

## BeeHive404 (ord.no. 60-0064)

Extremely fast universal 4x 48-pin drive **concurrent production programmer (multiprogramming system)**.



### Short description:

- **140402 supported devices** from **482** by [manufacturers](#) version of SW (4.13)
- four independent **universal programming sites** ([BeeProg4](#) based) in one unit
- **Programming speed 5MB/s for capable devices (4/2026) with outlook to be increased considerable**
- 48-pins **powerful** pindriver for programming ancient, past, present and future devices
- **in-circuit programming** capability through ISP connector
- **ESD protection** on each pin of the sockets
- **USB** (up to 480 Mbit/s) interface to PC
- comfortable and easy to use control program, works with all versions of MS Windows from **Windows 10 to Windows 11** (32-bit and 64-bit) running at x86/x64 compatible PC
- unique quick reaction to customer's needs - **software update** can be ready **within a day** from request, by [OnDemand software](#)
- [made in Slovakia](#)
- [warranty - 3 years](#)
- approved by CE laboratory to meet [CE](#) requirements



### Optional accessories:

- [Programming Adapters \(Socket Converters\)](#)
- [Accessories: Calibration test pod, Vacuum pen, ...](#)

## Features

### GENERAL

- **BeeHive404** programmer is 100% replacement of [BeeHive204](#) programmer with improved hardware - better pindriver for low-voltage devices, higher programming speed and even more powerful programming core (FPGA) inside.
- **BeeHive404** is extremely fast universal 4x 48-pin drive **concurrent multiprogramming system** designed for high volume production programming with minimal operator effort. The chips are programmed at near theoretical maximum programming speed.
- **BeeHive404** consists of four independent isolated **universal programming sites**, based on the [BeeProg4](#) programmer hardware. Therefore the programming sites can run asynchronously (**concurrent multiprogramming programming mode**). Each programming site starts programming at the moment the chip is detected to be inserted in the socket properly - independently on the status of other programming sites. It results, three programming sites work, while you replace the programmed chip at the fourth.
- Modular construction of hardware - the programming sites work independently - allows for continuing operation when a part of the circuit becomes inoperable. It also makes service quick and easy.
- **Hands-free operation:** asynchronous and concurrent operation allows a chip to begin programming immediately upon insertion of a chip. The operator merely removes the finished chip and inserts a new chip. Operator training is therefore minimized.
- Supports **all kinds** of types and silicon technologies of today and tomorrow **programmable devices** without family-specific module. You can be sure the next devices support require the software update and (if necessary) simple package convertor (programming adapter), therefore **the ownership cost are minimized**.
- Using built-in in-circuit serial programming (**ISP**) connector, the programmer is able to program ISP capable chips in circuit.
- Provides very competitive price coupled with excellent hardware design for reliable programming. Probably **best "value for money"** programmer in this class.
- **Very fast programming** due to high-speed FPGA driven hardware and execution of time-critical routines inside of the programmer. As a result, when used in manually-operated production, this one-socket-programmer in most cases waits for an operator.
- BeeHive404 interfaces with any IBM PC compatible personal computers, running MS Windows OS, through **USB (2.0 HighSpeed)** port.
- Banana jack for ESD wrist straps connection to easy-to-implement the ESD protection control.

### HARDWARE (valid for each programming site)

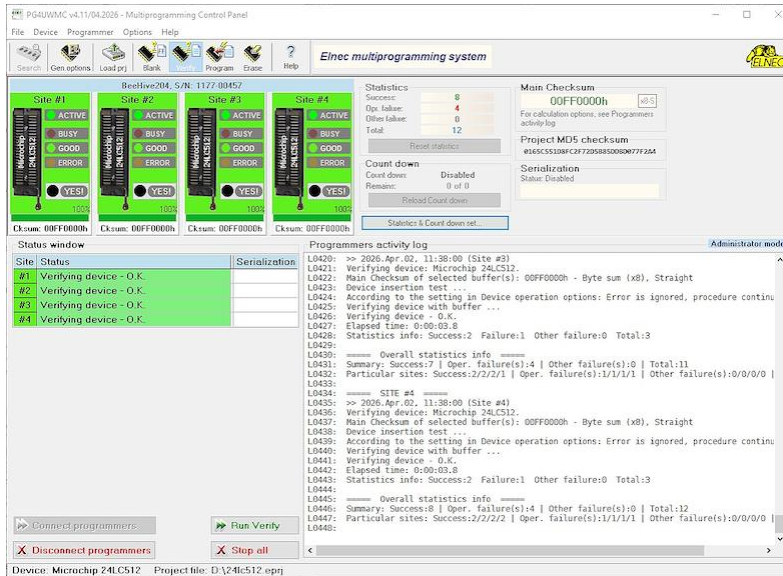
- **FPGA based** totally reconfigurable **48 powerful TTL pindrivers** provide H/L/pull\_up/pull\_down and read capability for each pin of socket. Advanced pindrivers

incorporate **high-quality high-speed** circuitry to deliver signals without overshoot or ground bounce for all supported devices. Improved pin drivers operate down to **1.8V** and **provide capability for analog voltage measurement on each pin independently**.

- The programmer performs device **insertion test** based on the check of proper signal path between the programmer and programmed device before it programs each device. In dependence on programming configuration it identifies missed or poor contact between programmed device and the ZIF socket of the programming adapter (or the programmer directly), missed or poor contact between the programming adapter and the programmer and it's also able to indicate wrong position of device in the ZIF socket of the programmer / the programming adapter (moved, rotated, backward oriented). These capabilities, supported by **overcurrent protection** and **signature-byte check** help prevent chip damage due to operator error.
- The selftest capability allow to run diagnostic part of software to thoroughly check the health of the programmer.
- Built-in **protection circuits** eliminate damage of programmer and/or programmed device due to environment or operator failure. All the inputs of the BeeProg4 programmer, including the ZIF socket, connection to PC and power supply input, are **protected against ESD** up to 15kV.
- When programming specification require, the (BeeProg4) programmer performs programming **verification** at the **marginal level** of supply voltage, which, obviously, improves programming yield, and guarantees long data retention.
- Various **programming adapters** are available to handle device in PLCC, JLCC, SOIC, SDIP, SOP, PSOP, SSOP, TSOP, TSOPII, TSSOP, QFP, PQFP, TQFP, VQFP, QFN (MLF), SON, BGA, EBGA, FBGA, VFBGA, UBGA, FTBGA, LAP, CSP, SCSP, LQFP, MQFP, HVQFN, QLP, QIP and other packages.

#### **SOFTWARE (production mode control - using PG4UWMC software)**

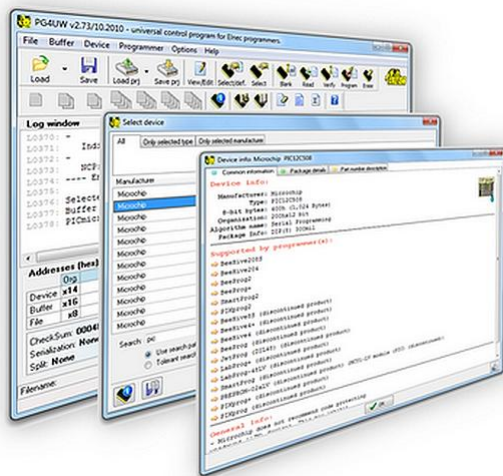
- This part of the software is focused to the easy monitoring of high-volume production operations.
- Operator-friendly control software combines many powerful functions with ease of use. Graphic user interface provide overview of all important activities result without burden of operator with non-important details.



- There is used a **project file** to control the BeeHive404 multiprogramming system. Project file contains user data, chip programming setup information, chip configuration data, auto programming command sequence, etc. Therefore the **operator error is minimized**, because the project file is normally created and proofed by engineering and then given to the operator. The optional **protected mode** can be set for project file to avoid a unwanted changes of the project file.
- Each chip may be programmed with different data such as **serial number, configuration and calibration information**.

### SOFTWARE (programming modules driver, engineering mode control - using PG4UW software)

- After successful verification of programmed device, all data/settings for the project have to be saved into the project file for future usage and in case of multiprogrammer as datafile for the production mode control software.
- To keep restricted availability of data/settings in project file, project file usage can be prohibited by password protection.
- As a prevention of operator mistake (or "mistake"), it can be set "protected mode" in project file, which disallow to use other operation with programmed device than set by creator of the project file - and it also disable to view data/settings of this project file.
- Advanced project file integrity check discover whatever data change in project file, due to media failure or tampering with the project file.
- Each programming site is driven by an **easy-to-use** control program with pull-down menu, hot keys and on-line help. Selecting of device is performed by its class, by manufacturer or simply by typing a fragment of vendor name and/or part number. It is the same years-proven software, as is used for all other Elnec single-site programmers.



- **Standard** device-related commands (read, blank check, program, verify, erase) are boosted by some **test functions** (insertion test, connection check, signature-byte check), and some **special functions** (autoincrement, production mode - start immediately after insertion of chip into socket).
- All known data formats are supported. Automatic file format detection and conversion during loading of file. There is possible to use **Jam files** (JEDEC standard JESD-71) and **VME files**
- The rich-featured **auto-increment function** enables one to assign individual serial numbers to each programmed device - or simply increments a serial number, or the function enables one to read serial numbers or any programmed device identification signatures from a file.
- The software also provide a many information about programmed device. As a special, the **drawings of all available packages** are provided. The software provide also **explanation of chip labelling** (the meaning of prefixes and suffixes at the chips) for each supported chip.