

## Dataman 448Pro2AP-AU

The Dataman 448Pro2AP-AU is a super fast industrial gang programmer with a built-in socket actuation system, four independent modules and ISP capabilities. The 448Pro2AP-AU is built to meet the demands of high volume production programming with automated handlers and ATE machines.

Supporting over 58,000 (April 2015) devices with new support being added monthly, the Dataman 448Pro2AP-AU gives you the freedom to choose the optimal device for your requirements.



### Hardware

#### General

- The 448Pro2AP-AU programmer offers the same advanced features as the 448Pro2 programmer but in a form suitable for industrial applications such as automated handlers and ATE machines.
- Built-in actuation system automates socket opening for handlers without this functionality. Each module uses dedicated actuators allowing them to work independently. The actuators operate very fast (opening and closing takes less than 0.5s each) and can apply the correct pressure evenly maximising socket life.
- The footprint of the Dataman 448Pro2AP-AU has been reduced by 24% compared with the 448Pro2 to minimise the handler's movement and maximise throughput.
- Mechanically stable case designed to be immune to vibration during operation. The case offers multiple fixing points allowing for easy integration with automated handlers and ATE machines.
- FPGA based totally reconfigurable 48 powerful TTL pindrivers provide H/L/pull\_up/pull\_down and read capability for each pin of the socket. Pin drivers operate down to 1.8V so you'll be ready to program the full range of tomorrow's advanced low-voltage devices.
- Each programming module performs device insertion tests and contact checks before it programs each device. These capabilities, supported by overcurrent protection and signature-byte check, help prevent chip damage due to operator error.
- Built-in protection circuits eliminate damage of the programming module and/or programmed device due to environment or operator failure. The Dataman 448Pro2AP-AU programmer is protected against ESD up to 15kV.
- The 448Pro2AP-AU programmer performs programming verification at the marginal levels of supply voltage, improving programming yield and guaranteeing long data retention.
- Socket converters utilise an extremely stable design and are constructed to meet the additional demands of automated handlers. This design allows them to retain exact positioning even after changing.
- Wide range of socket converters are available to handle devices in PLCC, SOIC, PSOP, SSOP, TSOP, TSSOP, TQFP, QFN (MLF), SDIP, BGA and other packages.

#### Programmer Specification

- 4 x universal programming modules
- Power and operation status LEDs
- USB 2.0 high-speed compatible port
- Protection against surge and ESD on power supply input
- Grounding point

### Features...

- Optimised for use in automated handlers and ATE machines
- Built-in actuation system for automated socket opening
- Over 58,000 (April 2015) devices supported with new devices added monthly
- Independent modules supporting concurrent programming
- ISP capable using the JTAG interface
- Easy to use software compatible with the latest operating systems including Windows 8
- Comprehensive 3 years parts and labour warranty
- Free life-time software updates

## Module Specification

### Base Unit (DAC)

- 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
- Selftest capability

### Socket Connector

- 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 1.8V up to 26V
- Current limitation, overcurrent shutdown, power failure shutdown
- ESD protection on each pin (IEC1000-4-2: 15kV air, 8kV contact)
- Continuity test: each pin is tested before every programming operation

### ISP Connector

- 20-pin male type with missinsertion lock
- 6 TTL pindrivers, provides H, L, CLK, pull-up, pull-down; level H selectable from 1.8V up to 5V to handle all (including low-voltage) devices
- 1x VCCP voltage (range 2V..7V/100mA), can be applied to two pins
- Programmed chip voltage (VCCP) with both source/sink capability and voltage sense
- 1x VPP voltage (range 2V..25V/50mA), can be applied to six pins
- Target system supply voltage (range 2V..6V/250mA)
- ESD protection on each pin (IEC1000-4-2: 15kV air, 8kV contact)
- Two output signals, which indicate state of work result = LED OK and LED Error (active level: min 1.8V)
- Input signal, switch YES! equivalent (active level: max. 0.8V)

## Software

### User Interface

#### Production Mode Control

- This part of the software is focused on the easy monitoring of high-volume production operations.
- Operator-friendly control software combines many powerful functions with ease of use. Graphical user interface provides an overview of important information, reducing the burden on the operator with unnecessary details.
- Project files are used to control the 448Pro2AP-AU and contain user data, chip programming setup, chip configuration, auto programming command sequence. This helps minimize operator error as the project file is normally created by an engineer and then passed to the operator. The optional protected mode can be set avoiding unwanted changes to the project file.
- Each chip may be programmed with different data such as serial number, configuration and calibration information.

#### Engineering Mode Control

- This part of the software is focused on 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 menus, hot keys and on-line help. Selecting a device is performed by its class, by manufacturer or simply by typing a fragment of the vendor name and/or part number.
- Standard device-related commands (read, blank check, program, verify, erase) are enhanced by test functions (insertion test, signature-byte check) and additional special functions (auto-increment serialisation, production mode - programming starts immediately after chip is inserted).
- All known data formats are supported. Automatic file format detection and conversion performed during loading of file.
- The software provides extensive information about programmable devices including detailed drawings of all available packages. The software also provides explanations of chip labelling (prefixes and suffixes).

The Dataman 448Pro2AP-AU supports over 58,000 (April 2015) of the most popular devices in use today - with future devices being added monthly.

### Programmer (Socket Connector)

EPROM, EEPROM, Flash EPROM, NAND FLASH, eMMC, LBA-NAND, mDOC H3, Multi-chip, FRAM, MRAM, NV RAM, PROM, Serial E(E)PROM, Serial Flash, Configuration (EE)PROM, 1-Wire E(E)PROM, PLD, FPGA, Clocks, Microcontrollers

### Programmer (ISP Connector)

Serial E(E)PROM, 1-Wire E(E)PROM, Serial Flash, Microcontrollers, PLD, FPGA

## Package Includes

- **Dataman 448Pro2AP-AU Super Fast Universal 4X48-Pin Multiprogrammer with Built-In Actuation Unit**  
Dimensions: 310 x 205 x 96mm (12.2 x 8.1 x 3.8inches)  
Weight: 3.9Kg (8.62lbs)
- Switching Power Adapter  
Operating voltage: 100-240V AC  
Power consumption: max. 60W active
- Moulded USB cable
- ISP cable (x4)
- Diagnostic POD for selftest of the programmer (x1)
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- Fixing screw for programming module (x8)
- Pressure plate (x4)
- Adjustable bar 1 (57.2mm) (x8)
- Adjustable bar 2 (74.2mm) (x8)
- Hex key
- User manual
- Software
- Optional range of adapters and socket converters also available

## Warranty and Support

- 30 day money back guarantee\* - If you don't like it, send it back.
- Three year guarantee - Three years parts and labour warranty, on the 448Pro2AP-AU universal multiprogrammer.
- Life-Time Technical Support - 448Pro2AP-AU technical support is available free via our website and telephone helpdesk for life.
- Life-Time Software Updates - 448Pro2AP-AU software updates are available free via our website for life.

Applies to orders from UK/US offices only



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