User's Manual for

BeeHive4
Fast universal 4x 48-pindrive concurrent multiprogramming system

ELNEC s.r.o.
Presov, Slovakia
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*Please, download actual version of manual from ELNEC WEB site (*www.elnec.com*), if current one will be out of date.*

Conventions used in the manual

References to the control program functions are in bold, e.g. **Load**, **File**, **Device**, etc. References to control keys are written in brackets **<>**, e.g. **<F1>.**

Terminology used in the manual:

Device	any kind of programmable integrated circuits or programmable devices
ZIF socket	Zero Insertion Force socket used for insertion of target device
Buffer	part of memory or disk, used for temporary data storage
USB port	type of port of PC.
HEX data format	format of data file, which may be read with standard text viewers; e.g. byte 5AH is stored as characters '5' and 'A', which mean bytes 35H and 41H. One line of this HEX file (one record) contains start address and data bytes. All records are secured with checksum.

Introduction

BeeHive4 is fast universal 4x 48-pindrive **concurrent multiprogramming system** designed for high volume production programming with minimal operator effort. The chips are programmed at near theoretical maximum programming speed.

BeeHive4 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 converter (programming adapter), therefore the ownership cost are minimized.

BeeHive4 provides very competitive price coupled with excellent hardware design for reliable programming. It has probably best "value for money" programmer in this class.

BeeHive4 consists of four independent isolated universal programming modules, based on the BeeProg programmer hardware. Therefore the sockets can run asynchronously (concurrent programming mode). Each programming module starts programming as soon as the new chip is correctly inserted to the ZIF of programming module. It result three programming modules works while you replace the programmed chip at the fourth. The operator merely removes the finished chip and inserts a new chip. Operator training is therefore minimized.

Modular construction of hardware - the programming modules works independently - allows for continuing operation when a part of the circuit becomes inoperable. It also makes service quick and easy.

BeeHive4 interfaces with the IBM PC/compatible, portable or desktop personal computers through USB (2.0) port.

BeeHive4 provides very fast programming due to high-speed FPGA driven hardware and execution of time-critical routines inside of the programmer. 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. Pin drivers operate down to 1.8V so you'll be ready to program the full range of today's advanced low-voltage devices.

BeeHive4 performs on each programming module device insertion test (wrong or backward position) and contact check (poor contact pin-to-socket) before it programs each device. These capabilities, supported by overcurrent protection and signature-byte check help prevent chip damage due to operator error.

BeeHive4 has a built-in protection circuits for eliminate damage of programmer and/or programmed device due to environment or operator failure. All ZIF socket pins of BeeHive4 programmer are protected against ESD up to 15kV.

BeeHive4 has the selftest capability, which allows run diagnostic part of software to thoroughly check the health of the each programming module.

BeeHive4 performs programming verification at the marginal level of supply voltage, which, obviously, improves programming yield, and guarantees long data retention.

BeeHive4 provides a banana jack for ESD wrist straps connection to easy-to-implement the ESD protection control.

Various **socket converters** are available to handle device in PLCC, SOIC, PSOP, SSOP, TSOP, TSSOP, TQFP, QFN (MLF), SDIP, BGA and other packages.

It is important to remember that in most cases new devices require **only a software update** due to the BeeHive4 is truly universal programmer. With our prompt service you can have new devices can be added to the current list within hours! See AlgOR (Algorithm On Request) service for details at **www.elnec.com**.

Advanced design including protection circuits, original brand components and careful manufacturing allows us to provide a **three-year warranty** on parts and labour for the BeeHive4 (limited 25,000-cycle warranty on ZIF sockets). This warranty terms are valid for customers, who purchase a programmer directly from Elnec company. The warranty conditions of Elnec sellers may differ depending on the target country law system or Elnec seller's warranty policy.

Free additional services:
- free lifetime software update via Web site.

> **Free software updates** are available from our
> Internet address **www.elnec.com.**

- Online technical support is available within promised 24 hours time limit or you may call us during business hours from Monday through Friday 8:30 to 17:30 (CET).
- **Keep-Current** is a service by which ELNEC ships to you the latest version of the control program for programmer and the updated user documentation. A Keep-Current service is your hassle-free guarantee that you always have access to the latest software and documentation, at minimal cost.
- **AlgOR** (Algorithm On Request) service allows you to receive from ELNEC software support for programming devices not yet available in the current device list.

BeeHive4 elements

① 48 pin ZIF socket
② LED indicators for work result
③ LED indicator power
④ Banana jack for connecting ESD wrist strap

⑤ Type B USB connector for PC ↔ BeeHive4 communication cable
⑥ Power switch
⑦ Power supply connector

# Manipulation with the programmed device

After selection of desired device for your work, you can insert into the open ZIF socket (the lever is up) and close socket (the lever is down). The correct orientation of the programmed device in ZIF socket is shown on the picture near ZIF socket on the

programmer's cover. The programmed device is necessary to insert into the socket also to remove from the socket when LED BUSY is off.

Note: *Programmer's protection electronics protect the target device and the programmer itself against either short or long-term power failures and, partly, also against a PC failure. However, it is not possible to grant the integrity of the target device due to incorrect, user-selected programming parameters. Target device may be not destroyed by forced interruption of the control program (reset or switch-off PC), by removing the physical connection to the programmer, but the content of actually programmed cell may remains undefined. Don't unplug the target device from the ZIF socket during work with device (LED BUSY shine).*

Selftest and calibration

If you feel that your programmer does not react according to your expectation, please run the programmer selftest using Diagnostic POD, enclosed with the standard delivery package. For optimal results with programmer we also recommend you to perform extended test by the calibration test procedure every 6 months at least. See instructions for selftest in the **Programmer** menu.
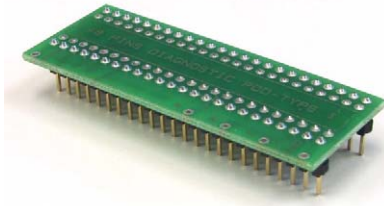
Technical specification

SPECIFICATION (valid for each programming module)

HARDWARE

Base unit, DACs

- USB 2.0 port
- on-board intelligence: powerful microprocessor and FPGA based state machine
- three D/A converters for VCCP, VPP1, and VPP2, controllable rise and fall time
- VCCP range 0..8V/1A
- VPP1, VPP2 range 0..26V/1A
- autocalibration
- selftest capability
- protection against surge and ESD on power supply input, parallel port connection

Socket, pindriver

- 48-pin DIL ZIF (Zero Insertion Force) socket accepts both 300/600 mil devices up to 48-pin
- pindrivers: 48 universal
- VCCP / VPP1 / VPP2 can be connected to each pin
- perfect ground for each pin
- FPGA based TTL driver provides H, L, CLK, pull-up, pull-down on all pindriver pins
- analog pindriver output level selectable from 1.8 V up to 26V
- current limitation, overcurrent shutdown, power failure shutdown
- ESD protection on each pin of socket (IEC1000-4-2: 15kV air, 8kV contact)
- continuity test: each pin is tested before every programming operation

DEVICE SUPPORT (valid for each programming module)

Programmer

- EPROM: NMOS/CMOS, 2708, 27xxx and 27Cxxx series, with 8/16 bit data width, full support for LV series
- EEPROM: NMOS/CMOS, 28xxx, 28Cxxx, 27EExxx series, with 8/16 bit data width
- Flash EPROM: 28Fxxx, 29Cxxx, 29Fxxx, 29BVxxx, 29LVxxx, 29Wxxx, 49Fxxx series, from 256Kbit to 32Mbit, with 8/16 bit data width, full support for LV series
- Serial E(E)PROM: 24Cxxx, 24Fxxx, 25Cxxx, 45Dxxx, 59Cxxx, 25Fxxx, 25Pxxx, 85xxx, 93Cxxx, NVM3060, MDAxxx series, full support for LV series
- Configuration (EE)PROM: XCFxxx, XC17xxxx, XC18Vxxx, EPCxxx, AT17xxx, 37LVxx
- 1-Wire E(E)PROM: DS1xxx, DS2xxx
- PROM: AMD, Harris, National, Philips/Signetics, Tesla, TI
- NV RAM: Dallas DSxxx, SGS/Inmos MKxxx, SIMTEK STKxxx, XICOR 2xxx, ZMD U63x series
- PLD: Altera: MAX 3000A, MAX 7000A, MAX 7000B, MAX 7000S, MAX7000AE
- PLD: Lattice: ispGAL22V10x, ispLSI1xxx, ispLSI1xxxEA, ispLSI2xxx, ispLSI2xxxA, ispLSI2xxxE, ispLSI2xxxV, ispLSI2xxxVE, ispLSI2xxxVL, LC4xxxB/C/V/ZC, M4-xx/xx, M4A3-xx/xx, M4A5-xx/xx, M4LV-xx/xx
- PLD: Xilinx: XC9500, XC9500XL, XC9500XV, CoolRunner XPLA3, CoolRunner-II
- other PLD: SPLD/CPLD series: AMI, Atmel, AMD-Vantis, Gould, Cypress, ICT, Lattice, NS, Philips, STM, VLSI, TI
- Microcontrollers 48 series: 87x41, 87x42, 87x48, 87x49, 87x50 series
- Microcontrollers 51 series: 87xx, 87Cxxx, 87LVxx, 89Cxxx, 89Sxxx, 89LVxxx, all manufacturers, Philips LPC series
- Microcontrollers Intel 196 series: 87C196 KB/KC/KD/KT/KR/...
- Microcontrollers Atmel AVR: AT90Sxxxx, ATtiny, ATmega series
- Microcontrollers Cypress: CY8Cxxxxx
- Microcontrollers ELAN: EM78Pxxx
- Microcontrollers MDT 1xxx and 2xxx series
- Microcontrollers Microchip PICmicro: PIC10xxx, PIC12xxx, PIC16xxx, PIC17Cxxx, PIC18xxx, dsPIC series
- Microcontrollers Motorola (Freescale): 68HC05, 68HC08, 68HC11 series
- Microcontrollers Myson MTV2xx, 3xx, 4xx and 5xx series
- Microcontrollers National: COP8xxx series
- Microcontrollers NEC: uPD78xxx series

- Microcontrollers Scenix (Ubicom): SXxxx series
- Microcontrollers SGS-Thomson: ST6xx, ST7xx, ST10xx series
- Microcontrollers TI: MSP430 and MSC121x series
- Microcontrollers ZILOG: Z86/Z89xxx and Z8xxx series
- Microcontrollers other: EM Microelectronic, Fujitsu, Goal Semiconductor, Hitachi, Holtek, Princeton, Macronix, Winbond, Infineon(Siemens), NEC, Samsung, Toshiba, ...

Notes:
- *For all supported devices see actual **Device list** on **www.elnec.com***

Package support

- support all devices in DIP with default socket
- package support includes DIP, SDIP, PLCC, JLCC, SOIC, SOP, PSOP, SSOP, TSOP, TSOPII, TSSOP, QFP, PQFP, TQFP, VQFP, QFN (MLF), SON, BGA, EBGA, FBGA, VFBGA, UBGA, CSP, SCSP etc.
- support devices in non-DIP packages up to 48 pins with universal adapters
- programmer is compatible with third-party adapters for non-DIP support

Programming speed

Notes:
- *It is important to know, we always use random numbers pattern for programming speed testing. Some our competitors use "sparse" pattern, where only few non-Blank data are programmed or are there are used data with only few 0 bits (FE, EF, etc.). This cheating approach can "decrease" programming time considerable. If you plan to compare, ask always which pattern they use.*
- *The programming speed depends on PC speed only slightly.*

Device	Size [bits]	Operation	Time B
M50FW080 (parallel Flash)	100000Hx8 (8 Mega)	programming and verify	32 sec
AM29DL323DB (parallel Flash)	208000Hx16 (32 Mega)	programming and verify	38 sec
AM29DL640 (parallel Flash)	400080Hx16 (64 Mega)	programming and verify	76 sec
AT45D081 (serial Flash)	108000Hx8 (16 Mega)	programming and verify	43 sec
AT89C51RD2 (microcontroller)	10000Hx8	programming and verify	15 sec
PIC18F452 (microcontroller)	4000Hx16	programming and verify	4 sec

Conditions: *P4, 2,4GHz, USB 2.0, Windows XP, 2.18 version of SW*

SOFTWARE

- **Algorithms:** only manufacturer approved or certified algorithms are used. Custom algorithms are available at additional cost.
- **Algorithm updates:** software updates are available approx. every 2 weeks, free of charge.
- **Main features:** revision history, session logging, on-line help, device and algorithm information

Device operations

- **engineering mode**
- **standard:**
  - intelligent device selection by device type, manufacturer or typed fragment of part name

- automatic ID-based selection of EPROM/Flash EPROM
- blank check, read, verify
- program
- erase
- configuration and security bit program
- illegal bit test
- checksum
- **security**
  - insertion test, reverse insertion check
  - contact check
  - ID byte check
- **special**
  - production mode (automatic start immediately after device insertion)
  - auto device serial number increment
  - statistic
  - count-down mode
- **production mode**
  All operations are controlled by project file.
  - **standard:**
    - blank check, read, verify
    - program
    - erase
    - configuration and security bit program
    - illegal bit test
    - checksum
  - **security**
    - insertion test, reverse insertion check
    - contact check
    - ID byte check
  - **special**
    - production mode (automatic start immediately after device insertion)
    - auto device serial number increment
    - statistic
    - count-down mode

Buffer operations

Only for engineering mode.
- view/edit, find/replace
- fill/copy, move, byte swap, word/dword split
- checksum (byte, word)
- print

Supported file formats

- unformatted (raw) binary
- HEX: Intel, Intel EXT, Motorola S-record, MOS, Exormax, Tektronix, ASCII-space-HEX
- Altera POF, JEDEC (ver. 3.0.A), e.g. from ABEL, CUPL, PALASM, TANGO PLD, OrCAD PLD, PLD Designer ISDATA, etc.

SPECIFICATION (BeeHive4 multiprogramming system)

- 4x universal programming module (4x 48-pin DIL ZIF sockets)
- operation result LEDs, LED power
- USB 2.0 port
- Line power input 100-240VAC/60W max.
- banana jack for ESD wrist straps connection

PC system requirements

- Microsoft Windows 2000/XP/2003/XP64 (XP and above recommended)
- PC Pentium 4; 1.3 GHz (2GHz and above recommended)
- 256 MB of RAM (512MB and above recommended)
- 50 MB of free disk space (*1)
- USB port 2.0 (2.0 high-speed recommended)

Note (*1): *Free disk space requirement depends also on used IC device size. For large devices the required free space on disk will be approximately 60MB + Device size*

GENERAL

- operating voltage AC 100-240V, max.1.2A, 50-60Hz
- power consumption max. 60W active
- dimensions 506x213x86 mm (19.9x8.4x3.4 inch)
- weight (programmer) 4.8kg (10.58 lbs)
- temperature 5°C ÷ 40°C (41°F ÷ 104°F)
- humidity 20%..80%, non condensing

Package included

Standard accessories
- BeeHive4 programmer
- USB connection cable PC-programmer
- diagnostic POD for selftest of the programmer (1x)
- anti-dust cover for ZIF socket (4x)
- user manual
- software CD
- registration card
- calibration test report
- transport case

Bonus pack:
- ESD wrist strap with cord and banana plug
- Vacuum pen
- Gift (surprise)

Additional services

- Keep Current.
- AlgOR
- free technical support (phone/fax/e-mail).
- free lifetime software update via Web site.

Setup

The programmer package contains a CD with the control program, useful utilities and additional information. The permission to freely copy the content of the CD is granted in order to demonstrate how ELNEC's programmers work.

We recommended install software before connecting programmer to PC to avoid unwanted complication during installation.

Software setup

Insert delivered CD to your CD drive and install program starts automatically (if not, run setup.exe). Install program will guide you through the installation process and will do all the necessary steps before you can first run the control program.

Step 1.

Click on "Software installation PROGRAMMERS" button.

Step 2.
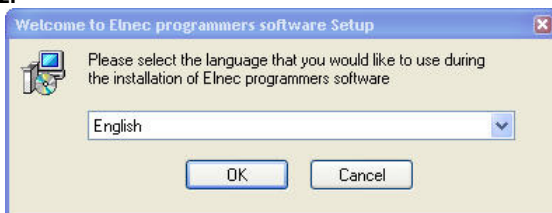
Select language and than click on "OK" button.

Step 3.

Click on "Next" button

Step 4.
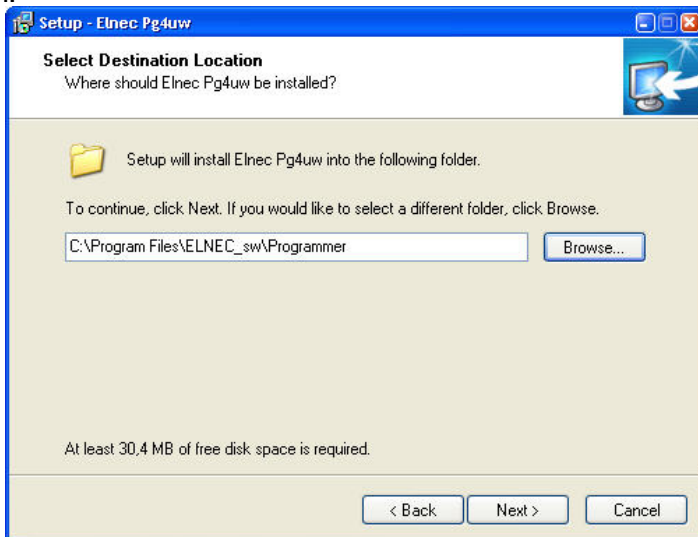
For change default folder click on "Browse" button, select the destination folder. Then click on "Next" button

Step 5.
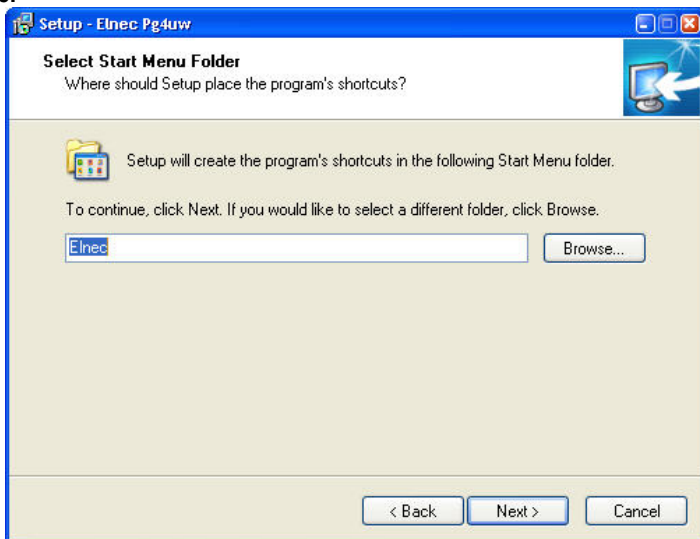
For change default folder click on "Browse" button, select the destination folder. Then click on "Next" button

Step 6.
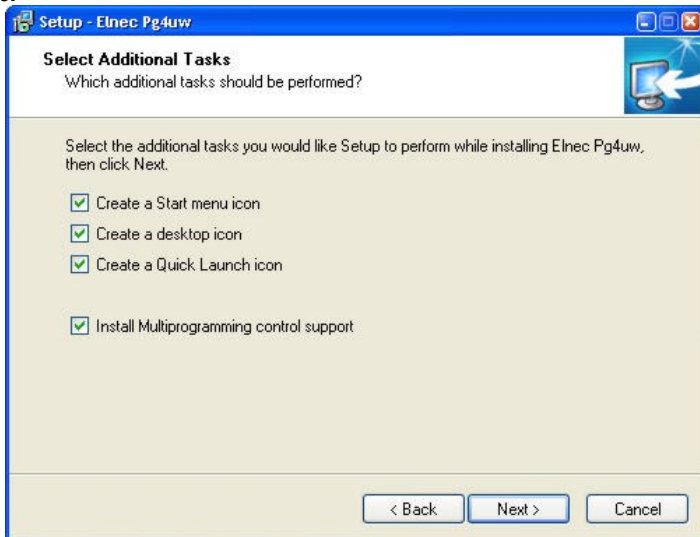
Check if "Install Multiprogramming control support" is selected. Change default setting, if you want. Then click on "Next" button

Step 7.
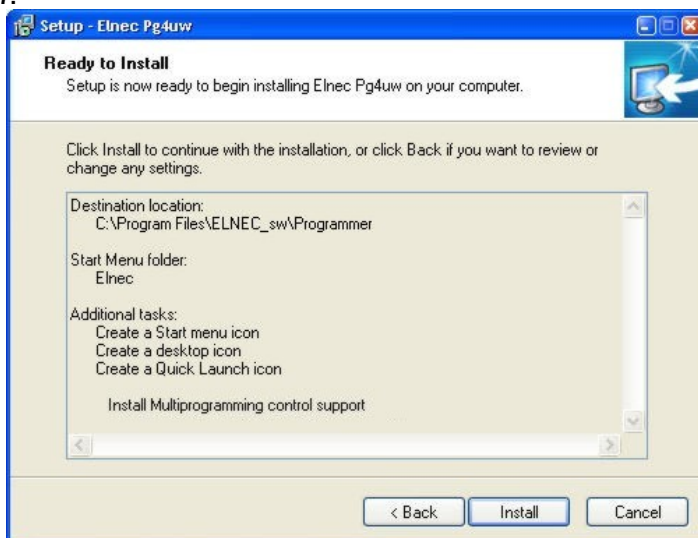
Check your setting and then click on "Install" button

Step 8.
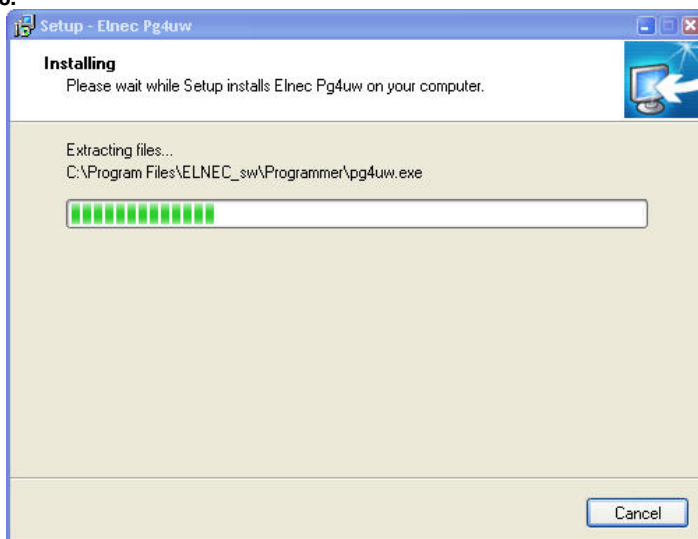
Installation process will start.

Step 8.
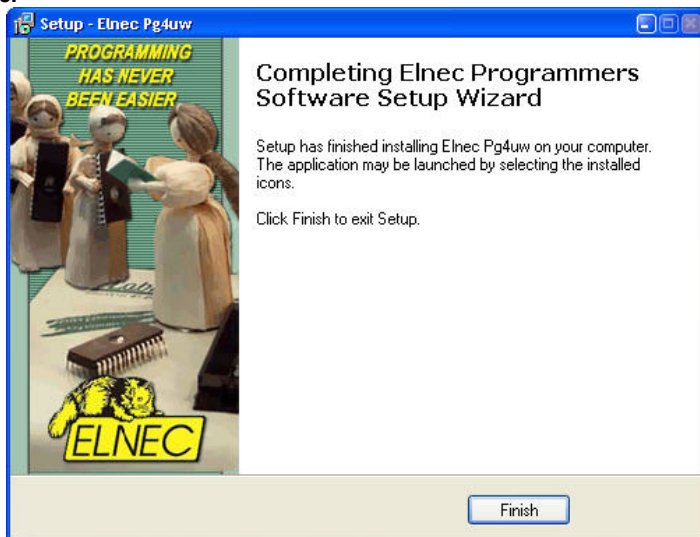
Click "Finish" button to finish setup.

New versions of programmer software

In order to exploit all the capabilities of programmer we recommend using the latest version of PG4UW. You may download the latest version of programmer software (file PG4UWARC.exe) from our Internet site **www.elnec.com**, part download.

Copy PG4UWARC.exe to a temporary directory, disconnect BeeHive4 from PC and then launch it. Setup will start with **Step 2** from previous chapter.

Hardware setup

Step 1.
Directly connect USB cable to type B USB port on programmer.
Step 2.
Directly connect USB cable to type A USB2.0 port on PC (high-speed recommended).
Step 3.
Connect connectors of power supply cable to appropriate connectors on programmer and wall plug.
Step 4.
Turn on programmer. At this time all 'work result' LEDs light up successive and then LEDs switch off.

Step 5.

Windows will start with "Found new hardware wizard".

For Windows XP, Service Pack 2 users only:

Select "No, not this time" and then click on "Next" button.

For all:
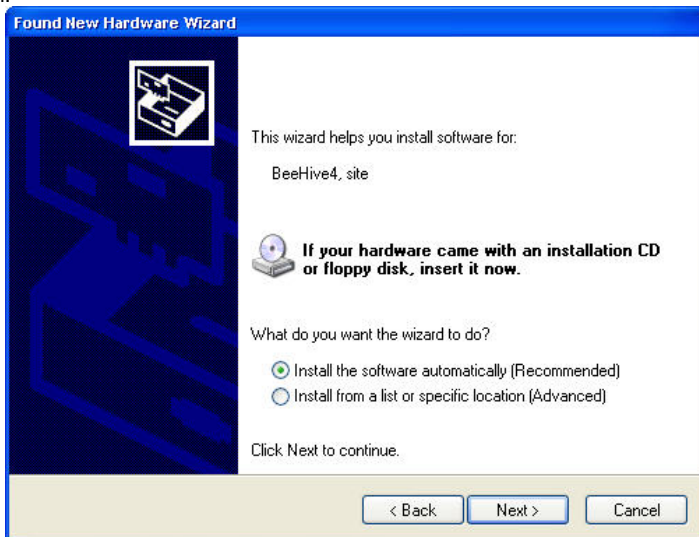
Select "Install the software automatically" and then click on "Next" button.

Step 6.

Click on "Continue Anyway" button.

Step 7.

Click "Finish" button to finish setup.

Step 8.

"Found new hardware wizard" will launch for each programming module. Hardware setup will be continued with Step 5.

Note: If a different USB port on the PC is used for the next connection of BeeHive4, "Found new hardware wizard" will launch and install new USB drivers.

Programming a device

BeeHive4 can operate in two modes:

Engineering mode for make a project
Production mode for mass production

Engineering mode

This part of the software is focused to the quick and easy preparation of the project file for usage in the production mode control software.

Each programming module 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. Engineer can use all properties of this software and can make a project for mass production.

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 are doing 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 provides a many informations about programmed device. As a special, the drawing of all available packages is provided. The software provides also explanation of chip labeling (the meaning of prefixes and suffixes at the chips) for each supported chip.
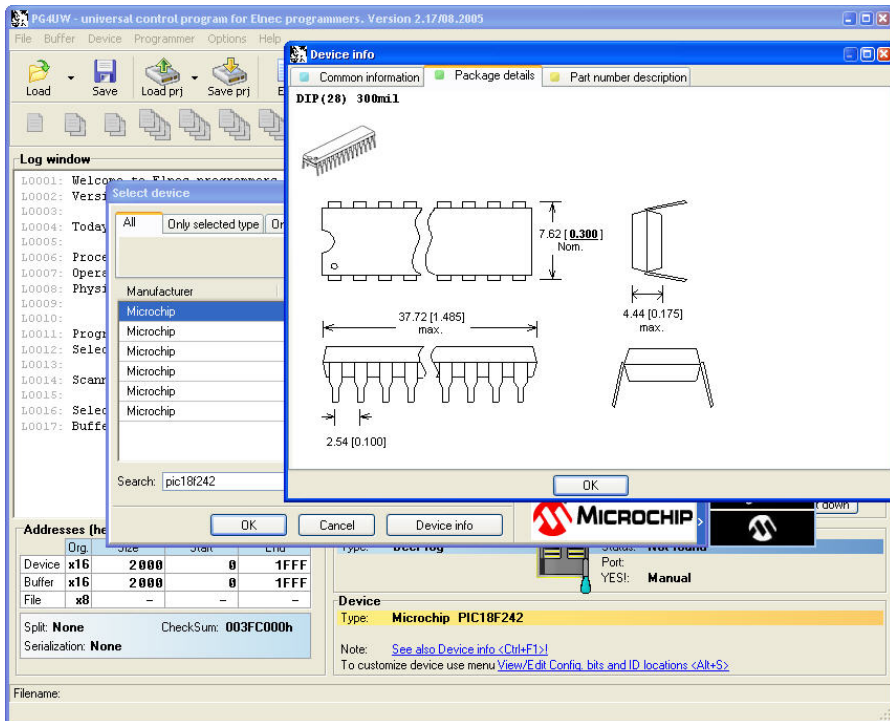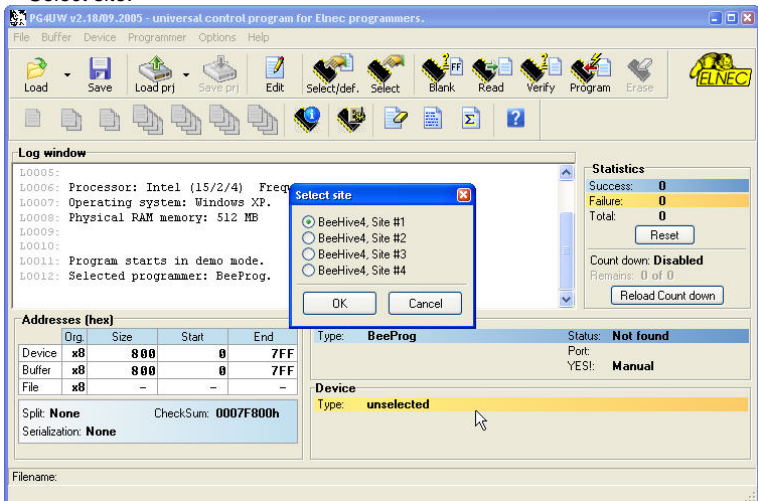
Make a project

1. Connect programmer to PC and outlet. Turn programmer on.

2. Run the control program: double click on
3. Find BeeHive4 Site (programmer): **<Ctrl+F>** or right click on panel **Programmer**
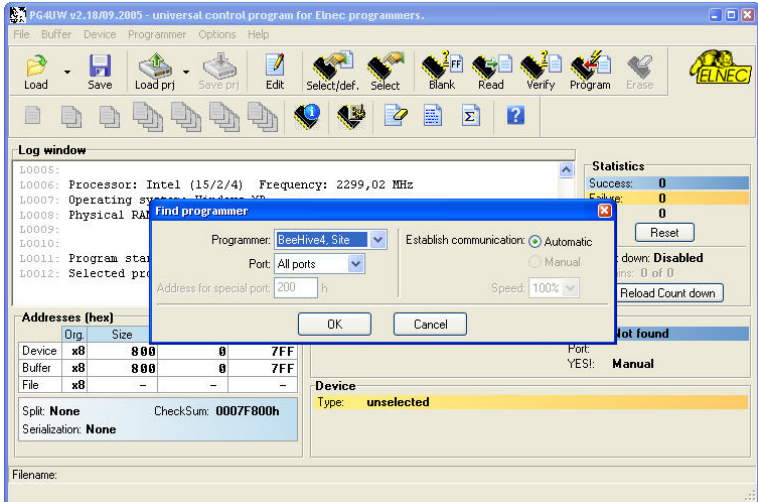
In combo box "Programmer" select BeeHive4, Site and then click on "OK" button.
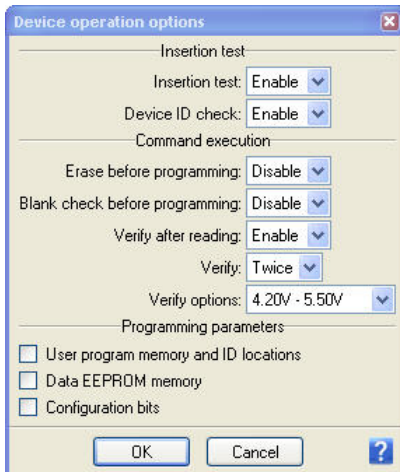
4.   Select site.

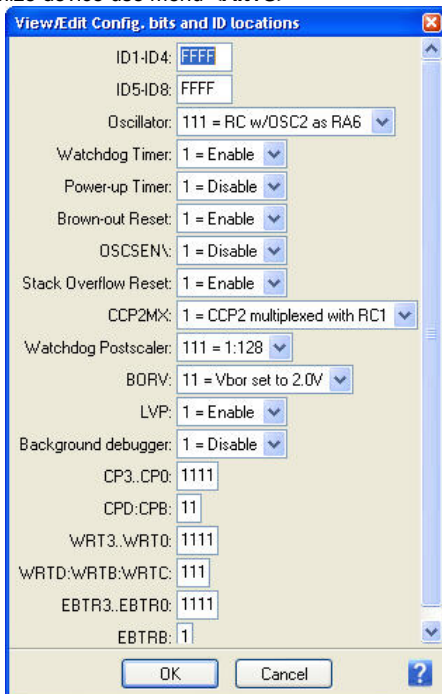Select desired BeeHive4 Site# and then click on "OK" button

5.   Select device: click on

6.   Load data into buffer from file: click on
7.   Set Device operation options

Set desired operations with a device and then click on "OK" button

8.   To customize device use menu **<Alt+S>**

Set desired settings of a device and then click on "OK" button
Note: *Menu <Alt+S> is depends on a device.*

9. Save project: click on [icon] and select destination folder, write a description of project etc.

For more details see Help for PG4UW or "User manual for all ELNEC programmers". Latest manual you may find it on **www.elnec.com** part download.
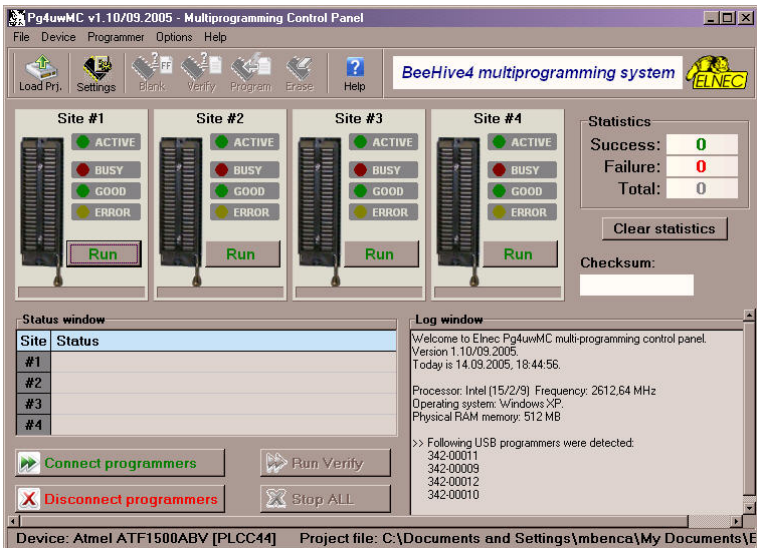
Production mode

This part of the software is focused to the easy monitoring of high-volume production operations.

Operator-friendly control software (Pg4uwMC) 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 BeeHive4 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 unwanted changes of the project file.

Each chip may be programmed with different data such as **serial number**, **configuration and calibration information**.

Step by step instruction

1. Connect programmer to PC and outlet. Turn programmer on.

2. Run the control program: double click on

3. Search for connected programmer: **<Ctrl+F>** or **Programmer / Search for programmer.**
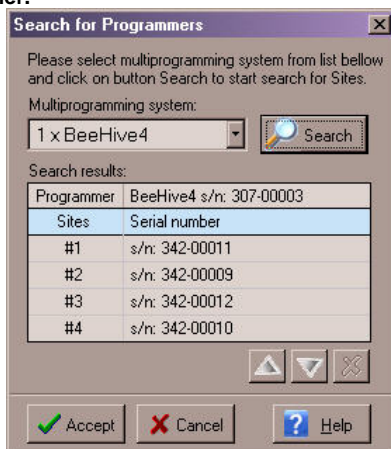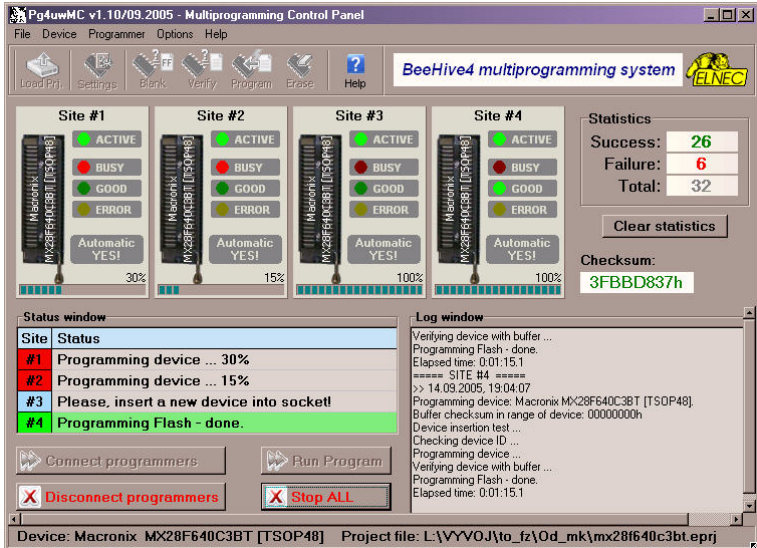

In combo box "Multiprogramming system" select BeeHive4 and click on "Search" button. After end of successful search click on "Accept" button to finish Search of programmer.

4. Load project: click on or **File / Load project**

5. Click on "**Connect programmers**" button to connect programming modules to Multiprogramming Control panel.

6. Select action with device: click on . If desired action is selected, click on "Run" button. Desired action with devices on all sites will be start. On "**Status window**" you may see current states of action with devices on all sites. After end of action with device on "**Status window**" will be displayed "**Please, insert a new device into socket**" for appropriate site. After insertion of a new device into socket, desired action with device will be start **automatically**.
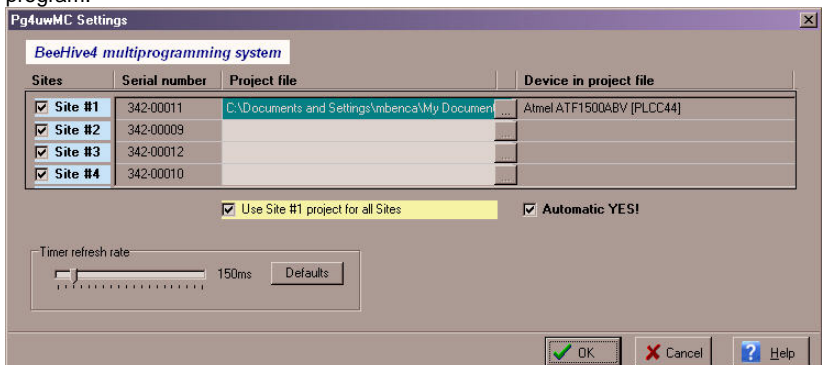
7.   For end of work with desired device: click on "**Stop ALL**" button.
8.   If you want continue with a new project go to step 4.
9.   For end of work with BeeHive4 click on "**Disconnect programmers**" button
      and then terminate a program: - **<Alt+F4>** or **File / Exit**.

Menu **Programmer / Programmer Sites** (or by right click on panel "**Site #**") allows the
user to show or to hide Site window, refind a programmer site, disconnect site or run
selftest (**Selftest plus**) procedure for selected site.

Menu **Options / Settings** allows the user to verify or to change some setting of control
program.

On upper part of window is a table with some site properties: allowed or prohibit site, Serial number, project file for site and programmed device.

If you check "**Site #**", then desired site is allowed. If uncheck, then site is disabled.

If you check "**Use Site #1 project for all Sites**", then project from Site #1 is the same for all sites. If uncheck, then all sites can have different project files.

If you check "**Automatic YES!**", then automatic start of action with device after insertion device to ZIF is allowed.

Timer refresh rate defines how often the Pg4uwMC program will request status information displayed in **Status window** panel from running PG4UW programs.

For more details see Help for Pg4uwMC software.

Troubleshooting and warranty

Troubleshooting

We really want you to enjoy our product. Nevertheless, problems can occur. In such cases please follow the instructions below.

- It might be your mistake in properly operating the programmer or its control program PG4UW.
  - Please read carefully all the enclosed documentation again. Probably you will find the needed answer right away.
  - Try to install programmer and PG4UW on another computer. If your system works normally on the other computer you might have a problem with the first one PC. Compare differences between both computers.
  - Ask your in-house guru (every office has one!).
  - Ask the person who already installed programmer.

- If the problem persists, please call the local dealer, from whom you purchased the programmer, or call ELNEC direct. Most problems can be solved by phone, e-mail or fax. If you want to contact us by:
  - **Mail/fax** - Copy the "**DEVICE PROBLEM REPORT**" form and fill it in following the instructions at the end of the form. Write everything down that you consider being relevant about the programmer, software and the target device. Send the completed form by mail or fax to ELNEC (fax number in the control program, menu **Help / About**) or to your local dealer. If you send the form by fax please use black ink, a good pen and large letters!
  - **E-mail** - Use "**DEVICE PROBLEM REPORT**" form on the CD or from our Internet site and fill it in following the instructions at the end of the form. Use standard ASCII editor. Write everything down that you consider being relevant about the programmer, software and the target device. Send the completed form by e-mail to your local dealer or to ELNEC (**(nospam version) elnec at elnec dot com**).
  - **Phone** - Copy "**DEVICE PROBLEM REPORT**" form and fill it in following the instructions at the end of the form. Write everything down that you consider being relevant about the programmer, software and the target device. Send the completed form by mail or fax to ELNEC (fax number in the control program, menu **Help / About**) or to your local dealer. If you send the form by fax please use black ink, a good pen and large letters easily to read. Then call your local dealer or ELNEC's customer support center (phone number in the control program, menu **Help / About**). Please keep your manual, the programmer and the completed "**DEVICE PROBLEM REPORT**" form (just faxed) available, so that you can respond quickly to our questions.
- If your programmer is diagnosed as defective, consult your local dealer or ELNEC about the pertinent repair center in your country. Please carefully include the following items in the package:
  - defective product

- completed "DEVICE PROBLEM REPORT" form
- photocopy of a dated proof of purchase

> ***Without all these items we cannot admit your programmer to repair.***

Note:
*You may find the "**DEVICE PROBLEM REPORT**" form at our Internet site (**www.elnec.com**), section '**Support**'.*

If you have an unsupported target device

If you need to operate on a target device not supported by the control program for programmer, please do not despair and follow the next steps:

- Look in the device list of the latest version of the control program on our Internet site (section Download, file corresponded to your programmer). Your new target device might already be included in this version! If yes, download the file PG4UWARC.exe and install the new version of the control program.
- Contact ELNEC direct, filling up a "**Device Problem Report**" form following the instructions at the end of this form. We may need detailed data sheets of your target device and, if possible, samples. The samples will be returned to you after we include your target device in a new version of PG4UW.

Note:
See also **AlgOR** service at our Internet site (www.elnec.com), section 'Support'

Warranty terms

The manufacturer, ELNEC s.r.o. Presov, Slovakia, gives a guarantee on failure-free operating of the programmer and all its parts, materials and workmanship for three-year from the date of purchase. This warranty is limited to 25,000-cycles on DIL ZIF socket or 10,000-cycles on other ZIF sockets). If the product is diagnosed as defective, ELNEC s.r.o. or the authorized repair center will repair or replace defective parts at no charge. Parts used for replacement and/or whole programmer are warranted only for the reminder of the original warranty period.

For repair within the warranty period, the customer must prove the date of purchase.

This warranty terms are valid for customers, who purchase a programmer directly from Elnec company. The warranty conditions of Elnec sellers may differ depending on the target country law system or Elnec seller's warranty policy.

The warranty does not apply to products that are of wear and tear or mechanically damaged. Equally, the warranty does not apply to products opened and/or repaired and/or altered by personnel not authorized by ELNEC, or to products that have been misused, abused, accidentated or that were improperly installed.

For unwarrantable repairs you will be billed according to the costs of replacement materials, service time and freight. ELNEC or its distributors will determine whether the defective product should be repaired or replaced and judge whether or not the warranty applies.

Manufacturer:
✉: **ELNEC s. r. o.**, Post 5, P. O. Box 22, SK - 08005 Presov, Slovakia
☎: +42151/77 34 328, 77 31 007, fax 77 32 797
www.elnec.com, (nospam version) elnec at elnec dot com