

Autoplugin RCP-V5

Installation Manual

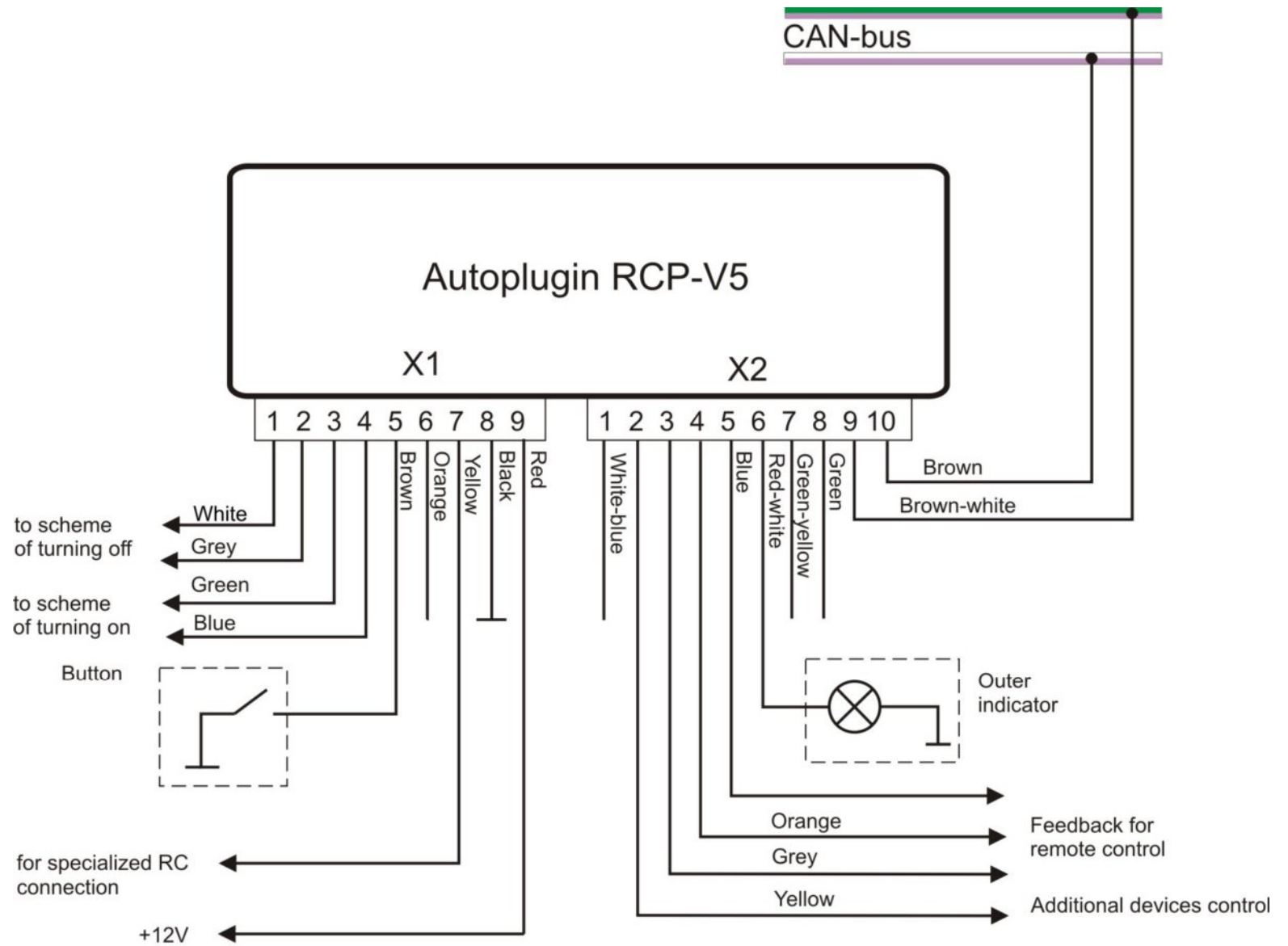


Figure 1

1) Connection schemes

- **General connection scheme (fig.1, page 2)**

Explanations to the scheme:

- It is enough to connect power wires (X1.8, X1.9) and CAN-bus wires (X2.9, X2.10) to the module to obtain a possibility to start the heater using Volvo key.
- The car's wiring marked in colour.
- Optional elements are outlined by dashes

- **Connection of the inputs Heater_on± and Heater_off±**

You can connect and use a set of devices as a remote control of the fuel-fired heater: specialized heater remotes (such as Telestart, EasyStart, Smart Start), additional alarm systems remote controls, GSM mobile phones in conjunction with automotive GSM-modules, etc.

If the remote control has output channels that give short impulses in active state, it is possible to apply the schemes given at fig. 2-6. The remote control with two independent channels can separately turn the heater on and off.

- The fig.3 presents the scheme to turn the heater on by the impulse of positive polarity. The fig.4 presents the scheme to turn the heater on by the impulse of negative polarity.

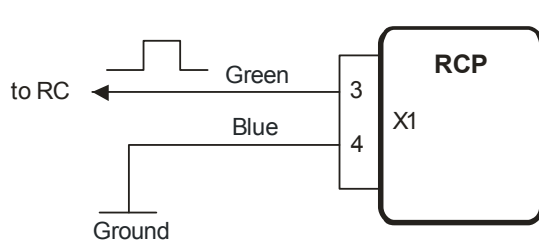


Figure 2

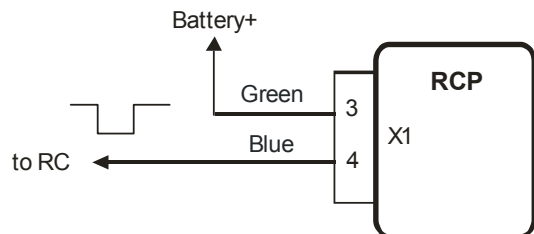


Figure 3

- The fig.4 presents the scheme to turn the heater off by the impulse of positive polarity. The fig.5 presents the scheme to turn the heater on by the impulse of negative polarity.

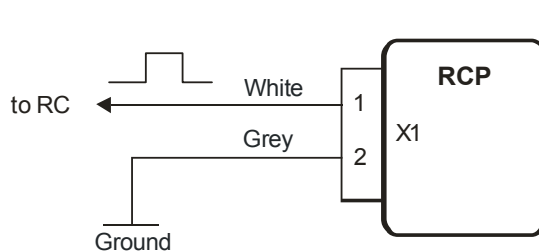


Figure 4

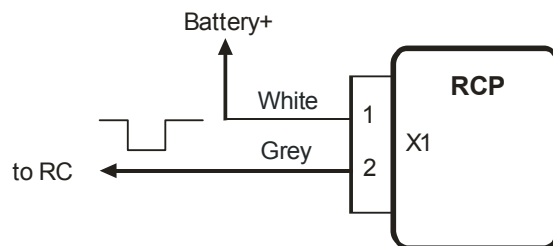


Figure 5

- The remote control with the only one output channel may be connected by the scheme at fig. 6 to add a possibility not only to turn the heater on, but also turn the heater off too. Every one impulse on the output of the remote control receiver unit will move the heater to the opposite state: switch on the idle heater, switch off the operated heater. To realize this mode it is necessary to connect in pairs the inputs Heater_on+ with Heater_off+, and the inputs Heater_on- with Heater_off-.

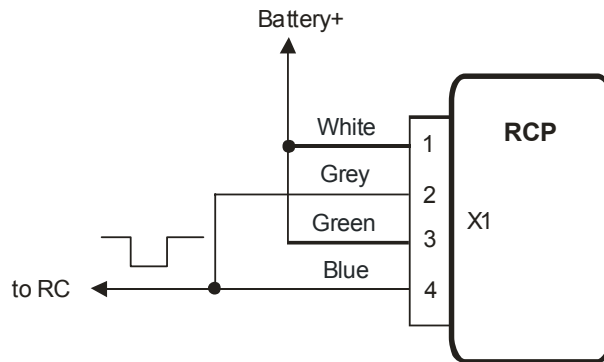


Figure 6

- **Connection of the input RC_in**

- The input RC_in is intended for the connection of specialized remote controls such as DEFA Smart Start, Hydronic Easy Start, Webasto Telearstart. If direct connection of remote control's output line to the input RC_in is not functional, the scheme at the fig.7 can be applied.

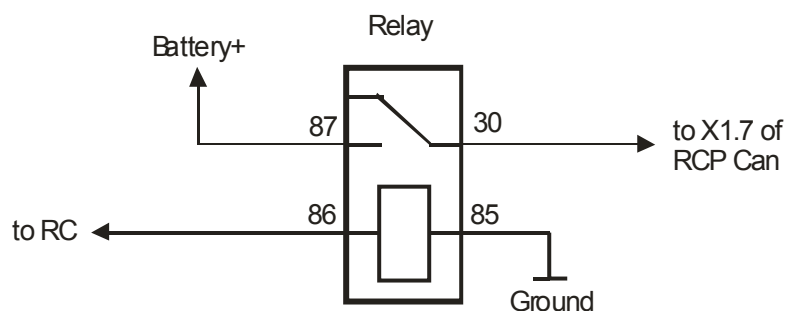


Figure 7

- Some GSM modules can control an additional device through the inner relay. These may be connected to RCP by the scheme at the figure 8. The heater operates while the relay contacts are closed.

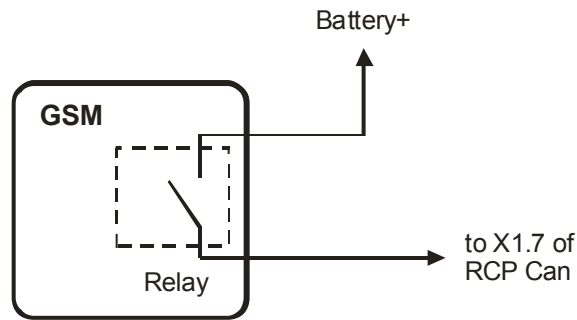


Figure 8

- **Alerts receiving**

If remote control unit has got inputs to obtain information about the heater operation, they can be connected to the RCP Can outputs Alert_1 and Alert_2. The outputs have negative polarity. Therefore if remote control unit not fit it, it needs to apply a matching circuit (with relay ex.).

Events given on the outputs Alert_1 and Alert_2 are adjusted by the settings 7.3 and 7.4 accordingly. Also the RCP output line Timer_out can be used as a notification how much time the heater operates.

- **Status output line application**

1. Indication of the heater's operation

The module can indicate the heater's operation using direction indicators signals. Connect the module's output X2.2 to the yellow wire (pin 3 of the connector) of the hazard warning switch, and activate the settings 7.5.3 (the settings 6.3-6.5 also need to be adjusted) in the RCP.

- 2) **Installation procedure**

- **General recommendations**

It is highly recommended to extract the fuse from the line, from which the RCP will be powered, before the installation.

Required tools: wire cutter, wire stripper.

- Lift the floor panel of cargo area (luggage compartment)
- Find place under the floor panel to install the module (mounted on double-sided tape)
- Connect the module to the vehicle's wiring according to the scheme at the fig.1. Connect the module to the receiver unit of remote control, according to the schemes at the figures 3-8. Make task specific connections, if necessary.

The module is connected to car's wiring using quick splice connectors (supplied).

RCP's power (pin X1.9) connects to a wire, permanently connected to positive battery terminal. RCP's signal ground (pin X1.8) connects to a wire, permanently connected to negative battery terminal or to the car's body.

The needful CAN-bus in the car is a twist pair of violet-green and violet-white wires. The signal «CAN-L» (pin X2.9) connects to the violet-green wire of twisted pair, the signal «CAN-H» (pin X2.10) – to the violet-white wire of twisted pair. Twist the brown and brown-white wires of the connector X2 to the pair before connections. It is not recommended to lengthen these wires.

- Connect both connectors to the module (X2 should be connected first)
- Insert the car's fuse back to its place (if it was extracted early).
- Turn the ignition on for 10 seconds.
- Test the heater start by the module's command
- Fix the module using double-sided adhesive tape
- Adjust the module in Setup mode if necessary. Make notes in the programming table of user manual about adjustments were made.

3) Troubleshooting

If you have problems with module operation, first of all check indication of the embedded LED. The LED blinks about 10 second after powering up and then has to turn off (CAN-bus have to be awoken). If a run-time error appears at the heater startup, LED indicates an error by flashings. The number of flashes corresponds to the error code. See table 1 for the codes description and possible solutions.

Table 1

Error Code	Error Description	Possible Reasons of Error Appearance	Solutions
2	No answer from the heater followed the start command	The heater control is not activated in the CIP	Configure the heater by Volvo car dealer's equipment
		Fuel level in the tank is close to empty ("Fuel Low" warning indicator is lighting in CIP)	Refuel the car
		The heater has been blocked after 3 unsuccessful starts	Try to start the heater from CIP menu. If it not started to burn, make a diagnostics of the heater.

3	Battery level is low	The module has determined that the battery voltage at the heater startup or during the heater operation is below the specified settings 3.1 и 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 (with active setting 1.1)	Run the engine or cancel 1.1 module's setting
5	Unsuccessful start	The heater was switched off spontaneously at a startup	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 connection of the module to the CAN-bus	Check for the module's connection
9	Settings error	Settings have been incorrectly stored in RCP memory	Reset the settings (8.1.1), readjust RCP
11	Heater no connection	The heater is unplugged from CAN-bus or is out of order	Make diagnostics of the heater

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