



### Key Benefits

- All the Motorola HCS12 & HC12 parts are supported: The MC9S12 A, B, C, D, E, H, K and T families, and the HC12 (old generation) A, B, and D families. Call Nohau concerning unannounced HCS12 parts.
- Emulator operates to the maximum controller clock rate.
- SeeHau User Interface included; Windows 95 to XP
- High Level Language (HLL) support for C compilers
- Run-Time Data for real-time viewing via the BDM.
- Connects to the PC using USB or LPT
- Controls the HCS12 and HC12 target using the built-in BDM interface and the standard 6-pin BERG connector.
- May control MODA and MODB using flying leads
- Operates with 3V – 5.5V targets. BDM pod is powered separately to draw only 1mA from the target VDDX.
- Built-in HC/HCS12 Flash and EEPROM programming
- Easy upgrade path to full Nohau emulators – uses the same SeeHau interface as the full emulator

### Product Overview

Nohau offers a BDM (Background Debug Mode) emulator in addition to its full emulators for the Motorola HCS12 and HC12 families. EMUL12-PC/BDM offers economical debugging for all HCS12 and HC12 microcontrollers. SeeHau is the Windows user interface from Nohau, and is included with the BDM hardware. SeeHau is powerful, with advanced debugging features, but still very intuitive and easy to use. The same SeeHau software is used for both the BDM and the full emulator. Free SeeHau updates are available to download on the web.

### Run-Time Data Window

The Run-Time Data Window allows SFR and memory reads in real-time from the HCS12 or HC12 (as it is running), to be displayed in SeeHau. The data can be displayed in many numerical and graphical formats. Allows writing data to SFRs and memory in parallel with code execution.

### In-line Compiling and Assembling

SeeHau allows in-line compilation. Modify your C or assembly code in the appropriate window and SeeHau uses its powerful macro language to recompile, reload and rerun all in one step. SeeHau can perform many more sophisticated operations with its Visual-Basic macro system. A macro recorder and editor allows easy macro creation and editing. Automatic production programming and testing is easy to create using the macros.

### What's the Difference Between a BDM and a Full Emulator?

A BDM emulator does not have trace memory, triggers or emulation memory. A full emulator includes an unlimited number of hardware breakpoints, and extensive debug support for Resets, Power-Downs, Limp-Home and frequent speed changes, versus two or three hardware breakpoints and more limited special mode debugging on the BDM. BDM emulators are often used in conjunction with full emulators for large projects. The BDM can program FLASH and EEPROM into the HCS12 or HC12 controller on the target system.

### What Can You Do With a BDM ?

You can load a program and single-step, or run the target processor. Source code is available for HLL debugging. Other options include setting breakpoints, viewing memory in real-time, and programming FLASH and EEPROM with the built-in programmer. Variables, arrays and structures can be easily viewed in a variety of formats and in the Inspect/Watch window. The Nohau BDM emulator is more robust than monitors and simpler BDMs on the market, but has less features than a full emulator. For more debugging power, consider an upgrade to a full emulator system. Nohau emulators are made in the USA and are supported with a worldwide network of representatives. See our website for more information or call us for the name of your local Nohau representative.