







Instructions for installation and use English

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- Read this manual carefully before installing, maintaining or repairing this appliance!
- The symbol A indicates important information that it is imperative to take into consideration in order to avoid all risks of harm to persons or damage to the appliance.
- The symbol indicates useful information.



- As part of a continuous improvement process our products may be modified without prior notice.
- Exclusive use: salt water chlorination system for pools (must not be used for any other purpose).
- System designed to operate with water from the public mains supply. Use of well water or rain water is prohibited.



- The appliance must be installed by a qualified technician in compliance with the manufacturer's instructions and with applicable local standards. Under no circumstances can the manufacturer be held liable in the event of failure to comply with applicable local standards. Under no circumstances shall the manufacturer be held liable if current local installation regulations are not followed.
- It is important that this equipment is operated by competent and qualified (both physically and mentally) people that have previously received the instructions for use (by reading this booklet). Any person not meeting these criteria should not go near the equipment, to avoid the risk of being exposed to dangerous components.
- If the equipment malfunctions: do not attempt to repair the equipment yourself contact your installer.
- Before working on the equipment, ensure that it and any other equipment connected to it are disconnected from the electricity supply.
- Before all connections, make sure that the voltage indicated on the maker's plate of the appliance corresponds to the mains voltage.
- Removing or bypassing one of the safety devices automatically voids the guarantee, as does fitting replacement parts not manufactured by us.
- Incorrect installation can result in damaged equipment or serious physical injury (or even death).
- Keep the equipment out of the reach of children.

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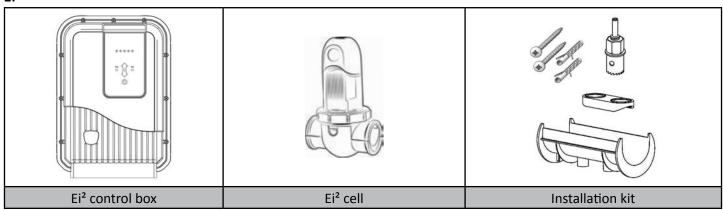
1. Information before installation

1.1 General delivery conditions

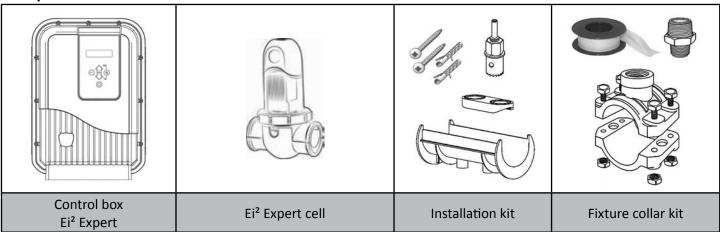
All equipment, even carriage and packaging paid, is shipped at the recipient's risk. If damaged caused during transport is observed, the recipient should write appropriate comments on the delivery note provided by the carrier (and confirmed in writing to the carrier by registered letter).

1.2 Contents

Ei²



Ei² Expert



1.3 Technical specifications

Power supply voltage	230 Vac-50 Hz		
Electric power	Max. 140 W		
Protection index	IPX5		
Box size (I x h x d)	28.5 x 40.5 x 12.5 cm		
Cell size (I x h x d)	16.5 x 22.5 x 12.5 cm		
Weight (box + cell)	6.0 kg (+/- 500 g depending on model)		
	<u>Minimum</u>	<u>Maximum</u>	
Flow through the cell	5 m³/h	18 m³/h - ND 50 mm 25 m³/h - ND 63 mm	
Pressure in the cell	/ 2.75 bar		
Operating water temperature	5 °C	40 °C	

2. Installation

2.1 Preparing the pool: water balance

These appliances are designed to disinfect pool water using its salt water chlorination function.

It is essential that the pool water balance is controlled and adjusted before installing the appliance. Making sure that the pool water balance is correct from the very start will reduce the likelihood of encountering problems on the first days of operation or during the season the pool is in use.

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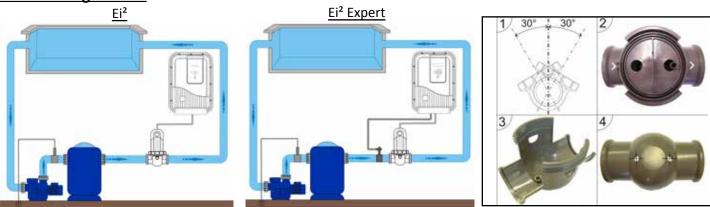
Even though it is an autonomous system, it is essential to regularly analyse the water to check the water balance parameters and adjust them if necessary.

	Unit	Recommended values	To increase	To decrease	Test frequency (during season)	
рН	/	7.2 – 7.4	Add pH+ or use Add pH- or use automatic regulation		Weekly	
Free chlorine	mg/L or ppm	0.5 – 2	Increase the chlorine production or use Boost mode (Ei² Expert only)	Reduce chlorine production	I Weekly	
TAC (alkalinity or buffering power)	°f (ppm)	8 – 15 (80 – 150)	Add alkaline corrector (Alca+ or TAC+) Add hydrochloric acid Mor		Monthly	
HL (level of calcium carbonate)	°f (ppm)	10 – 30 (100 – 300)	Add a calcium carbonate sequestering agent (Calci-) or carry out carbonate removal		Monthly	
Cyanuric acid (stabiliser)	mg/L or ppm	< 30	Only add cyanuric acid if necessary (Chlor Stab) Partially empty the pool and refill it		Quarterly	
Salinity	g/L or kg/m³	4	Leave as such or partially empty the pool and refill it		Quarterly	
Metals (Cu, Fe, Mn)	mg/L or ppm	± 0	/	Add metal binder (Metal Free)	Quarterly	

2.2 Installing the control box

- The control box must be installed in a dry ventilated equipment room protected against frost, with no pool maintenance products stored nearby.
- It must not be installed more than 1.5 metres from the cell (maximum cable length).
- If the box is fixed to a post, a watertight panel must be fixed behind the control box (350x400 mm minimum).
- Fix the support solidly to the wall or the watertight panel, and place the control box on it using the screws provided.

2.3 Installing the cell



- The cell must be installed on the piping after the filtering, after any measurement sensors, and after eventual heating systems.
- The cell must be installed on a horizontal pipe with a free area of at least 30 cm, keeping as far away as possible from any bends, in vertical position (maximum tolerance ±30° (1)).
- Respect the water flow direction (see arrows (2)).
- Dismantle the cell.
- Position the lower collar of the cell (3) upside down at the position where the pipe will be installed.
- Use a drill bit or centre-punch to mark the positions of the holes to be drilled on the pipe (4), remove the lower collar and drill the holes using the hole saw supplied.
- Check that the edges are perfectly smooth and deburred (use abrasive paper, for example).

- Clip together the lower and upper parts of the cell collar on the pipe at the holes, respecting the water flow direction (use the "EU" Ø50 reducer for a Ø50 mm pipe).
- Position the top transparent part of the cell (presence of a foolproof locating notch), position the locking ring on the thread of the upper collar, then tighten firmly by hand (do not use a tool).
- Connect the cell power supply cable in compliance with the wire colour codes (red, black and blue connectors) and then fit the protective cap.
 - The cell must always be the last element placed on the pool return pipe (see diagram).



- It is always recommended to install the cell on a by-pass. This assembly is MANDATORY if the flow is in excess of 18 m³/hour to avoid load loss.
- If you installed the cell on a by-pass, it is recommended to fit a check valve downstream from the cell and not a manual valve, to avoid any risk of incorrect handling.

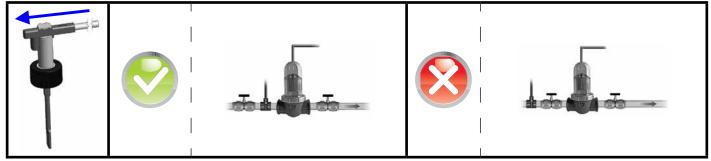


An "AUS" reducer and a black seal are supplied in the installation kit. They are intended for $1 \frac{1}{2}$ " (= 38 mm) pipes. However, the black seal can be used instead of the original seal if the pipe is not standardised (diameter smaller than ND 50 or ND 63).

2.4 Installing the flow controller (Ei² Expert only)

The flow controller and its fixture collar (\emptyset 50 mm) must imperatively be installed on the piping close to the cell and upstream from it. Use the threaded adapter and Teflon tape supplied to install the flow controller on its fixture collar.

- Cell installed in by-pass: the flow controller must be installed on the cell by-pass between the upstream isolation valve and the cell itself.
- Cell installed in line: the flow controller must be installed just in front of the cell and after a possible valve.





- Failure to comply with these instructions could lead to the destruction of the cell! The manufacturer cannot be held liable in this case.
- The flow detector has a direction for installation (arrow indicated on it showing the flow direction for the water). Make sure that is is correctly placed on its fixture collar so that it stops the salt water chlorinator production when filtering is stopped ("No flow" displayed showing the absence of flow, see §5).

2.5 Electric connections

2.5.1 Connecting the control box

The salt water chlorinator can be connected in compliance with the applicable standards in the country of installation.

Ei2:

• <u>Mandatory connection</u>: directly coupled to the pool filtering (the appliance is only supplied with power when filtering is operating).

Ei² Expert:

- <u>Preferred connection</u>: the appliance is permanently plugged in to the power supply (power supply protected by a 30 mA ground fault circuit breaker).
- Possible connection: directly coupled to the pool filtering (the appliance is only supplied with power when filtering is operating).

==> When all connections (electrical and hydraulic) have been made, reconnect the mains power supply to power on the appliance.

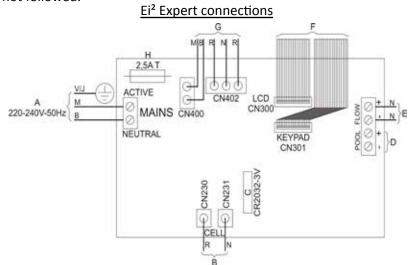


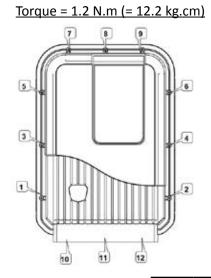
- Failure to comply with these instructions could lead to the destruction of the cell! The manufacturer cannot be held liable in this case.
- Whichever connection is used, it is mandatory to programme the Ei² Expert operating times (called "Timers") (see §3.2.5).

2.5.2 Connection to an electric roll-on shutter (Ei² Expert only)

If the pool is fitted with an electric roll-on shutter, it can be connected to the Ei² Expert chlorinator using a dry contact so that the latter automatically adapts its chlorine production when the shutter is closed (see §3.2.3).

- Make sure the appliance is powered off.
- Remove the 12 screws securing the cover screws and remove it (take care not to tear out the ribbon cables).
- Unscrew the dedicated cable gland tightening ring (at the bottom of the control box) and remove the plug to feed through the cable from the shutter. Tighten the cable gland tightening ring.
- Connect the cable from the shutter on the "POOL+" and "POOL-" connectors on the electronic board.
- Close the box respecting the tightening order shown on the following diagram (9 long screws for the perimeter of the box and 3 short screws for the bottom of the box). The box IPX5 protection index cannot be guaranteed if this procedure is not followed.





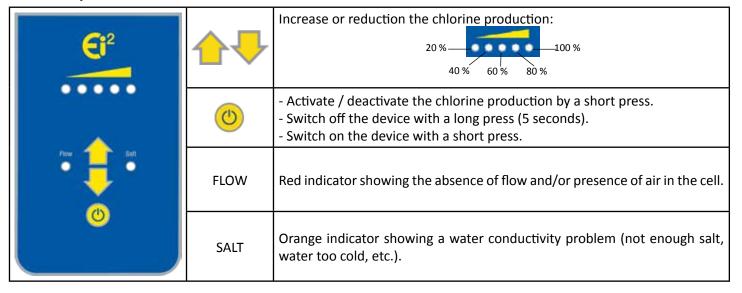
		Ei²	Ei ² Expert			Ei²	Ei ² Expert
Α	Mains power supply 220-240 Vac / 50 Hz	Х	Х	Ε	Connection of flow detector		Х
В	Cell power supply	Х	Х	F	Ribbon cables at the user interface	X (1)	X (2)
С	Memory battery type CR2032	Х	Х	G	Transformer connections	Χ	Х
D	Shutter connection (contact closed = shutter closed)		х	н	Fuse 2.5 A time-delayed	Х	Х



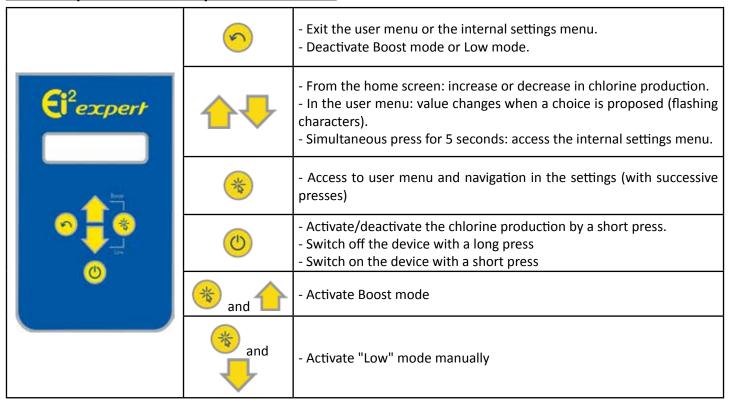
- The Ei² Expert chlorinator is compatible with several different types of electric shutter. However, certain systems may not be compatible. In this case, activate "Low" mode manually from the chlorinator control panel (see §3.2.3).
- Refer to the shutter manufacturer's installation manual.
- The dry contact operating principle is as follows: contact closed = shutter closed.

3. Use

3.1 Description of the Ei² user interface



3.2 Description of the Ei² Expert user interface





If the language displayed on the screen when the Ei² Expert is first switched on is not appropriate, see §3.2.6.

3.2.1 Chlorine production activated

When chlorine production starts, the "Start..." message is displayed on screen for about 6 seconds. "CHLORINATION" is then displayed, indicating that the device is producing chlorine.

3.2.2 "Boost" mode: chlorine production increased to 100 % for 24 h

In certain cases the pool may need higher than normal chlorination (stormy weather, high number of bathers, etc.). "Boost" mode is used to increase chlorine level quickly.

• Press buttons starts.





simultaneously: "BOOST" is displayed on the screen and 100 % chlorine production

• To stop "Boost" mode, press



• 10 stop Boost mode, press



When "Boost" mode is activated, the rated chlorine production settings are temporarily overridden and the Ei² Expert chlorinator will operate for a total of 24 hours at 100 % chlorine production. The number of days will therefore depend on the Ei² Expert operating times (see §3.2.5).

3.2.3 "Low" mode: chlorine production reduced to 10 % if the pool is covered

If the pool has a covering system (shelter, shutter, cover, etc.), "Low" mode is designed to adapt the chlorine production to situations where the pool is covered (lower needs). Its effect is to limit chlorine production to 10%. This mode is also called "Shutter" mode.

Manual activation (shelter, cover, etc.):

- Press buttons and simultaneously: "LOW" is displayed on the screen and chlorine production is reduced to 10 %.
- To stop "Low" mode, press

Automatic activation (compatible electric roll-on shutter):

- Make sure that the shutter is compatible and connected to the Ei² Expert chlorinator (see §2.5.2).
- «Low» mode will automatically be activated when the shutter is closed.
- "Low" mode will stop as soon as the shutter is completely open.

3.2.4 Setting the time



The Ei² Expert chlorinator is fitted with an internal memory. When the device is first switched on it is important to leave it powered on continuously for at least 24 hours in order to initially charge the accumulator (permanent separate power supply or filtering on permanently). Once charged the accumulator has several weeks of autonomy in the event of a power failure.

The time is displayed in a 24 hour format.

- Switch on the device and wait until screen start-up sequence is finished.
- Press the button to access the user menu, the minutes start to flash.
- Use the and buttons to set the minutes, then press to store
- Use the and buttons to set the hours, then press to store
- Press the button to return to the home screen.

3.2.5 "Summer" and "Winter" modes and setting the "Timers"

 \triangle

"Timer" programming is used to define the device operating times within the filtering system operation times. The daily operating times must be sufficient to correctly treat the water. Ei² Expert proposes default settings of Timers 1 and 2. They can be customised (see §3.2.5.b).

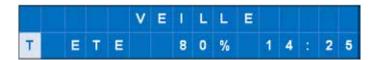
A reminder of the calculation rule: the ideal daily filtering time is obtained by dividing the required pool water temperature (measured in °C) by 2.

Example: for water at 28 °C, time = 28/2 = 14 hours per day



The Ei² Expert chlorinator can store **2 seasonal operating modes** called by default **"Sum"** and **"Win"**. The following settings can be customised for each mode:

- the device operating times, the "timers": T1 (Timer 1) and T2 (Timer 2)
- the required chlorine production rate: 10 %, 20 %, 30 %,... up to 100 %.



STANDBY = Device operating status
T = "Timer" mode (always active)
SUM = "Summer" operating mode
80 % = chlorine production rate
14:25 = time in 24 h format

3.2.5.a Mode selection: "SUMMER" or "WINTER"

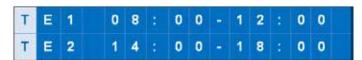
• Press 4 times to set the clock. "**SUM**" starts to flash.

• Use the and buttons to choose "SUM" or "WIN" mode, then press the button to return the home screen.

3.2.5.b Programming the timers according to the modes



The times of Timers 1 and 2 cannot overlap. In addition, the time range of Timer 1 necessarily precedes that of Timer 2.



TE1 / TE2 = Timer in "summer" mode No. 1 / Timer in "summer" mode No. 2

08:00-12:00 = Operating time range of Timer No. 1

14:00-18:00 = Operating time range of Timer No. 2

- Press 4 times to set the clock. "SUM" starts to flash.
 Select the mode to be customised "SUM" or "WIN" using the move to the timer setting screen.
 Use the and buttons to set the Timer 1 stop minutes, then press to store.
 Use the and buttons to set the Timer 1 start minutes, then press to store.
 Use the and buttons to set the Timer 1 start minutes, then press to store.
 Use the and buttons to set the Timer 1 start minutes, then press to store.
 Press the button to store the timers and move to setting the chlorine production rate.
- 3.2.6 "Internal settings" menu

Use the

Ei² Expert has an "Internal settings" menu to change and/or view the following operating parameters:

• Language

• Polarity inversion cycles

• Operating hours counter

To access this menu, press the and buttons simultaneously for 5 seconds.

buttons to choose the required chlorine production rate (from 10 % to 100 %).



EMEA: Device sale and use region (not modifiable)

FR French: Language used (modifiable, by default = French)

Cyc=5h: Polarity inversion cycle (modifiable, by default = 5 h)

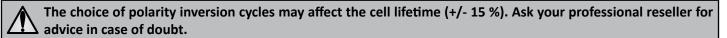
00000: Operating hours counter (not modifiable)

3.2.6.a Setting the language



- Use the and buttons to select the required language.
- Press the button to return to the home screen.

3.2.6.b Polarity inversion



Ei² and Ei² Expert are equipped with a polarity inversion system making the cell self-cleaning (default setting = 5 hours).



Ei² Expert offers a choice of 3 inversion cycles:

- 3 hours: for water of high carbonate content (TH > 40 °f or 400 ppm)
- 5 hours: for normal water (20 °f < TH < 40 °f or 200 ppm < TH < 400 ppm)
- 7 hours: for water of low carbonate content (TH < 20 °f or 200 ppm).
- From the home screen, press the and buttons for 5 seconds.
- Press the button. The polarity inversion cycle hours start to flash.
- Use the and buttons to select the required cycle.
- Press the button to return to the home screen.

3.2.6.c Operating hours counter



Ei² Expert can count its total operating hours (= chlorine production time). This information may be useful to determine the electrode age. The value is provided for information only and may be modified.

- From the home screen, press the and buttons for 5 seconds.
- The number of operating hours is displayed at the bottom right of the screen.
- Press the 60 button to return to the home screen.

4. Maintenance

4.1 Washing the pool filter (backwash)

Ei² and Ei² Expert MUST be switched off when washing the filter. When the device is on (filtration on), press the



button for 5 seconds to switch it off.



After cleaning the filter, switch the device on again by pressing the button (short press). It will resume normal operation (production slaved to filtration for Ei² and production according to the Timers set for Ei² Expert.

The manufacturer cannot be held liable in case of incorrect handling.

4.2 Cleaning the electrode



The Ei² and Ei² Expert are equipped with a smart polarity inversion system designed to prevent the electrode plates from scaling. However cleaning may be required in regions where the water is very hard.

- Turn off the chlorinator and the filtering, close the isolation valves, remove the protection cover and disconnect the cell
 power cable.
- Unscrew the tightening ring and remove the cell. The ring is crenelated thus allowing a lever to be used in the event of it jamming. Place the cell backwards and fill it with a cleaning solution so that the electrode plates are immersed.
- Leave the cleaning solution to dissolve the scale deposit for about 15 minutes. Dispose of the cleaning solution at an approved waste recycling site, never pour into the rainwater drainage system or into the sewers.
- Rinse the electrode using clean water and put it back on the cell fixture collar (there is an alignment foolproofer).
- Refit the tightening ring, reconnect the cell cable and refit the protective cover. Open the isolation valves and restart the filtering and chlorinator.



- If you do not use a commercially available cleaning solution, you can manufacture it yourself by carefully mixing 1 volume of hydrochloric acid with 9 volumes of water (Warning: always pour the acid into the water and not the opposite and wear suitable protective equipment!).
- Make sure that the setting of the polarity inversion cycles is adapted to the pool water hardness. See paragraph 3.2.6.b to change them.

4.3 Wintering



The chlorinator has a protective system to limit chlorine production under bad operating conditions such as cold water (winter) or a lack of salt.

- Active wintering = filtering operational in winter: below 10 °C it is preferable to switch off the chlorinator. Above this temperature you can leave it running.
- Passive wintering = lower water level and drained piping: leave the electrode dry in its cell with its isolation valves open.

5. Troubleshooting

Ei ²	Ei ² Expert	Possible causes	Solutions
	INVERSION	The self-cleaning cycle is automatic; this message is not an error code but an information message.	 Wait for about 10 minutes and chlorine production will resume automatically at the previously set level. The 3 central LEDs flash for a few seconds when polarity inversion is carried out on Ei².
	HIGH SALT	Salt overload (> 10 g/L).	Drain the pool partially to reduce the salt concentration.
"Salt" indicator on	CHECK SALT	 Lack of salt (< 4g/L) due to water loss or dilution (filter backwash, water renewal, rain, leaks, etc.). Pool water temperature too low (< 18 °C, variable). Cell scaled up or worn. 	 Add salt to the pool to keep the level at 4 g/l. If you do not know the salt level or how to test it, consult your reseller. Basic production limitation signal when the water is too cold. Reduce chlorine production or add salt to compensate. Clean or replace the cell.
"Flow" indicator on	NO FLOW	 Stop or failure of the filtering pump. Presence of air or gas in the cell (incorrect filling with water). By-pass valves closed. Flow controller and/or cell disconnected or defective. 	 Check the pump and its programming clock, the filter, the skimmer(s), and the by-pass valves. Clean them if necessary. Check the cable connections (cell and flow controller). Check that the flow controller is working correctly (replace it if necessary).
	PUMP CONTROLLER	This message is displayed alternately with "NO FLOW" if the situation continues.	Perform the same checks as above.
	CELL FAULT	 Short-circuit in the cell or cable disconnected/badly connected. Worn electrode. 	 Check the cell connections. Replace the cell. Have the control box (electronic board and transformer) checked by a qualified technician if necessary.
	OVERHEAT- ING	 Device internal temperature over 70 °C. Device internal temperature over 80 °C. 	 The device reduces its production to 50 %. Production stops. Production restarts automatically when the temperature drops.
	х	The device no longer stores the time.	 Check the condition of the accumulator. Replace it if necessary (3 V accumulator, type "CR2032"), see §2.5.2 to open and close the box.

==> If the problem continues contact your reseller.

6. Registering the product

Register your product on our website:

- you will be the first to be informed of new Zodiac® products and special offers,
- you can help us to constantly improve our product quality.

Europe & Rest of the World	www.zodiac-poolcare.com	
America	www.zodiacpoolsystems.com	
Australia – Pacific	www.zodiac.com.au	

7. Product conformity

This appliance has been designed and built according to the following standards:

EN6000-6-1: 2006

EN6000-6-3: 2007 IEC 61558-2-6: 1997

AS/ NZ 3136-2001 (IEC 60065 + IEC 60335-2-60)



Relative to which it is compliant. The product has been tested under the normal conditions of use.





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