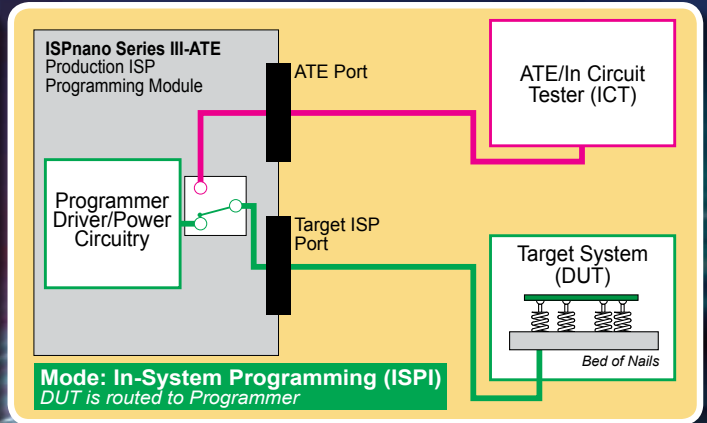# ISPnano
Series III-ATE

High-Speed Production In-System Programming (ISP) Module

ISPnano Series III-ATE Production ISP Programming Module

ATE Port

ATE/In Circuit Tester (ICT)

Programmer Driver/Power Circuitry

Target ISP Port

Target System (DUT)

Bed of Nails

Mode: In Circuit Testing
DUT is routed to ICT

ISPnano Series III-ATE Production ISP Programming Module

ATE Port

ATE/In Circuit Tester (ICT)

Programmer Driver/Power Circuitry

Target ISP Port

Target System (DUT)

Bed of Nails

Mode: In-System Programming (ISPI)
DUT is routed to Programmer

Network up to 32 x ISPnano Series IV - ATE programmers to a single PC via the RS485 interface

PSU

RS232 to RS485 Convertor *(Front Panel)*

RS232 to RS485 Convertor *(Rear Panel)*

RS485 Cable

To the next ISPnano

RS232 Cable

PC

RELAYS ON   **Series III – ATE**
DC IN   DC EXT   PASS   BUSY   FAIL   RS485 IN/OUT   USB   RS232

RELAYS ON   **Series III – ATE**
DC IN   DC EXT   PASS   BUSY   FAIL   RS485 IN/OUT   USB   RS232

ISPnanoS3 - ATE *(Rear Panel)*

ISPnanoS3 - ATE *(Rear Panel)*
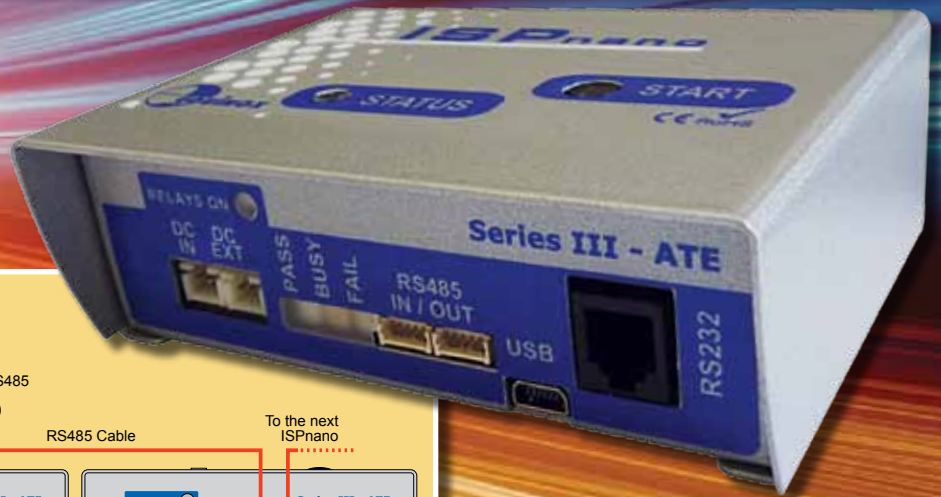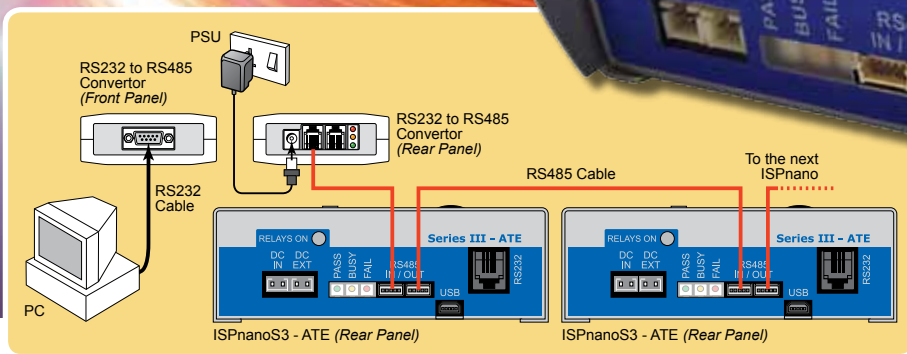
The **'ISPnano Series III-ATE'** is a state-of-the-art Production ISP Programmer designed for high-speed In-System Programming (ISP) of FLASH Microcontrollers and Serial Memory devices. It has been specially developed to allow simple integration with **Automatic Test Equipment (ATE)** and **In-Circuit Testers (ICTs)** used in high-volume production environments. The programmer supports automated relay switching of all Target System I/O and power signal lines between an external **ATE / ICT** system and the programmer. This allows the programmer to be completely out-of-circuit during normal **ATE / ICT** testing operation. A dedicated **'ATE Interface'** allows the **ATE / ICT** to control the operation of programmer in **'Standalone Mode'**.

- Compact physical size ideal for integration into ATE / Test Fixtures
- High-speed In-System Programming (ISP) designed for production
- Wide ranging Device Support capability
- All Programmer I/O and Target Power Lines can be isolated from the Target System (DUT) via relays
- Supports both programming and In-circuit Testing (ICT) on the same fixture
- Scaleable solution - up to 32 programmers can be networked to a single controlling PC (ideal for multi-PCB panel programming)

STANDALONE PROGRAMMING

PRODUCTION PROGRAMMING

IN-CIRCUIT TESTING (ICT)

RELAY SIGNAL ISOLATION

FIRMWARE UPGRADEABLE

CE   RoHS

EQUINOX
TECHNOLOGIES
EQUINOX TECHNOLOGIES UK LIMITED

The Embedded Solutions Company

ISPnano
Series III – ATE

Programming Interfaces:
- Supports most ISP hardware interfaces / protocols including JTAG, ARM SWD (Serial Wire Debug), SPI, I2C, XMEGA AVR PDI, ATtiny AVR TPI, ATtiny AVR HV mode, 8051 UART Bootloader, ams1-wire, ams UART
- Dedicated 2-wire I2C serial port
- Dedicated 2-wire XMEGA PDI / ATtiny TPI serial interface port
- Very fast programming speeds suitable for high-throughput production environments
- Individually configurable programmer I/O pins
- All programmer I/O lines are fully **ESD** and **over-voltage** protected
- Supports programming of target ICs between 1.8 and 5.0V
- Programmable frequency generator output on SCK2 pin - supports external clocking of AVR microcontrollers to speed up programming

Target Signal Routing:
- Relay isolation of all programming and power signals from the DUT when not in programming mode
- External **ICT / ATE** is routed to the Target System by default

Control methods:
- PC control via RS232, RS485 or USB port
- Network up to 32 x ISPnano programmers to a PC via RS485 bus
- Standalone operation (no PC required)
- **Remote System Control** e.g. PLC, ICT, ATE - using **ASCII (ATC)** protocol
- **TTL Control Port** for remote PLC control

Standalone Mode:
- Supports loading of up to 64 x **'Standalone Programming Projects'** into the programmer memory (16 Mbytes capacity)
- Single-button **auto-program** operation allows repetitive execution of the selected project
- Standalone project execution can be triggered by Start button, Fixture Lid Switch, Target Sensing Circuit, Remote Keypad or **ASCII Text Communications** protocol

Power control:
- Programmable **Target VCC** Supply: 1.8V - 5.0V @ 480 mA
- Programmable **Target VPP** Supply: 6.5V - 13.5V @ 100mA
- Programmer controlled **'Target Discharge Circuit'**

- Target voltage and current monitored by programmer
- Target Board short-circuit monitoring
- Power supply input: 9.0 to 24.0V

Device support:
- Atmel AVR SPI, AVR JTAG, XMEGA PDI, ATtiny TPI, ATtiny HV microcontrollers
- ams - Magnetic Rotary Position Sensors
- ARM microcontrollers (via JTAG or SWD interface) - ARM7TDMI®, Cortex M0, Cortex M3, Cortex M4
- Selected 8051 FLASH microcontrollers
- Serial EEPROM memories (SPI and I2C)
- Serial FLASH memories (SPI)
- Atmel / Adesto Serial DataFLASH™
- Sigma - Z-Wave SOC's and modules

Software (as standard):
- **EQTools** - creates **'Standalone Programming Projects'**
- **EDS** - Development Mode for testing under PC control
- **Upload Wizard** - uploads projects to the programmer
- **ASCII Text Communications** protocol (for remote control)

Other Features:
- Backwards compatible with the **'ISPnano Series III'** programmer

Typical applications:
- Medium to high-volume **production programming**
- Integrated **In-Circuit Testing (ICT)** programming fixtures with testing and programming on the same fixture
- PLC controlled programming fixtures
- **Multi-PCB panel programming** (requires multiple programmers)
- Fixtures requiring relay signal isolation between the programmer and DUT

Programmer size illustration

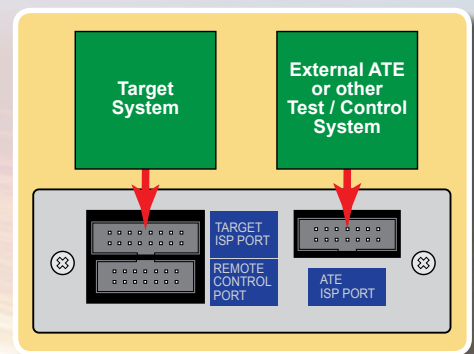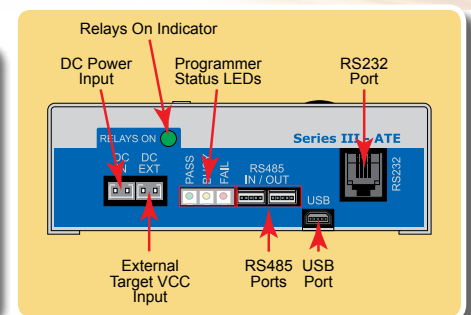*Rear Connector Ports*

Front Panel Layout

System Contents:
The picture shows the typical contents of the **ISPnano Series III ATE** programming kit.

The programmer is also available separately without any power supply or cables.

Ordering information:
ISPnano-S3ATEKIT - Full ISPnano Series III ATE programming kit including power supply, cables, documentation etc.

ISPnano-S3ATE - ISPnano Series III ATE programming module only

Device Support Libraries
The 'Device Support Libraries' for this programmer must be purchased separately.
Please contact Equinox for an up-to-date list of all available 'Device Support Libraries'.

The Embedded Solutions Company