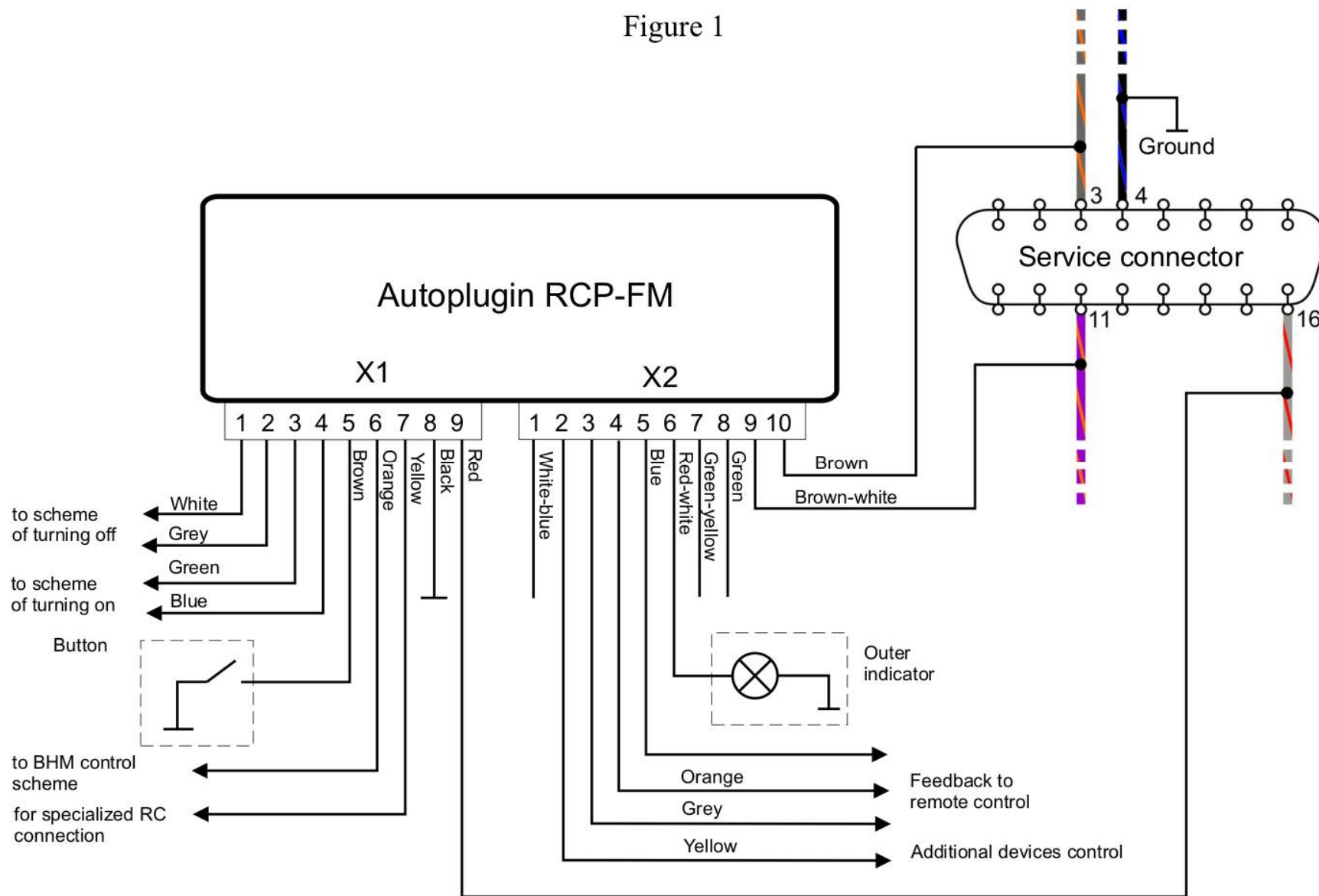


Autoplugin RCP-FM

Installation Manual

Figure 1



1) Connection variants

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 by Ford key. It can be made or by the plug-n-play cable (quick connection), or by quick splice connectors (supplied for permanent connection). If you wish to connect additional remote control, permanent connection is recommended.

2) Permanent connection schemes

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

Explanations to the scheme:

- 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 for the fuel-fired heater: specialized heater remotes (such as Telestart, EasyStart, Smart Start), automotive GSM-modules, etc.

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

- The fig.2 presents the scheme of turning the heater on by the impulse of positive polarity. The fig.3 presents the scheme of turning the heater on by the impulse of negative polarity.

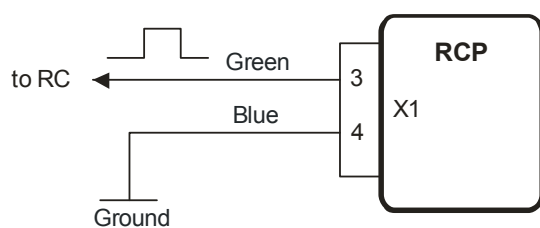


Figure 2

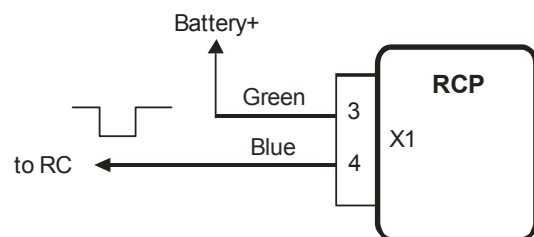


Figure 3

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

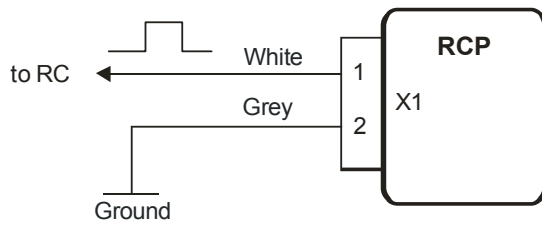


Figure 4

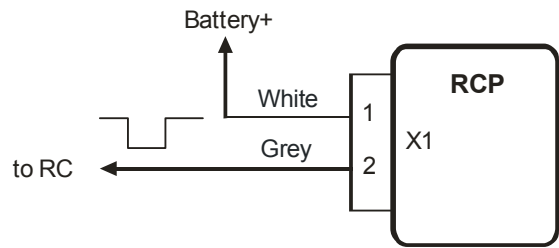


Figure 5

- The remote control with the only one output channel may be connected by the scheme at fig. 6. Such a connection give 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-.

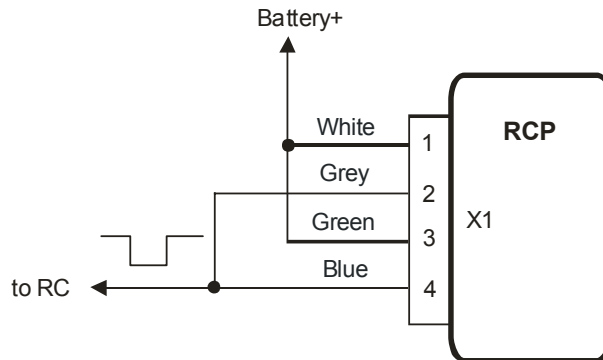


Figure 6

- **Connection of the input RC_in**

- The input RC_in is intended for connection of specialized remote controls such as DEFA Smart Start, Hydronic Easy Start, Webasto Telestart. If a problem exists with direct connection of the remote control's output line to the input RC_in, the scheme at the fig.7 can be used.

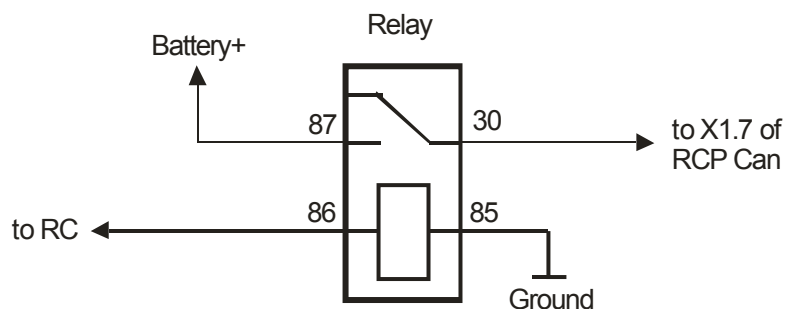


Figure 7

- Some GSM modules can control an additional device by the means of inner relay. They may be connected to RCP Can by the scheme at the fig.8

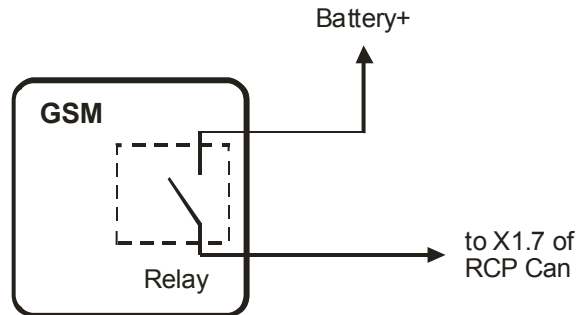


Figure 8

- **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. These outputs are negative polarity ones. Therefore if remote control unit has got inputs of positive polarity, it needs to apply matching circuits (with relay ex.). Events given on the outputs Alert_1 and Alert_2 are adjusted by the settings 7.3 and 7.4 accordingly.

3) Installation procedure

- **General recommendations**

It is highly recommended to disconnect the main battery before the installation in the case of permanent connection to the wiring. Note that the battery disconnection may reset the power windows settings, the heater's settings in the CIP, and also the radio may request the code after the battery reconnection. See vehicle's User Manual for details.

- Find the service connector. It placed at the left side of the dashboard below the lighting control switch, and closed by the case. Detach plastic elements of the dashboard from the connector to the edge of the dashboard (Torx T20 screwdriver needed).
- Find a place inside the dashboard to install the module (mounted on double-sided tape). It is permissible to install the module inside the dashboard using plug-n-play cable.

- 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 3-9. Make task specific connections if necessary.

The module is powered and connects to the CAN-bus wires near the service connector using quick splice connectors (supplied). See fig.9 for details. Twist the brown and brown-white wires of the module's connector X2 to the pair before making connections. It is not recommended to lengthen these module's wires.

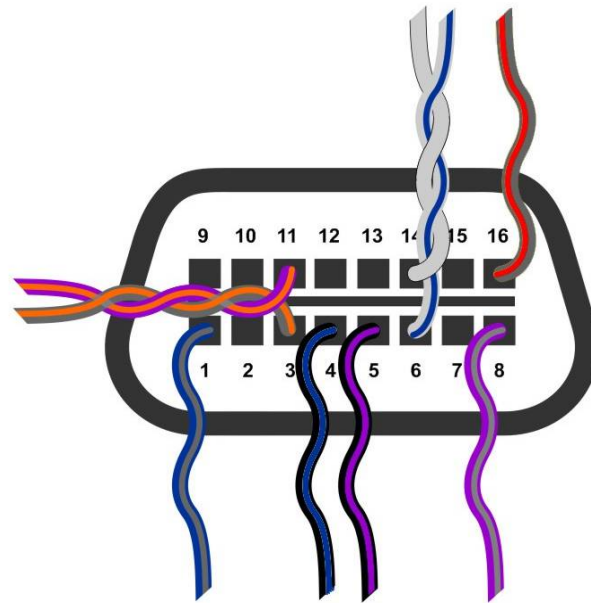


Figure 9

- Connect both connectors to the module
- Connect vehicle's battery
- Turn the ignition on to let the module get information from CAN-bus. Wait until the LED goes off.
- Test heater start by using the remote controller or the car's key.
- Fix the module using double-sided adhesive tape
- Install plastic elements of the dashboard and close the case of the service connector
- Adjust the module in Setup mode if necessary. Make notes in the programming table of the User Manual about the adjustments

4) Troubleshooting

If you have problems with the module's operation, first of all check indication of the built-in LED. If a run-time error appears at the heater's startup or during operation, LED indicates the 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	Outer temperature is upper than +15 Celsius degrees	The heater works only with outside temperatures below +15°C. It is the heater manufacturer's restriction
		Fuel level in the tank is close to empty ("Fuel Low" warning indicator is lighting in CIP)	Refuel the car
		The heater is blocked after 5 unsuccessful starts	Try to start the heater from CIP's menu. If it not started to burn, check for fuel and coolant quality (especially at extreme cold temperatures) and possible heater's exhaust system clogging by snow. Then unblock the heater in the Setup mode.
3	Battery low	The module has determined that the battery voltage at the heater startup or during the heater operation is below the specified settings 4.1 и 4.2	Charge vehicle's battery with special charger (or start engine to charge) or cancel 4.1/4.2 module's settings
4	Time limits exceeded	Time limit for autonomous operation of the heater has achieved (with active setting 2.1.2 - 2.1.9)	Run the engine. It is recommended to make trips between heater operation cycles longer than heater operation cycles
5	Unsuccessful start	The heater switched off spontaneously at startup	Make diagnostics of the heater if the error appears again
6	Operation cycle too	The heater was switched off spontaneously with	Make diagnostics of the heater if the error appears again

	short	operating time of less than 20 minutes	
8	CAN-bus error	There is a problem with connection of the module to the CAN-bus	Check for the module's cables 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

BHM or Boost Heat Mode – operational mode of the heater, when it operates together with the engine to help the engine and the interior warm up more quickly.