# Smart I/O *i*CAN Header – XCL-BSSA

Smart I/O is a real-time, modular I/O system – expanding the application of the i³ family of all-in-one controllers. The Smart I/O iCAN adapter utilizes iCAN communications for the I/O connection with the i³ Controller. The highly efficient and highly reliable nature of iCAN allows a significant amount of I/O to be added while maintaining fast I/O updates.

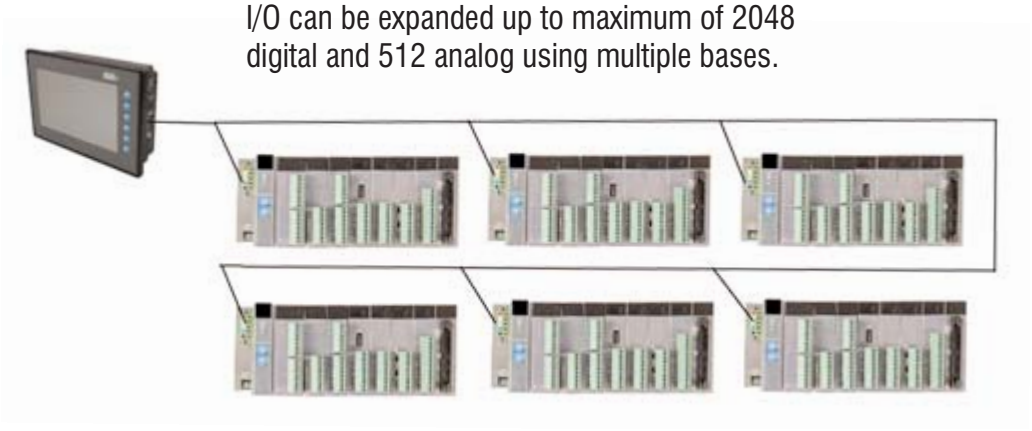
**Modular**

Smart I/O is a modular IO system which can add up to 8 I/O modules per base with a wide variety of digital and analog I/O to choose from. Digital I/O includes DC inputs, DC outputs, and Relay outputs. Analog I/O includes 0(4)-20mA/0-10V inputs and outputs, Thermocouple Inputs and RTD Inputs. Modules are available with inputs only, inputs and outputs, and outputs only.

**Compact**

Smart I/O is very compact, with a flexible footprint that only grows as you add modules. The Smart I/O Base is 3.5"H x 2.375"W – with a depth of only 1.75". Each I/O module adds only about ¾" of width. Using 16 point modules, the Smart I/O can support 128 I/O points in a footprint of less than 3.5"H x 8.75"W.

I/O can be expanded up to maximum of 2048 digital and 512 analog using multiple bases.



**Highly Expandable**

With digital I/O densities ranging from 8 points to 32 points per module, and an analog density of 4 channels per module – Smart I/O can support as many as 256 digital I/O points and 32 analog I/O points per base. Adding multiple bases to a single i³ control system is very easy. This can allow the number of I/O to grow to literally the limits of the i³ I/O memory space (Digital-2048, Analog-512). Multiple bases can also be used to distribute the I/O to locations closer to the sensors and actuators, saving wiring costs.

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## Easy to Setup and Configure

Unlike many I/O systems that are complex and difficult to use, Smart I/O is simply configured using i³ Configurator programming software. Smart I/O bases utilize i³ Configurator Hardware Configuration menu and a "plug and play" approach.

## Wiring

The Smart I/O Base should be powered independently from the power supplied to the Smart I/O modules themselves. This offers optimum noise immunity, and helps maintain galvanic isolation between the CAN Network and I/O Power. The recommended approach is to power the CAN network from one power supply, and I/O devices from at least one separate power supply. The Smart I/O bases are powered from the CAN Network.

The Smart I/O base provides two locations to land power wiring – a 5-pin removable network connector, and a 3-pin fixed power connector. While either can be used to power the base, it is recommended to use only the 5-pin removable connector. Leave the 3-pin fixed connector disconnected.

At each end of the network, a 121 ohm, ¼ watt, 1% resistor should be used for termination – installed between the CAN_H and CAN_L terminals. Only appropriate Thin (for <100m) or Thick (<500m) cabling should be used (assuming 125 KBaud).

| General Specification | |
|---|---|
| Required Power (Steady State) | 400mA @24 VDC, max<br>CLASS 2 POWER SUPPLY ONLY |
| Primary Power Range | 11-28 VDC |
| Output Power | 1500mA @ 5 VDC |
| Terminal Type | M3 Screw Type, Removable |
| Terminal Torque Range | 0.6 Nm (5.2 in-lb) |
| Accepted Wire Size | 14-26AWG (copper) |
| Wire Stripping Length | 7mm |
| Relative Humidity | 5 to 95% Non-condensing |
| Operating Temp. | -5°C to +50°C |
| Storage Temp. | -40°C to +75°C |
| Dimensions (Hx Wx D) | 90 x 45 x 60mm [3.54 x 1.77 x 2.36 in] |
| Weight | 114g (4oz) |
| Vibration & Shock | Per IEC1131-2 |
| Noise Immunity | Per IEC1131-2, IEC61000-4-2, IEC61000-4-3, IEC61000-4-4 |
| CE | Yes |
| UL & cUL | Class I, Div 2 Groups A, B, C & D |

| Part Numbers** | Description |
|---|---|
| XCL - BSSA | Smart I/O iCAN Adapter |
| XBE-DC16B | Expansion Module 16 Point, (9-30)VDC Input |
| XBE-DC32A | Expansion Module 32 Point, 24VDC |
| XBE-DR16A | Expansion Module 8 Point 24VDC Input, 8 Point Relay Output |
| XBE-RY16A | Expansion Module 16 Point Relay Output |
| XBE-TP16A | Expansion Module 16 Point Transistor Output (Source ) |
| XBE-TP32A | Expansion Module 32 Point Transistor Output (Source) |
| XBF-AD04A | Expansion Module 4 Analog Input |
| XBF-AH04A | Expansion Module 2 Analog Input , 2 Analog Output |
| XBF-RD04A | Expansion Module 4 PT100 Inputs |

** Please ask IMO for more information about expansion modules.

| Communications Specifications | |
|---|---|
| Data Transmission | iCAN |
| Flow Control | CAN bitwise arbitration |
| Connector | M3 Screw Type, 5-pin Removable Terminal Block |
| Architecture | Daisy-chain or Trunkline-Dropline |
| Node ID config. | Digital Rotary Switches (2) |
| Legal Node Ids | 1 to 79 decimal |
| Inactivity Timeout | Configurable from Software |
| *i*³ Config. Version | 9.4 or later |
| *i*³ Firmware Version | 12.98 or later |

| I/O Specifications | |
|---|---|
| Compatible I/O | XGB I/O |
| Bases Supported (per system) | 16 |
| Modules Supported (per base) | 8 |
| Digital I/O, max (per base) | 256 (Inputs + Outputs) |
| Analog I/O, max (per base) | 32 (Inputs + Outputs) |
| I/O Limitations (per system) | 2048 Digital In, 2048 Digital Out,<br>512 Analog In, 512 Analog Out |
| Power Supplied for I/O modules | 1500mA @ 5V DC maximum |