



NOTICE

Thank you for purchasing HKS VALCON. For safe usage and understanding of functions of the product, read operation and installation manuals before installation and use.

PRODUCT	VALCON
USE	VARIABLE VALVE TIMING CONTROLLER
APPLICATION	DC12V Negative Ground Vehicles.
PART No	4 5 0 1 1 - * * * * *
REMARKS	Vehicle specified items are for HKS specified specifications. Harness and adaptor are required separately for installation of this product. Please purchase required harness and adaptor for your vehicle.

HKS VALCON is a device to control variable valve timing function. This device allows valve timing settings to be made via a inside 3D map. Setting the valve timing improves engine response and output.

- This manual indicates items that require careful attention in order to install this product safely, and lists precautions to avoid any possible damage and/or accidents.
- For any lost, defective and/or damaged parts, contact your retailer/dealer to order.
- HKS will not be held responsible for any damage caused by incorrect installation, mishandling, and/or misuse, nor for damages caused by modifications to or dismantling of this product.
- HKS will not be held responsible for any damage caused by the removal of the vehicle's interior, exterior, electric parts or modification for installation.
- This product was designed for and tested on a factory-spec vehicle or a vehicle equipped with other HKS products. Performance and/or safety cannot be guaranteed if this product is installed onto other inapplicable vehicles.
- This product will only operate on a Japanese vehicle with DC12V negative ground.
- The specifications of this product are subject to change without notice.
- This manual is subject to be revised without notice.
- This product is designed for use in Japan only. It must not be used in any other country.

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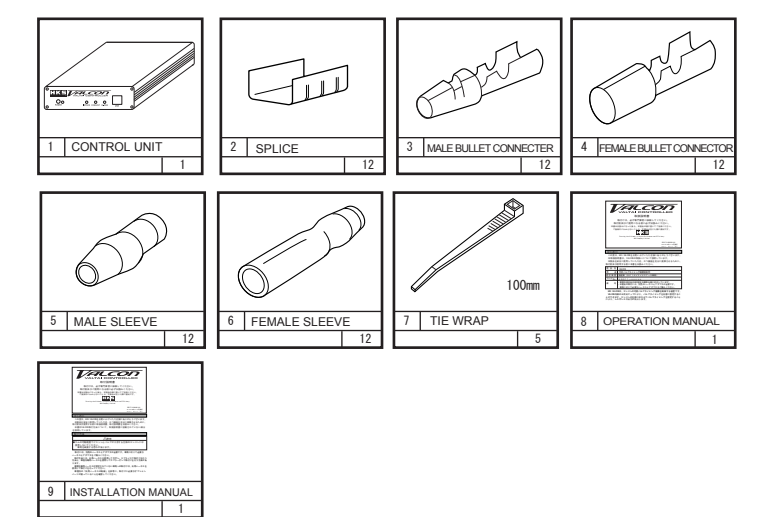
SAFETY INSTRUCTIONS

- WARNING**
- Make sure to work on the vehicle in a well-ventilated area to prevent possible explosion or fires.
 - To avoid possible accidents, do not mount the unit in areas where the driver may become distracted during driving.
 - Do not install this product on a 24V vehicle. It may cause a fire.
 - Make sure to disconnect the cable from the negative terminal of the battery to avoid possible damage to other electronics parts and/or a fire caused by a short circuit.
 - Make sure to hold and remove wiring connectors properly to avoid possible damage to other electronic parts and/or a fire caused by disconnection or a short circuit.
 - Cease use of the product if any unusual situation is noticed. Consult your retailer/dealer immediately.
 - Do not operate this product while driving to avoid possible accident.

CAUTIONS

- Do not install this product by yourself unless you have and know how to use the tools and equipment necessary to safely perform service operations on your vehicle.
- Do not modify, disassemble, and/or repair the product and supplied parts to avoid any damage to the unit and/or wiring harness.
- Handle the parts with extra care at all times.
- Avoid allowing oil and/or water from entering the unit. It may cause damage to the engine.
- To avoid possible malfunction and damage to the engine, install the unit away from areas of excessive heat or water/moisture.
- Make sure all connections and wiring are not disconnected, short circuited, or incorrect. If so, it may cause an electric shock, short, or damage to the vehicle.
- Do not test the product on a public road.
- If the product or the vehicle with the product does not operate properly, consult your retailer/dealer immediately.
- Do not try to repair the product by yourself.
- If unusual noises, scents, and/or vibration is noticed, consult your retailer/dealer immediately.
- Make sure all connections and wiring are correct. Incorrect connections and wiring may lead to product malfunction and damage to the engine.

PARTS LIST



NAMES & FUNCTIONS

- 1. NAMES**
- Front Panel
-
- Rear Panel
-
- 1. POWER SWITCH**
Changeover switch for VALCON control and stock control.
- 2. POWER LED (RED)**
It flashes while VALCON control. For stock control, it blinks (3 seconds cycle.).
- 3. INTAKE LED (GREEN)**
It flashes while VALCON controls intake camshaft. It blinks while stock control. Even if VALCON control is selected, due to control start conditions such as water temperature, it can be stock control.
- 4. EXHAUST LED (GREEN)**
It flashes while VALCON controls exhaust camshaft. It blinks while stock control. Even if VALCON control is selected, due to control start conditions such as water temperature, it can be stock control.
- 5. HI-CAM LED (RED)**
It flashes while VALCON controls high side camshaft.
- 6. COMMUNICATION CONNECTOR**
It is a connector to connect PC to VALCON unit to edit data of VALCON with EasyWriter.
- 7. CONNECTOR 1 (26 pin)**
VALCON unit and 26 pin connector of Universal Harness 1(1L) or Vehicle Specified Harness are connected.
- 8. CONNECTOR 2 (12 pin)**
VALCON unit and 12 pin connector of Universal Harness 2(2L) or Vehicle Specified Harness are connected. It is used to control 3 or 4 camshafts.
- 9. OPTION CONNECTOR**
It is a connector to connect option devices.

INSTALLATION

Refer to the installation manual for installation.

AFTER INSTALLATION

1. Check the following before starting the engine:
- | CHECK POINTS | CHECK |
|-------------------------------------------------------------------------------------------------------------|-------|
| Make sure all wiring is correct. | |
| Make sure splices are connected securely. | |
| Make sure connectors are connected securely. | |
| Make sure insulation is done properly. | |
| Make sure the harness is not pinched at any place. | |
| Make sure the wiring harnesses and installed components do not disturb the driver. | |
| Make sure the wiring harnesses and installed components are not in contact with other parts of the vehicle. | |
| Make sure all removed factory parts are reinstalled. | |
| Make sure the negative cable terminal is securely attached to the battery. | |

OPERATION

- 1. CONTROL CHANGEOVER**
VALCON control and stock control can be changed. Control condition can be monitored with POWER LED.
- VALCON control : Flashing POWER LED
 - Stock control : Blinking POWER LED (long cycle about 3 seconds)
- 1.1 Changeover form VALCON control to stock control**
(1) Press and hold POWER Switch more than 1 second.
(2) As POWER LED blinks (short cycle about 0.2 second), release POWER Switch during blinking.
- When POWER Switch is held for more than 2 seconds, POWER LED will turn out and control mode will not be changed to stock control.
- (3) Make sure that POWER LED blinks for long cycle.
- If POWER LED flashes, control mode is not changed. Do the changeover operation once again.
- 1.2 Changeover from stock control to VALCON control**
(1) Press and hold POWER Switch more than 1 second.
(2) As POWER LED blinks (short cycle about 0.2 second), release POWER Switch during blinking.
- When POWER Switch is held for more than 2 seconds, POWER LED will turn out and control mode will not be changed to VALCON control.
- (3) If POWER LED blinks for long cycle, control mode is not changed. Do the changeover operation once again.

SETTING

In order to do setting of VALCON, please download VALCON EasyWriter and the manual from HKS web site. Please refer to VALCON EasyWriter Operation Manual for how to use VALCON EasyWriter.

OUTPUT FUNCTION

- 1. Voltage output for data logger**
Real-time voltage of 0 - 5[V] is output from voltage output for data logger for both valve timings of intake and exhaust. Voltage Output 1 for data logger is valve timing of intake camshaft and Voltage Output 2 for data logger is valve timing of exhaust camshaft. At ATDC 150° Crankshaft Angle for intake side, 0[V] is output and at BTDC 50° Crankshaft Angle for exhaust side, 5[V] is output. Refer to installation manual for wiring connection.
- 2. RPM Signal Output**
As engine RPM signal, 4 cylinder type engine pulse is output. This signal can be input to other devices like EVC as engine RPM input signal. Refer to installation manual for wiring connection.

AFTER STARTING THE ENGINE

Do not raise engine RPM right after starting the engine. Let the engine idle and warm up to standard operating temperature.

CHECK POINTS	CHECK
Make sure if POWER LED is flashing or blinking.	
Make sure the installed parts are not coming into contact with each other.	
Make sure there is no excessive stress on harnesses.	
Make sure there are no loose parts after stopping the engine.	

OPTION PARTS LIST

PART No.	PRODUCT	REMARKS
45999-AK021	VALCON Universal Harness 1	1.1m
45999-AK022	VALCON Universal Harness 2	1.1m
45999-AK023	VALCON Universal Harness 1L	2.5m
45999-AK024	VALCON Universal Harness 2L	2.5m
45999-AK025	VALCON ADAPTER	

MAINTENANCE

CAUTION

- Inspect the vehicle daily for optimal driving condition.
- Consult an expert to carry out the operations not shown in this manual.

- Clean your hands and remove dirt and oil before handling this product. It may cause discoloration to the case.
- When cleaning this product, do not use solvents such as: alcohol, thinner, benzene, glass cleaner, and oil. Wipe off dirt with a dry soft cloth.

TROUBLESHOOTING

SYMPTOM	CAUSE	COUNTERMEASURE
The unit does not turn on.	Bad Connection.	Make sure each connector is connected properly.
Engine does not start smoothly.	Incorrect wiring.	Make sure all wiring is done correctly.
Idling unstable.	Bad contact.	Make sure wiring connections.
	Adaptor is not connected.	Connect adaptor.

⚠ WARNING

- Do not use this product if unusual occurrences should occur. Consult your HKS Certified Pro Dealer immediately.

⚠ CAUTION

- Do not try to repair the product by yourself. Consult your HKS Certified Dealer.
- If any unusual noises, scents, and/or vibrations are noticed while driving, please refer to the factory repair manual.

REPAIR SERVICE

- For questions about this product or for any optional, lost, defective and/or damaged parts, please contact your HKS Certified Dealer.

FOR SUBSEQUENT OWNERS

- For questions about this product or for any optional, lost, defective and/or damaged parts, please contact your HKS Certified Dealer.

CAUTION

- After removal of this product, insulate with tape for all connections with splice or soldered. Otherwise, electric devices may be damaged due to short circuit.

PRODUCT SPECIFICATIONS

- Operating Voltage..... DC 10~16V
- Operating Temperatures..... -10~70°C
- Maximum Electrical Power Consumption..... 4W

INSTRUCTION MANUAL REVISION HISTORY

Ver.	DATE	CONTENT
3-1.01	2008/10	1st Edition