

PEUGEOT SMART KEY 2

**Metropolis E4 / Metropolis E5
Pulsion / XP400 / Django
(2021+)**

For ASW-NEXT

Short User Manual

Immo

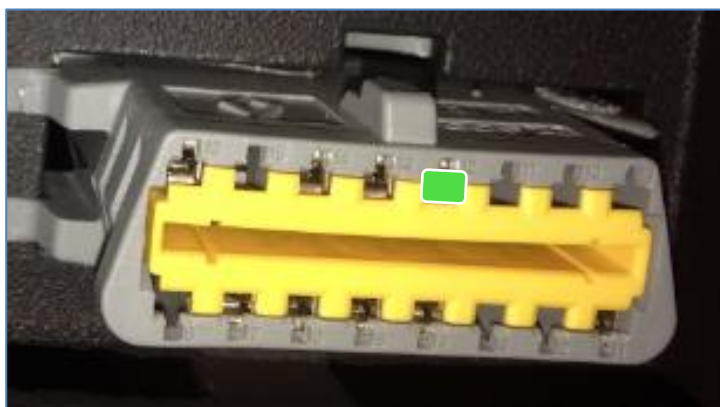
The logo for Immo-Tools.it features a stylized blue and black graphic element resembling a swoosh or a partial circle, followed by the text "Tools.it" in a bold, italicized sans-serif font.

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February 2024

1. How to connect ASW-NEXT in the scooter

- ✓ Connect **red** and **black** crocodile clips of ASW-NEXT cable to **+** and **-** of a battery respectively
- ✓ Connect a **green** wire of ASW-NEXT cable to **K-LINE** pin (**pin 12**) in the OBD-II diagnostic connector. Use a bridge made from piece of stripped wire.



IMPORTANT NOTE: Every diagnostic task needs ignition to be on.
If valid key available:

- ✓ Take a valid SMART KEY close to scooter
- ✓ Press and hold the ignition control handle until blue surround lights up
- ✓ Within maximum of **5 seconds** press **5 times** on the ignition handle and turn it to ON position. By pressing control handle **5 times** before to turn ignition on you will cancel automatic power cut-off to prevent ignition being cut-off after 60 seconds.

If no valid key available please bridge a **+APC** relay as described [here](#).

2. General information

Keyless operated immobilizer system of PEUGEOT SMARTKEY 2 uses SMART KEY as in the picture below. For key programming procedure use a key of this type only. SMART KEY ECU 2 is capable to store up to 4 keys.



3. Software features

- ✓ Read / Erase diagnostic trouble codes (DTC)
- ✓ Read immobilizer data (IDs of stored keys, PINCODE etc.)
- ✓ Find 5-digit PINCODE (brute force)
- ✓ Read EEPROM
- ✓ Register SMART keys

Explanation of immobilizer data fields:

Field	Value
Immobilizer function	WITH
Keys stored	2
CODE	16428
Transponder ID (ID1)	C3 39 97 EA
Transponder ID (ID2)	51 D7 92 E1
Transponder ID (ID3)	00 00 00 00
Transponder ID (ID4)	00 00 00 00
Hands-Free (ID1)	Enabled
Hands-Free (ID2)	Enabled
Hands-Free (ID3)	Enabled
Hands-Free (ID4)	Enabled
CRC (ID1)	Green
CRC (ID2)	Green
CRC (ID3)	Green
CRC (ID4)	Green

IMMOBILIZER FUNCTION

- WITH
 - Immobilizer function present in SMARTKEY ECU. SMARTKEY ECU configured to work with Dell'orto injection ECU. [Configuration for 400cm³ engines.](#)
- WITHOUT
 - Immobilizer function absent in SMARTKEY ECU (125cc engine). SMARTKEY ECU configured to work with Synerject M3A ECU [Configuration for 125cm³ engines.](#)

KEYS STORED

- 0
 - SMART KEY ECU is **VIRGIN**
- 1...4
 - Number of stored keys in SMART KEY ECU

CODE

- PINCODE for key learning

TRANSPONDER ID

- 32-bit ID of key 1...4

Hands-Free

- Hands-Free feature for key 1...4 (enabled / disabled)

CRC

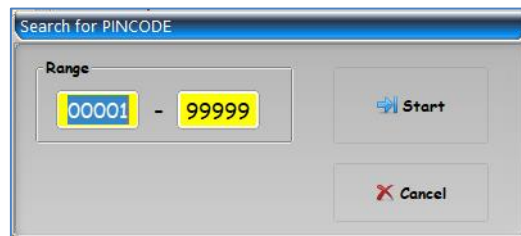
- Checksum of key ID1...4 (**green**=CRC OK / **red**=BAD CRC)

4. Find PINCODE (use it when <Read immobilizer data> fails)

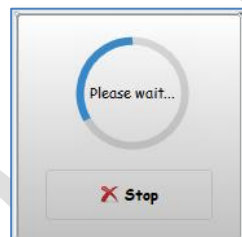
If **ASW-NEXT** software function <Read immobilizer data> has failed for unknown reason 5-digit PINCODE can be found by means of searching it through the range of all possible 5-digit codes (00001-99999).

Time to find depends on a value of valid PINCODE. This may take from several seconds up to 40 minutes if valid PINCODE programmed to SMART KEY ECU is 99999.

- ✓ Turn on ignition if valid key present or [bridge +APC relay](#) if no valid key available.
- ✓ Press the button **Read PINCODE** in a software
- ✓ Select range to search pincode within and press **Start** button



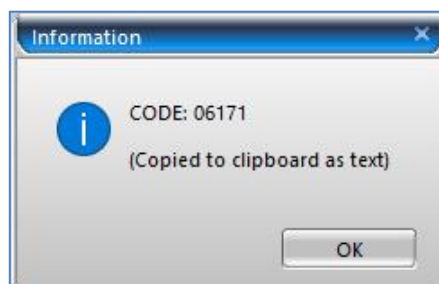
You will see this dialog until program searches for valid PINCODE:



Process can be interrupted at any moment by the user. Last checked value is displayed to continue searching right from this value in the future.

```
[12:48:05] Status : Connect to SMART KEY ECU...OK  
[12:49:21] Status : Read CODE...Cancelled at 03499
```

Message will popup when correct PINCODE is found. At the same time PINCODE value will be copied to clipboard. You can paste it (Ctrl+V) into any text document or paste it to the key programming dialog window when software will ask you to enter it.



5. Programming of additional SMART KEY (at least one key present)

NOTE: Only a blank SMART key, or one that was previously matched to this particular SMART KEY ECU can be learned here.

- ✓ Please read a 5-digit PINCODE before to start key learning
- ✓ Locate the **emergency antenna** in the scooter:
 - **Metropolis** – in the glove box on the left side
 - **Pulsion** – behind the technical access door on the right side
 - **Django / XP400** – behind the left side cover

Refer to owner's manual for more detailed description of emergency antenna location.

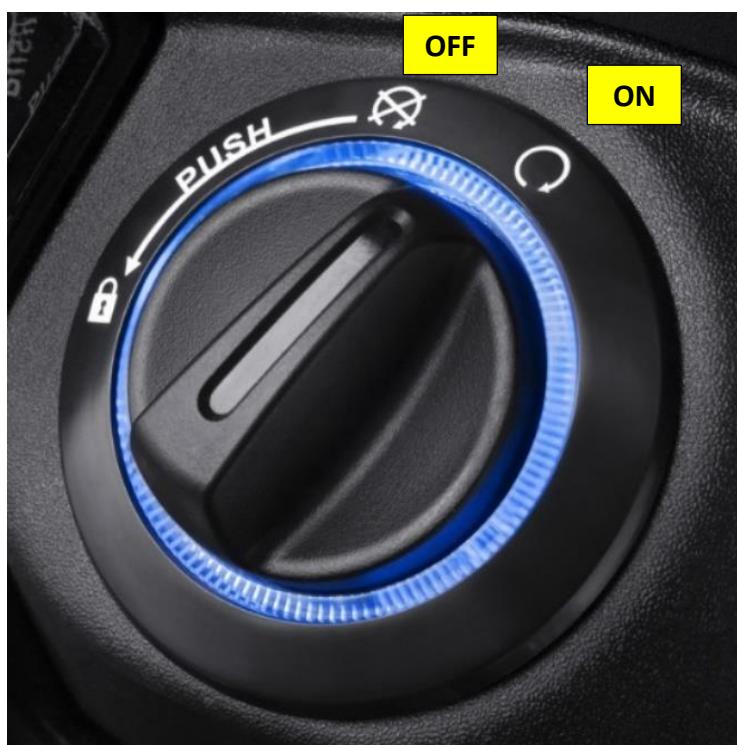
Smart keys are programmed to SMART KEY ECU in two steps:

Step 1. Recognition of smart keys and memorizing their ID codes

Step 2. Writing code from SMART KEY ECU to every SMART KEY

➤ **Step 1:**

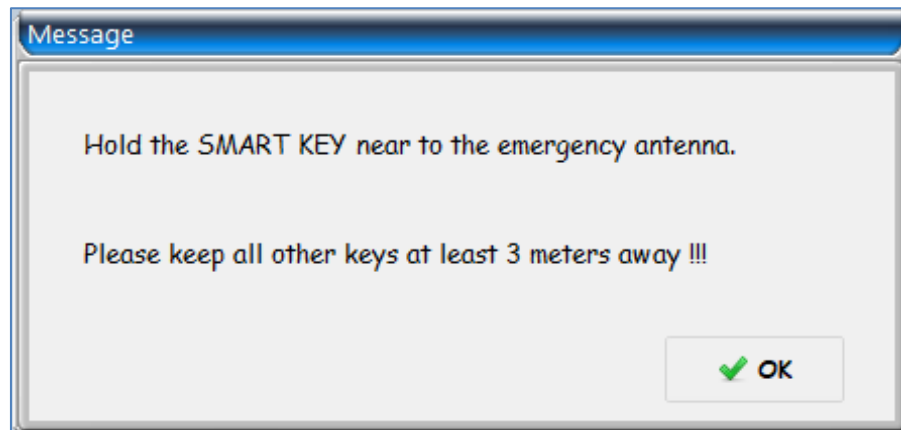
- ✓ Keep all the SMART keys to be programmed for at least 3 meters away from the scooter
- ✓ Take a valid SMART KEY close to scooter
- ✓ Press and hold the ignition control handle until blue surround lights up
- ✓ Within maximum of **5 seconds** press **5 times** on the ignition handle and turn it to ON position. By pressing control handle **5 times** before to turn ignition on you will cancel automatic power cut-off to prevent ignition being cut-off after 60 seconds.



- ✓ Press the button **Register SMART Key(s)** in a software
- ✓ Enter PINCODE and select number of keys to learn (1...4)



- ✓ When following message is displayed please bring **one key** to be learned near to the emergency antenna:



- ✓ Press **OK** right after smart key was presented near to **emergency antenna**
- ✓ Same message will popup as many times, as number of keys to learn was selected in previous dialog.
Everytime bring **only one** key close to the **emergency antenna**! Keep all remaining keys (if any) for at least 3 meters away.
- ✓ Ignition turns off for 5 seconds automatically after the last SMART key was successfully recorded.
Do nothing, just wait and follow software messages.

Ignition turns back to ON automatically. Please wait a little bit more until software will finish to store key programming values.

Status Log should look like this after successful completion of **Step 1**:

```
[16:30:26] Status : Connect to SMART KEY ECU...OK  
[16:30:26] Status : Send CODE...OK  
[16:30:26] Status : Init...OK  
[16:30:47] Status : Learn key #1...OK  
[16:31:03] Status : Store key programming...OK
```

- ✓ Turn OFF the ignition

Step 1 is completed, but engine still can't be started. Blank smart keys presented during this step are still not locked and can be programmed to another scooter.

Go to [troubleshooting](#) chapter in this manual if key programming got failed for any reason.

➤ **Step 2.**

- ✓ Keep all the SMART keys for at least 3 meters away from the scooter
- ✓ Place one smart key near the **emergency antenna**
- ✓ Press and hold ignition switch handle until blue surround lights up
- ✓ Turn ignition handle to ON position
- ✓ Switch off ignition and repeat same process for every key that was recorded during **Step 1**.

Start the engine with each key to check their programming.

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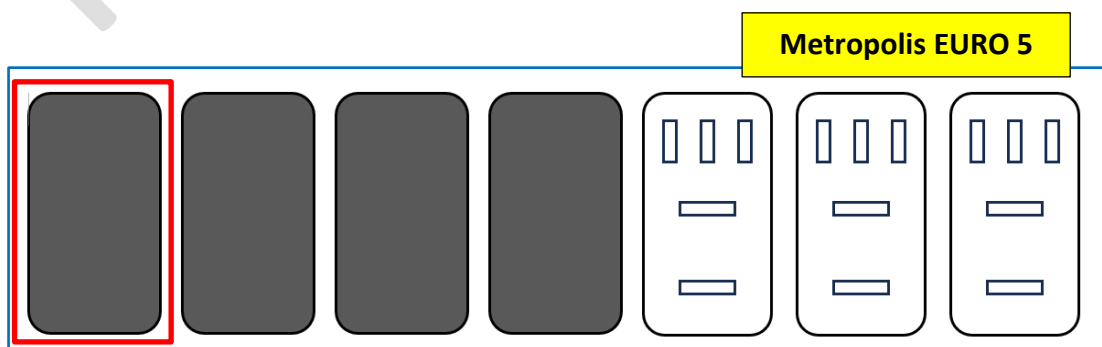
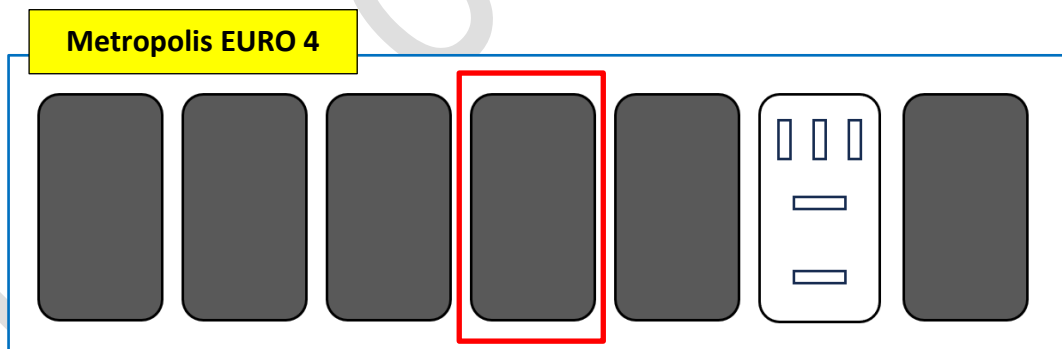
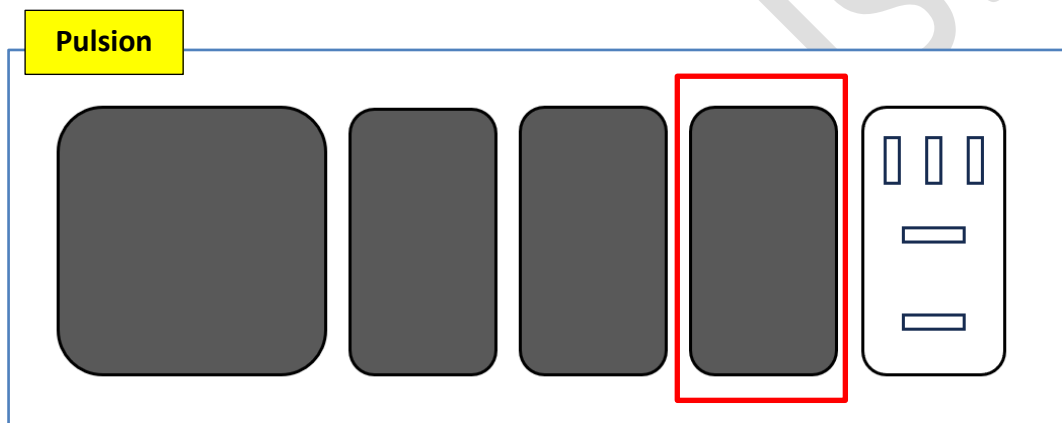
6. Programming of SMART KEY when all keys were lost

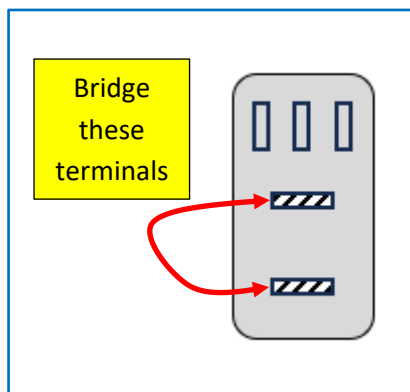
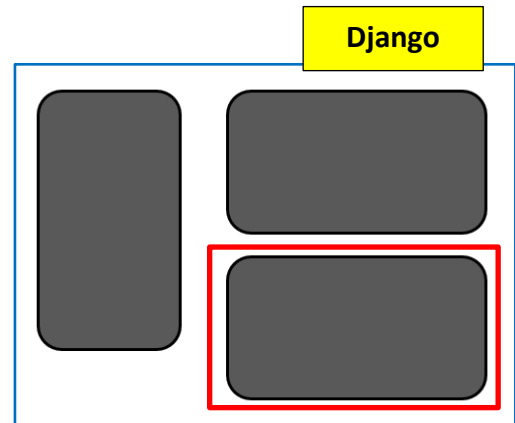
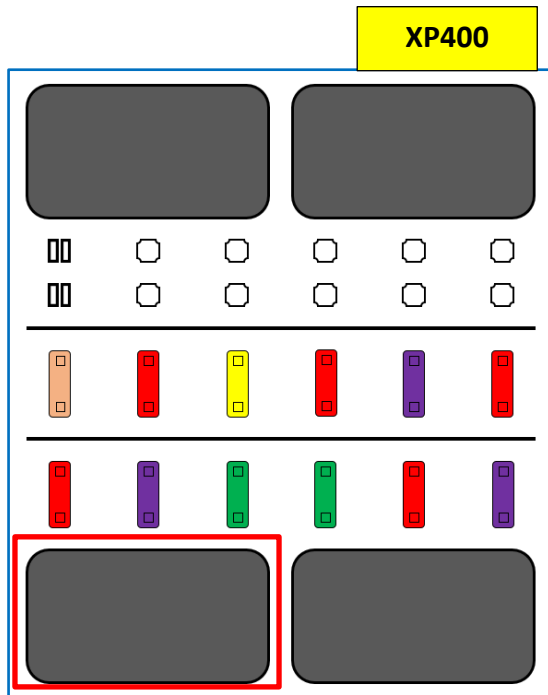
NOTE: Only a blank SMART key, or one that was previously matched to this particular SMART KEY ECU can be learned here.

Force ignition on before to proceed.

It's not possible to turn on ignition using ignition control handle when all keys were lost. The only way to power-up the system is to bridge a **+APC** relay.

Location of **+APC** relay for different models is marked with **red rectangle** in the pictures below:





Remove the **+APC** relay. Using piece of wire make a bridge between **red/black** and **red** wires in the socket.

Press ignition switch to wake-up system if necessary.

Now go to the key programming steps.

- ✓ Please read a 5-digit PINCODE before to start key learning
- ✓ Locate the **emergency antenna** in the scooter:
 - **Metropolis** – in the glove box on the left side
 - **Pulsion** – behind the technical access door on the right side
 - **Django / XP400** – behind the left side cover

Refer to scooter owner's manual for more detailed description of emergency antenna location.

Smart keys are programmed to SMART KEY ECU in two steps:

Step 1. Recognition of smart keys and memorizing their ID codes

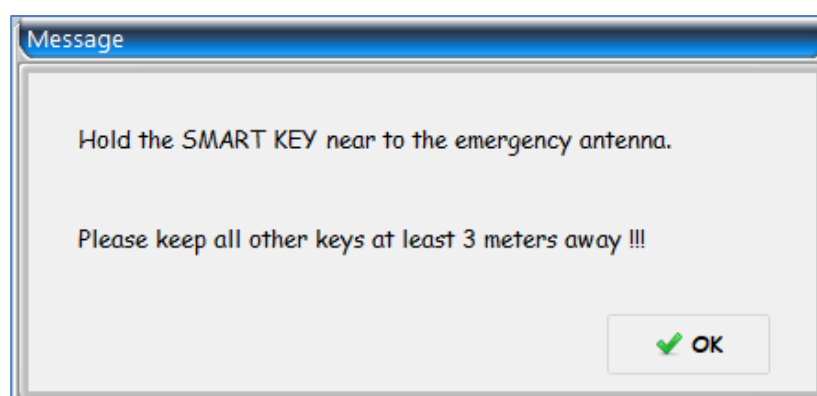
Step 2. Writing code from SMART KEY ECU to every SMART KEY

➤ Step 1:

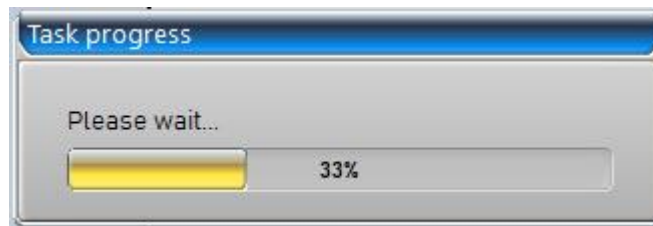
- ✓ Press the button **Register SMART Key(s)** in a software
- ✓ Enter PINCODE and select number of keys to learn (1...4)



- ✓ When following message is displayed please bring **one key** to be learned near to the emergency antenna:



- ✓ Press **OK** right after smart key was presented near to **emergency antenna**
- ✓ Same message will popup as many times, as number of keys to learn was selected in previous dialog.
Everytime bring **only one** key close to the **emergency antenna**! Keep all remaining keys (if any) for at least 3 meters away.
- ✓ After the last key was learned, progress message will be displayed:



- ✓ Within a **maximum of 5 seconds** remove bridge from relay socket and **immediatelly plug in the +APC relay**
- ✓ Wait for blue lighted surround to light up
- ✓ Place any of learned keys near the **emergency antenna**. Press and hold ignition switch for 3 seconds then release it.
- ✓ Turn ignition on for couple seconds, then turn it off

Step 1 is completed, but engine still can't be started. Blank smart keys presented during this step are still not locked and can be programmed to another scooter.

Go to [troubleshooting](#) chapter in this manual if key programming got failed for any reason.

➤ **Step 2.**

- ✓ Keep all the SMART keys for at least 3 meters away from the scooter
- ✓ Place one smart key near the **emergency antenna**
- ✓ Press and hold ignition switch handle until blue surround lights up
- ✓ Turn ignition handle to ON position
- ✓ Switch off ignition and repeat same process for every key that was recorded during **Step 1**.

Start the engine with each key to check their programming.

7. Programming of scooter's „FIND ME“ system

If scooter is equipped with „FIND ME“ system you should match every key to this system after key programming procedure was carried out.

- ✓ Press and hold ignition switch handle until blue surround lights up
- ✓ Within a maximum of 5 seconds switch the ignition on and off 3 times and leave it at ON position. Immobilizer indicator will blink 2 times. Now system is waiting for keys to be registered
- ✓ Press the „FIND ME“ button on one of keys. Immobilizer indicator will blink two times
- ✓ Repeat for all keys to be matched
- ✓ Turn OFF ignition

8. Programming of VIRGIN SMART KEY ECU

NOTE: Only a key that was previously matched to this particular scooter can be learned when SMART KEY ECU is VIRGIN. Blank key will be not accepted here!

Identification of VIRGIN SMART KEY ECU should look like in the picture:

[16:26:57] NUMBER OF KEYS STORED: [0]

Purpose of the VIRGIN SMART KEY ECU is to replace original SMART KEY ECU when it got faulty or missing at all.

To learn VIRGIN SMART KEY ECU you will need:

- **One blank unprogrammed key.** This key is used to turn on the ignition. Do not include it in the programming!
- **At least one programmed key** that was previously coded to this scooter
- **Original PINCODE of the scooter.** If original SMART KEY ECU present and is still possible to connect it by diagnostics, you can read PINCODE from original SMART KEY ECU. Otherwise, you should order PINCODE from the dealer of Peugeot Motorcycles.

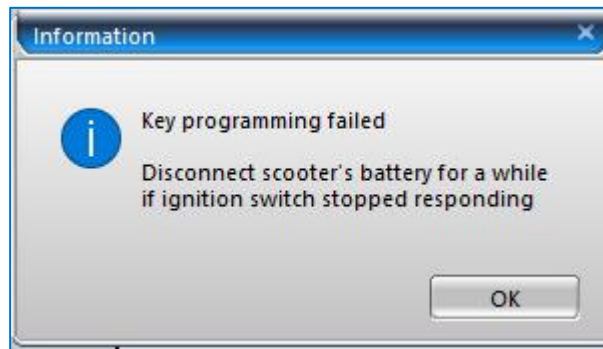
Follow these steps how to program VIRGIN SMART KEY ECU:

- ✓ Plug-in VIRGIN SMART KEY ECU to the scooter
- ✓ Place the **blank smart key** near the emergency antenna
- ✓ Press and hold ignition switch handle until blue surrounding lights up
- ✓ Within maximum of **5 seconds** press **5 times** on the ignition handle and turn it to ON position. By pressing control handle **5 times** before to turn ignition on you will cancel automatic power cut-off to prevent ignition being cut-off after 30 seconds
- ✓ **Learn only 1 programmed key** (original key of the scooter) in the same way as described in [Chapter 5](#). **Do not learn a blank smart key!. Its purpose was only to turn on the ignition while SMART KEY ECU was VIRGIN**
- ✓ If more keys needs to be learned please start key learning procedure one more time. Learn all remaining keys, including the first key that was already programmed

Go to [troubleshooting](#) chapter in this manual if key programming got failed for any reason.

9. Troubleshooting

- Key programming failed with this message:



POSSIBLE REASON: General fault occurred. Please disconnect scooter's battery for 15 seconds if SMART KEY ECU completely stopped responding to push or turn action of ignition switch. Ignore this message if ignition switch still continue to respond.

- Key programming failed at the **step 1** (Learn key...) with message in the Status Log as in the picture:

```
[20:18:05] Status : Connect to SMART KEY ECU...OK
[20:18:05] Status : Send CODE...OK
[20:18:05] Status : Init...OK
[20:18:09] Status : Learn key #1...FAILED
[20:18:09] Status : Waiting For Commands
```

POSSIBLE REASON:

- ✓ No SMART key was presented close to **emergency antenna** when software asked to or key was too far
- ✓ More keys were near the scooter during programming procedure
- ✓ PINCODE in the SMART key is different from PINCODE programmed in SMART KEY ECU (if not blank key was tried to learn)
- ✓ Faulty **emergency antenna** or wiring
- ✓ Faulty SMART KEY ECU
- ✓ Faulty SMART key

- Key programming failed at the **step 2** (Store key programming...) with message in the Status Log as in the picture:

```
[12:09:48] Status : Connect to SMART KEY ECU...OK
[12:09:48] Status : Send CODE...OK
[12:09:48] Status : Init...OK
[12:09:51] Status : Learn key #1...OK
[12:10:08] Status : Store key programming...FAILED
[12:10:08] Status : Waiting For Commands
```

NOTE1 for SMART KEY ECU configured WITH immobilizer function (400cc only):

Before to store values of programmed keys SMART KEY ECU switches ignition on to supply power to the engine control unit. Then SMART KEY ECU is checking immobilizer status of engine control module.

SMART KEY ECU will reject command to store programmed keys if engine control module is locked by immobilizer.

NOTE2 for SMART KEY ECU configured WITH immobilizer function (400cc only):

Key programming procedure is impossible if there is no LIN-BUS communication between SMART KEY ECU and engine control module (ECU)!

POSSIBLE REASON:

- ✓ Wrong synchronization code between SMART KEY ECU and engine control unit (SMART KEY ECU and engine control module are from two different scooters)
- ✓ Faulty LIN bus wiring between SMART KEY ECU and engine control unit
- ✓ Power supply missing to engine control unit
- ✓ Hardware fault of engine control unit