



## GALEP-5 High-End Pocket Programmer with 48 universal pin drivers and USB port

**GALEP-5**, the smallest offspring of Conitec's fifth generation programmer series, is powered by the same advanced technology as its bigger brothers. It's mainly used for development, service, and mobile component programming. However, through its short programming cycles GALEP 5 can also be used as a production programmer. A real universal talent at an astonishingly low price!

### HIGH-SPEED HARDWARE ↑

>GALEP-5 is uncompromisingly **designed for speed**. The programming algorithms run on an internal 200 MIPS ARM-9 processor under Embedded Linux. The processor directly controls the pin drivers via an FPGA, which ensures the perfect adaptation of the components to the programming algorithms. The FPGA (user-programmable logic) allows the realization of State Machines, UARTs etc. and thus supports time-critical components that wouldn't be programmable at all with pure software solutions. The programming cycle times are extremely short, close to the specified minimum times of the components. The internal 64 MB RAM serve as data storage and allows you to transfer the data only once for programming multiple devices.

### 48 UNIVERSAL PIN DRIVERS ↑

>A universal **pin driver circuit** especially designed for GALEP guarantees optimal signal quality for the component to be programmed. Each of the 48 pins carries the following signals:

- >Logical high, adjustable between 1.3V ... 5.0V
- >Logical input, threshold adjustable between 0.5V ... 5.0V
- >Three independent programming voltages up to 25V
- >Ground
- >Three switchable resistors for pullup and pulldown
- >Adjustable clock rate

>The switching regulators for the programming voltages are controlled by D/A converters in 100 mV steps. Further D/A converters are used to control the logic levels (1.3V ... 5.0V) and the input threshold (0.5V ... 5.0V). All voltages are permanently monitored by an independent coprocessor.

>A universal pin driver concept with as many pins as possible reduces the requirements of adapters and thus ensures an **overall low cost programming system**.

### NO POWER SUPPLY REQUIRED ↑

>GALEP-5 is powered through the USB bus and does normally not require any additional power supply. The USB current limit of 500mA is kept. Some old NMOS components and some microcontrollers consume more than 500 mA. Those components are marked in the software. For ensuring USB compatibility we recommend to use the included power supply, or insert batteries (6xAAA) for such components.

## IN SYSTEM PROGRAMMING ↑

>The signals for in-system programming (ISP) can be taken from a separately available ISP adapter or directly from the 48-pin ZIF socket. The help system provides information about the wiring of the target system for all supported components.

## SOFTWARE ↑

>GALEP-5 continues the established concept of the GALEP-32 software. The program runs under Windows 95, 98, ME, NT4, 2000, XP, and Vista. It features a comprehensive set of basic functions such as read, program, compare and delete, along with easy-to-use custom configuration options for any special functions required by the selected component. The editor allows a multitude of functions for editing component contents which can be saved and loaded in binary, intel-hex, motorola-s or jedec file format. Mass production is supported by providing statistics functions and serial number generation.

>JTAG Support: Delete, program and verify components with JTAG interface (joint test action group, IEEE Std. 1149.1 ). The following formats are supported: SVF-Script in XSVF(Xilinx) format; JAM byte code player (ALTERA).

>The software is permanently improved for supporting new components. If you need a certain device that's not yet supported, use our free **Device on Demand** Service. **Free updates** are available on our website in monthly intervals.

## SECURITY ↑

>Prior to each function, GALEP-5 checks the power consumption, correct positioning, and the contacts of all pins of the selected component. This prevents accidental damage to the component or the device.

## ADAPTERS ↑

>GALEP-5 programs all components in DIL sockets up to 48 Pins between 300 ... 600 MIL (ca. 7,5 ... 16 mm) wide, without additional adapters. Modern electronics products however contain mostly SMD components. Universal SMD adapters are available for all components with up to 48 pins. Only one adapter per socket is required; few adapters = small system costs!

>Of course adapters for components with more than 48 pins are also available. Because the pin number of the programming device is smaller than the pin number of the components, such adapters are always specialized. If you have to program components with a high pin number frequently, a **GALEP-5D** (with up to 240 pins) might be the more effective solution.

>All GALEP-4 adapters can be used with GALEP-5!

## TECHNICAL SPECIFICATIONS ↑

- >Pocket format: ca. 80 x 115 x 33 mm (+7mm socket)
- >Weight: ca. 185 g
- >48-pin ZIF socket with 48 universal pin drivers
- >Programs low-voltage components down to 1.3V
- >USB 2.0 high-speed port
- >Battery compartment for 6xAAA batteries
- >200 MIPS ARM-9 RISC processor, 64 MB RAM, 8 MB Flash
- >FPGA (50K gates, 64Kb RAM)
- >3 linear voltage regulators for internal power supply
- >4 switching regulators for programming voltages
- >2 linear voltage regulators for logic levels and input threshold
- >2 Microcontrollers for internal voltage monitoring
- >8-channel D/A converter, 16-channel A/D converter
- >Embedded Linux 2.6 inside

## KIT CONTAINS ↑

- >GALEP-5 device
- >USB cable
- >AC adaptor
- >CD with manual and software

## SYSTEM REQUIREMENTS ↑

- >PC or Laptop with Pentium Processor
- >Windows 95 / 98 / ME / NT4 / 2000 / XP / Vista
- >USB 1.0 or USB 2.0 port