

EDR Series

Model **ECO AUTOSNART**



Instruction Manual

Rev 5.0

Thank you for purchasing the EDR Auto Smart.

Please read this Instruction Manual thoroughly before using this machine.

Please carefully read and thoroughly understand the important information described in this manual before using this machine.

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Do not use this machine in an area where there is flammable or explosive gas

Never use this machine in an area where there is flammable or explosive gas. This machine is not explosion-proof. An arc may be generated when the power switch is turned on or off, and fire/explosion may result.



Always ground this machine

Always plug this machine into a three prong outlet that is properly grounded to avoid electric shock due to a power surge.



If a problem occurs

If smoke or strange odor should come out of this machine for some reason, turn off the power switch right away. Immediately contact a service technician for inspection. If this procedure is not followed, fire or electric shock may result. Never perform repairs yourself since it is dangerous and not recommended.



Do not use the Power Cord if it is damaged or kinked

Do not use the power cable if it is damaged or kinked. The Power Cord can over heat and can create a fire hazard.



Do not disassemble or modify this machine

Do not disassemble or modify this machine. Machine failure or electric shock that could be potentially fatal could occur.





During a thunder storm

During a thunderstorm, turn off the power switch immediately. If this procedure is not followed, machine failure, electric shock or a fire could occur.

Requirements for Installation:





Always ground this machine:

Always plug machine into a three prong outlet that is properly grounded to protect you and the machine from electrical shock in case of power surge.

2. Choose a proper place for installation:

- Do not install this machine in a place where:
 - \diamond The surface is rough or dirty.
 - ♦ Flammable gas or corrosive gas is generated.
 - ♦ There is direct sunlight.
 - ♦ There is excessive humidity and dust.
 - \diamond There is constant vibration.

3. Do not modify:

Modification of this machine is strictly prohibited. This could cause machine failure or even electric shock that can be potentially fatal.



4. Installation on horizontal surface:

Set this machine on a secure flat surface.



5. Use a correct power receptacle:

Use a correct power receptacle that meets the machine's rated electric capacity. <u>Electric capacity:</u>

EcoSenior LE: 100 - 240 VAC, 50/60Hz, 150W(Max)

1. How to install:

1.1 Contents in package:



1.2 Location for Installation:

Carefully unpack your machine from the shipping carton and place on a secure flat surface. Install in a location where you have full access to the machine and the front door can open fully, such as a counter top or flat top cart.

CAUTION!

Carefully carry the machine. Contact a representative @ ELM USA if the machine has been dropped.

If the machine is misused, fire or electric shock may occur.



Choose wisely what you put near machine. There is the possibility of water leakage if machine is not set up properly.

1.3 Moving the machine:



Remove Pad Holders and close the Front Door when you need to move the machine.

Front Door may not open due to Pad Holder(s) dropping inside the machine and may cause an error.

If the Front Door does not open, do not open it forcefully and do not disassemble machine. Please see P. 23 on how to manually open the front door.

1.4 Sending back the machine to ELM USA:

If your machine needs to be sent back to ELM USA it must be sent back in the original box and packing to avoid damage to the machine during shipping. ELM USA is not responsible for any shipping damage to machine.

IMPORTANT: Keep the shipping carton and packing material for machine

2. Description and Function of each part:





ST LED

During automatic operation the LEDs display repair mode number ("1."-"5.") on the left side, and the ST (stands for "STAGE", and means "repair process") number ("1"-"5") on the right side.

When indicating consumable material usage counter, it displays the character meaning of consumable material ("1."-"4.", "C.", "A.", "F.", or "r.") on the left side, and the third (hundred's place) digit of the counter on the right side.

TIME LED

During automatic operation the LEDs displays setting time and remaining time of each ST.

When indicating consumable material usage counter the LEDs display the second (ten's place) and the first (one's place) digits of the counter.



MODE button (Repair Start button)

Choose the button to select the repair level. With the Front Door closed the unit will start automatic operation:

- 1 CLEAN/POLISH Shallow
- 2 VERY LIGHT
- 3 LIGHT
- 4 MEDIUM
- 5 DEEP
- **o** DEEP a any button will r

Pressing any button will pause automatic operation.

Deep

Pressing any button will restart automatic operation.

STOP button

Pressing the Stop (red) Button opens the Front Door when machine is idle.

Pressing the Stop (red) Button makes the automatic operation pause.

Pressing it again terminates the automatic operation.

Pressing the Stop (red) Button resets errors.

3. LED Display:

ST (Repair process) LED:

During the automatic operation, it displays repair mode number ("1."-"5.") on the left side, and ST number ("1"-"5") on the right side.

When indicating consumable material usage counter, it displays the character meaning a consumable material ("1."-"4.", "C.", "A.", "F.", or "r.") on the left side, and the third (hundred's place) digit of the counter on the right side.

"8" means initialization, "P" Pump Operation Mode, "E" error occurrence, and "AL" alert message. <u>TIME LED:</u>

It displays setting time and remaining time of each ST, the second (ten's place) and the first (one's place) digits of consumable material usage counter, error number, and alert number.

Condition	Ċ,	ST LED	TIME	E LED	Note
Initialization	8	8	8	8	After main power on After termination of the automatic operation After error reset
Front Door open		0		0	
Pump Operation Mode	Р	- or 1	- or 2	- or 3	Refer to [5.3 Set consumable materials]
Standby	15.	1-5 (Blink)	Repair tii	r setting me	The first repair process number/repair setting time of each repair mode are displayed
Preparing for each ST	15.	1-5	Repair tii (Bl	r setting me link)	Setting of the pad is performed, each motor starts rotation, and Sanding Lift moves forward
Repairing	15.	1-5	Remair	ning time	
Finishing each ST	15.	1-5		0 (Blink)	Sanding Lift moves to the home position, and Turret moves to next pad if needed
Suspending each ST	15. (Blink)	1-5	Remair	ning time	All motors stop, Sanding Lift moves to the wait position, and Front Door opens
Checking consumable material usage counter	14. C. A. F. r.	Consumable material usage counter (The third digit)	Consumable material usage counter (The second and the first digits)		Each counter can be cleared by pressing and holding "MODE" Button corresponding with it on more than 3 seconds "F." and "r." are displayed only when the Water recycle system (OPTION) is added
				- /	
Error	E	0-5	Error number		Refer to [6. Error occurrence]
Alert	А	L	Alert r	number	Refer to [7. Alert List]

4. Pad and ST (Repair process) number:



Pad number	Pad holder (Velcro) color	ST number in which the pad is used
4	Red	5, 4
3	Green	3
2	Yellow	2
1	Black	1

Refer to P. 17 [5.5.1 Explanation of repair mode] for checking the relation between repair mode and the pads.

5. How to use:

5.1 Set-up:

- 1. You will need one bucket or container to mix water and Solution D and one for the waste water to drain into.
- 2. Mix water and Solution D in bucket or container to treat water. See example for mixture ratio bellow.



<Mixture ratio> *Note: mixture radio may vary based on water hardness.

20 ml of Solution D per gallon of water

Quality of disc repair is not assured with another ratio.

3. Drain Hose has to be connected to exit.



4. Put the Water Supply Tube and Drain Hose into the each bucket or container.



Bucket for treated water

Make sure that drain hose goes directly down from machine into waste container with on loops or sages in hose.



Bucket for waste water

5. Fill Compound bottle with Compound to 3/4 full (roughly 7 ounces).



Thoroughly shake Compound bottle to mix before using.

Put Compound bottle in the bottle Holder and attach to the backside of the machine.
Make sure Compound Supply Tube goes completely to the bottom of the Compound bottle.

[Bottle Holder Guide Hole]







Compound Supply Tube



5.2 Power on and off:

- 1. Install Power Cord securely to AC inlet on backside of machine.
- 2. Plug in the other end of the Power Cord to a three prong wall outlet that is properly grounded.



Receptacle has to be grounded!

- 3. Make sure front door is closed.
- 4. Turn ON the Main Power Switch on back of machine.
- 5. Initialization starts automatically
 - (LED display ST="88", TIME="88").
- 6. The Front Door opens after initialization is complete (LED display ST="0", TIME="0").





Front Door must be closed for initialization process to start.

When LEDs display [Front Door Open] message (ST="AL", TIME ="11"), close the Front Door properly and press the Stop (red) Button on the operation panel to restart initialization process.





5.3 How to operate Water and Compound Pumps:

You will need to operate the Water and Compound Pumps until Water and Compound comes out of each nozzle.

Note: Compound Pump will need to be run weekly if machine has not been in use to prevent Compound from clogging line.

- 1) Turn ON the Main Power Switch.
- 2) Place a cloth or paper towel under nozzles to prevent the water and Compound from spilling onto the Platen Table.



 Press and hold "MODE5" Button and Stop (red) Button together to enter "Pump Operation Mode" (LED display ST="P-", TIME="--").





4) How to operation each pump:

a. How to operate Water Pump.

When in "Pump Operation Mode" Press "**MODE1**" button once to turn pump on and press again to turn pump off.



b. How to operate Compound Pump.

Press "MODE2" button once to turn pump on and press again to turn pump off.



C. To exit pump operation mode, with pumps off, press the Stop (red) Button.



Compound and Water Lines need to be properly primed to prevent damage to discs & pads. Water and Compound Pumps should be run daily that ensure that Water and Compound is coming out of each nozzle.

5.3.1 How to switch the machine between CD/DVD and Blu-ray repair modes:

With the machine turned on and the door open, press and hold the Stop (Red) button until the cd in the ST screen changes to bd. Then replace the yellow pad and pad holder with the purple pad and pad holder on the Turret. Now the machine is set up to repair Blu-ray discs. The machine will do a level 1 to level 4 repairs in bd mode. Please make sure that when you switch back to cd repair mode, you change back to the yellow pad and holder.

2. How to install Pads on Pad Holders and Pad Holders on Turret.

Note: Make sure that the Pads are centered in the Pad Holder so that no part of the Pad goes on the raised lip of the Pad Holder.





3. Set Pad Holders on Turret.



CAUTION! <u>Place each Pad Holder in the proper location on the Turret by color.</u> <u>Misplacement of the Pad holders on Turret will cause bad disc finish or error.</u>

No Pad holder alert:

If a Pad Holder(s) is missing the machine will detect it. LEDs will display [No Pad Holder] message (ST="AL", TIME="12"). Operation of the machine will pause and the Front Door will open.



Properly set all Pad Holders close the Front Door and then the process will restart by pressing any of the "MODE" buttons.

Pressing the Stop (red) Button terminates the automatic operation and initialization of the machine.

5.4 Setting a disc for repair:

1. Properly place disc on Platen Table.



Make sure that the side to be repaired is facing up.





Improperly placing a disc (with the label up) can result in damage to disc & pads.

2. Close the Front Door slowly.

5.5 Operations for repairing disc:

5.5.1 Explanation of repair mode:

"MODE" button	Repair mode	Description
5	DEEP	For discs with deep scratches.
4	MEDIUM	For discs that have moderate scratches.
3	LIGHT	For discs that have light scratches.
2	VERY LIGHT	For discs that have very light scratches.
1	CLEAN/POLISH	For discs that are dirty and or just have smudges.

The above table below shows the relation between repair mode and the pads.

At all repair modes, repair processes are performed in order of highest number pad, and #1 is always the last.

For example, if the repair mode "LIGHT" was chosen, pad #3, #2, and #1 are used in order.

At the mode "MEDIUM" pad #4 is used and for "DEEP" pad #4 is ran twice.

ST number							Repa	air m	node					
(Pad used at the ST)	DEEP		DEEP		MEDIUM		L	IGH	Т	V Ll	'ER` IGH	Y T	Cl PC	N/ SH
5(Pad #4)														
4(Pad #4)														
3(Pad #3)														
2(Pad #2)	~		Ļ											
1(Pad #1)		\checkmark			\checkmark		٢		7			-	ľ	

5.5.2 How to start a repair:

After properly setting the disc on the Platen table (see P. 17), close the front door and select the desired "MODE". The machine will then start.

5.5.3 Understanding displays on LEDs when machine is repairing a disc:

Repair mode number, ST (repair process) number, and remaining time of each ST are displayed on LEDs in repairing.



5.5.4 Pausing the repair process:

Pressing any button of the operation panel makes the repair process pause. Then the front door opens after all motors stop.

To restart the process, close the Front Door, and then follow the instructions as below;

To restart the process...Press any of "MODE" buttons.

To terminate all of the process...Press the Stop (red) Button.

5.5.5 Process completion:

The Front Door will open automatically after the repair process is complete.

Remove the disc by its edges to avoid fingerprints after the door has completely opened.

5.5.6 Consumable replacement (AL) alerts:

LEDs display [Replacement] alert when consumable materials have reached their limit and need to be replaced.

The alert is displayed after initialization, before starting or after finishing the automatic operation.

ST LED	TIME LED	Contents	Note
AL	01	Replace Pad #1	
	02	Replace Pad #2	
	03	Replace Pad #3	
	04	Replace Pad #4	
	05	Replenish Compound	
	06	Replace/Replenish Water	
	07	Replace 1st filter	These messages are displayed
	08	Replace Reactive outer pipe	system (OPTION) is added.

<Replace alert list>

When consumable materials have reached their useful life, LEDs display [Replacement] alert (ST="AL", TIME="01"-"08"). Then the machine cannot start automatic operation. Press the Stop (red) Button of the operation panel to temporarily remove the alert message, replace appropriate consumables and then to reset counter before being able to start another repair.

5.5.7 How to clear consumable replacement alert:

How to clear an alert (AL) message:

With the machine turned on and the door open, press and release the "MODE" button corresponding with the alert message. Then press and hold down the same "MODE" button until the counter resets and goes to zero.

If you receive an alert message with a number higher then AL 05, such as AL 06, press and release the number 5 Mode button to scroll up to the counter that needs to be reset and then press and hold the mode 5 button until that counter resets.

TIME LED Contents Action ST LED AL 01 Replace Pad #1 (Black) Press the Stop (red) Button to exit alert. For example: 02 Replace Pad #2 (Yellow) If there is an AL 04. This is an alert indicating that the red pad has reached its limit and needs to be replaced. 03 Replace Pad #3 (Green) Replace the red pad. With the door open press and release the Replace Pad #4 (Red) 04 #4 button. The pad count should be displayed in the right screen (Time). Then 05 Replenish Compound press and hold the #4 button until the count is reset to zero. Operation can now 06 Replace/Replenish Water resume. *07 Replace 1st Filter (See example pictures below) Replace Reactive Outer Pipe *08 Front Door open Close the Front Door and press the Stop 11 (red) Button on the Operation Panel. 12 No Pad Holder Properly set Pad Holders, close the Front Door and press the Stop (red) Button.

6. Alert List:

*These messages are displayed only when the Water Recycle System (OPTION) is added.





7. Error occurrence:

7.1 Error code:

When error occurs, LEDs display error code (ST="E0"-"E5", TIME="Error number"), buzzer sounds, and the Front Door opens after all motors stop.



If the error continues to occur, please note the error code and contact a representative @ ELM USA. Our toll free number is: (844) 750-8628

7.2 Error reset:

Close the Front Door and press the Stop (red) Button. The buzzer will stop and the front door will open after initializing.

7.3 Error List:

ST LED	TIME LED	Errors		Contents and Check	Action
E When error occurred in repairing: ST number	21	Sanding Lift Position	Contents Check	Lift Origin Sensor does not turn on. Open the Front Door, and confirm whether there is an object obstructing the back and forth motion of the Lift Motor.	С
When error occurred in other cases: 0	31	Turret Position	Contents Check	Turret Motor does not rotate. Confirm whether there is an object that obstructs rotation around the Turret.	С
	32	Turret Sensor	Contents	Turret Position Sensor is not registering properly. Turret Position Sensor is broken.	С
	41	Sanding Motor Wire Down	Contents	Sanding Motor does not rotate properly. There is a problem with the wiring of the Sanding Motor or Sanding Motor is broken. Main Board Circuit to control the Sanding Motor may be broken.	A
	42	Sanding Motor Over Ref.	Contents Check	Reference current of Sanding Motor is not normal. Confirm whether it is clean around the Pad Holder(s).	С
	43	Sanding Motor Over Load	Contents Check	Sanding Motor takes over current. Confirm the setting of the pad properly.	С
	44	Sanding Motor Rotation Detection Sensor Wrong	Contents	The input of Sanding Motor Rotation Detection Sensor is not normal. The Rotation Detection Sensor may be broken.	С

Error list continued

ST LED	TIME LED	Errors		Contents and Check		
	53	Platen Motor Turn Lock	Contents Check	Platen Motor rotation stops. There might be a problem with the	В	
				pads. Replace all pads with new ones.		
	81	EEPROM Load	Contents	Reading of data is impossible from EEPROM. It has the possibility that EEPROM is out of order.	A	
	82	EEPROM Write	Contents	Data writing is impossible to EEPROM. It has the possibility that EEPROM is out of order.	A	
	90	Sanding Pressure Lack	Contents	Not taking an enough sanding pressure even though lift moves full distance.	D	
			Check	It has the possibility that the pad has reached the useful life. Replace the old pad with a new one.		

<Action explanation>

-	
A	Immediately contact a representative @ ELM USA for inspection.
В	If error occurs even though there are no problems with pads and water, contact a representative @ ELM USA for help.
С	Turn off power to machine, after waiting awhile turn power back on and try again. If same error continues to occur, contact a representative @ ELM USA for help.
D	It might be due to a pad that has been over used or if pad is missing on pad holder. Check pad and replace if necessary. If you continue to receive an error, contact a representative @ ELM USA for help.

7.4 Manually opening the Front Door:

The Front Door can be manually opened by following the steps bellow:



- 1. Turn OFF the main power switch and unplug the power plug for safety.
- 2. Insert a card (library, credit etc.) in gap between front door and main body of machine, and slide to left. The front door latch is released and door opens.





Do not manually open the Front Door during machine operation. It may cause damage to the machine and disc. This procedure should be used only in an emergency with machine turned off.

8. Daily maintenance:

8.1 Daily cleaning:

To help ensure that the machine runs at an optimum level, a daily cleaning is necessary.

Leave the front door open, shut off the power from the switch in back and unplug machine. Do not use any of the solvents listed below to clean machine. Thinner / Benzene / Wax / solvents with acidity and the alkalinity

1. Operation Panel/Top of machine

Wet soft cloth with water or window cleaner and remove left over Compound and debris.

2. Under Splash Cover & Platen Table

Wet soft cloth with water or window cleaner and remove left over Compound and debris.



3. Around Turret

Wet soft cloth with water or window cleaner and remove left over Compound and debris. *Make sure to clean the Ring Magnets daily. They are the four black rings around the holes of the Turret.



- 4. Pad Holder(s) *Very important to clean these daily to ensure that the machine runs properly!
 - Wipe sides and metal backing plate surface with a soft cloth that's been wet with water or window cleaner. If it gets rusty, gently remove rust with a light abrasive material.



5. Pad holder fixed plate. Wipe it with a soft cloth that's been wet with water or window cleaner.



6. Drain exit

Wet soft cloth with water or window cleaner and remove leftover Compound and debris.



8.2 Daily inspection:

1. Pad Holder Velcro

Make sure that the Velcro is properly adhered to the pad holder. Velcro coming up on the edges can cause repair marks/poor finish.



Replace Velcro when needed (contact a representative @ ELM USA for replacements).

After removing old Velcro make sure to clean the surface of the pad holder thoroughly with adhesive remover.



2. Center Seal

Make sure that center seal is not cracked, damaged or worn.

When seal is damaged it could result in a poor disc finish or water on disc. Early replacement is suggested.

Contact a representative @ ELM USA for a replacement.



9. Servicing machine:

If an error continues to occur, stop the operation, turn OFF the power switch, and unplug the power cord. Please contact a representative @ ELM USA. Our toll free number is: (844) 750-8628

<Information needed when contacting ELM USA>

(Locate the production plate located on the back of the machine)

- Model name of machine
- Serial Number of machine

Please note: When contacting the service department, it is important to tell the technician about all problems with your machine in as much detail as possible. This will help us, to help you.

10. Specifications:

EDR Series

Model	Auto Smart
CPU	16bit RISC Microprocessor
Operation Panel	Panel Switch & LED
Operation ambient Temperature range	59 to 95 degrees F.
Operation ambient Humidity range	Below 90%
Power supply (50/60Hz)	100VAC to 240VAC, 150W
Dimensions (L x W x H inches)_	20x8 5/8 x11½" (Including compound tank holder)
Weight	Approx. 29 lbs.

11. Wiring Diagram:



12. Maintenance Parts:



[Maintenance Parts]

Part Name	Code No.	Specification
Center Seal		
Drain Pipe		
Platen Table		
Pad Holder4 (RED)		
Pad Holder3 (GREEN)		
Pad Holder2 (YELLOW)		
Pad Holder1 (BLACK)		
Stone Filter		
Spare Velcro for Pad Holders		

[Consumable Materials]

Part Name	Code No.	Quantity
Red Pad	EDR-EC-004	3
Green Pad	EDR-EC-003	3
Yellow Pad	EDR-EC-002	3
Black Pad 57mm	EDR-EC-001a	1
Compound	EDR-EC-006	120 ml
Solution D	EDR-EC-007	120 ml

13. Warranty:

Instruction Manual for EDR Series ECOAUTOSMART

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