCKING JOINT TOOL (ALLEN KEY)



FIG 06.8 – CARRYING TOOL

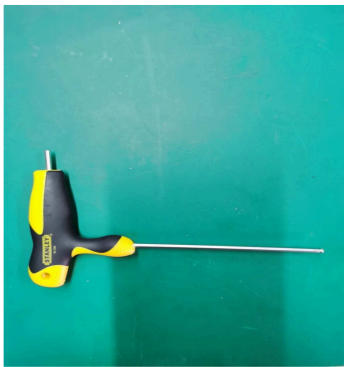


FIG 06.9 – MODULE TOOL, P6.67 / P8 / P10



FIG 06.10 – MODULE TOOL, FINE-PITCH VARIANTS

TOOL	USE
Allen key	Tightening and releasing the locking connection piece screws
Module maintenance tool	Engages the module maintenance mechanism; rotate 90° to release the module from the cabinet
Carrying tool	Two-person cabinet handling during installation and dismantling

07 SECTION 07 Control System

The LDC960XXWPR-V Series runs the NovaStar A4s receiving card, configured through NovaLCT.

7.1 System overview

Each cabinet carries a NovaStar A4s receiving card. With NovaLCT running on the control PC, an operator can read every key parameter from the display and apply the full range of LED display settings — brightness, colour, calibration, pre-stored images and monitoring — across the whole array.

7.2 Control PC requirements

Hardware

Aurora recommends a current desktop or laptop with 8 GB RAM and a discrete graphics output. The absolute factory minimum is a 1 GHz CPU with 256 MB RAM.

Operating system

Windows 10 or Windows 11. Legacy Windows 7 installations remain supported but are not recommended for new sites.

Network

An active network connection is required whenever the display is calibrated online.

7.3 Installing NovaLCT

- 01 Run the NovaLCT installer and follow the wizard. Installation behaves like any standard Windows application.
- 02 If antivirus or firewall prompts appear during installation, allow them — the installer needs to place serial port drivers.
- 03 Where the control PC has no serial driver, or an out-of-date one, the installer updates it to the version bundled with the package.

7.4 Connecting to the display

- 01 Start NovaLCT and select **Login**, then **Media Player Login**.
- 02 On the terminal list, select **Refresh**, choose the target terminal, then **Connect to System**.
- 03 Enter the terminal user name and password and confirm. The main operator interface opens on successful login.

SOFTWARE VERSIONS

NovaLCT and its manuals are published by NovaStar. If you are unsure which release matches the A4s cards on site, contact Aurora technical support before flashing.

SECTION 07 · CONTINUED

7.5 Configuring the display

Loading a supplied configuration file

- 01 Open **Display Configuration** and select the communication port currently in use.
- 02 Choose **Load Configuration File**, browse to the configuration file issued for this screen and select it.
- 03 Select **Next** and wait for the file to load. This is the fastest and safest route for an Aurora-supplied array.

Configuring manually

- 01 Open **Display Configuration**, choose **Configure Display** and select **Next**.
- 02 On the **Receiving Card** tab, select **Smart Setting** and choose option 1.
- 03 Work through the Smart Setting wizard, entering the module and cabinet data for the pitch being configured.
- 04 Where the wizard asks which panel is lit, observe the screen and select the matching position. Each selection lights the next panel in sequence.
- 05 When scanning completes, confirm the prompts and save the generated module file to a known path.

Display connection

Switch to the **Display Connection** tab and select the number of screens to configure. Two configuration types are available:

Standard screen

Receiving card serial order is set manually and each card may carry a different load. Set the start coordinate, card rows and columns, per-card width and height, then route the output ports.

Complex screen

Media player, network port, start coordinate and loaded pixel count are set individually for every receiving card. Use it for irregular arrays and mixed cabinet heights.

SEND TO HARDWARE

Configuration changes only persist once sent to hardware. After sending, verify image continuity across every cabinet seam before leaving site.

SECTION 08

08 Packaging

Cabinets ship in timber crates sized by cabinet height. Retain the crates — they are the correct transport method for any subsequent relocation.

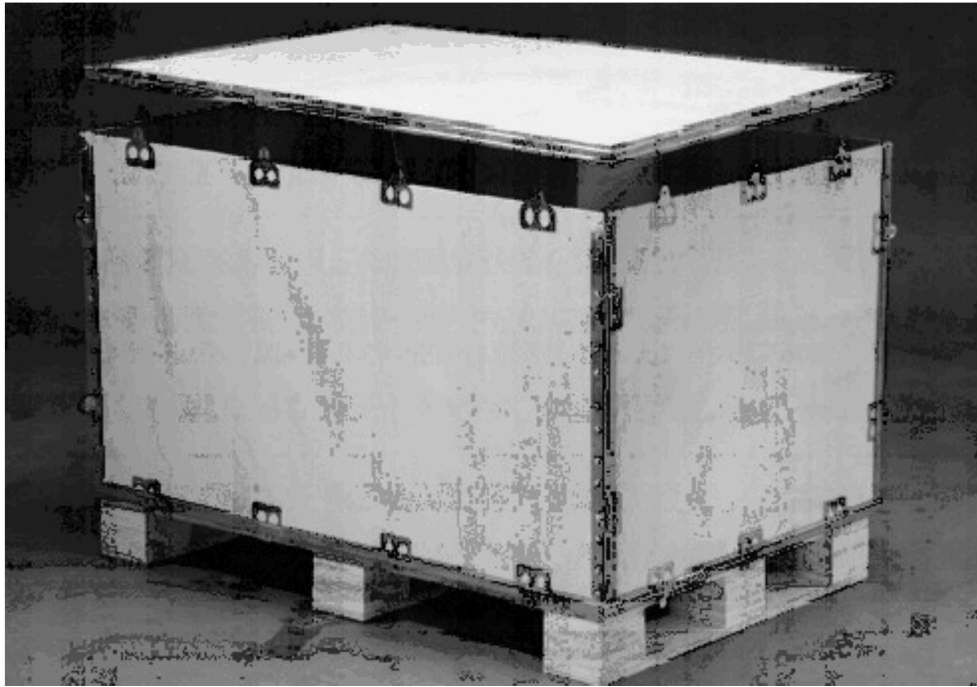


FIG 08.1 — TIMBER CRATE

CRATE (EXTERNAL, MM)	CABINET	CABINETS PER CRATE
1023 × 523 × 811	960 × 640	4
1023 × 523 × 1121	960 × 960	4
1023 × 646 × 1471	960 × 1280	5

RECEIVING A DELIVERY

Inspect crates for impact damage before signing. Unpack on a flat surface, lift each cabinet clear by the frame, and check the module faces and seams before the cabinet goes to height.

09 Maintenance

SECTION 09

Modules are removable from either face. Isolate the cabinet before any module is disturbed.

9.1 Front maintenance

- 1 Engage the tool**
 Insert the module maintenance tool into the hole in the module's front maintenance mechanism.
- 2 Release**
 Rotate the tool 90° to disconnect the module's maintenance mechanism from the cabinet.
- 3 Withdraw**
 Draw the module straight out to complete the front removal, keeping the safety rope engaged until the module is supported.

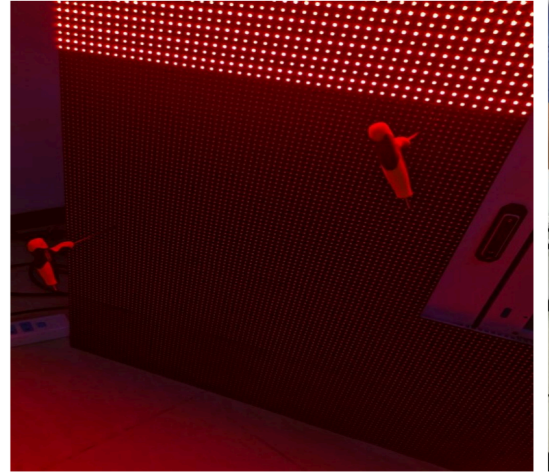


FIG 09.1 – FRONT REMOVAL

9.2 Rear maintenance

- 1 Engage and rotate**
 Insert the maintenance tool into the mechanism hole at the front of the module and rotate it 90°.
- 2 Push out**
 Push the module outward to release it from the cabinet, supporting it as it comes free.
- 3 Refit**
 Align the replacement module to its locating features, press home until seated, and confirm the seam against the neighbouring modules.



FIG 09.2 – REAR REMOVAL

ISOLATE FIRST

Isolate the cabinet before removing a module. Never work on a live cabinet, and never leave a module face open to weather.

10

SECTION 10 Troubleshooting

First-line diagnosis. Work top to bottom within each fault — the checks are ordered from most to least likely.

NO.	SYMPTOM	CHECKS
1	Display will not light	Confirm the display is energised and the power indicator is lit. Confirm the green indicator on the sending card. Confirm the graphics card settings are correct and the second display output is enabled. Confirm the signal indicator on the receiving card is flashing normally.
2	Blurred or flickering image	Confirm the DVI lead is fully seated. Check the network cables for a short or a break. Confirm the screen refresh rate is set to 60 Hz. Check whether the cable run exceeds the maximum transmission distance.
3	Part of the screen is black	If a single receiving card area is dark, confirm 5 V at the receiving card and check its data cable. If a single module is dark, check that the leads into that module are seated and not loose.
4	Video will not play	Confirm a media player is installed on the control PC and that it supports the file format being played.

Work the chain

Source → sending card → network run → receiving card → hub card → module. Isolating which link fails saves most of the diagnosis.

Swap to prove

Swapping a suspect module or receiving card with a known-good neighbour confirms the fault in under a minute.

Record it

Photograph the fault in situ and note the cabinet position before removing anything — it speeds up any warranty claim.

ESCALATION

If these checks do not isolate the fault, contact Aurora technical support with the project number, cabinet position and the receiving card port map.

11

SECTION 11

Care, Legal & Support

Environmental care, disclaimers and where to reach Aurora.

11.1 Care in service

- 01 Manage humidity around the display. Do not leave a full-colour LED screen exposed to a persistently damp environment.
- 02 Do not operate in severe natural conditions such as electrical storms or cyclonic wind.
- 03 House the control PC and associated equipment in a clean, ventilated room so the machine runs cool and stable.
- 04 Provide a stable supply and sound earthing. Do not operate the system on a compromised supply.
- 05 Keep water, iron filings and other conductive material out of the screen body. Site the screen in a low-dust environment — heavy dust degrades the image and, in quantity, damages the circuitry. If water does enter, isolate the supply immediately, contact service personnel, and do not re-energise until the boards are fully dry.

11.2 Legal

Intellectual property

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Reference material

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