GALEP-5 [USB]

Uncompromising Universal Pocket Programmer

48 universal pins
Supports all programmable device packages
from EPROM's to micro controllers
Fast USB 2.0 port
Power supply via USB port
200 MIPS ARM-9 CPU
64 MB internal RAM
Extremely short programming cycles
3 programming voltages up to 25V
Low Voltage support down to 1.3V
Embedded Linux 2.6 incorporated

GALEP-5, the smallest programmer of the newly developed GALEP-5 series, is powered by the same advanced technology as its larger brothers. This ultra-compact starter version was designed primarily for use in development, service, & mobile component programming. Due to it's ultra-short programming cycles however, this portable model of GALEP 5 can also be used as a full production programmer, delivering powerful versatility at a low price that trounces competitor programmers when all socket adapters for full functionality are included in the comparison!

High-Speed Programming: GALEP-5 has been 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, thereby ensuring perfect adaptation of the component to any programming algorithm. The FPGA (user-programmable logic) allows realization of State Machines, UARTs etc. and thus supports time-critical components that aren't programmable with pure software solutions. Programming cycle times have been achieved that are very close to minimum possible times specified by any component. The internal 64 MB RAM serves as a data storage area, thus requiring that data only be stored once for programming multiple devices. Programming cyle times are extremely short, so the substantial internal RAM allows you to transfer data to multiple devices very rapidly for fast, production quality speed.

This is a palm-size field programmer which fits right into a shirt pocket and weighs only 4 ounces, yet it more than holds it's own performance compared to many larger, desk-bound "production program-mers" weighing several pounds!

48 universal pin drivers: A CONITEC custom-designed pin-driver circuit has been specially developed and implemented to each pin of the 48 pins on the socket. GALEP-5 programmers in all models therefore guarantee top of the line sensitivity of signal quality for each component programmed. Each of the pins can carry 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
- 3 switchable resistors for pullup and pulldown
- Clock with adjustable rate

No power supply required: GALEP-5 is powered through the USB bus and does not require any additional power supply. The USB current limit of 500mA is maintained. Some old NMOS components and some micro controllers consume more than 500 mA so to ensure full USB compatibility, Conitec recommends using the included power supply, or the specified rechargeable batteries (6 X AAA batteries) for such components.

Programming voltages: The switching regulators for 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 of the voltages are permanently monitored by an independent co-processor.

In System Programming (ISP): The signals for in-system programming 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.

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).

Security: Prior to each operation, 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.

Software: GALEP-5D builds on the award winning 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 capability is supported via statistics functions and serial number generation.

Conitec's Galep software updates are ongoing, and freely available to clients (free also to the general public). The software is continually updated to implement hundreds of new components as often as every 2 months, adding thousands of new devices to software yearly. Free updates are made available on our website as new device support is implemented. Each Galep programmer is therefore designed to not only resist obsolescence, but to double it's output over time.

Adapters: GALEP-5 programs all components in DIL sockets up to 48 Pins between 300 … 600 MIL (i.e. ca. 7,5 up to 16 mm) wide, without requiring additional adapters. Modern electronics products contain mostly SMD components. Universal SMD adapters are available for all components ranging up to 48 pins. Only one adapter per socket type is required – this is significant – as requirement for far fewer adapters assures greatly lower overall system cost!

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 necessarily always specialized. Therefore if you need to program components with a high pin number frequently, the GALEP-5D model, (with up to 240 pins) may be a more effective solution.

We do note however that all existing GALEP-4 adapters can be used with GALEP-5, for full portability of your existing Conitec hardware!

Adapters – (Cont.) The significance of a 48 pin all-universal socket design is considerable, both for high-performance sensitivity to handle demanding high-end programming tasks, and also for unmatched price/performance when including the cost of adapters required. This is by far the largest measure of true Price / Performance on all programmers. Conitec's universal pin driver concept, which has been uncompromisingly implemented to ALL PINS on the socket, supports a huge number of components without requiring any other adapter within that pin package type. This ensures an overall low cost, yet very high quality programming system.

Adapters – (Cont.) To discern the full cost differential between this design and inferior hardware designs, Conitec there-fore strongly recommends that clients pay careful attention to the pin driver concept implemented, when comparing various universal programmers from other manufacturers. Examining competitor's pin package programmer design solutions by these parameters will reveal the true price / performance difference as all other programmers lacking universal I/O to all pins require many more adapters for full output.

Programmers advertised as having the same functionality as the new Galep's in overall device support, yet which employ only lower cost specialized pin drivers or universal I/O drivers only partially to the socket – all of these by definition require multiple separate adapters for all different component families. This 'hidden' factor implies large overall cost differences in supporting their full device range.

Such inferior design solutions require spending as much as 20K USD or EURO to obtain a full range of their pin package adapters, as opposed to spending only 4K or 5K to implement the full 10,000 + device range which the new Galep-5's handle. This optimal resolution was central in the new Galep-5 design, together with unlimited expansion of device support algorithms via free software upgrades. Galep hardware is designed to double it's output range over time, via free software upgrades. At the same time, Galep's high end pin-drivers on all pins on the socket ensure that no other socket adapters will be required than the original basic package types to handle growing output in future years. The cost advantage, already substantial, will therefore compounds further over time.

GALEP-5 hardware features:

- 48 pin ZIF socket
- 48 universal pin drivers
- 200 MIPS ARM-9 RISC-Prozessor
- 64 MB RAM
- 8 MB Flash RAM
- FPGA (50K gates, 64Kb RAM)
- USB 2.0 high-speed interface
- 3 linear voltage regulators for internal power supply
- 4 switching regulators for programming voltages
- 2 linear voltage regulators for logic levels and input threshold
- Built-in microcontroller that monitors the internal power supplies
- Built-in microcontroller that monitors the programming voltages
- 8-channel D/A converter
- 16-channel A/D converter

Size: 80x115x33mm (+7mm socket)

Weight: ca.185g

Kit contains:

- GALEP-5 device
- Power supply
- USB cable
- CD with software and manual (German / English)