PROFESSIONAL LASER EFFECT SERIES

A20

3000 mW FULL-COLOR RGBLASER PROJECTOR

BluetoothApp/DMX512/Auto / Sound-Active



3000 mW	16 CH	BLUETOOTH	AC 90–240 V
FULL-COLOR LASER	DMX512 CONTROL	LIGHTELF APP	50/60 Hz INPUT

IMPORTANT LASER SAFETY NOTICE

This product contains a high-power laser source. Read the complete safety instructions before operating. Never direct the beam toward people, animals, vehicles or aircraft, and never permit audience scanning.

OWNER / INSTALLER / OPERATOR GUIDE

Keep this manual with the fixture for future reference.

01 SAFETY & RESPONSIBILITIES

A20 is a professional laser effect fixture. Set up and operation must be supervised by a competent person familiar with laser hazards and local requirements.

HAZARDOUS LASER RADIATION
The supplied specification states a 3000 mW full-color laser source. This is not a verified laser classification. The exact laser class, labels, safety interlocks, emission limits and applicable local approvals must be verified before the fixture is put into service.

ESSENTIAL LASER PRECAUTIONS

- **Never look into the output aperture** or deliberately observe a direct or reflected laser beam.
- **Never direct output toward people, animals, vehicles or aircraft.** Position effects above occupied areas and in controlled projection zones.
- **No audience scanning.** Do not direct scanning beams into accessible audience areas unless a qualified specialist has engineered, measured and authorized the installation under applicable rules.
- Avoid mirrors, glass, polished metal, windows and other reflective surfaces in the beam path.
- Confirm the termination zone and prevent access to potentially hazardous beams, including during start-up and troubleshooting.
- Use a physical means of disconnecting mains power to prevent unintended emission. Software blackout or a DMX zero value is not an independent safety interlock.
- Do not defeat protective covers, modify optical components or attempt internal laser servicing. Service by qualified personnel only.

ELECTRICAL, MECHANICAL & ENVIRONMENTAL SAFETY

ELECTRICAL SAFETY

Supply only from a suitable **earthed AC 90–240 V, 50/60 Hz** electrical circuit. Inspect the mains cord. Disconnect power before cleaning, servicing or moving the product.

INSTALLATION ENVIRONMENT

Use in a **dry indoor location** unless a separately verified environmental rating permits otherwise. Keep fan airflow unobstructed; protect from moisture, dust buildup and heat sources.

QUALIFIED SUPERVISION
The A20 is not a toy or household laser pointer. Keep unauthorized persons away from the output zone. Follow applicable laser-show licensing, notification, separation-distance and emergency-shutdown requirements.

02 SPECIFICATIONS & PRODUCT IDENTIFICATION

The specifications below are based on the A20 product information supplied for this manual. Dimensions and weights are nominal.

TECHNICAL SPECIFICATIONS

PARAMETER	A20 SPECIFICATION
Brand	StarshineLights
Model	A20
Fixture type	Full-color laser graphics / effect projector
Laser source	3000 mW full-color (manufacturer-stated nominal output)
Power input	AC 90–240 V, 50/60 Hz
Control methods	Sound-active, automatic, master/slave, DMX512 and Bluetooth
DMX control	16-channel profile (detailed on pages 7–9)
Bluetooth software	LightElf mobile app / compatible WeChat Mini Program
Cooling	Fan-assisted ventilation
Fixture dimensions	20 × 15 × 14 cm
Fixture net weight	2.1 kg
Environment	Environmental/IP rating not specified; use only in dry indoor settings unless separately verified

SHIPPING DIMENSIONS & WEIGHTS

ITEM	A20 PACKING DATA
Individual inner carton	33 × 24 × 18 cm
Outer carton	70 × 51 × 40.5 cm
Gross weight / single unit	2.55 kg
Gross weight / full carton	21 kg
Units / outer carton	8 units

Photo reference: The A20 product image shows a metal mounting bracket, side adjustment knobs, front laser aperture, ventilation features and laser hazard labeling. Rear-panel connector specifications are not documented in the supplied materials.

03 INSTALLATION & FIRST POWER-ON

Inspect, mount, connect and verify the controlled projection area before allowing laser output.

RECOMMENDED INSTALLATION WORKFLOW

1. **Unpack and inspect.** Check the housing, mounting bracket, side knobs, cables, labels and aperture window for transit damage. Stop if any defect is visible.
2. **Choose a suitable position.** Install on a stable surface or approved rigging point in a dry, well-ventilated location. Ensure the laser cannot strike people or hazardous reflective surfaces.
3. **Secure the fixture.** Tighten mounting hardware to the support manufacturer's specifications. For overhead use, employ a suitable clamp and **independent rated safety cable** attached to an appropriate structural point.
4. **Check the beam termination.** Confirm that all programmed graphics remain within a supervised safe area. Restrict entry into the projection zone.
5. **Connect signal with output disabled.** Wire DMX or prepare the Bluetooth connection as required. Set the desired mode using the onboard display.
6. **Apply mains power.** Verify the voltage and earth connection, confirm fan operation, and start at the minimum output needed for a supervised test. Restore output only when the area is clear.

CONTROL CONNECTIONS



* Connect only to DMX ports provided on the actual A20 unit. Use shielded DMX data cable and terminate the final device where required. Do not assume a connector type from another model.

OPERATING MODE OVERVIEW

MODE	PURPOSE
Automatic	Play internal SHOW programs without an external controller.
Sound-active	Use the built-in microphone for supported programs (SHOW 0, 1, 2, 4 and 5).
Master / slave	Link compatible fixtures for synchronized built-in effects, following the fixture's addressing method.
DMX512	Control up to 16 channels from a DMX lighting console.
Bluetooth / LightElf	Use a compatible mobile device for patterns, text and programming.

04 ONBOARD MENU & BUILT-IN SHOWS

The exact display strings and menu ranges here are translated from the supplied A20 controller sheet. Button labels may vary with hardware version.

DISPLAY MENU REFERENCE

ITEM	DISPLAY / RANGE	ACTION
Address	ADDR 1–512	DMX starting address; also used for slave mode.
Program	SHOW 0–7	Select the internal program category below.
Speed	SPEED / SP 0–SP 9	Automatic playback speed, slow to fast.
Sound	SOUND / S_ON / S_OFF	Sound-active enabled / disabled.
Sensitivity	SENSE / SE 0–SE 9	Microphone sensitivity, low to high.

SHOW PROGRAM CATEGORIES

DISPLAY	PROGRAM CATEGORY
SHOW 0	Random playback across all available built-in programs.
SHOW 1	Line / geometric graphics programs.
SHOW 2	Animation graphics programs.
SHOW 3	Built-in text playback programs.
SHOW 4	Christmas and New Year graphics programs.
SHOW 5	Outdoor-landmark themed graphics programs. The fixture itself is **not** confirmed weatherproof.
SHOW 6	User-created custom programming playback.
SHOW 7	Hand-drawn and doodle pattern playback.

SOUND-ACTIVE COMPATIBILITY

According to the supplied A20 menu sheet, sound-active operation applies to SHOW 0, SHOW 1, SHOW 2, SHOW 4 and SHOW 5. SHOW 3, SHOW 6 and SHOW 7 are not listed as sound-responsive.

SUGGESTED OPERATING PROCEDURE

1. Navigate to **SHOW** and select the required category.
2. Set **SPEED** to SP 0–SP 9 for automatic playback, or choose **SOUND** = S_ON for a supported sound-active show.
3. For sound-active playback, adjust **SENSE** (SE 0–SE 9) and verify the response at a safe projection area.

STARSHINE
LIGHTS

PRODUCT MANUAL

A20

05 DMX512 SETUP & CHANNEL SUMMARY

The A20 uses a dedicated 16-channel DMX512 profile. Values are decimal 0–255. The full channel function reference follows on pages 7–9.

QUICK DMX SETUP

1. Connect a DMX controller output to the A20 DMX input using a shielded data cable, if present on your unit.
2. Set the A20 start address through the **ADDR** menu.
3. Patch **16 consecutive DMX channels** in the console. Prevent unwanted channel overlap.
4. Set **CH1** above 9 to enable laser output, only after verifying the safe projection zone.
5. Choose fixed or animated colors, graphics and transforms through the remaining channels.

16-CHANNEL CONTROL MAP

CHANNEL	CONTROL	CHANNEL	CONTROL
CH1	Laser output / dimmer	CH9	Automatic pattern zoom
CH2	Color selection and effects	CH10	Rotation about center
CH3	Color-chase direction/speed	CH11	X-axis rotation / flip
CH4	Graphic group selection	CH12	Y-axis rotation / flip
CH5	Graphic selection	CH13	Horizontal position / movement
CH6	Built-in dynamic effects	CH14	Vertical position / movement
CH7	Dynamic effect speed	CH15	X-direction wave
CH8	Pattern size	CH16	Pattern drawing effect

ADDRESSING EXAMPLE

For independent control of three 16-channel fixtures, use non-overlapping start addresses:

A20 1	A20 2	A20 3
DMX 001–016	DMX 017–032	DMX 033–048

The highest valid start address for a complete 16-channel patch is **497** (channels 497–512). The menu itself permits ADDR values up to 512, but a full 16-channel patch requires enough remaining channels.

06 DMX512 CHANNEL FUNCTIONS / 1–4

Use these exact value windows for the A20. Color names and detailed preset assignments not provided by the source have not been fabricated.

CH	VALUE	DESCRIPTION / ACTION
1	000–009	Laser output closed / blackout.
1	010–255	Laser output enabled; output level controlled within this range.
2	000–069	Fixed colors (individual value-to-color map not specified). Full-
2	070–079	pattern color changing; chase speed set by CH3.
2	080–089	Original / initial pattern color; speed set by CH3.
2	090–092	Rainbow color; chase speed set by CH3.
2	093–110	2-segment color selection; steps of 4 values.
2	111–131	3-segment color selection; steps of 4 values.
2	132–149	4-segment color selection; steps of 4 values.
2	150–182	8-segment color selection; steps of 4 values.
2	183–218	16-segment color selection; steps of 4 values.
2	219–253	32-segment color selection; steps of 4 values.
2	254–255	Gradual color drawing effect; speed set by CH3.
3	000–001	No color chase.
3	002–009	Unspecified in source documentation; avoid relying on this range.
3	010–127	Forward color chase; slow to fast.
3	128–255	Reverse color chase; slow to fast.
4	000–024	Built-in static group 1: basic geometric shapes.
4	025–049	Built-in static group 2: basic geometric shapes.
4	050–074	Built-in static group 3: highlighted outlines.
4	075–099	Built-in static group 4: dot graphics.
4	100–124	Built-in static group 5: Christmas graphics.
4	125–149	ILDA animation group 1 (internal content label).
4	150–174	ILDA animation group 2 (internal content label).
4	175–199	ILDA animation group 3, reserved in source.
4	200–224	ILDA animation group 4, reserved in source.
4	225–255	ILDA animation group 5, reserved in source.

Note: “ILDA” above is a preset group name in the A20 DMX profile. No external ILDA input is established by the supplied A20 documents.

06 DMX512 CHANNEL FUNCTIONS / 5–9

Channels 5–9 select graphic content, dynamic-program playback, playback speed, pattern size and automatic zoom.

CH	VALUE	DESCRIPTION / ACTION
5	000–255	Select a graphic inside the group chosen by CH4.
6	000–001	Dynamic effect off.
6	002–206	Individual built-in dynamic effects; source describes approximately one effect per 2 values. Color via CH2; CH2 = 0 selects default color; speed via CH7.
6	207–216	Random line effects.
6	217–226	Random animation effects.
6	227–236	Random Christmas effects.
6	237–246	Random outdoor / landmark-themed effects.
6	247–255	Random playback of all dynamic effects.
7	000–001	Use system-default dynamic effect speed.
7	002–255	Manual dynamic effect speed, slow to fast.
8	000–255	Manual pattern size.
9	000–015	Select fixed pattern size.
9	016–055	Automatic zoom from small to large; speed selection.
9	056–095	Automatic zoom from large to small; speed selection.
9	096–135	Bidirectional / continuous zoom; speed selection.
9	136–175	Two-part irregular looping zoom.
9	176–215	Three-part irregular looping zoom.
9	216–255	Four-part irregular looping zoom.

RECOMMENDED PROGRAMMING SEQUENCE

1. Set CH1 to an appropriate output level only after safety checks.
2. Select **CH4** (graphics group) and **CH5** (specific graphic).
3. Use **CH2 / CH3** for color and chase direction. Use **CH6 / CH7** when selecting an internal dynamic macro.
4. Apply **CH8 / CH9** to size or automatically zoom the displayed graphic.

CONTROL PRIORITY

The supplied DMX table does not describe priority rules between every individual channel or between Bluetooth and DMX. Test each combination in a restricted area; keep one intended control source active during programming.

06 DMX512 CHANNEL FUNCTIONS / 10–16

The transformation channels below reposition, rotate and draw graphics. Ensure all excursions remain within the safe beam-termination area.

CH	VALUE	DESCRIPTION / ACTION
10	000–127	Select rotation angle around the pattern center.
10	128–191	Forward rotation; speed selection.
10	192–255	Reverse rotation; speed selection.
11	000–127	X-axis rotation / horizontal-flip position.
11	128–255	X-axis rotation / horizontal-flip speed.
12	000–127	Y-axis rotation / vertical-flip position.
12	128–255	Y-axis rotation / vertical-flip speed.
13	000–127	Select horizontal position.
13	128–255	Continuous horizontal movement; speed fast to slow.
14	000–127	Select vertical position.
14	128–255	Continuous vertical movement; speed fast to slow.
15	000–001	X-direction wave off.
15	002–255	X-direction wave amplitude and speed: amplitude small to large, speed slow to fast; eight source-defined steps, approximately 32 DMX values each.
16	000–001	Pattern drawing effect off.
16	002–063	Manual drawing effect 1.
16	064–127	Manual drawing effect 2.
16	128–153	Automatic progressive drawing, increasing.
16	154–179	Automatic progressive drawing, decreasing.
16	180–205	Automatic progressive then decreasing drawing, reverse direction.
16	206–255	Automatic progressive then decreasing drawing, same direction.

MOVEMENT SAFETY
When CH10–CH15 change automatically, projections can extend beyond their static position. Verify the full animation envelope under supervision before admitting any person to the surrounding area.

07 LIGHTELF BLUETOOTH APP: SETUP

The supplied LightElf user guide covers Android, iOS and a WeChat Mini Program. App menus can differ by device, region and software version.

INSTALL THE SOFTWARE



- **Android:** Find “LightElf” in the Google Play Store. The supplier-provided LightElf guide also lists an alternative Android download.
- **iOS:** Find “LightElf” in the Apple App Store.
- **WeChat:** Open the supplied LightElf Mini Program using its QR code, where supported.
- **Permissions:** Enable Bluetooth and any requested location permissions needed by the app to discover the fixture.

CONNECT TO THE A20

1. Place the projector in a controlled, safe location, then switch on the fixture.
2. Open the **LightElf** app and tap **“Click Me To Connect.”**
3. Choose the compatible Bluetooth device displayed as **“Laser_Light_xxxx”**. The suffix identifies an individual device.
4. Wait until the app shows a connected device. Use the app output control only after the projection zone has been verified safe.

MAIN LIGHTELF CONTROLS

FUNCTION	WHAT IT DOES
Output switch	Displays “Device ON” or “Device OFF” as app-controlled laser output state.
Settings	Available parameters include DMX address, output range and X/Y image orientation.
Draw / Text	Create graphics with a finger or enter text for projection.
Program / Random	Edit custom scenes or play built-in content categories.
Sound / Automatic	Where supported, choose between automatic and sound-reactive preset playback.

OUTPUT IS NOT A SAFETY INTERLOCK
Turning “Device OFF” in the app is not a substitute for physical power isolation or a properly engineered laser safety system.

08 LIGHTELF: CREATIVE FUNCTIONS

The features summarized below come from the supplied LightElf software guide. Availability may depend on the A20 firmware and app version.

HAND DRAWING, LOGOS & TEXT

• **Hand drawing:** Open Draw, choose a laser color and trace a pattern on the editing canvas. Select a built-in graphic as a starting point if desired.

• **Logo conversion:** Import a logo image, fit it inside the selection frame and identify its pattern. Edge Mode follows outlines; Skeleton Mode extracts center lines.

• **Graphic editing:** Select an element, drag to reposition, pinch to resize, recolor, undo or delete, then send it to the fixture.

• **Text playback:** Enter text, select color/font and preview. The LightElf guide lists up to 100 characters and up to four text groups with configurable group playback times.



CUSTOM SCENE PROGRAMMING

LightElf supports custom scenes that may be arranged in a sequence. The supplied app manual describes **up to 20 scenes**. Create a new scene, select its graphics, adjust scene parameters, set its duration and save the sequence.

BUILT-IN EFFECT PLAYBACK

APP CATEGORY	SOURCE-DOCUMENT BEHAVIOR
Random	Play internal presets in random order; use automatic or sound-active where supported.
Line	Display line and geometric style effects.
Animation	Display animated graphics.
Christmas	Choose seasonal graphics and show programs.
Outdoor / landmark	Display an outdoor-themed program category; not an outdoor-use rating.
Program	Create or manage custom programmed scenes.

COMPATIBILITY NOTE
LightElf is shared software across compatible laser projectors. A20 supports Bluetooth, but this general software guide is not a guarantee that every app control or every preset is present on every A20 firmware revision.

09 CARE, TROUBLESHOOTING & SUPPORT

Use this checklist to maintain predictable operation. Disconnect power before cleaning, inspecting or servicing.

MAINTENANCE AND INSPECTION

WHEN	RECOMMENDED ACTION
Before each use	Inspect the housing, mounting hardware, power cord, optical aperture, ventilation and safe projection zone.
Periodically	Remove loose exterior dust with a clean, dry, lint-free cloth. Never spray fluid into vents or the aperture.
As needed	Clean the exterior optical window only with appropriate optical materials and approved procedure. Avoid scratching coatings.
Before overhead use	Inspect the clamp, fasteners, fixing point and independent rated safety cable.
If abnormal	Stop using the device for overheating, unusual noise, smell, unstable output or mechanical damage; refer to qualified service.

TROUBLESHOOTING GUIDE

SYMPTOM	CHECK
No power / display	Check live mains supply, rated voltage and cable connection. Disconnect before examining hardware.
No laser image	Confirm safe startup conditions, CH1 above 9 in DMX mode, active program and a valid output command.
No sound response	Select SHOW 0/1/2/4/5; set SOUND = S_ON; adjust SENSE and ambient music level.
DMX not responding	Confirm ADDR, 16-channel console patch, compatible ports, data cable and termination.
Bluetooth cannot connect	Check fixture power, device permissions, proximity and the “Laser_Light_xxxx” selection; restart app if needed.
Distorted / cropped graphic	Check size, position, rotation and display range settings before changing physical alignment.

TECHNICAL SUPPORT

STARSHINELIGHTS • PRODUCT A20
www.starshinelights.com

Keep the serial number and purchase details when requesting service.