

# SCL emulator for VOLVO

Some basic things you must know about Volvo Steering Column Lock (SCL):

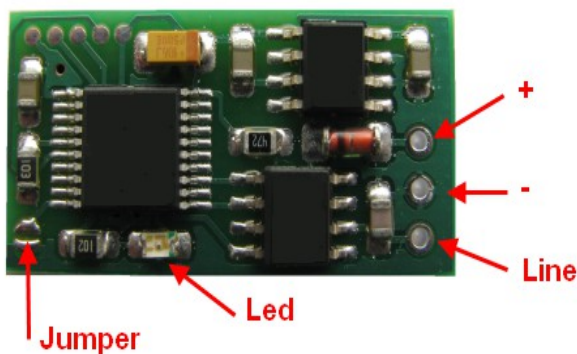
1. SCL sends ID code to CEM before any action is taken, CEM compares this ID code with stored one. If code match, SCL is authorized, request to lock or unlock steering column will follow.
2. If authorization fail, no engine start is possible.
3. If original SCL is broken due to mechanical damage and steering column remains still locked, no engine start is possible too.

It isn't possible easily replace SCL, software reload is necessary to store new SCL ID into CEM. Car must be towed to dealer.

If original SCL board responds to CEM requests it is possible to replace SCL with SCL emulator – all we must do is to grab some data from CEM / SCL communication:

1. Jumper on emulator board is open (setup mode), Line attached to LIN between SCL and CEM (SCL pin 4), + and – connected to car “30” and “31”. You can use power from OBD plug – pin 16 and 4/5. Don't use SCL power lines because they are managed via CEM (powered only when SCL is locking or unlocking).
2. LED must blink now. Turn ignition on – if everything is ok, LED must go on, all necessary data already grabbed and stored.
3. Disconnect emulator from power, place solder joint to short Jumper (work mode).
4. Remove original SCL and place emulator instead. That's all.

**Important:** it is highly recommended to change jumper state only when emulator isn't powered. If jumper is shorted for a small time when already booted in setup mode, data previously collected are lost (emulator is renewed).



About LED if emulator booted in work mode (jumper shorted):

LED goes on for ½ second when request to lock or unlock steering column is received from CEM.

If LED blinks fast (4x per second) it means no valid data stored or emulator is blank. Perform or repeat setup procedure again!

**SCL connector pinout:**

1: unused	
2: + (plus)	YE-BU
3: - (minus)	BK-WH
4: LIN	GY-BU

