KENBAK-1 — nanoKENBAK-1

Bill of materials · Adwater & Stir nanoKENBAK-1 (sold built): replacement parts for repairs

Revision: A **Date:** 2026-11-03 **Lines:** 15 **Source:** iconic-machines.fubsypoly.com/kenbak-1/vol-14/

The nanoKENBAK-1 is sold built and the maker publishes no parts list, so this is a repair list: each part that can be identified from the photographs and the maker's FAQ, and the part to buy to replace it, grouped from Volume 14's bill of materials (its tags are those of Volume 13). Several lines are identified from the firmware's design or the photographs, not read from the parts: check the marking or measure the footprint on the board before ordering. Stock and prices change daily; part numbers are examples that meet the specification.

Tick **Ord** when ordered, **Have** when it is in hand and checked against the part number, **Fit** when it is installed. Write the vendor, order number and price on the last page. Alternates for obsolete (EOL) parts are in **bold**.

Same The supplied part is still a standard catalogue item; buy it as listed. **Spec** The parts list does not say enough to buy it (no value, rating or part number), or the part needs a check.

Choice A change or addition chosen for this build, not in the kit.

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
Cells and power										
☐	☐	☐	**1**	Main cell	**LIR2032 rechargeable lithium-ion coin cell** 3.6–3.7 V, 40–45 mAh, known maker, positive face marked	LIR2032	NEVER a CR2032 (primary cell; the board charges it)		**Spec**	The one part that wears out.
☐	☐	☐	**1**	Clock backup, back of board	**CR1616 coin cell with solder tabs** Primary cell; the DS3231 does not charge its backup	CR1616 (tabbed)			**Same**	Unsolder the old cell first; never heat the cell body.
☐	☐	☐	**1**	Charger	**Li-ion charge controller, SOT-23-5** MCP73831T per the FAQ; 4.20 V ('-2') variant	Microchip MCP73831T-2ACI/OT	Another MCP73831T-2… variant (4.20 V). Not other voltage variants.	Mouser www.mouser.com Digi-Key www.digikey.com	**Spec**	Fitted variant not published: read its marking first.
☐	☐	☐	**1**	Cell holder	**20 mm coin-cell clip, beige** 2032 holder of the same footprint				**Spec**	Measure the footprint.
☐	☐	☐	**1**	Power	**ON/OFF slide switch, surface-mount** Miniature SPDT SMD slide switch, same footprint				**Spec**	Measure the footprint before ordering.
☐	☐	☐	**1**	USB	**Micro-USB B receptacle, surface-mount** Matching footprint				**Spec**	Commonest failure; the shell-tab joints carry the strain.
Integrated circuits										
☐	☐	☐	**1**	Processor	**ATmega328P, TQFP-32** New chip is blank: needs the firmware and fuses	Microchip ATmega328P-AU		Mouser www.mouser.com Digi-Key www.digikey.com	**Spec**	Save the original's image first (Volume 14, 'Reaching the Processor').
☐	☐	☐	**1**	Real-time clock	**DS3231SN RTC, 16-pin wide SOIC** Industrial temperature; # = lead-free	Analog Devices DS3231SN#		Mouser www.mouser.com Digi-Key www.digikey.com	**Same**	

ORD	HAVE	FIT	QTY	REF. DES.	PART / SPECIFICATION	PART NUMBER	ALTERNATES / SUBSTITUTES	WHERE TO BUY	TAG	NOTES
☐	☐	☐	**2**	Key shift registers	**74HC165, 16-pin SOIC** Identified from the firmware's design, not read from the chips	`TI SN74HC165D`		Mouser www.mouser.com Digi-Key www.digikey.com	**Spec**	Read the marking before ordering.
☐	☐	☐	**1**	Lamp shift register	**74HC595, 16-pin SOIC** Identified from the firmware's design	`TI SN74HC595D`		Mouser www.mouser.com Digi-Key www.digikey.com	**Spec**	Read the marking before ordering.
Panel parts										
☐	☐	☐	**8 + 4**	Lamps	**Surface-mount LEDs: white (data), amber (control)** Size not published		Red data lamps (an owner's suggestion): less voltage, brighter as the cell runs down		**Spec**	Measure before ordering.
☐	☐	☐	**15**	Keys	**6 × 6 mm SMD tactile switch, four gull-wing legs** Same height as the original				**Spec**	Match the height so all fifteen feel alike.
Passives, programming and cable										
☐	☐	☐	**—**	Resistors, capacitors	**Surface-mount passives** Values not readable from photographs				**Spec**	A repair needs the board in hand.
☐	☐	☐	**1**	Programming (not fitted)	**2 × 3 pogo-pin ISP adapter, or a 2 × 3 2.54 mm header** For the six unpopulated ISP pads				**Choice**	Optional: reaches the processor without soldering.
☐	☐	☐	**1**	Cable	**Micro-USB cable (supplied)** Power only on this board				**Same**	

Orders

VENDOR	ORDER NO.	DATE	TOTAL	RECEIVED	LINES / NOTES

Build total: _____ **Started:** _____ **First power-up:** _____

Notes