ELNEC

11/2008

SmartProg2

universal 40-pindrive programmer

3 YEAR WARRANTY

THREE YEAR LIMITED WARRANTY · ELNEC QUALITY GUARANTEE

DEVICE PROGRAMMERS COMPANY

- small, fast and powerful universal programmer
- DIL40 ZIF socket, devices in DIL package up to 40 pins are supported without adapters
- connector for in-circuit programming (ISP)
- connection to PC: USB port
- USB 2.0 full speed and USB 2.1 compatible
- comfortable and easy to use control program, Windows 98/Me/2000/XP/2003/XPx64 compatible
- free SW update, download from Internet
- power supply, cable and software included
- approved by CE laboratory to meet CE requirements
- 3 year warranty

more than 21 200 devices supported

valid for November 2008
see actual information:
www.elnec.com

Windows is registered trademark of Microsoft Corp.

Features

GENERAL

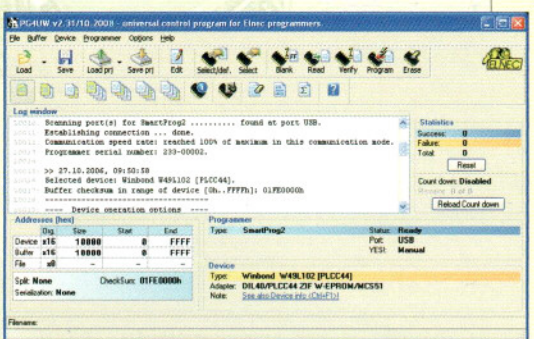
- SmartProg2 is the next member of new generation of Windows 95/98/ME/NT/2000/XP/2003/XP64 based ELNEC universal programmers. Programmer is built to meet the demands of development labs and field engineers for universal, but portable programmer.
- SmartProg2 is a small, fast and powerful programmer of all kinds of programmable devices. Using build-in in-circuit serial programming (ISP) connector the programmer is able to program ISP capable chips in-circuit. SmartProg2 isn't only a programmer, but also a static RAMs tester.
- Provides very competitive price with excellent hardware design for reliable programming. Nice "value for money" in this class.
- Very fast programming due to high-speed FPGA driven hardware and USB 2.0 full speed port.
- SmartProg2 interfaces with the IBM compatible PC, portable or desktop personal computers through USB port, what is important for new, LPT-port-less computers (notebooks for example).

HARDWARE

- 40 powerful TTL pin-drivers provide H/L/pull_up/pull_down and read capability for each pin of socket. Advanced pin-drivers 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.
- The programmer performs device insertion test (wrong device position in socket) and contact check (poor contact pin-to-socket) before it programs each device. These capabilities, supported by signature-byte check help prevent chip damage due to operator error.
- SmartProg2 programmer performs programming verification at the marginal level of supply voltage, which, obviously, improves programming yield, and guarantees long data retention.
- Various socket converters are available to handle device in PLCC, SOIC, SSOP, TSOP, TSSOP, TQFP, QFN (MLF) and other packages.

SOFTWARE

- Programmer is driven by an easy-to-use control program with pull-down menus, 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.
- Standard device-related commands (read, blank check, program, verify, erase) are enhanced by some test functions (insertion test, signature-byte check), and some special functions (auto-increment).
- All known data formats are supported. Automatic file format detection and conversion during loading of file.
- 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 drawing 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.
- The software provide a full information for ISP implementation: Description of ISP connector pins for currently selected chip, recommended target design around in-circuit programmed chip and other necessary information.



Technical specification

HARDWARE

Programmer

- two D/A converters for VCCP and VPP, controllable rise and fall time
- VCCP range 2V..7V/350mA
- VPP range 2V..25V/200mA
- USB 2.0/1.1 compatible interface
- autocalibration
- selftest capability

ZIF socket, pindriver

- 40-pin DIL ZIF (Zero Insertion Force) socket accepts both 300/600 mil devices up to 40-pins
- pin-driver: 40 TTL pin-drivers, specialized GND/VCC/VPP pin-driver
- FPGA based TTL driver provides H, L, CLK, pull-up, pull-down on all pin-driver pins; level H selectable from 1.8V up to 5V
- continuity test: each pin is tested before every programming operation

ISP connector

- 10-pin male type with missinsertion lock
- 5 TTL pin-drivers, provides H, L, CLK, pull-up, pull-down; level H selectable from 1.8V up to 5V to handle all (low-voltage including) devices.
- 1x VCCP voltage (range 2V..7V/100mA) (*1) and 1x VPP voltage (range 2V..25V/50mA)
- programmed chip voltage (VCCP) with both source/sink capability and voltage sense

*Note: (*1) - the programmer is not capable to supply a target system from VCCP pin. If you have such demand, use please a BeeProg+ programmer*

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 4 weeks, free of charge.
- **Main features**: revision history, session logging, on-line help, device and algorithm information.

Device operations

- standard:
  - intelligent device selection by device type, manufacturer or typed fragment of part name
  - blank check, read, verify
  - program
  - erase
  - configuration and security bit program
  - illegal bit test
  - checksum
- security
  - insertion test • contact check • ID byte check
- special
  - auto device serial number increment
  - statistic
  - count-down mode

Buffer operations

- view/edit, find/replace
- fill, copy, move, byte swap, word/dword split
- checksum (byte, word)
- print

File load/save

- no download time because programmer is PC controlled
- automatic file type identification
- Supported file formats
  - unformatted (raw) binary
  - HEX: Intel, Intel EXT, Motorola S-record, MOS, Exormax, Tektronix, ASCII-SPACE-HEX

DEVICE SUPPORT

Programmer, in ZIF socket

- EEPROM: NMOS/CMOS, 27xxx and 27Cxxx series, with 8/16 bit data width, full support of LV series (*1*2)
- EEPROM: NMOS/CMOS, 28xxx, 28Cxxx, 27EExxx series, with 8/16 bit data width, full support of LV series (*1*2)
- Flash EPROM: 28Fxxx, 29Cxxx, 29Fxxx, 29BVxxx, 29LVxxx, 29Wxxx, 49Fxxx series, with 8/16 bit data width, full support of LV series (*1*2)
- Serial E(E)PROM: 24Cxxx, 24Fxxx, 25Cxxx, 25Bxxx, 25Dxxx, 59Cxxx, 25Fxxx, 25Pxxx, 25Qxxx, 85xxx, 93Cxxx series, AT88SCxxx, full support for LV series (*1)
- Configuration (EE)PROM: XCFxxx, 37LVxx, XC17xxxx, EPCxxx, AT17xxx, LV series including
- NV RAM: Dallas DSxxx, SGS/Inmos MKxxx, SIMTEK STKxxx, XICOR 2xxx, ZMD U63x series
- PLD: series: Atmel, AMD-Vantis, Cypress, ICT, Lattice, NS, ... (*1)
- MCU 51 series: 87Cxxx, 87LVxx, 89Cxxx, 89Sxxx, 89LVxxx, 89LSxxx, 89LPxxx, LPC series from Atmel, Atmel W&M, Intel, Philips, SST, Winbond (*1*2)
- MCU Atmel AVR: rady AT90Sxxxx, AT90pwm, AT90can, AT90usb, ATtiny, ATmega, (*1*2)
- MCU Cypress: CY8Cxxxxx
- MCU ELAN: EM78Pxxx
- MCU EM Microelectronic: 4 and 8 bit series
- MCU Microchip PICmicro: PIC10xxx, PIC12xxx, PIC16xxx, PIC17Cxxx, PIC18xxx, dsPIC series, 8-40 pins (*1*2)
- MCU Scenix (Ubicom): SXxxx series
- MCU Silicon Laboratories(Cygnal): C8051 series MCU other: ASP, Macronix, Princeton, EXODUS Microelectronic, Goal, Ramtron, Topro, VersaChips, Winbond

Programmer, through ISP connector

- Serial E(E)PROM: IIC series, MW series, SPI series, KEELOQ series, serial data Flash
- MCU Atmel AVR: AT89Sxxx, AT90Sxxxx, AT90pwm, AT90can, AT90usb, ATtiny, ATmega, AT89LSxxx, AT89LPxxx
- MCU Cypress: CY8C2xxxx
- MCU Elan: EM78Pxxx
- MCU EM Microelectronic: 4 and 8 bit series
- MCU Microchip PICmicro: PIC10xxx, PIC12xxx, PIC16xxx, PIC17xxx, PIC18xxx, dsPIC series
- MCU Philips: LPC series
- MCU Silicon Laboratories(Cygnal): C8051 series

Notes:

- *(*1) - suitable adapters are available for non-DIL packages*
- *(*2) - there exist only a few adapters for devices with more than 40 pins. Therefore, please, consider a more powerful programmer (BeeProg+), if you need to program devices with more than 40 pins*
- *for all supported devices see actual DEVICE LIST at WEB site*

IC tester

- Static RAM: 6116 .. 624000

GENERAL

Recommended PC system requirements

- Microsoft Windows® XP
- PC Pentium 4, 1 GHz
- 256 MB of RAM
- 150 MB of free disk space (*1)
- one USB port, the 2.0 hight speed recommended

Operation

- operating voltage 15..20V DC, max. 0.5A
- power consumption max. 6W active, about 1.4W sleep
- dimensions 160x95x35 mm (6.3x3.7x1.4 inch)
- weight (without external power adapter) ca. 500g (17.65 oz)
- temperature 5°C ÷ 40°C (41°F ÷ 104°F)
- humidity 20%..80%, non condensing

Base configuration package includes

- SmartProg2 programmer
- wall plug adapter, 15V/500mA, unstabilized
- connection cable PC-programmer
- ISP cable
- diagnostic POD for self-test of the programmer
- anti-dust cover for ZIF socket
- user manual
- software
- registration card

Programmer price includes too:
- free technical support (hot line)
- free life-time software update via Internet

Programming speed

Conditions: P4, 2.4 GHz, USB 2.0 high speed, Windows XP

Device	Operation	Mode	Time
27C010	programming and verify	in ZIF	28 sec.
AT29C040A	programming and verify	in ZIF	32 sec.
AM29F040	programming and verify	in ZIF	62 sec.
PIC16C67	programming and verify	in ZIF	10 sec.
PIC18F452	programming and verify	in ZIF	7 sec.
AT89C52	programming and verify	in ZIF	16 sec.
PIC16F876A	programming and verify	ISP	5 sec.
PIC12C508	programming and verify	ISP	3 sec.

3 years warranty

Advanced design of the SmartProg2 programmer and careful manufacturing and burning allows us to provide a three-year warranty on parts and labor for the programmer (limited 25 000-cycle warranty on ZIF socket).

Part No.	Description
60-0038	SmartProg2

CARE FOR THE CUSTOMERS

It is important to remember that a support most of the new devices requires only a software update due to the SmartProg2 hardware. With our prompt service you can have a new device added to the list of supported devices within hours! See AlgOR (Algorithm On Request) service for details. Free software updates are available by download from our WEB site.

Keep-Current service service means, that ELNEC ships the latest version of programmer software and updated user documentation (Keep-Current package) to customer . The Keep-Current service is your hassle-free guarantee that you are doing the highest quality programming on ELNEC programmers, at minimal cost.

AlgOR (Algorithm On Request) service gives the user a tool to influence to amount and types of programmed devices as needed.

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