Jump Rope Simulator — User Manual

This manual applies to:

- Interactive Jump Rope Arcade Machine – Air Time Fitness Game for Events, Gyms & Brand Activations

The Jump Rope Simulator is an interactive arcade and fitness machine that measures total jump-rope air-time to the millisecond; this manual covers set-up, play, operator settings, maintenance and safety.

> **Caution:** keep a clear radius of at least one metre around the player at all times, make sure players wear suitable footwear and are physically fit, and mind the moving rope, handles and the mains supply.

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All relevant national, regional and local safety regulations must be followed when installing and using this machine. For safety reasons and to ensure compliance with the documented system data, the components may only be repaired by the manufacturer.

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Other languages

This is the English user manual (or an automatic translation thereof). Manuals in other languages may be available on request.

Power supply and surge protection

Arcade and entertainment machines are computer-controlled and contain sensitive electronics. Mains power at events, venues and even ordinary outlets is frequently unstable or “dirty” — voltage spikes, surges, sags and brown-outs, flicker, overloaded or shared circuits, generators, long extension runs and the switching of nearby equipment can all push the supply outside the machine’s safe operating range.

You must always connect the machine through a good-quality surge protector, and — wherever the supply is unreliable or the machine must not lose power unexpectedly — through an uninterruptible power supply (UPS). These sensitive machines cannot tolerate power spikes, surges, brown-outs or sudden cut-offs.

Damage, data loss or malfunction caused by power-supply problems is **not covered by warranty**. Failure to use adequate power protection can lead to machine malfunction and, in some cases, a risk of fire or bodily harm. If you are unsure about your power supply, consult a qualified electrician before use.

Duty cycle and cooling breaks

Maximum continuous operating time: 10 hours. After a maximum of 10 hours, switch off and unplug the machine for at least one hour before resuming. Keep ventilation openings clear and follow the specified maintenance intervals. Machine-specific cooling instructions take priority. Reaction Ring machines require cooling breaks between sessions; the 10-hour limit does not permit continuous activation of their magnets.

Overheating from exceeding this duty cycle can cause reduced performance, premature wear, component failure and, in some cases, a risk of fire or bodily harm. Damage or malfunction resulting from continuous operation beyond these limits, or from inadequate cooling breaks, is **not covered by warranty**. Always keep air inlets and outlets clear and unobstructed.

Support and service

For more information, service, technical support, ordering user manuals, or for any other questions,

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Machine description

The Jump Rope Simulator is a freestanding, arcade-style game that challenges players to jump rope as many times as possible within a set time limit. Using an invisible infra-red beam sensor, the unit measures and displays each player's total air-time on a large, vibrant LED display with millisecond accuracy. The machine is self-contained, fully automated and requires minimal operator intervention during normal play. Audio effects, coloured LED rings and a high-score memory combine to create an engaging, competitive experience for players of all ages.

Unlike conventional counters that merely count jumps, the simulator measures total air-time in thousandths of a second — rewarding both speed and consistency. The better the jump-rope technique, the higher the score.

The cabinet

The cabinet is a sturdy upright stand with a base plate for stability. The main body houses an illuminated promotional poster panel with the Jump Rope Simulator branding, a top-mounted display bar containing five large 7-segment LED digits, two circular LED ring indicators (one on each side of the display bar), and all internal electronics, speaker and wiring.

The LED display

The five-digit LED display shows numbers in bright red during gameplay. A reading such as **08.456** means 8 seconds and 456 milliseconds of air-time — the first two digits are whole seconds, the last three are thousandths of a second. A yellow number such as **15** is the countdown during the armed/ready phase, showing the seconds remaining before the game starts.

LED ring indicators

Two circular LED rings, one on each side of the display, act as a visual game timer. All 16 LEDs lit in green means full time remaining; fewer LEDs lit means less time remaining; fewer than 8 LEDs lit switches the rings to red, warning the player that time is nearly up; all LEDs off means game over.

Sound system

A built-in speaker plays voice announcements, countdown beeps, in-game background music and a victory fanfare at the end of each round. The volume is adjustable by the operator (see the Operator settings menu).

Intended use

The Jump Rope Simulator is intended for entertainment and fitness use at home, at events, in gyms and at venues, under supervision as appropriate. Only one player should use the machine at a time, and younger children should be supervised. Players with heart conditions, joint problems or balance issues should consult a doctor before use, and pregnant individuals should not use this attraction. Players should stop immediately if they feel dizzy, short of breath or experience any pain.

Safety warnings

Read all safety guidelines before operating this attraction. Failure to follow these guidelines may result in injury.

Player safety

- Ensure the play area has a minimum clear radius of 1 metre around the player.
- Players should wear appropriate footwear — no bare feet or loose footwear.
- Players with heart conditions, joint problems or balance issues should consult a doctor before use.
- Pregnant individuals should not use this attraction.
- The game is appropriate for all ages, but children under 8 should be supervised.
- Players should stop immediately if they feel dizzy, short of breath or experience any pain.
- Do not use in wet conditions.

Strobe warning

This machine may use strobe lighting effects during idle mode. If photosensitive epilepsy or other light-sensitivity conditions are a concern, disable the strobe feature via the Operator settings menu (Menu 1).

Electrical safety

- Do not expose the machine to rain, moisture or liquids.
- Do not open the cabinet unless you are a qualified technician.
- If the power cable is damaged, do not use the machine — contact your supplier.
- Use only the supplied power cable and an appropriate mains supply.
- Ensure the power socket is easily accessible for emergency disconnection.

Installation and setup

Site requirements

Requirement	Recommendation
Floor space	Minimum 2 m × 2 m (players need room to jump)

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Ceiling height	Minimum 2.8 m
Power supply	Standard mains socket (see the rating plate on the unit)
Surface	Flat, non-slip flooring strongly recommended
Lighting	Avoid direct strong sunlight on the IR sensor area

Powering on

Connect the power cable to a mains socket and switch on at the wall. The unit plays a boot-up sound and runs a brief self-check. After approximately 15 seconds the display enters Idle Mode (colourful twinkling LEDs) and the machine is ready for players.

Do not obstruct the IR sensor beam during power-on. Allow the unit to complete its boot sequence undisturbed before presenting it to players.

Operating mode switch

A small internal switch controls how new games are started. In **AUTO MODE** a game is triggered automatically when a player steps into the sensor beam and holds position for 3 seconds — ideal for unattended locations. In **MANUAL MODE** an operator or staff member presses the START button to begin each game — ideal for supervised events or controlled environments. The mode switch is located inside the cabinet; consult your installation guide or supplier for the exact location. Only authorised personnel should adjust this switch.

How to play

Players jump rope in front of the machine while the infra-red sensor tracks each moment they are airborne. The score displayed at the end of the game is the player’s total accumulated air-time, measured to the nearest millisecond. The goal is to maximise time spent in the air during the game window.

Step 1 — Idle / attract mode

When no game is active, the display shows a colourful, randomly sparkling light show, and strobe lights may flash periodically to attract attention. The machine is waiting for a player.

Step 2 — Player detected / armed

In AUTO MODE, walk up to the machine, stand in front of the sensor and hold your position for about 3 seconds; the machine detects you and announces a new player. In MANUAL MODE, an operator presses the START button to begin the armed phase. Once armed, a large yellow countdown number appears, counting down from 15. A voice announcement plays and a beeping sound begins in the final 5 seconds — use this time to pick up your jump rope and get into position.

If you are not ready, an operator can press the START button once during the countdown to cancel the game and return to Idle Mode. The machine plays an acknowledgement sound and resets after a short pause.

Step 3 — Game running

When the countdown reaches zero, the game begins. The display switches to red and shows your running air-time score in the format SS.mmm (seconds.milliseconds), with background music throughout. The two LED rings act as your time clock, with LEDs extinguishing one by one: green rings mean plenty of time left, red rings mean less than half the time remains (jump faster), and all LEDs off means game over.

Scoring tip: the sensor measures every moment you are off the ground. Short, fast jumps accumulate air-time quickly, and a smooth, consistent rhythm beats erratic jumping. Missing a jump (feet on the ground) does not add to your score — keep that rope spinning.

Step 4 — Game over / freeze

When the time bar empties, the game ends and a victory fanfare plays. Your final score is shown in orange on the digits while the LED rings flash green. The score stays visible for about 10 seconds, then blinks to draw attention, before the machine automatically returns to Idle Mode for the next player.

Scores and high score

Your score is your total accumulated air-time during the round, in seconds and milliseconds — for example, **12.345** is 12 seconds and 345 milliseconds airborne. A perfect game would see the player airborne for almost the entire round. Beginners may achieve 5–10 seconds, while skilled players can exceed 20 seconds in a standard 30-second round.

The machine stores the all-time high score in permanent memory, which survives power-offs, power cycles and restarts. During Idle Mode the display runs a repeating three-phase cycle so every bystander can see the record to beat: 10 seconds of twinkling attract animation, 6 seconds with the high score shown steady in green, then 4 seconds with the high score blinking in green, before the cycle repeats. If a player beats the current high score, the new score is saved immediately and shown in the next idle cycle. Operators can reset the high score to zero at any time through Menu 4 in the Operator settings menu.

Operator settings menu

The settings menu is accessible from the machine’s front controls without opening the cabinet. While the machine is in Idle Mode, press and hold the START button (Button A) for at least 5 seconds; the menu activates as soon as the hold time is reached and you do not need to release the button first. A voice announcement confirms the selected menu item, the leftmost digit illuminates in purple to

indicate the active menu item number (1–4), and the right-hand digits show the current value in cyan.

The menu exits automatically and returns to Idle Mode after 10 seconds of inactivity, with a voice announcement confirming the exit. All changes made before exit are saved automatically to permanent memory.

Navigating the menu

The menu uses two physical buttons. A short press of **Button A (START)** — released within about 0.8 seconds — cycles to the next menu item (1 → 2 → 3 → 4 → 1), with a voice announcement naming the new item. Pressing **Button C (CONFIRM / CHANGE)** once changes or confirms the current setting, playing a short beep immediately followed by a voice confirmation. After entering the menu via the 5-second hold, Button A must be fully released before short-press cycling activates, which prevents accidental skipping of menu items on entry.

#	Option	Values / range	Button C action
1	Strobe Lights	ON (01) or OFF (00)	Toggles the strobe on or off; voice confirms “strobe lights on” or “strobe lights off”. Disable if photosensitivity is a concern.
2	Volume	0 (mute) to 26 (max)	Increases volume by one step, wrapping from 26 back to 0; the new level plays immediately so you can hear the change.
3	Game Time Length	10 s to 120 s in steps of 10	Increases game duration by 10 seconds, wrapping from 120 back to 10; shown as 3 digits (e.g. 030 = 30 seconds). Takes effect on the next game.
4	Reset High Score	Shows the current high score (cyan)	Resets the high score to 00.000 and saves immediately; voice confirms “reset high score to zero”. This cannot be undone.

Every change made in the menu is written to internal flash memory immediately and restored automatically the next time the machine boots, including strobe preference, volume, game-time duration and the high score.

Sound and LED reference

The machine guides players and operators with voice and audio cues: a boot chime at power-on; a new-player announcement when the armed countdown begins; countdown beeps in the last 5 seconds; in-game background music; a victory fanfare at game over; an abort/reset sound when a game is cancelled during the armed phase; a menu voice naming each item as you cycle to it; a beep and voice confirming each setting change; and a timeout voice (“no buttons pressed for 10 seconds, exiting menu”) as the menu exits.

Colour	Location	Meaning
Multi-colour sparkle	All digits	Idle / attract mode — waiting for a player
Yellow	Digit display	Armed countdown — player detected, get ready
Red (blinking)	Side LED rings	Armed phase — waiting for the game to start
Red	Digit display	Game in progress — live air-time score

Colour	Location	Meaning
Green	Side LED rings	Game in progress — more than half the time remaining
Red	Side LED rings	Game in progress — less than half the time remaining
Orange	Digit display	Game over — frozen final score
Green (flashing)	Side LED rings	Game over — celebrating the player’s score
Purple	Leftmost digit	Operator settings menu is active
Cyan	Right two digits	Current setting value in the operator menu

Daily operation for operators

Opening checklist

- Inspect the jump rope and playing area for hazards or obstructions.
- Power on the unit and wait for the boot chime and twinkling idle display.
- Confirm audio is at an appropriate level for your venue.
- Play a test round to confirm the IR sensor, LEDs and sound all function.
- Ensure adequate floor space is clear around the machine.

During operation

- Monitor the play area to ensure players are using the machine safely.
- Remind players to use the jump rope in the designated area only.
- Only one player should use the machine at a time.
- Ensure younger children are supervised.
- In AUTO MODE, the machine handles player transitions automatically.

Closing checklist

- Note the current high score if you wish to record it.
- Power off the unit at the wall switch.
- Store the jump rope in a safe location if removable.
- Wipe down the cabinet surface if needed.

Troubleshooting

Symptom	Action
No display / machine is dark	Check that the machine is plugged in and the wall socket is switched on. Try power cycling (off, wait 10 seconds, on).
No sound / very quiet	Enter the Operator settings menu and increase the Volume setting (Menu 2). Confirm it is not set to 0.
Game starts by itself / false triggers	In AUTO MODE this is expected if something interrupts the beam (e.g. a nearby object or a passer-by). Check for obstructions near the IR sensor, position the machine away from high foot-traffic paths, or switch to MANUAL MODE.

Symptom	Action
Score always reads 00.000	The IR sensor beam may be permanently broken (obstructed). Check that the sensor area is clear during play and clean the sensor lens with a dry cloth if dirty.
Machine stuck in armed state	Press the START button once to cancel and return to Idle. The machine waits 5 seconds and then resets automatically.
High score shows the wrong value	Reset the high score via Menu 4 (hold Button A for 5 seconds from Idle, navigate to item 4, press Button C). This is immediate and permanent.
LEDs flickering or partial display	Power cycle the machine. If the problem persists, contact your authorised service technician — do not attempt to repair internal LED strips yourself.

Maintenance and care

Routine cleaning

- Wipe the exterior cabinet with a dry or lightly damp cloth. Do not use solvents.
- Clean the IR sensor lens gently with a dry microfibre cloth if dusty or smudged.
- Inspect the jump rope for signs of wear — replace if frayed or damaged.
- Check the power cable for any damage at each service visit.

Service intervals

- Visual inspection of all LEDs and the display: monthly.
- Full electrical safety check: annually, by a qualified technician.
- Jump-rope replacement: when worn or as required.

Storage

If storing the machine for an extended period, power off completely, clean the exterior and store in a dry, temperature-controlled environment. Cover the display panel to prevent dust accumulation.

Taking the machine out of service

Power off the unit at the wall switch and remove the plug from the socket so the power supply is completely interrupted. Do not leave the machine unattended while it is connected to the power supply.

Technical specifications

Property	Value
Display	Five 7-segment LED digits, bright red during the game
Score resolution	1 millisecond (0.001 second)
Maximum displayable score	99.999 seconds
Game duration (default)	30 seconds (adjustable 10–120 s in 10 s steps via Menu 3)

Property	Value
Armed countdown	15 seconds
Auto-arm detection	3 seconds of continuous beam break
LED time rings	Two rings of 16 LEDs each (green → red indicator)
Volume range	26 levels (0 = mute, 26 = maximum)
High-score memory	Persistent (stored in internal flash; survives power cycles)
Settings memory	All operator settings stored in internal flash (NVS)
Operating modes	AUTO (beam-trigger) / MANUAL (button-trigger)
Strobe effect	Operator-selectable ON/OFF via Menu 1
Settings menu entry	Hold Button A for 5 seconds from Idle Mode
Settings navigation	Button A (cycle items), Button C (change/confirm value)
Voice guidance	Voice announcements for all menu items and confirmations
Power supply	See the rating label on the unit