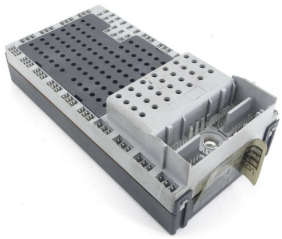
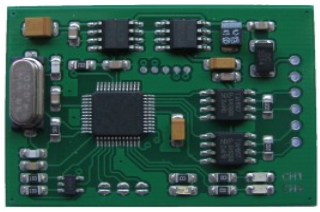




Volvo

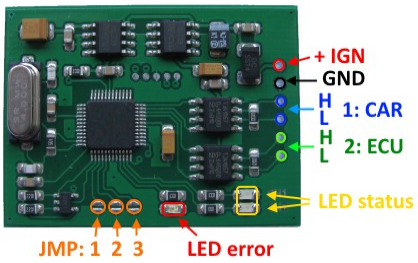
CEM - 1

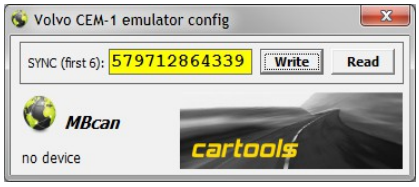
immo emulator

CAN, 250 kB

Usage: VOLVO cars from 1999 to 2004, old type CEM, 250 kB. Acts as a **CAN filter** between ECU and original CEM. Must store 6 bytes into emulator AND / OR modify ECU EEPROM.

Installation: install emulator in CAN wiring between CEM and ECU (cut CAN wires), CAN 1: CAR (CEM) side, CAN 2: ECU side, power from main relay output or terminal "15". If you install emulator inside ECU it is good idea to install it in place of CAN EMI supressor.





Configuration and jumpers (JMP):

- JMP1: open to allow SYNC update, if short update is prohibited;
- JMP2: open for standalone mode (emulator acts as a CEM for ECU), short for standard mode;
- JMP3: open for default SYNC (579712864339 - used by Codecard CEM utility as a default one), short – use custom SYNC stored into emulator EEPROM.

Common alignment methods:

- method 1 – modify default SYNC into ECU EEPROM using utility from Codecard. Jumpers (solder bridges) must be: JMP1 short, JMP2 short, JMP3 open. Install emulator inside ECU and enjoy;
- method 2 – store necessary SYNC into emulator. You can use Codecard utility to locate SYNC. Note – only first 6 bytes are necessary for emulator to work properly. JMP1 must be open to allow EEPROM updates, JMP3 shorted (use custom SYNC stored into emulator EEPROM), MBcan or any suitable CAN logger connected to emulator CAN 1 (CEM) side:
  - Using MBcan: simply store necessary SYNC;
  - Using CAN logger - speed 250kB, 11-bit id. To store SYNC (010203040506 here) must send frame:

    `0x7FE 7 AA 01 02 03 04 05 06`

  Response from emulator must look like:

    `0x7FF 6 01 02 03 04 05 06`

  To request actual SYNC from emulator, must send:

    `0x7FE 7 55 00 00 00 00 00 00`

  Emulator will respond like above, frame with SYNC data.
  - Short JMP1 to prohibit SYNC updates. All configuration changes become active at next power-ON,

- If JMP2 is open, original messages from CEM are completely dropped and own ones are sent (standalone mode, no CEM). If JMP2 is shorted, original messages issued by CEM are modified to comply with ECU demands.

LEDs on emulator board:

- **LEDstatus** – two leds, CAN1, CAN2 activity
- **LEDerror** – CAN exchange error / ECU authorization error. If everything is OK, must go off. ECU authorization error is displayed only if valid request from ECU received but do not match SYNC actually used by emulator.

cartools