ABB MEASUREMENT & ANALYTICS | DATA SHEET

XIO-08, XIO-04, and XIO-00

Smart Extended IO

Measurement made easy

Engineered solutions for all applications

Introduction

The XIO is a smart IO expansion device which extends XSeries and RMC controllers capabilities, allowing multiple scalable options to meet any customer site configuration. The XIO can connect to the RMC over Ethernet to add IO points, serial devices, and extend the site automation. The XIO is DIN rail mounted and compatible with standard XCore packaging options.

Ease to set up and configure is a main design feature of the XIO. The RMC has a new application which discovers a new XIO device on the network, learns its configuration, and becomes a consumer of the XIO's application data without the need for maintaining a list of connected devices. When applications are chosen for export, the XIO will automatically update the RMC with the new configuration.

Communications with serial endpoint devices has never been easier. XIO provides two methods for delivering serial data to the RMC: the familiar communication application or the new Ethernet to Serial Passthrough application. By using the Ethernet to Serial Passthrough application, the RMC will receive the data from the field instrumentation directly, serving as a data conduit.

Another new feature being released with the XIO is the support for hot-pluggable and hot-swappable TFIO modules. Users can now replace, remove, and add TFIO modules to the XIO and RMC dynamically*.

New networking features allow the XIO to support up to four independent networks, two independent switch networks, and the ability to use the XIO's Wi-Fi** as an independent network or to bridge with one of the Ethernet ports.

* Depending on site safety and company policy
** XIO supports Wi-Fi access point or client modes for configuration only.

General features

The XIO is an extension to the RMC family, providing enhanced and scalable IO capacity to existing and new sites. Totalflow customers will be very comfortable with XIO and its applications.

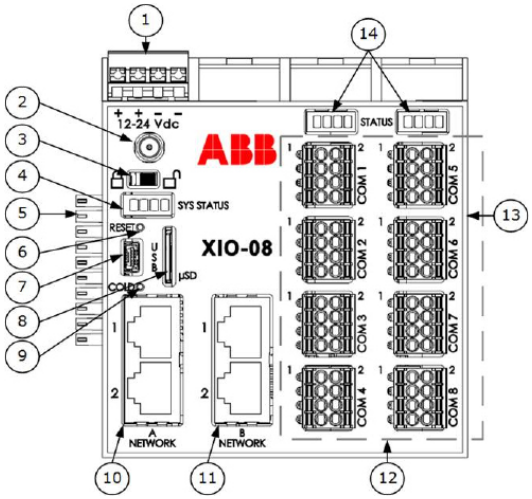
- DIN Rail mount enclosure
- Class 1, Div 2 area classification
- Operating temperature -40 °C ≥ Tamb ≥ 60 °C (antenna installed within enclosure)
- Operating temperature -28 °C ≥ Tamb ≥ 60 °C (external antenna mounting application)
- Up to 8 serial ports supporting RS-422/232/485 protocols
- Auto-discovery for easy configuration
- 12-24 Vdc external power capable
- Compatibility with G4 software applications
- Support for Modbus and Totalflow native protocols
- Wi-Fi and Bluetooth for wireless local configuration
- TFIO Hot-pluggable/hot-swappable support

General specifications

Specification item		Description
Operating voltage range		12 - 24 Vdc
Nominal power		1.5 watts (5A maximum with external options)
Dimensions	Width	3.56 in (9.05 cm), XIO-00: 2.04 in (5.19 cm)
	Height	3.96 in (10.06 cm)
	Depth	5.09 in (12.93 cm)
	Installed depth	5.13 in (13.04 cm)
Mounting		DIN rail mounts on a wall or enclosure that meet the environmental ratings for the environment of the location is recommended: 4 inch of free space above and below of the XIO and 1 inch of free space to the right and left of "XIO+TFIO" total width
Operating temperature		Operating temperature -40 °C ≥ Tamb ≥ 60 °C (antenna installed within enclosure) Operating temperature -28 °C ≥ Tamb ≥ 60 °C (external antenna mounting application) -28 °C to 60 °C (-20 °F to 140 °F) (Without optional antenna installed external to enclosure) Storage temperature of -40 °C to 85 °C (-40 °F to 185 °F) or greater TFIO of -40 °C to 70 °C (-40 °F to +158 °F)
Electromagnetic compatibility		Emissions (Other): FCC CFR 47, Part 15, Subpart B, Class A (FCC Emissions) IECS-03, Issue 4, CAN/CSA-CEI/IEC CISPR 11 Class A (Canada ITE Emissions) AS/NZS CISPR 11, Class A (Australia/New Zealand)
EMC Directive 2004/108/EC		**Emission EN 61326-1: Radiated and conducted Class A** EN 61000-4-2, ESD, 8 kV Air, 4 kV Contact EN 61000-4-3, RFI, 10 V/m EN 61000-4-4, EFT, 1 kV to AC, 0.5 kV to DC & Signals EN 61000-4-5, Surge, 2 kV CM, 1 kV DC & Signals EN 61000-4-6, Conducted, 0.15-80 MHZ, 3 Vrms EN 61000-4-8, Magnetic Fields, 3 A/m 50/60 Hz
Hazardous location certification (North America)		According to standards for the assurance of fundamental safety requirements in the United States of America: • UL No 61010-1: "Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements" • ANSI/ISA 12.12.01: "Non-incendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations" • ANSI/UL 60079-0: "Explosive Atmospheres – Part 0: Equipment – General Requirements" • ANSI/UL 60079-15: "Explosive Atmospheres – Part 15: Equipment protection by type of protection 'n'" • UL No 50E: "Enclosures for Electrical Equipment, Environmental Considerations" According to CSA standards for the assurance of fundamental safety requirements in Canada • C22.2 No 61010-1:12: "Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements" • C22.2 No 0-10: "General Requirements" • C22.2 No 213-M1987: "Non-incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations Industrial Products" • C22.2 No 60079-0:11: "Explosive Atmospheres – Part 0: Equipment – General Requirements" • C22.2 No 60079-15:12: "Explosive Atmospheres – Part 15: Construction, test and marking of type of protection 'n' electrical apparatus" • C22.2 No 94-2: "Enclosures for Electrical Equipment, Environmental Considerations" • C22.2 No 60529:05: "Degrees of protection provided by enclosures (IP Code)"

Legend - XIO housing cover identification

ID	Description	ID	Description
1	External Power supply input	**8**	Micro SD holder
2	Wi-Fi Antenna Connector	**9**	Cold reset button
3	Security switch	**19**	A Network ethernet ports 1 and 2
4	System status LEDs	**11**	B Network ethernet ports 1 and 2
5	TFIO Module interface (Male)	**12**	COM 1 – Com 8 Serial communication ports
6	Reset button	**13**	TFIO Module interface (Female)
7	USB mini port	**14**	Communication card status LEDs



Processor, memory, and interface features

Component	Description
Processor	ARM Cortex A8 processor @ 720 MHz
Clocks	A high accuracy/stability TCXO 32.768k Oscillator is specified to ensure accurate clocks / RTC for measurements (+/-5 ppm accuracy, 7.5ppm drift over time) A standard 50 ppm Oscillator at 25 MHZ is used
RAM	512 MB
Storage	128 MB permanent storage available for application data and configuration files
Communication ports	Up to 8 software configurable RS232/RS485/RS422 serial ports 1 USB 2.0 device interface 2-port onboard 100 Mbps auto-negotitation Ethernet switch 2-100 Mbps Industrial Ethernet Ports
I/O expansion interfaces	TFIO module bus up to 22 TFIO Modules (max 8 per type)
Security switch	On/Off supported in combination with two configurable security code levels
Time-based stability	± 7.5 ppm (parts per million)
Cold Boot Button	Restore cold data configuration
Reset Button	Reset device

Communication ports

Ports configured for local communication support either local access from a host system or connection to external devices or peripherals

The XIO has four types of on-board communication ports:

Port name	Use
COM1-8	Serial communication configurable for RS232, RS485, or RS422 with available continuous and switched power output Communication ports apply only to XIO-04 and XIO-08.
ETHERNET A (1-2)	Two Ethernet ports configurable in switch mode or port-based VLAN and rate-limiting Local communications (high-speed TCP/IP-based local operator interface) Remote communication using TCP/IP connections over a network (Management port) 100 Mbps auto-negotiation Full duplex
ETHERNET B (1-2)	Two Industrial Ethernet ports configurable in switch mode or port-based VLAN Daisy chain other Totalflow equipment or connect Ethernet-to-serial devices 100 Mbps Full duplex
USB 2.0 (full speed and high-speed mode)	Local communication (high-speed serial local operator interface)
WiFi/Bluetooth	2.4 GHz 802.11 b/g/n WiFi Bluetooth 4.1 Access Point or Client option for wireless local configuration

Supported applications

XIO serves as an extension to the RMC for IO and communications. The following Totalflow applications have been enhanced to support the XIO:

- IO interface
- Operations
- Holding registers
- Trend system
- Generic communication app
- XMV interface
- Wireless remote IO (WellTell)
- Therms master application
- Level master
- Coriolis interface
- Liquid coriolis interface
- Ethernet-serial pass-through

Networking

Auto-Discovery
The RMC now supports auto-discovery capabilities to detect XIO devices added to the network.

Port-based VLAN
Each Ethernet port can be assigned to individual networks to allow fine-tuning of network traffic.

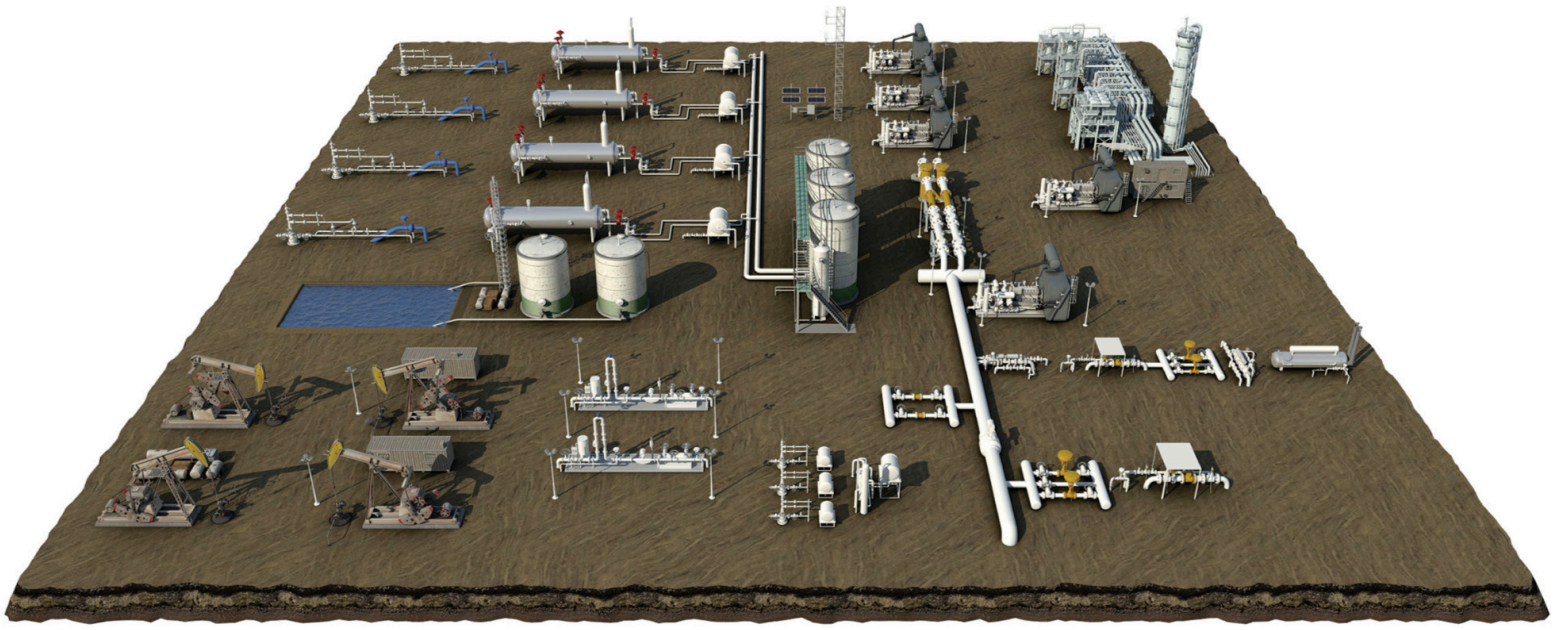
IO expansion

TFIO modules
XIO provides added hardware functionality by allowing the addition of modular I/O as needed with a TFIO interface. The TFIO interface supports up to 22 TFIO modules to allow support of more applications across the entire well pad.

Hot-pluggable/hot-swappable
XIO introduces a new feature for enhanced TFIO support. XIO checks for removed, added, and replaced TFIO modules. Through PCCU, the user can manage and respond to TFIO module changes without the need to restart the device or application.

Serial expansion

With up to 8 serial communication ports, multiple electrical standards and multiple protocol support, XIO can talk to a multitude and variety of serial endpoint devices. The addition of the Ethernet-Serial Passthrough application allows a host controller to extend its reach over Ethernet to the device attached to the XIO's communication port.



Contact Us

ABB Inc.
Upstream Oil & Gas Solutions
Quotes: totalflow.inquiry@us.abb.com
Orders: totalflow.order@us.abb.com
Training: totalflow.training@us.abb.com
Support: totalflowsupport@us.abb.com
+1 800 442 3097(opt. 2)

Oklahoma Office
7051 Industrial Boulevard
Bartlesville, OK 74006
Ph: +1 918 338 4888
+1 800 442 3097(US only)