Data Sheet

Symphony Plus
S+ I/O: IOR810 S800 I/O gateway

Introduction

The IOR810 is the gateway module that connects Symphony Plus SD Series as well as HR Series controllers to S800 I/O. The IOR810 provides an additional way to utilize S800 I/O as part of a Symphony Plus or Symphony Harmony control system with sequence of events (SOE) capability. The accuracy of SOE time-stamping is determined by specification of each S800 SOE digital input module type.

The IOR810 interfaces the HN800 I/O bus (electrical or fiber optic) to the existing S800 I/O Modulebus (fiber optic only). The core function of the IOR810 is to scan the S800 I/O modules and provide this information to the Symphony Plus controller via HN800. The IOR810 can connect to, and scan up to, seven S800 cluster modems via fiber optic Modulebus. Each cluster modem can support up to twelve S800 I/O modules.

An IOR810 can be located a maximum of 30 meters from the Symphony Plus controller if connected by electrical HN800 bus, or a maximum of 3000 meters if connected by fiber optic HN800 bus by using RFO810 repeaters.

The fiber optic Modulebus between an IOR810 and a S800 cluster modem, or between two cluster modems in the daisy-chain has a maximum distance of 15 meters if plastic fiber cable is used, or 200 meters if HCS fiber cable is used, or 1000 meters if TB825 optical media converters and glass fiber cable are used. Cluster modems can be either non-redundant or redundant.

The IOR810 receives its configuration information from the Symphony Plus controller using standard Symphony Plus function codes to specify the S800 I/O data. It will handle inputs and outputs, analog and digital signal types, pulse counters and sequence of events (SOE) data collection.

The IOR810 has the following features:

- Can be selectively configured either redundantly or non-redundantly
- Supports the sequence of events (SOE)capability of the S800 I/O subsystem
- Capable of interfacing to the following types of I/O within the S800 I/O subsystem: basic AI/AO, basic DI (contact inputs), SOE DI, basic DO, pulse inputs, temperature device inputs (RTDs and thermocouples), Intrinsic Safety and Redundant I/O. Table 5 lists the S800 I/O modules that have been validated for use with the IOR810.

Design Standards

Table 1. IOR810 Design Standards

Category	Standard	Description
Safety	CSA C22.2 No. 142	Safety standards for process control equipment
	ANSI/ISA S82.01-1994	
	EN 61010-1	Safety standards for process control equipment
Environmental	EN 60068-2-1, EN 60068-2-2, EN 60068-2-14	Operating temperature
	EN 60068-2-78	Operating relative humidity
	MIL-STD-810G 501.5, 502.5	Storage/transportation temperature
	ISA S71.04 (level 1 liquids, solids, gases)	Air quality
Vibration	EN 60068-2-6	Operating vibration (sinusoidal)
	MIL-STD-810G 514.6	Storage/transportation vibration Category 1, basic transportation
	EN 60068-2-27	Shock
EMI, RFI, and electrical surge	EN 61000-4-2 (level 3)	ESD
	EN 61000-4-3 (level 3)	EMI susceptibility
	EN 61000-4-4 (level 3)	Electrical fast transient
	EN 61000-4-5 (level 3)	Electrical surges
	EN 61000-4-6 (level 3)	Conducted immunity
	EN 61000-4-8 (level 3)	Magnetic fields
	CISPR-16	Radiated emissions

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Design Standards

Table 1. IOR810

Category	Standard	Description
Flammable atmospheres	CSA C22.2 No. 213	Nonincendive equipment
	ISA S12.12	Nonincendive equipment
	FM Class 3611	Division 2 equipment
Flammability of product components	IEEE 383	Intercabinet cables
	UL rating VW-1	Intracabinet cables
	UL 94 V-0, V-1, V-2, or V5	Flammability of plastic materials
Certifications	CE Mark (pending)	EMC directive 2004/108/EC Low voltage directive 2006/95/EC
	CSA	Certified for use as process control equipment in an ordinary (nonhazardous) location
	cCSAus	Approved for use in Class I; Division 2; Groups A, B, C, D: hazardous locations. Certified by CSA to Canadian and US standards: CAN/CSA C22.2 No. 1010.1-92 (R1999) CAN/CSA C22.2 No. 1010.1B-97 TIL No. I-29B CAN/CSA C22.2 No. 213 ANSI/ISA S82.02.01-1994 FM Class number 3611: Oct. 1999 Must be powered by an approved SELV source, in accordance with CSA C22.2 No. 1010.1, Annex H and mounted within an enclosure per ABB document WE-DOC-03604

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Table 2. IOR810 Specifications

Property		Characteristic/Value[1]
Gateway	Power consumption	Support for redundant power inputs[2]
	Voltage	21.6 VDC minimum 24.0 VDC nominal 28.0 VDC maximum
	Current	220 mA typical 250 mA maximum
	Mounting	Standard 35mm wide DIN-rail horizontally Key positions to IOR810N200 mounting base 1= B, 2 = B
	Module redundancy	Yes
	Module dimensions	54 mm width, 119 mm height
	Base dimensions	124 mm width, 186.5 mm height (holds two modules)

Table 2. IOR810 Specifications (continued)

Property		Characteristic/Value[1]
HN800	Communication rate	4 Mbaud
	Bus redundancy	Yes
	Devices[3]	Up to 64 devices in total per electrical bus, up to 8 Segments per electrical bus, up to 24 devices per Bus Segment.
	Intracabinet distance[4]	30 m
	Intercabinet distance	3,000 m by using RFO810 fiber-optic repeater
	Architecture	Must be 'Star Architecture' with up to 4 RFO810 optical links

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NOTES:

1. All specification values are maximums unless stated otherwise.
2. Must use HBX01L and HBX01R Bus Extenders for power and HN800 bus connections.
3. A Bus Segment is defined as the collection of HN800 devices physically connected between a pair of HBX01L & HBX01R Bus Extenders. The maximum 8 Bus Segments can only be achieved when all HBX01L & HBX01R on the bus is PR: C or later, and all TER800 on the bus is PR: F or later. When any Bus Extender or Bus Terminator with earlier product revision is used, the maximum number of Bus Segment per electrical HN800 bus is reduced to 3.
4. Intracabinet HN800 refers to HN800 enclosed within a stand-alone (or multibay) enclosure not leaving the protection of the enclosure. This distance includes the length of all interconnected bases and all connecting cables.

Table 4. IOR810 Environmental Specifications

Environment	Operating	Storage and Transportation
Air quality	ISA S71.04 G1 ISA S71.04 G3 compliance version is also available	ISA S71.04 G1 ISA S71.04 G3 compliance version is also available
Altitude	Sea level to 3,048 m (10,000 ft)	Sea level to 12,192 m (40,000 ft.)
Relative humidity (noncondensing)	20% to 95% @ 40°C (104°F)	5% to 95%
Temperature	0° to 55°C (32° to 131°F) (internal enclosure)	-40° to 85°C (-40° to 185°F)
Vibration	10 to 60 Hz, 0.0375 mm (0.0015 in.) pp 60 to 150 Hz, 0.5 G sine	0.74 G_{RMS} longitudinal 0.20 G_{RMS} transverse 1.04 G_{RMS} vertical 10 to 500 Hz random
Shock	—	15 G, 11 msec

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

S800 Supported Modules

Table 5 lists the specific S800 I/O modules supported by the IOR810 gateway module.

Table 5. S800 I/O Modules Validated for the IOR810 Gateway

Analog Input	Analog Output	Digital Input	Digital Output	Pulse Input
AI801	AO801	DI801	DO801	DP820
AI810	AO810	DI810	DO810	DP840
AI815	AO815	DI811	DO814	
AI820	AO820	DI814	DO815	
AI825	AO845	DI820	DO820	
AI830	AO890	DI821	DO821	
AI830A		DI830	DO840	
AI835A		DI831	DO890	
AI843		DI885		
AI845		DI840		
AI890		DI825		
		DI890		

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