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DRIVING EMBEDDED EXCELLENCE

DriveRecorder for Remote Calibration
Remotely connect and calibrate with ES820

Do you know the challenge?

You are a fleet manager or calibrator engineer, and you want to update the ECU with a new dataset of optimized calibrations. The test vehicles are currently running somewhere in the world collecting data with the old datasets, at least until the end of the work shift.

Our solution

ES820 & Remote Calibration add-on

The high-performance DriveRecorder ES820 is capable of supporting Wifi connection via a 3rd-party adapter and mobile router, which makes it remotely reachable. Moreover, ES820 can be equipped with the new Remote Button, a 3rd Party Touchscreen monitor, and with the ad-hoc developed Remote Calibration Add-on, in order to ensure easy and safe control and monitoring of the calibration process for the driver.

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How does it work?

An example of our solution: remotely change some calibration values in an ECU
First of all, in order to properly use your ES820, please carefully follow the instructions contained in the manual of Remote Calibration Add-on.

Step 1

The test-vehicle leaves the workshop with a "regular" DriveRecorder experiment that is running and recording data. Later, you want to change some parameters on the test-vehicle engine ECU, and the vehicle is still on its trip: Start your 3rd-party remote connection tool and establish the connection to your ES820. Once connected, login as "Remote" user (Fig 1.).
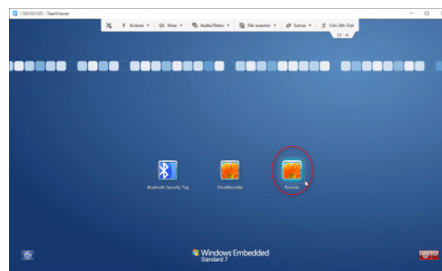

Fig. 1

Step 2

The DriveRecorder ROE (Remote Operation Environment) pops-up, and allows you either; to Start remote calibration or the DriveRecorder Configurator (Fig. 2.1). After that, please select DriveRecorder Configurator and stop manually the currently running Recording Job in order to safely store the recorded data.
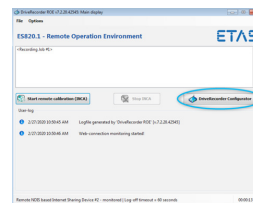
In the meantime, on the touch monitor mounted in the vehicle the driver is informed that someone is currently remotely logged-in (Fig. 2.2).

Fig. 2.1

Fig. 2.2

Step 3

As soon as the Start Remote Calibration (INCA) button is chosen the Remote Calibration wizard pops up. Select Start and wait (Fig. 3.1).
On the driver's display the parking request is shown (Fig. 3.2). The driver is asked to confirm that he reached safe parking condition by pressing the green checkmark, or to refuse and cancel the request (red X). The driver may also change the language or read the full instruction manual by pressing the other blue-bordered icons.
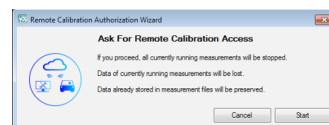

Fig. 3.1

Fig. 3.2

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Step 4

Note: If you push the Cancel button at any time while the Wizard is active, the Wizard will be closed and the normal drive recorder mode will be activated again.

After the driver's confirmation, you are asked to keep in touch with the driver via telephone, and make all the safety checks together (Fig. 4.1). In fact, you both can see the check-list (Fig. 4.1 and Fig 4.2).
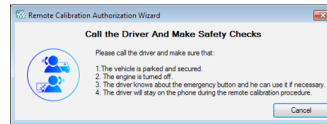

Fig. 4.1

Fig. 4.2

Step 5

Then, the driver is asked to push the remote button for a certain amount of times (this number is randomly generated every time), in order to allow the remote control (Fig 5.1 and Fig. 5.2).
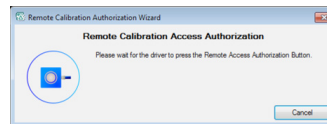

Fig. 5.1

Fig. 5.2

Step 6

The Remote Calibration is active, and a full INCA application may now be launched (Fig. 6.1).

In the meantime, the driver is told how to behave during the remote connection. As long as the Experiment is running, the vehicle driver can switch to ECU reference page (RP) by pressing the red X button on the Driver Touch Display (Fig. 6.2). Afterwards INCA will be closed. Moreover, the driver always has to be sitting in the vehicle to be able to press the emergency stop button mounted in the vehicle at any time.
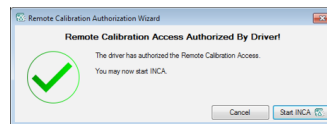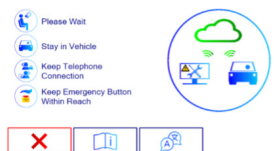

Fig. 6.1

Fig. 6.2

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Step 7

The current INCA database (i.e. the one with the latest active experiment) is automatically opened and you can start the experiment (EE) and, if needed, initialize the Hardware.

Start the Visualization and switch to the ECU Working Page (WP), in order to be able to change the calibration values and observe some measurement variables. Recording is also possible (Fig. 7).
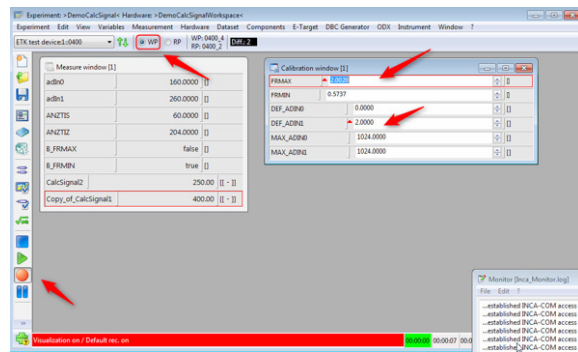
Fig. 7

Step 8

Note: The remote calibration expert has to ensure that the correct dataset is loaded into the ECU and that calibration changes do not cause a safety risk for the vehicle driver. All remote calibration activities should be performed while the vehicle is in a standing position.

Once the calibration work in INCA is finished, you can close INCA as normally or by pressing the button Stop INCA in the Remote Operation Environment dialog (Fig. 8).
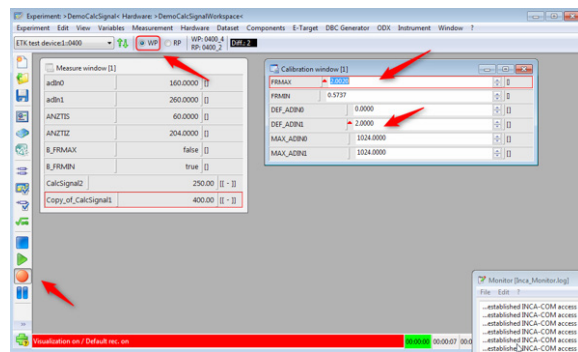
When INCA is closed, the normal Drive Recorder mode will be activated again.

Fig. 8

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Tools used

– ES820 SP15
– ETAS Remote Button with adapter cable for ES820
– Add-on Remote Calibration for ES820
– License file for Remote Calibration for your ES820
– 3rd party USB2ETH Adapter
– 3rd party Ethernet cable
– 3rd party LTE Router (e.g. TC MGUARD RS2000 4G VPN)
– 3rd party Touchscreen monitor with USB adapter
– 3rd party remote connection application (e.g. Ultra VNC tool) for the company PC, incl. license if needed