



Manual

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1. Introduction

xHP Flashtool is the worldwide first and complete Tuning solution for your BMW with ZF6HP or ZF8HP automatic transmission. xHP is the only tool that focuses fully on getting the best from your Auto-Transmission and is the worldwide leading solution for BMW vehicles. xHP put's the power to fully customize your automatic transmission at your hands. Connect your Android smartphone to your car and customize around 100 maps by yourself or choose from pre-defined OTS maps in the xHP in-App Store.

Since introduction of the ZF 6HP transmissions in BMW vehicles in the early 2000s they remained a blackbox for Tuners and car enthusiasts worldwide. While the ZF units have been tuned for many years now in other vehicles, BMW applied intense encryption and signature mechanisms to avoid Tuners and enthusiasts from doing so. While this is understandable from a manufacturers perspective, it does not satisfy the needs of BMW enthusiasts worldwide. The ZF-Automatics were used throughout the whole BMW range from the 1-series hatchbacks to the mighty Alpina B5 cars putting out around 500 bhp and 700 Nm of torque. While the hardware stays widely the same throughout all applications and is mainly divided in only a few types, the software inside the controller makes it possible to adapt the transmission to every vehicle and mimic a wide range of driver styles. Smooth and comfy (some call it "sluggish") in the Diesel applications, the same transmission in the Alpina B3/B5 come with a way more sportier touch and make it hard to believe, that they are from the same breed.

Tweaking your transmission is not only about getting quicker or holding more power. Few people are aware of how deeply an automatic transmission contributes to the overall driving experience. From crawling in traffic, over city driving, to taking your vehicle to the drag strip or a race track, the TCU widely defines how your car feels. Like everyone drives different with a manual, the maps inside the TCU hide the secrets to tweak your automatic transmission to your personal likings and finally experience what BMW promised you once in the glossy brochure:

Sheer driving pleasure!

2. Overview

This manual will guide you through the process, how to flash your TCU (Transmission Control Unit) with xHP. We've done everything to make this process as easy, safe and smooth as possible. However, tuning a vehicle and flashing control units inside of the car always requires paying attention to certain things and prerequisites. On the next pages, we will list the prerequisites needed and how to avoid any problems, before they can occur.

The flash method used by xHP is 100% safe for your TCU! You won't be able to brick it.

But however, it saves you a lot of time, doing things proper once and not half-baked a dozen times. Please read this guide thoroughly to get the most out of xHP and your transmission.

2.1. Prerequisites

In order to safely flash your TCU, it is mandatory to use the right hardware and prepare your vehicle. Please make sure you don't have any mechanical problems on your transmission. xHP won't cure bad mechanics. **Never.** If you're already experiencing flared shifts, wrong shifts or jerks during shifts, your transmission most likely needs service before tweaking it.

Don't use xHP with transmissions not in fully operating state.

Additionally, xHP will **not** flash transmissions or transmission controllers outside of the car. (Bench flashing) The operation is solely restricted to in-car usage on supported BMW vehicles.

2.2. Supported vehicles

xHP is developed for flashing ZF6HP automatic transmissions in BMW vehicles. It won't connect nor operate on other vehicle brands or other automatic transmission like the GM units or BMW DKG (double-clutch). The ZF6HP/8HP's were BMWs automatic transmissions of choice for nearly their complete lineup, from the early 2000s till today.

However, BMW used a variety of transmission controllers throughout these years and not all of them are supported yet. To check if your vehicle is supported please visit www.xhpflashtool.com and search for your car. If it is not yet supported, it does not mean, it never will be. Please like us at [Facebook](#) to get every update on supported vehicles, or head to the "Contact" chapter of this manual and write us an e-mail. We're happy to integrate vehicles on customer demand.

2.2.1 Check for support with xHP

If you have all the hardware already in place (see Chapter 2.3), you can just download xHP for free from the Google Play Store and connect it to your car. After connecting on the main screen, click the Car Symbol in the upper, right corner. xHP will connect to our database and check for support immediately. There are 2 stages of support. “Flashable” will tell you, if xHP is able to flash your car in general. “Available OTS Tunes” tells you, if we already got pre-defined Tunes for your vehicle in our database. If we don’t have tunes ready yet, you can still build your own tunes (see Chapter 2.6). There are lots of communities like spoolstreet.com, e90post.com, n54tech.com etc. where people exchange knowledge and home brew tunes for xHP. **Please note the two TCU HW#** in the screen on the left. The first number is your current TCU Program-Number (referred to as HW#), the second, bracketed one is the latest available. xHP will upgrade your TCU on install to the latest program and will only show maps for this one as compatible in the shop.



2.3. Hardware needed

Basically, you need 3 things to start:

- ✓ Android smartphone with USB OTG functionality
- ✓ USB/OTG Adapter
- ✓ OBD/DCAN cable

Additionally, we strongly encourage you, to use a vehicle charger during the backup and first flash. Backup and first flash will require round about 30 minutes each, so if you’re not on a good battery, it is recommended to charge the vehicle during this process. (read more on that in Chapter 3 of this manual)

2.3.1 Android USB/OTG compatible Smartphone/Tablet

xHP is developed to require very little resources. As a minimum requirement, make sure to have at least Android 5.0 installed on your device. Android 5.0 was introduced in 2014, so if you want to search for a used Android phone, you probably want to look out for units from

2014 and up. We recommend Samsung devices, as most of them support USB OTG. To check if your device is compatible, simply try to download xHP from the Google Play Store. If Google declines, your device does not meet the requirements.

You can also go to the Google Play Store and visit the xHP Flashtool page, to check for support.

2.3.2 USB/OTG Adapter

These adapters come in various forms, from short sockets, to longer cables for extended use. However, all of them seem to work reliable. During our testing phase, there hasn't been any error trackable to these adapters. Just search them on Amazon or Ebay. Thinking of vehicle situations, it's probably best to use one coming in short-cable form-factor, like the one you see on the right side. Costs: 5 – 10 USD.



2.3.3 OBD/DCAN cable

xHP uses the well-known OBD/DCAN cables to connect to your TCU. (whether it's E or F-Series) These cables are usually marked as "INPA compatible", which refers to the BMW OEM diagnostic tools. Be sure to buy a proper cable with a genuine "FTDI RS232" chipset. These cables can be bought from various sources. (Webshops, Amazon, Ebay...) Proper ones' cost approx. 40 – 60 USD. Be sure not to safe on the cable, as xHP relies on a proper cable to work correctly.

Suggestions for Cables:

- USA: [Pro Cable from Bimmergeeks](#)
- Europe & International: [Bimmer - Connect Premium Cable](#)

If you're from another region, please search some of your local BMW forums, where to best buy an OBD/DCAN cable near your location.

2.3.4 Wifi Adapter

From App Version V2.1.7 xHP supports the Bimmer-Connect Thor Wifi Adapter. In this case, you do not need the USB/OTG Adapter or the DCAN cable. To connect to the WiFi adapter, simply plug it into the vehicles OBD port. You will see the LED's lighting up. Afterwards open your Android settings and look out for the correct WiFi network. The SSID will be either "ThorWifi" or "xHPWifi". After connecting to the network, xHP will work exactly like when connected through OBD cable. Please note, that you eventually must return to your local Wifi or 3G connection, when the app needs to synch/re-download new maps, or if you want to buy licenses/maps.

You can get the adapter at www.bimmer-connect.com (EU) or www.bimmergeeks.net (US)

2.4. xHP Licenses

Once you're done with the basic process (see Chapter 3 in this manual) you may proceed to the xHP Store and buy the appropriate items for your vehicle. Without buying a license you are restricted to reading/deleting fault codes and do a full read on your TCU. To flash your vehicle, you need to buy either the "General Flash License", or the "Super License" from the xHP inApp - Store.

2.4.1 General Flash License

This License enables unlimited flashing for a single vehicle. With the "General Flash License" you can either buy and flash OTS Maps out of the xHP in-App Store, or develop your own maps (see Chapter 2.6) and flash them to your vehicle. When purchasing the license, xHP will lock it to the vehicle stored on the device. So before purchasing a license, you need to connect the app one time to your vehicle and store it. The app will ask you for that on the first connect. **Please note**, that the General Flash License is only available for 6-Speed models!

2.4.2 Super License 6-Speed/8-Speed

The Super License works equal to the "General Flash License", but includes all available OTS Maps in one sweep. It is still only valid for a single vehicle. You will get the Flash License + Stage 1,2 and 3 Maps with a discount, compared to purchasing the items separately. **Note**: This is the only license available for 8-Speed models! It will give you the possibility to try all 3 Maps and switch between them as often as you like. Map switching can be done within 2 minutes. Please note, that the Super License is not available for all vehicles. You need to store your car onto the device, before you can purchase the Super License. If the License is not available for your car, the app will message you on purchase accordingly.

2.4.3 Multi Licenses

Starting with App-Version V2.0.3, xHP supports up to 3 vehicles per device. (older app versions can only handle 1 vehicle per device and Google account) Please note, that there are no special "Multi-Vehicle" Licenses. All Licenses and Maps get tied to a specific VIN on purchase. For example, if you want to flash 2 identical cars, you need to buy at least one license per car and one map per car. The process of managing multiple cars on one device is easy. The app will recognize, when there is a yet unknown vehicle connected to it and will ask you to save it on the device. You can save unlimited vehicles to a device but will only be able to purchase licenses for 3 of them! All saved vehicles are available in the "Car Chooser", accessible through the App's bottom bar. Once you select a car from the list (or connect to it through OBD cable) the app will switch to it and only show you licenses and maps that were bought for this car. In the Car Information Screen (accessible through the Car-Symbol on top right) you will see the detailed data of the selected car and the flash history. All purchases carried out, will be tied to the active car. **Do not** try to circumvent the 3-car flash limit by deleting/moving files on the device, or starting the app on the same device but with different accounts. This can lead to unintended behavior and in the worst case to a bricked TCU!

2.4.4 Multi-License for Professionals

We offer a dedicated application - called xHP Pro - for Tuners. Please email us at office@rbttuning.com for a quote!

All Licenses will be stored onto your Google Play Account. That means, you can switch to another device and use xHP there to, as long as it uses the same Google account as primary account. However, we do not recommend working with more than one device at the same time, as this might lead to confusion, which map was flashed last in the past. If you want to discontinue using one device and switch to another, please look in the FAQ section how to do it.

2.5. OTS Maps 6-Speed

Once you purchased the xHP License, you will be able to flash pre-defined OTS files from the xHP Store. OTS files are available in 3 different configurations: **Stage 1**, **Stage 2** and **Stage 3**. While the exact feature list of each calibration will depend on your vehicle, you can expect the following general orientations:

Stage 1	<ul style="list-style-type: none"> - Optimized D Shiftpoints to facilitate sporty, yet economy style driving - Optimized Shift Strategy for up/downhill driving - Optimized Warmup Behaviour - Optimized Torque Converter Lockup in 1st/2nd/3rd gear - Lowered minimum RPM limit manual mode - Adapted Torque Limits for Tuned engines - Gear Display in Dash in D/S/M Modes (where supported)
Stage 2	<ul style="list-style-type: none"> - Optimized D & S Shiftpoints for better acceleration in part and full throttle situations - Firmer, sportier upshifts in D/S/M mode - Faster paddle response time - Optimized Shift Strategy for up/downhill driving - Optimized Warmup Behaviour - Optimized Torque Converter Lockup in 1st/2nd/3rd gear - Raised Torque Limits for Tuned engines - Gear Display in Dash in D/S/M Modes (where supported)
Stage 3	<ul style="list-style-type: none"> - Optimized D & S Shiftpoints for better acceleration in part and full throttle situations - Race-like upshifts with TQ increase - Shift times approx. 50% faster in S/M Modes - Shift times approx. 25% faster in D Mode - True Manual mode (no automatic upshift in M mode) - Automatic Rev-Matching (Throttle – Blip) on Downshifts in S/M Modes - Faster paddle response time - Optimized Shift Strategy for up/downhill driving - Optimized Warmup behavior - Optimized Torque Converter Lockup in 1st/2nd/3rd gear - Even more raised Torque Limits for Tuned engines - Gear Display in Dash in D/S/M Modes (where supported)

2.6. OTS Maps 8-Speed

The 8-Speed models all feature the “Driving Experience Switch” (DEC) button to change the transmissions behavior. Unfortunately, BMW did not use that possibility to its full extent on the normal line-up. xHP reprograms your transmission, so you can access all shift-programs the 8HP is capable of and adds other features, dependent on model. Please note this list is based on current knowledge and is subject to change in the future. Please check the Vehicle Finder on our website for a detailed description of the Maps for your specific car!

Stage 1	<ul style="list-style-type: none"> - Removed Torque Limits - Added Gear Display in D-Mode
Stage 2	<ul style="list-style-type: none"> - Added Gear Display in D-Mode - Removed 3rd and 6th Gear Torque Limit - Raised Line-Pressure mapping for high-input torque - Reconfigured DEC Logic, with similar logic as in M-Cars (access to more shifting-modes) - Even faster shifting in M/Sport+, absolutely instant paddle response - Recalibrated Shift-Points in D & S Mode to improve throttle response - No automatic upshifting in M/Sport+ setting - Transmission keeps the current set mode when DSC is turned off - Launch Control enabled (update of DSC, DME eventually necessary as well on some cars) - Retains full ECO - Mode functionality including Coasting
Stage 3	<p>Additionally to Stage 2:</p> <ul style="list-style-type: none"> - Recalibrated S/Sport+ mode for Roll-Racing and Race-Track use. The transmission keeps the engine in the upper rev range all the time and shifts on the Race-Track like an experienced Racing-Driver. All other modes are unaffected and are 100% suitable for daily use.

3. Connecting to your vehicle

Once you downloaded xHP on your compatible Android device and having the additional hardware in place (see Chapter 2), you are ready to connect to your vehicle. This chapter will guide you through the steps needed ANY TIME before attempting to read or flash your vehicle.

3.1. Preparing Android device

- Make sure your Android device has at least **25% battery capacity** left.
- Set your device to **Flight Mode**. An interrupting call may lead to failure of the procedure.
- Close all other Apps, that may disturb communication on the USB OTG port.
- Grant a general and permanent permission for xHP to access the USB OTG port on your device. xHP will ask you for this on startup. Be sure to check the permanent option.
- Once a flash has started, leave your device alone. The most common cause of a flash failure is mechanical stress on the USB connection.

3.2. Preparing vehicle

- Make sure not to open/close doors during the process. If you want to stay outside during the process, open the side window and operate your Android device standing next to the vehicle.
- Turn on Ignition, but do NOT start the vehicle. Do so, by inserting your key and pressing the "Start" Button for at least 2 sec, without touching the brake. Note: This procedure is recommended even on cars equipped with "Keyless Go" feature. You MUST NOT start your engine!
- Make sure your transmission is in "P" position.
- Turn off ALL auxiliary devices: Headlights, Interior Lights, Heating, Heated Seats, Radio, Nav Screen etc.
- Once again: Set your Android device to flight mode. Incoming calls through Bluetooth will disturb not only the Android device, but your car too.
- Make sure you're only flashing with a good, healthy battery. xHP will refuse to start a read or flash operation below a certain voltage level.
- We also recommend a proper voltage supply during the install. ("Long-Flash") The car can draw up to 30 Amps during the flash, so we recommend a supply able to deliver at least 30 Amp@13,8V. (e.g. Maas SPS-30) The voltage supply needs to be connected in the engine bay. DO NOT connect directly at the vehicles battery. A normal battery tender or charger does not help to stabilize the voltage during the process. It can only help to pre-charge the battery in advance.
- The very first flash on your vehicle will "Install" xHP on your car. This procedure takes approx. 30 min. We **HIGHLY RECOMMEND** using a vehicle charger for the first flash. After installing, the following flashes will take no more than approx. 5 minutes. These flashes can be carried out without a charger, but you do not want to see voltage levels below 12V when starting a flash. xHP will display your battery voltage in the car information section. It is NOT possible to flash the TCU while the engine is running.

- If you have any piggy-back solutions installed which interfere on the CAN Bus (like JB4) be sure to turn them off. In certain cases, you probably need to remove them completely from the vehicle before. **WE RECOMMEND YOU TO DO SO**, before using xHP!

3.3. General connect procedure

If you attempt to read or flash your vehicle, please obey the rules outlined above. If you just want to test your connection, read your fault codes or take some logs (included in later revision of xHP) you can do this anytime safely with the following procedure:

- Plug in your OBD/DCAN cable to the OBD port of your vehicle. The OBD port is located in the drivers footwell on the left side. (remove the plastic cover marked "OBD")
- Connect the OBD/DCAN cable with your USB OTG Adapter.
- Unlock your Android device
- Connect the USB/OTG adapter to your Android device and wait for the USB permission screen to pop up. Please make sure that you're granting permanent access rights to xHP in this screen. On some Android versions, the screen will only appear after startup of xHP. Wait a few seconds after connecting the USB OTG cable.
- Start xHP and hit the Connect Button.
- If the vehicle is connected for the first time you will be asked if you want to save the vehicle data onto your device. Answer with "Yes". If there is no Backup of this vehicle present, xHP will ask you to create one.
- If there's already a backup stored on the Android device, you will be asked to carry out the initial install procedure. (First Flash, approx. 30 min) The install procedure requires a valid flash license. (see Chapter 4.5)
- If the Backup and Install Procedure has already been carried out in the past, you can now start to flash custom maps, or buy maps from the xHP Store.

3.4. Connecting with Thor Wifi Adapter

Most Android devices are configured to prefer Wifi connections over 4G/LTE. So as soon as they are connected to any Wifi they try to reach the Internet through this connection and ignore the 4G/LTE network. Therefore, the initial vehicle unlock requires a special procedure when using the Thor Wifi Adapter:

- Very first start: Start with Internet, so not connected to Thor Wifi. This is only true for the very first startup. Not needed afterwards.
- Plug in your Thor Wifi Adapter into the OBD port and wait a few seconds. Connect to Thor Wifi on your Android device. Press Connect in the App. The App saves the vehicles data to your Android device.
- Disconnect from Thor, so you have Internet Access. Do your purchases and let the App download the Maps.
- For flashing, connect to Thor Wifi again.

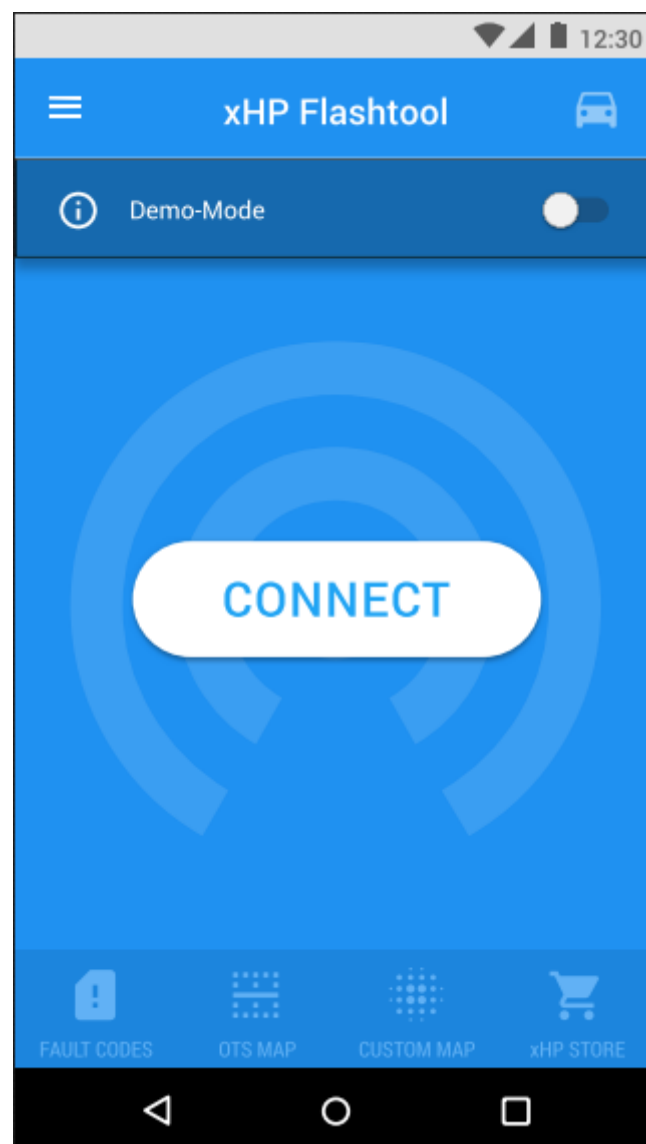
4. Using xHP

This chapter will guide you step by step through the usage of xHP. From navigating the app, through buying maps in the store, to finally flashing your vehicle.

4.1. Account selection

On first startup or re-install, xHP will ask you to select a user-account. If you run multiple user-accounts on your Android device, be sure to always select the same account. If you accidentally chose a wrong account, re-install xHP and chose the correct one. We will use this account information to synchronize your purchases with Google Play, even across devices. This means, you can use xHP on 2 devices at the same time (starting with App Version 2.0.3), if they are on the same Google Play Accounts.

4.2. General Navigation



After startup, you will find yourself on the main screen, which is the central hub for all activities. After every operation, the app will return to this screen. If you're ready to connect your vehicle (see Chapter 3) just hit the "Connect" Button. The app will guide you through the next steps needed.

4.2.1 Top menu

On the top left, you have access to the side bar menu which hosts miscellaneous functions like displaying the manual, viewing contact details or the app credits.

4.2.2 Car menu

The car symbol on the top right, shows you the actual connection status. Whenever there's a vehicle connected to xHP it will turn blue. Click on it and you will get additional information on the currently connected vehicle and installed maps. (if applicable)

4.2.3 Bottom Bar

The bottom bar holds the main xHP functions, which are:

- Main screen
- Read/Delete TCU fault codes
- Flash Custom or OTS Maps
- Visit xHP Store

Note: The bottom bar will disappear, while carrying out operations on the car.

4.3. First Steps/Install xHP

xHP is developed to be failsafe and to let you return to your stock TCU configuration at any time. Therefore, the very first step is to create a full backup and install xHP on to your vehicle. This is a 3-step process, through which you will be guided through on the main screen of the App. Once you start the app for the first time you will be greeted with a "Connect" Button. By pressing, xHP retrieves all necessary vehicle data and checks your Transmission controller for support. If your vehicle is supported, the button will change to "Backup". Before proceeding please read Chapter 3 in detail and prepare your vehicle! The Backup – Process will require around 20 – 30 minutes, if you choose to create an exact Backup of your TCU. Starting with App-Version 2.1.2, xHP also offers to download a standard backup from our servers and use this one instead. The standard Backup can also be used to set your car back to stock, but it may not be the exact same software-revision, that was on your car before.

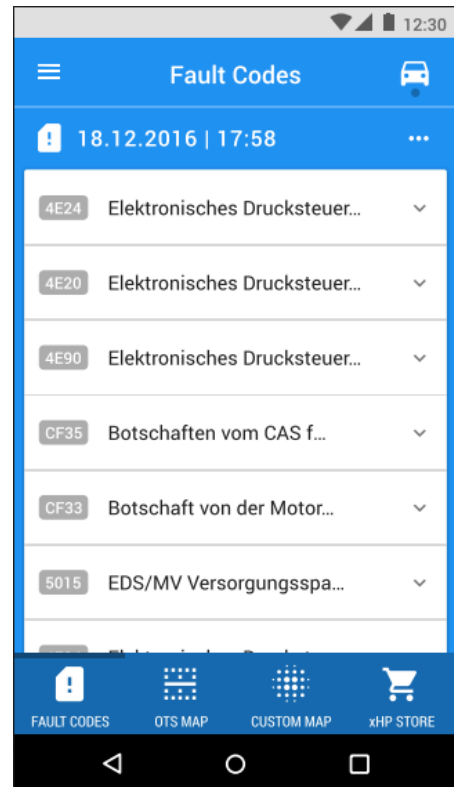


After successfully creating your Backup, xHP will prompt you to start the Install procedure. Installing xHP takes approx. 20 minutes and serves as accelerator for future flashes. Once the install procedure is complete, you are ready to enjoy the full potential of xHP!

4.4. Reading/deleting fault codes

Through the bottom bar you can access the fault code section of xHP. xHP will read out all fault codes from the TCU and display it conveniently in a tabbed-styled view. If applicable you will be able to clean fault codes or recode your TCU (this only applies if a backup from your vehicle is already stored on the device). Additionally, you can copy the displayed fault codes to the clipboard..

Note: xHP will currently not read fault codes from other units in your car. This is planned for a later release.



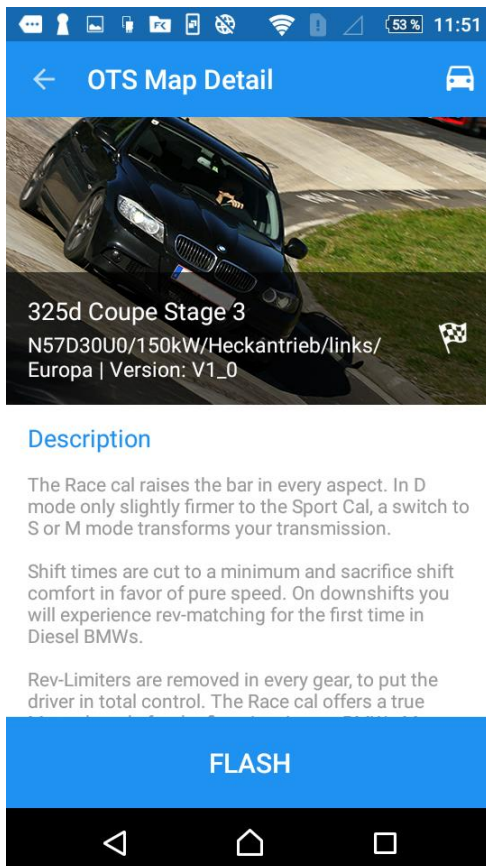
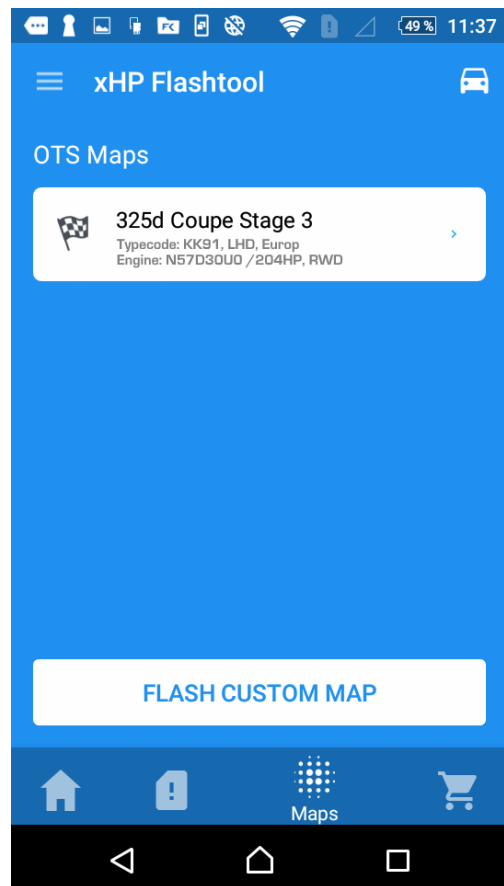
4.5. Flash Maps

Overview Screen

Through the bottom bar you can access the “Flash Maps” section of xHP. You will see a list of your previously bought Licenses and OTS Maps (see Chapter 4.5 xHP Store). You can choose either to flash one of your bought OTS Maps, or flash a custom map. You can flash all maps, as often as you want and change between maps as often as you like.

“Flash Custom Map” opens a file browser. Please copy your custom tunes to the “Custom Tunes” subfolder. xHP will let you choose files only from there.

Note: If you want to revert to your stock map, you can do this in the Sidebar Menu, under Miscellaneous functions.

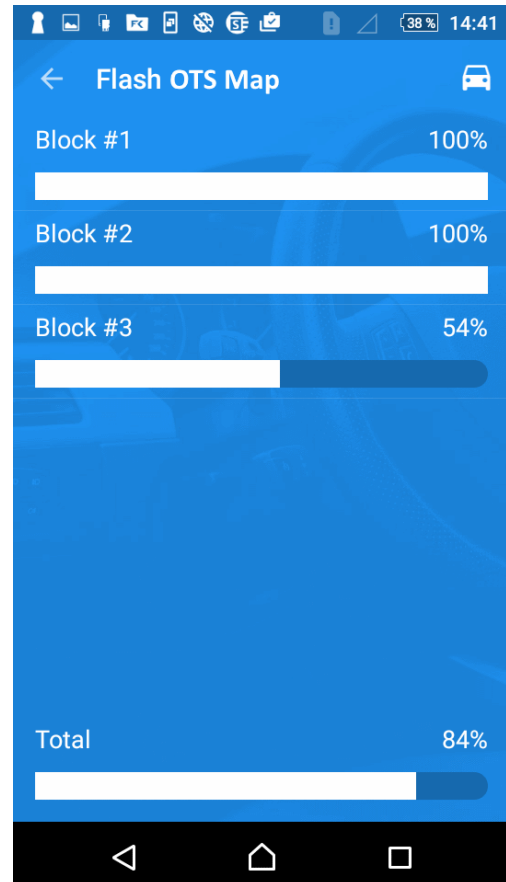


Map Detail Screen

Clicking a map brings you to the Map detail screen, where you will see a detailed description of the map, a feature list and the changelog of the OTS Map. xHP will automatically download new versions of your bought map, when they are available. By scrolling down, you can look into the changelog, which tells you what has been changed in different versions. xHP won't overwrite old versions. You get to choose which version you want to flash. By clicking “Flash” xHP will prompt you to prepare your vehicle for the following flash. Clicking “OK” will finally initiate the flash procedure.

4.5.1 Flash OTS Map

xHP will flash the calibration section of your Transmission controller with the chosen calibration file. xHP will calculate and display the remaining time during the whole procedure. The flash process is designed to be failsafe and will automatically correct small errors or error prone connections, to a certain degree. However, if a flash fails, you can just start over. xHP is designed to keep your Transmission controller safe in every step of the process. Don't worry, if your car starts the "Gong" or shows various error messages on the CIC, during the flash process, as this is perfectly normal. All errors will be cleared after the flash procedure has finished. When the flash has finished, the App prompts you, to switch off your Ignition and let your car sit for a few seconds.



For an error-free flash procedure and to put as little load as necessary on your battery, please pay attention to Chapter 3 before flashing your vehicle!

Note: xHP will check the connection and battery voltage of your vehicle before flash. If your voltage is below 12.0V, xHP will refuse to start the operation.

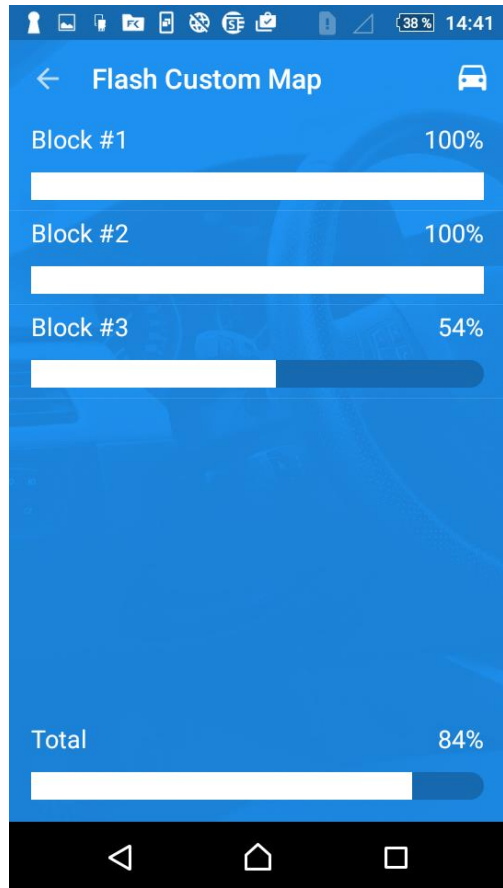
Note: In the Car Information section (Vehicle button top right) you will find a history of the last files flashed.

Note: Starting with App Version 1.2.2, xHP supports Program-Updating. If you installed xHP already with an app version prior 1.2.2 and there is a manufacturer Program-Update available, xHP will carry out the update procedure on the next flash. xHP will show a message before flash accordingly. Check the Car Information Screen to see, if there is a program update available. (HW#)

Do NOT close this window, or exit the App during the Flash Process.

4.5.2 Flash Custom Map

Before proceeding to flash, xHP will carry out extensive sanity checks on your custom calibration. If xHP reports a bad file you very likely edited a restricted section in your file. (e.g. Program part, Project numbers etc.) After completing the sanity check, xHP will flash the calibration section of your Transmission controller with your custom calibration file and calculate all checksums and RSA corrections on the fly. xHP will calculate and display the remaining time during the whole procedure. The flash process is designed to be failsafe and will automatically correct small errors or error prone connections, to a certain degree. However, even if a flash fails, you can just start over. xHP is designed to keep your Transmission controller safe in every step of the process. When the flash



has finished, the App prompts you, to switch off your Ignition and let your car sit for a few seconds.

For an error-free flash procedure and to put as little load as necessary on your battery, please pay attention to Chapter 3 before flashing your vehicle! If the flash process gets interrupted, just restart the procedure. xHP will automatically recover your TCU and start the flash process again. Don't worry, if your car starts the "Gong" or shows various error messages on the CIC/NBT, during the flash process, as this is perfectly normal. All errors will be cleared after the flash procedure has finished. Some error may be still displayed on the CIC screen after flash. Just acknowledge them with the iDrive knob.

Note: xHP will check the connection and battery voltage of your vehicle before flash. If your voltage is below 12.0V xHP will refuse to start the operation.

Note: In the Car Information section (Vehicle button top right) you will find a history of the last files flashed.

Do NOT close this window or exit the App during the Flash Process.

4.5.3 Flash Settings/Custom. Module

Starting from App Version 1.3.2, xHP features a “Customization Module”, which allows users to change certain settings before flashing an OTS or Custom - Map. The Module injects those user-defined values into every Map before flash. Usage is simple: Just do your settings, save them and flash any map to apply them. **NOTE:** You must flash your vehicle after changing settings. Just being connected to the car is not enough. Usage of the “Customization Module” is tied to the “Customization License”, which is available in the xHP Shop. You can access the Module through the “Flash Settings” button at the bottom of the Map-Flash Screen. Please note, that the Module is not available for all vehicles and/or engine/transmission combinations. Currently, only vehicles with 6-Speed Transmission are supported!

Max. RPM: Enables users to setup their own shiftpoints for WOT. (= Full Throttle) Max. RPM can be setup separately for D, S and M mode, each with Kickdown being active or inactive. “Kickdown” refers to the Kickdown-Switch at the end of the throttle travel, drivers recognize as small threshold in the pedal.

Kickdown: Enables users to enable/disable usage of the Kickdown-Switch, separately for D, S and M modes. There are 3 settings: Default, On, Off. Default uses whatever is setup in the flashed Map. On and Off override the setting in the Map respectively. Please note, that “Kickdown Off” does NOT mean, the car won’t downshift anymore. Just the maximum speed for downshift in each gear, when full throttle is applied, will be lowered!

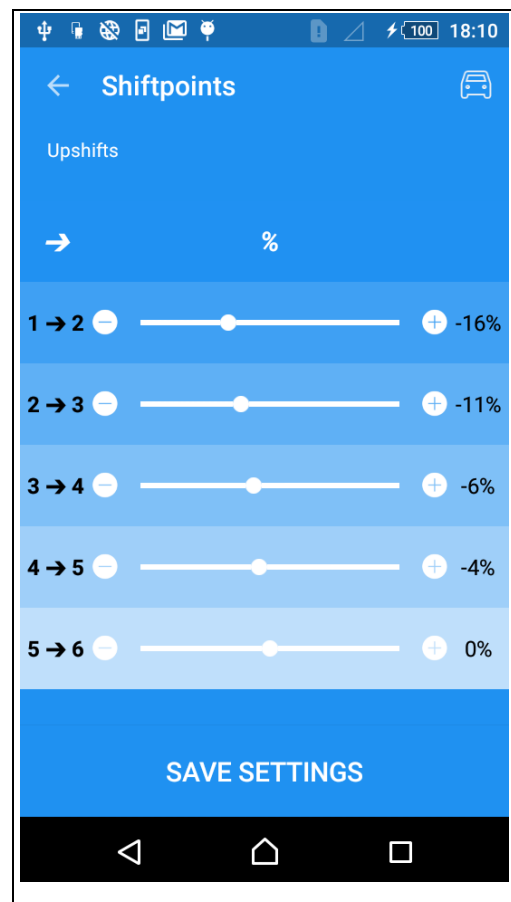
Gear Display: Enables users to customize the display of the current gear in the dash. Four settings are available: Default, Gear Display Off, Display Actual Gear, Display Target Gear. Default uses whatever is setup in the flashed Map. Off, turns the Display off. The Dash will show just the current mode, but not the current gear (except in manual). Display Actual Gear and Display Target Gear will show the current gear in all modes (D, S and M), but differ in terms of when the display switches to the next gear. “Display Actual Gear” will let the display switch, when the shift is fully processed, and the next gear already engaged by the trans. “Display Target Gear” will switch the display right at the beginning of the shift. Perception of drivers is different, in terms of what is the correct time for changing the gear-display in the dash.

Start in 2nd Gear at Standstill: Let’s you chose, whether the transmission shifts down to 1st or 2nd gear at standstill. (in M-Mode)

Throttle Blips: Throttle Blips are used to rev-match the engine on downshifts. This function lets you setup the aggressiveness of downshift blips in manual mode. The main goal of rev-

matching is to speed up downshifts by actively matching the Engine-RPM to the Target-RPM in the Target-Gear. This is done, by applying a short blip to the throttle during the transition phase between 2 gears. Users can alter the intensity of this blip, by +/-50%, compared to the setting in any of the OTS Maps or Custom Map used. Higher values will lead to more audible and faster blips but can get uncomfortable. Lower values will lead to a slower but smoother rev-match. Please note, that this function does not support all vehicles/maps. Generally supported are Stage 3 Maps and N54/N55 vehicles. On other vehicles/maps, these settings may not have any effect.

Shiftpoint Editor: The Shiftpoint – Editor enables you to change all shiftpoints in D and S mode to your personal likings. A Shift-Map consists of 10 lines, which are spread over throttle input. Five for upshifting (1-2-3-4-5-6) and five for downshifting. (6-5-4-3-2-1) Up- and downshifts can be independently configured. The setting made in the editor are always relative to the flashed map. You do not set exact shiftpoints, but rather are able to change the shifting of a given OTS or custom map! The spread is from +50% to -50% for each shift. For example, if your 5-6 shift on low loads normally occurs at 50 mph, but you want it not to happen before 55 mph, pull the 5->6 slider to + 10%. Same goes for the downshifts. If your trans normally downshifts on 40 mph from 6->5 during coasting, but you want that to happen at 50 mph, pull the slider for 6->5 up to +25%.



Be sure to make sensible changes. If you alter the 1-2 shift upwards, you should do the same gradually to the subsequent shifts, to get a “natural” shift-feel during driving. Rule of thumb is to make bigger changes on the lower gears, and smaller changes on the upper gears. However, you are free to experiment with these settings. xHP pre-calculates and validates all changes against every OTS Map stored on the device. A fixed rule-set gets applied to auto-correct "wrong" settings and prevent dead-locks. Such a dead-lock could happen if your 2-3 upshift-point would be set below the 3-2 downshift-point, or if an upshift would lead to a target RPM

below idle-speed of the engine. Below is an example how to turn the standard Stage-3 Map of a 335i in D-Mode into a very comfortably and low shifting Map:

UPSHIFTS:

- 1->2: - 20%
- 2->3: - 16%
- 3->4: - 12%
- 4->5: - 8%
- 5->6: - 4%

DOWNSHIFTS:

- 2->1: 0%
- 3->2: 0%
- 4->3: - 2%
- 5->4: - 2%
- 6->5: - 2%

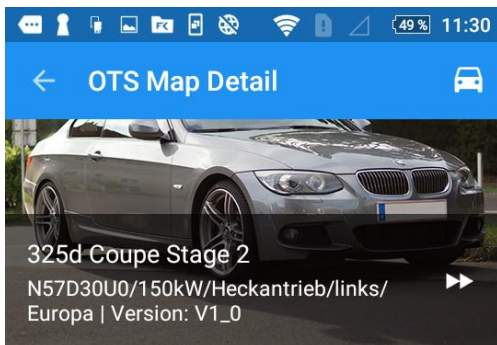
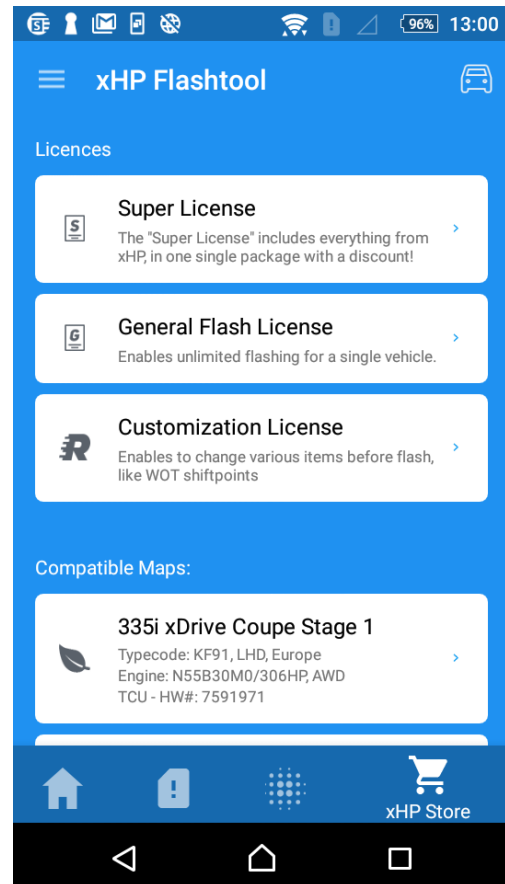
This setting will let the trans shift instant to 2nd gear after take-off in D-Mode and keeps revs steady below 2000 RPM on a 335i E90, during normal driving in traffic. This is just an example, but users are encouraged to experiment and find their own personal best shiftmap. The Shiftpoint Editor lets you change the character of a given map very much, by just pulling a few sliders.

Shift Speed in M-Mode: This panel lets you tune the Speed of each upshift in M-Mode! Positive values (slider to the right) mean SLOWER but more comfortable shifts. Negative values (slider to the left) mean SLOWER but smoother and therefore more comfortable shifts. For example, if you have the feeling that the 1-2 shift in M is too hard, pull the slider to the left, to make it smoother. You can experiment to find your optimal setting. There are no "dangerous" settings possible.

Lockout 6th Gear in S-Mode: Since launch of xHP this is an endless debate. Some users want the trans to engage 6th Gear on Highway Speeds when using S-Mode, others don't and complain about the exact same thing. Most BMW do not use 6th Gear in S-Mode. That's factory setup and is due to German Autobahn. Nothing more annoying than a transmission shifting back and forth between 5th and 6th Gear on steady 200km/h+ drives. On the other side, customers in other countries use S-Mode as Standard mode and complain about bad mileage on the highway. Our OTS Maps mostly use 6th Gear in S-Mode, as most of our customer base does not have the pleasure of unlimited motorways. To end this struggle, users can use this switch to lockout 6th Gear in S, despite most of our OTS Maps are configured different.

4.6. xHP Store

The store is structured in 3 parts: Licences, Suggested resp. Compatible Map and all Maps. You will find all currently available licenses, such as the “General Flash License” on top of the screen. Once more modules become available, you’ll find them here. If you have already saved a specific vehicle on your device, you will find all compatible/suggested maps right below. If you haven’t saved a vehicle and just want to see what’s available, scroll through the “All Maps” section. You can also use the “Search Maps” Button on top, to narrow down the list.



Description

The Sport Setup is made for people wanting the most from their transmission on street use.

The revised Torque Converter setup provides snap-on take-off feeling at every junction, the cut-shift times in D/S/M modes wash away the sluggish shift feeling, BMW has implemented in these transmissions.

The Sport Setup is also the Map of choice for people with tuned engines. The raised TQ Limiters allow up to 900 Nm of Torque.

Changelog

BUY FOR € 69,99

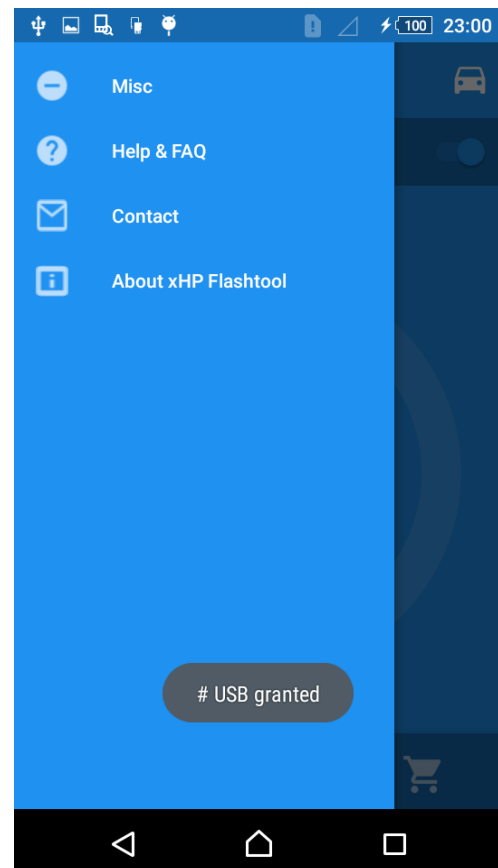
Map Detail Screen

Clicking a map brings you to the Map detail screen, where you will see a detailed description of the map, a feature list and the changelog of the OTS Map. You can directly buy the map from here. After the purchase through Google Play Store is completed, xHP will start to download the map onto your device. Additionally, you will get free updates of your bought map in the future. Once you enter the Shop, xHP will automatically download new versions, when they are available. By scrolling down, you can look into the changelog, which tells you what has been changed in different versions. xHP won't overwrite old versions. You get to choose which version you want to flash.

4.7. Sidebar Menu

You can always access the Sidebar by clicking on the Menu button in the upper left corner of xHP. The Sidebar covers 4 sections:

- Miscellaneous functions
- Help & FAQ
- Contact
- About xHP Flashtool



4.7.1 Miscellaneous functions

If you ever run into problems with xHP, you can restore your TCU to running state, or uninstall xHP with the functions covered in this area.

- **Recode TCU:** On rare occasions, it may happen, that your TCU coding is not fully restored after a flash write. Most likely you will notice your paddles on the steering wheel are not working and/or you will see a “Missing Coding” Error stored. In this case, just hit this button and recode your TCU manually.
- **Emergency Flash:** If xHP cannot connect anymore to your TCU after a flash error, you can reflash it to stock with the Emergency Flash. This will write the Program & Calibration section of your TCU, so you have to re-install xHP afterwards. Please obey Chapter 3, especially if you had flash errors.
- **Reset TCU:** If your car has fallen into Limp Mode (most likely due to a bad custom file), sometimes you cannot restore your TCU to operation just through deleting fault codes. If this happens, reset your TCU first, and then clean your fault codes. You should now be able to continue your travel.
- **Flash Stock File:** Let's you quickly return your calibration file to stock. xHP will remain installed on the car.

- **Uninstall:** xHP will be deleted from your car. The procedure takes approx. 30 minutes. Pay attention to Chapter 3 in this manual, before proceeding! Since you're license and OTS maps purchases are saved through Google Play Store, you can re-install xHP later if you wish.
- **Flash Safety Checks:** This turns off the safety checks, carried out before each flash. xHP checks your auxiliaries, the gear lever position, your Ignition state and your Engine State prior flash. However, on some modded cars (e.g. non-OEM headlights), these checks fail and need to be omitted. If you turn off the Safety Checks you are fully responsible for putting your car in the correct state before starting a flash! Please read Chapter 3 carefully!

5. FAQ

Q: Can I test xHP before buying anything?

A: Yes. The download of xHP is completely free. You can do a full read out of your TCU and read/delete fault codes without any license.

Q: May I return to stock at any time with xHP?

A: xHP creates a full backup, before attempting any flash procedure. You can flash back your original file at any time.

Q: Do I have to connect my Android device with xHP to my car all the time?

A: No. You only need to connect, when you're flashing, or reading data from your vehicle. During normal driving, you don't have to have a live connection, or even carry the device with you. But we do recommend to always carry your device with you, when you've installed a custom tune. If your transmission hops into Limp Mode, you will be able to restore your car to stock at any time with xHP and continue your travel.

Q: How do I check if my vehicle is supported?

A: The best way is to download the xHP app and connect it to your vehicle. xHP will tell you instant if your vehicle is supported. Alternatively, you can head to www.xhpflashtool.com and check our vehicle list. We do our best to keep this list as correct and up-to-date as possible. However, BMW changed TCUs regularly during the production lifecycle and there may be cases where your vehicle is on the list but still not supported. These cases are rare, but cannot be avoided 100%. If you are unsure, contact us through e-mail or on Facebook.

Q: My vehicle is supported, but I don't find any OTS maps in the store?

A: xHP only shows you maps in the store which fit your vehicle. There are 2 levels of support: OTS and Custom. OTS means we have pre-defined maps for your vehicle in the store. Custom means, that we haven't setup maps for your vehicle yet, but you can still build your own custom map and flash it. If you want us to add your vehicle, please head to the Contact chapter and write us an E-Mail.

Q: I have an Android device with xHP installed, a known good OBD/DCAN cable but I can't connect to my car?

A: Please make sure you are using an Android device with "USB OTG" functionality. Albeit most Android devices support the OTG protocol, some models come with this feature disabled. Please see Chapter 2.3 for further information. Second, please read Chapter 3 carefully. Your Ignition must be switched ON. (Key inserted and Start Button pressed once)

Q: I get frequent "Transmission disturbed" errors during reading/flashing my TCU?

A: In most cases a bad "OBD/DCAN" cable is the reason for unstable connections. Even some of the "expensive" cables sometimes sport bad soldering's or other issues. Most of the time, these cables are good enough for logging data or retrieving fault codes, but won't succeed in time critical, heavy-use operations like flashing your TCU. Consider trying another cable. It is unlikely that this issue is related to your phone or OTG Adapter. If you are using piggy-back units (e.g. JB4) please remove them completely from your vehicle before attempting a flash with xHP.

Q: How about reliability, will I shorten the life of my transmission using xHP?

A: None of the setups will have any general detrimental effect on the lifetime of transmission components. Not on the TCU, nor on the shafts or clutches. Keep in mind, that automatic transmissions are highly complicated units, with a few hundred components inside. Some of these components are designed to wear out (like clutches) through making use of them. Your driving style and proper maintenance have the biggest impact on the life-time of transmission components. Obey these simple rules:

- ✓ Let your transmission warmup on each drive before applying heavy throttle. You will notice some amount of slip in the warmup phase, which is intentionally to heat up the oil inside. Basic Rule: Your transmission needs about the same time to heat up as your engine oil.
- ✓ Don't "pump-up" your vehicle on standing starts with brake/throttle applied at the same time.
- ✓ Flush/change your transmission oil regularly. (approx. every 50k – 75k miles) BMW does not want you to do it, but ZF wants you. Trust ZF, who have built this transmission.
- ✓ S and M modes are designed to facilitate sporty and fun driving. Shift times are cut and clutches get applied more aggressive. Use these modes when necessary and not as standard. The TCU records the amount of time you spend in each mode. BMW uses this data to judge on warranty cases.

Q: I just flashed my transmission, but the shifts are bad.

A: Your transmission may behave weird, right after flash, e.g. starting in 3rd gear. This issue should clear within a few hundred meters of driving. The transmission has extensive adaption-algorithms, to keep shift quality in check over a full life time and even with heavily worn out clutches. The adaptations applied, are very sensitive to abrupt changes, as they operate in a narrow window. Therefore, shift quality can suffer in the first few hundred miles, after doing an oil-change, replacing transmission hardware, or changing the TCU software, like with xHP. Don't overstress your transmission during this adaption phase. The best way to adapt your transmission, is just normal driving in D mode with lots of varying speeds and shifts. We DO NOT advise anybody to clear the adaption values to speed up the process. Depending on the current wear state of your transmission, this can lead to unwanted and permanent bad results.

Q: I'm using MHD. What Map version should I flash?

A: For MHD N54 use the xHP transmission setting, for MHD N55 use the "Manual" setting.

Q: I have a custom Tune, respectively tune my ECU by myself. Anything to watch?

A: A lot of the maps in the TCU use the PPS (Pedal Position Sensor) as primary input. For example, the Shiftpoint –Maps and the TCC (Torque Converter Clutch) Maps. Therefore, it is recommended, to use the stock throttle mapping. This gives you greater control over the transmission's reactions. Having too much TQ on very low throttle will lead to an undesirable shifting behavior. This is not special to xHP. The same applies to the stock transmission software. As general advice: Do not use altered throttle maps in AT cars.

Q: I already have a Flash - Tune (COBB, custom Tune etc.) on my ECU (Engine). Do I need to uninstall it before using xHP?

A: No. xHP has no direct effect on your existing Engine tune.

Q: I'm running JB4, can I use xHP with it?

A: Yes, xHP will work on JB4 equipped cars, but you have to remove it before flash and install again. On our test cars setting JB4 to Map 0 was not enough, as JB4 was still disturbing communication to the TCU. This possibly depends on the JB4 revision you are using.

Q: Will xHP void my OEM or dealer warranty?

A: xHP changes the calibration file on your TCU. Like every other tune on your vehicle, this will very likely void your OEM or dealer warranty, depending on your Country and/or guarantee contract. However, dealer testers are unable to detect xHP. You don't need to remove xHP, before visiting a dealer.

Q: Am I allowed to change between different OTS and custom tunes?

A: You can switch between tunes as often as you like and you are allowed to buy multiple OTS tunes and manage them on the same device.

Q: Is it possible to use xHP on more than one car at the same time?

A: Yes. You can flash 3 cars with one device. However, each vehicle still needs it's own license and maps.

Q: I lost/changed my Android device. How do I make xHP work again?

A: From App Version V2.0.3 on xHP saves all your data on our server, tied to your user account. When using a new device, be sure to select the same user account on first startup. If you selected the wrong one, re-install xHP, so it prompts you again. xHP will download your backups, saved cars and purchases afterwards.

Q: What happens to my tunes, if I switch to another vehicle?

A: If you're having a vehicle of the exact same type (Vehicle Typecode + Transmission hardware#) you can re-use the OTS tunes.

Q: I installed the Stage 3 Map on my vehicle, but it's still not shifting as quick as seen in some Youtube Videos!

A: You very likely refer to videos with a 5-Series car with Sport Automatic Option. BMW uses the same transmission on these cars, but they trick human perception by changing the behavior of the rev-counter. Dampening is removed and the needle jumps instantly to the target value, before the shift of the transmission is even completed. The shift itself is in fact slower compared to xHP Stage 3 Maps. This "Sport Option" is a handshake between the ECU and the TCU controller. xHP activates the sport mode in the TCU on all vehicles, but it depends on your ECU, if it has this mode built in from factory. For example, 335i N54 cars do not have it, whereas 135i and 335i N55 sport it. Diesel 3-Series do not have this mode at all.

Q: Will my car be still updateable by the dealer?

A: Before doing a software update at the dealer, you MUST uninstall xHP. If the xHP configuration gets overwritten through a dealer update, the App will have no way, to check for proper installation and will therefore refuse to flash the car again. Generally speaking, xHP will always flash the newest available calibration on to your TCU, so there's no need to update it at the dealer.

Q: xHP refuses to connect to my car, although it is supported!

A: The common issue is, that your Smartphone is not OTG compatible. Please see the appropriate section in this Manual. Secondly, some Android versions sport bad OTG handling and xHP does not get granted access to the USB/OTG port. Please make sure, that the OTG access dialogue has popped up and you answered with "Yes". If you still can't connect, you may want to try upgrading your Smartphone. Android versions from 5.0.1 and up are more stable in connection handling.

Q: I can't download xHP from the Google Play Store. It says: "Incompatible device".

A: If your device does not support OTG, Google Play won't let you download xHP. Most older Android devices are OTG compatible, so you probably want to get a cheap, old device on Ebay etc. for use with xHP. xHP requires Android 4.3.x as a minimum to run.

Q: I can't purchase a License or Maps. I get a "Payment declined" or similar message.

A: The payment processing is carried out fully by Google. The App itself does not see any payment data from your side, nor do we know the reason, why Google declined the purchase. Please look at this page, how to clear payment errors with Google: [Google Support Page](#) If you continue to run into payment problems, you may want to consider buying Pre-Paid Google gift cards and add them to your account. They always work, regardless of your payment status with Google or your credit card company. As last resort, you can contact us under office@rbttuning.com for a solution.

Q: I need help. Something went wrong during flash!

A: Please follow everything from Chapter 3 precisely and then try again. If it still does not work, the most common issue is a bad OBD cable and/or OTG Adapter. If you are unsure, please zip all your files from the "xHP Flashtool" folder on your phone/tablet and send it to office@rbttuning.com. This way we can see exactly what happened before the problem occurred and can help you as fast as possible.

Q: I'm getting an error, when attempting to flash a map. (Object reference....)

A: This can happen in some cases, when the Map Download did not complete properly. Please go to the Misc Menu and press "Re-Download OTS Maps". Be sure to have proper internet connection when doing this. Map downloads can take up to 2 minutes.

Q: xHP argues about "Missing Base File" when attempting a flash.

A: Please go to the "Car Information Screen" and click "Re-Check Vehicle". This will download the base file.

Q: I'm having "Dynamic Drive" Errors after the flash and can't clear them.

A: The BMW Dynamic Drive system is pretty picky, when there is no CAN Bus communication for some time. On every flash, the CAN Bus has to be shut down for all other units in the car, so you can use the whole bandwidth for the flash operation and maintain a stable flash. After all returning to normal, the BMW dynamic drive has to

recalibrate and re-align the position on all 4 wheels. During this procedure the system is inactive and will throw all kind of fault messages. Those errors can't be cleared manually, you just have to wait for the system, to settle in again, which can take some miles/time. (up to 1 hour of driving, dependent on road surface) If you want to speed that up and have the knowledge, you may also relearn the units through the known BMW Tools.

Q: I'm getting a "ECU CONDITIONS NOT CORRECT..." error when starting a flash. (5/6-Series Pre-LCI)

A: This means your TCU is refusing to enter programming mode, because certain pre-conditions are not met. This usually can be solved by letting the car go to sleep for 20 minutes, while on a battery charger.

Q: I flashed an xHP Map on my Pre-LCI 5 or 6 Series car, but I don't see the Gear-Display in D-Mode?

A: Most of the 5 and 6-Series cars (before Facelift) were equipped with a faulty dash software, which is unable to display a gear number in S-Mode. When S-Mode is engaged, most of these cars display a red gearbox-error sign in the dash. Therefore, the Gear-Display is not active in the xHP Maps for those cars. You can try to activate it by yourself through xHP's Customization Module, but we can't guarantee it will work. Unfortunately, there is no way of checking upfront, if a certain car is affected by that or not.

6. Credits

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7. Disclaimer

xHP Flashtool is a racing product for use in competition driving, on closed Race circuits only!

The End-User is responsible for obeying local laws!

Introduction

The use of xHP Flashtool (later referred to as “the application”) is governed by the policies, terms and conditions of use as set forth under the Terms of Use. Please read them carefully, as your use of the application, including the submittal of any personal information, indicates your acceptance of these Terms. RBT TUNING GMBH reserves the right to make changes to the application and these Terms at any time.

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- ✓ To allow us to better service you in responding to your customer service requests.
- ✓ To quickly process your transactions.
- ✓ To ask for ratings and reviews of services or products
- ✓ To track our marketing actions through use of tools provided by Google LLC and Facebook Ireland Ltd.

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Law

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Remedies

Given the nature of these Terms, you understand and agree that, in addition to money damages, RBT TUNING GMBH will be entitled to equitable relief upon a breach of them by you.

Waiver

No waiver by RBT TUNING GMBH shall be construed as a waiver of any proceeding or succeeding breach of any provision.

Survival of Provisions

Each provision of the Terms shall be construed as separately applying and surviving, even if for any reason one or other of those provisions is held to be inapplicable or unenforceable in any circumstances. These Terms shall be severable and construed to the extent of their enforceability in light of the parties' mutual intent if deemed at all unenforceable by the competent court.

Entire Agreement

These Terms shall supersede any subsequent terms or conditions included within the application. We intend that these Terms constitute the entire agreement between RBT TUNING GMBH and you. Any changes to these Terms between RBT TUNING GMBH and you must be in writing and signed by both parties.