

RCP Key-V2
Version 9.6

User Manual

Rev. A

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Glossary

- CAN - Control Area Network (digital network for data transfer in vehicles)
- RCP - Remote Control Plug-in (electronic module for the heater remote control)
- CIP - Combined Instrument Panel
- PCC – Personal Car Communicator

Description

The **RCP Key-V2** is electronic module designed to add a remote control ability to the fuel-fired heater (parking heater, fuel operated heater, pre-heater), factory installed in **Volvo S60** (2011-), **V70** (2007-), **XC70** (2007-), **S80** (2007-) or **XC60** (2010-). The device is plugged into the OBD-II service connector, placed on the dashboard, and controls the heater via CAN-bus.

Module's Possibilities

- Immediate start of the heater with Volvo car's key. The remote control key with 5 buttons or the PCC with 6 buttons can be used for the heater control
- Immediate stop of the heater with Volvo car's key
- Indication of heater's autonomous operation with the direction indicators flashing in the rearview mirrors.
- Additional protection of the main battery from discharging inspecting voltage level and time of autonomous operation of the heater

Package Content

1. RCP Key-V2 cartridge
2. User Manual brochure

Connection

RCP needs that 2 timers and direct start / stop function for the heater control are present in CIP. Therefore it may be necessary to load the special software to the CIP at first by the means of Volvo dealer's equipment.

The RCP Key does not need professional installation. Find OBD-II service connector at the left lower point of the dashboard. The connector is placed near to the handle for bonnet opening. Take RCP Key to your hand with the LED, oriented closer to the driver's door side, and then gently push it to the OBD-II connector. LED starts flashing for approximately 10 seconds, waiting for information from CAN-bus. Wait until the LED stops flashing before the operation.

Basic Functions

1. A special combination of buttons' presses is used to start the heater with the remote control key. Firstly press "Lamp" button on the key to switch on the car's lighting. Then press "Lock" button twice within 30 seconds, while lighting is on. Every "Lock" button's pressing is confirmed with direction indicators flashing.
2. To stop the heater with the remote control key, switch on and then switch off car's lighting twice. Intervals between "Lamp" button presses should not exceed 20 seconds.
3. It is possible remotely disable startups of the heater, programmed in the CIP. Use remote control key to send stop command when the heater is idle. Starting the heater any way or turning the ignition to "on" position enables CIP timers again.

Additional Functions

By default RCP is adjusted to perform only the basic functions, such as start and stop of the heater using the remote control key. To turn on the additional functions such as battery monitoring, flashing with direction indicators in the rearview mirrors, etc. enter the module into Setup mode and activate the corresponding setup item (see settings table 1).

The buttons of the left-hand stalk switch and the brakes pedal are used to enter Setup mode and to the settings change. It is necessary to stop the engine and the heater before. Turn the ignition on, press and hold the brakes pedal. Rotate the thumbwheel to turn off the display in the CIP. Then press and hold for at least 5 seconds "OK" button, while module's LED flashes once a second. Both direction indicators in the CIP confirm entering to the setup mode with 2 flashes. Release the brakes pedal and "OK" button finally.

Each setup item in the settings table is a 3-digit code. To enter a digit of a code, shortly press "RESET" button so much times, as corresponds to a digit. The LED and the direction indicators symbols in the CIP confirm each button press: the LED briefly goes off, the left direction indicator flashes one time when the first or the third digit of code is entered, the right direction indicator - when the second digit of code is entered. To complete a digit entering, press and release "OK" button. The CIP confirms it with one flash of both direction indicators simultaneously. When all three digits entered, the module checks the code for validity and confirms it with the direction indicators flashing. The both direction indicators flash twice simultaneously in the case of valid code and flash twice alternately in the case of invalid code.

If entered digit is not correct, press and release "OK" button until the module indicates an error. Enter the code once more in that case. Several codes can be entered without exit of setup mode.

Turn the ignition off to exit setup mode. New settings are saved in the nonvolatile memory of the module and stored there regardless of whether the module is connected or not. **Attention:** If you start the engine without exit Setup mode, new settings will not be saved in memory.

To reset the module to the factory settings, enter the code 8.1.1. Both direction indicators in the CIP should flash three times, confirming command execution. Then the module exits Setup mode and restarts.

* Factory setting

Recommended settings marked in Italics

Settings table (1)

Settings Group	Settings Item	Possible Values
1. Heater's operation time	1.1. Limitation of heater's total operational time in pre-heat mode	1.1.1 *Not adjusted 1.1.2 40 minutes 1.1.3 50 minutes 1.1.4 60 minutes 1.1.5 70 minutes 1.1.6 80 minutes 1.1.7 <i>90 minutes</i> 1.1.8 100 minutes 1.1.9 120 minutes
	1.2. Limitation of heater's 1-cycle operational time in pre-heat mode	1.2.1 10 minutes 1.2.2 15 minutes 1.2.3 20 minutes 1.2.4 25 minutes 1.2.5 30 minutes 1.2.6 40 minutes 1.2.7 50 minutes 1.2.8 60 minutes 1.2.9 * <i>70 minutes</i>
2. Heater control with remote control key	2.1. "Lock" and "Lamp" buttons' functions for the heater control	2.1.1 *"Lock" button for the heater start, "Lamp" button for the heater stop 2.1.2 "Lamp" button for the heater start, "Lock" button for the heater stop
	2.2. Number of sequential "Lamp" button presses for the heater control	2.2.1 Combination is disabled 2.2.2 * <i>Four presses</i> 2.2.3 Six presses 2.2.4 Eight presses
	2.3. Number of sequential "Lock" button presses for	2.3.1 Combination is disabled 2.3.2 * <i>Two presses</i> 2.3.3 Three presses

	the heater control (with the car's lighting turned on)	2.3.4 Four presses
3. Battery Monitoring	3.1. Minimal battery voltage that lets the module start the heater in pre-heat mode	3.1.1 * Not adjusted 3.1.2 11.8V 3.1.3 11.8V 3.1.4 11.9V 3.1.5 12.0V 3.1.6 12.1V 3.1.7 12.2V 3.1.8 12.3V 3.1.9 12.4V
	3.2. Minimal battery voltage that lets the module keep operating the heater in pre-heat mode ²	3.2.1 * Not adjusted 3.2.2 11.4V 3.2.3 11.5V 3.2.4 11.6V 3.2.5 11.7V 3.2.6 11.8V 3.2.7 11.9V 3.2.8 12.0V
6. Indication with direction indicators in the rearview mirrors	6.2. Indication of command reception from a remote control	6.2.1 *Off 6.2.2 Three flashes
	6.3. Indication of the heater's operation, when starting source is the remote control	6.3.1 *Off 6.3.2 On
	6.4. Indication of the heater's operation, when starting source is the CIP (direct or timer start)	6.4.1 *Off 6.4.2 On
8. Service menu	8.1. Default Settings	8.1.1 Apply factory settings

Troubleshooting

If a run-time error occurs during the heater's operation, RCP Key informs about the error code with LED flashing. The number of flashes corresponds to the error code. See table 2 for the error's description and possible solutions.

Table 2

Error Code	Error Description	Possible Reasons of Error Appearance	Solutions
2	No answer from the heater followed the start command	Outer temperature is higher than +15 Celsius degrees	The heater operates only at temperatures below +15°C. It is the heater manufacturer's restriction
		Fuel level in the fuel tank is close to empty ("Fuel Low" warning indicator is illuminated in the CIP)	Refuel the vehicle
		The heater is blocked after 3 unsuccessful starts	Try to start the heater in the CIP menu. If it doesn't start up, make diagnostics of the heater.
3	Battery low	The module has determined that the battery's voltage is below the specified by settings items 3.1 or 3.2	Charge vehicle's battery with special charger (or start engine to charge) or cancel 3.1/3.2 module's settings
4	Time limits exceeded	Time limit for autonomous operation of the heater is achieved	Run the engine or cancel 1.1 module's settings
5	Unsuccessful start	The heater was switched off spontaneously at starting	Make diagnostics of the heater if the error appears again
6	Operation cycle too short	The heater was switched off spontaneously	Make diagnostics of the heater if the error appears again
8	CAN-bus error	There is a problem with module's connection to the CAN-bus	Check for the module's connection
9	Settings error	Settings have been stored in the RCP's memory incorrectly	Reset the settings (8.1.1), readjust the module
11	Heater no connection	The heater is unplugged or out of order	Make diagnostics of the heater

