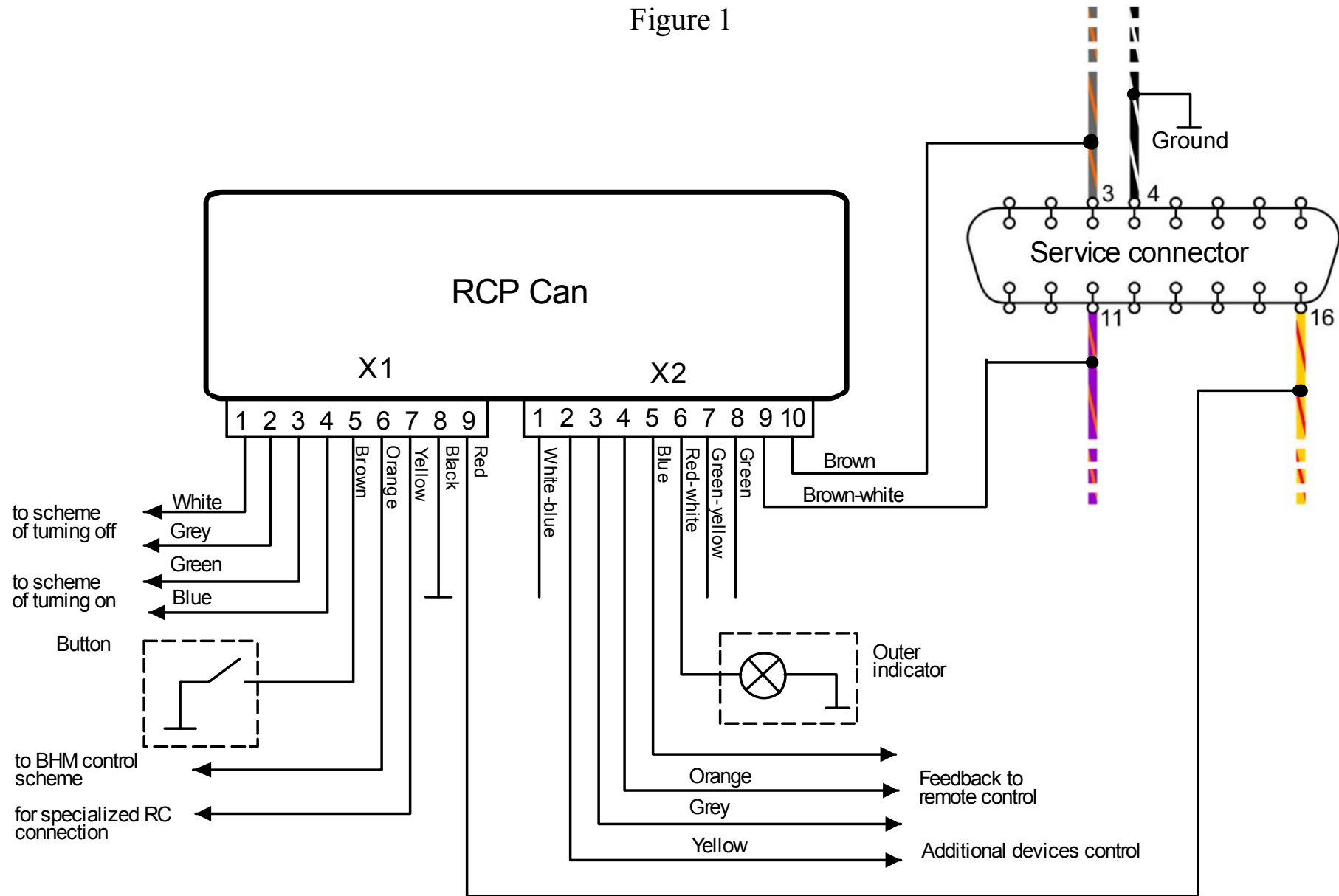


RCP Can FTC
Installation Manual

Rev A

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

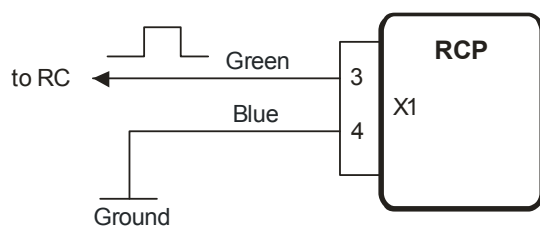


Figure 2

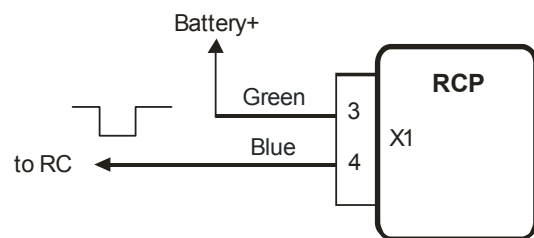


Figure 3

- 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.

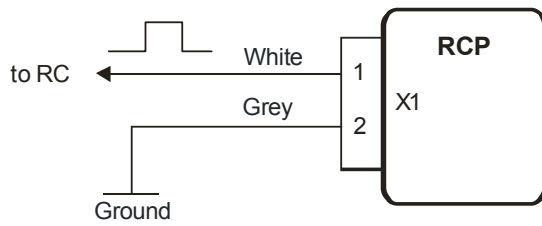


Figure 4

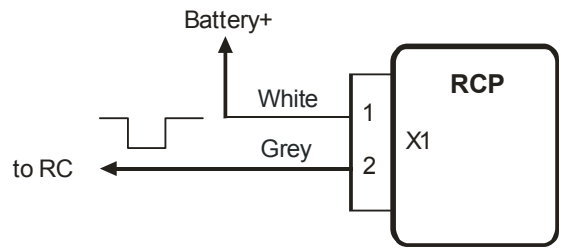


Figure 5

- 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-.

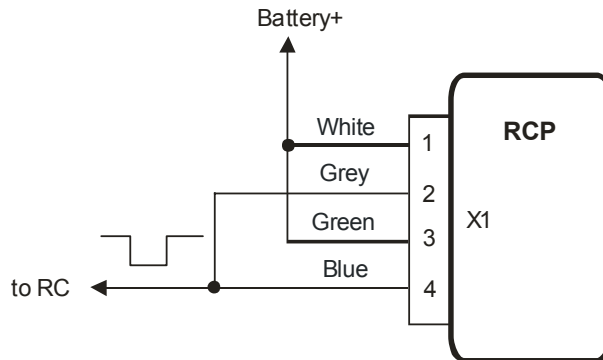


Figure 6

- **Connection of the input RC_in**

- The input RC_in is intended for 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 output line to the input RC_in, the scheme at the fig.7 can be used.

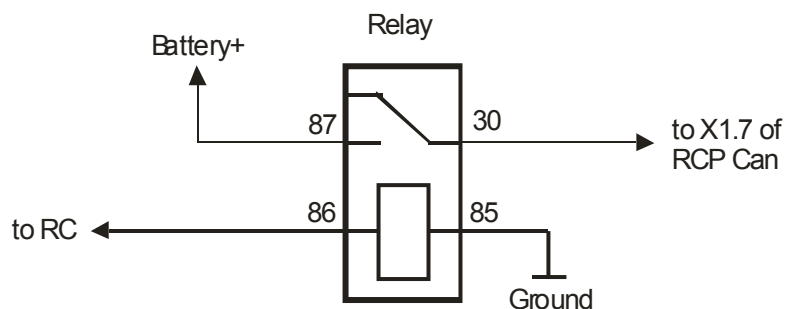


Figure 7

- 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

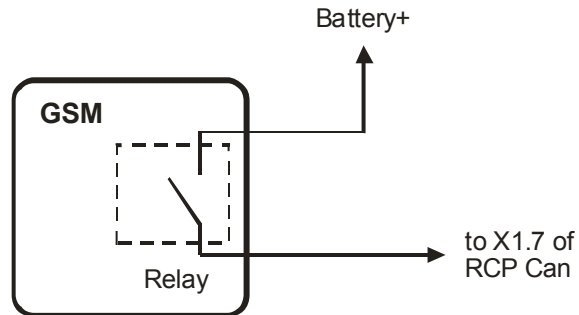


Figure 8

- **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. The outputs have negative polarity. Therefore if remote control unit don't 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.

3) Installation procedure

- **General recommendations**

It is highly recommended to disconnect the main battery before the installation. Note that the battery disconnection may reset the power windows settings, the heater settings in DIS, and also the radio may ask to enter the code after the battery reconnection. See vehicle's user manual for details.

- Open the service connector's case at the left side of the dashboard, below the lighting control switch (fig.11)
- 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 by quick splice connectors (supplied). 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.

- Connect both connectors to the module (X2 should be connected first)
- Connect vehicle's battery
- Turn the ignition on to let the module get the information from CAN-bus. Wait until the LED goes off.
- Test the heater start using remote controller or by the vehicle's key.
- Fix the module using double-sided adhesive tape
- Close the case of the service connector
- Adjust the module in programming 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 start, LED will indicate 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 |
|-------------------|--|---|---|
| 1 | Start error | Fuel level in the tank is close to empty | Refuel the vehicle |
| 2 | No answer from the heater followed the start command | Outer temperature is upper than +15 Celsius degrees | The heater works only with temperatures below +15°C. It is the heater manufacturer's restriction |
| | | The engine is hot (no need to pre-heat) | Let the engine cool down below +75 degrees |
| | | The heater hasn't finished previous cycle of operation yet (you can hear the noise from the air blower fan) | The heater will startup after previous cycle of operation will be fully completed |
| | | The heater is blocked after 5 unsuccessful starts | Try to start the heater from DIS 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 by RCP command 9.1.1. |
| 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 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 | The heater restart is not possible without engine run. It is the heater manufacturer's restriction | Change default setting 2.1.1 to another one (2.1.2 - 2.1.9) to enable heater restart and bypass the restriction |
| | | Time limit for autonomous operation of the heater is achieved (with active setting 2.1.2 - 2.1.9) | Run the engine. It is recommended to have trips between heater operation cycles longer than heater operation cycles |
| 5 | Unsuccessful start | The heater was switched off spontaneously at a startup | Make a diagnostics of the heater if the error is repeated |
| 6 | Operation cycle too short | The heater was switched off spontaneously with operating time of less than 20 minutes | Make a diagnostics of the heater if the error is repeated |
| 8 | CAN-bus error | There is a problem with connection of the module to the CAN-bus | Check the module 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 a 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)

DIS - Driver Information System (information displays) of the instrument cluster

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.

BHM is available for the cars with diesel engines only