JNIOR

Overview

The INTEG JNIOR is an Ethernet I/O (digital, analog) device that monitors and controls a small set of process signals. JNIOR functions as both basic I/O for integration with another application or system AND as a stand-alone controller capable of running its own software. The JNIOR family of I/O modules with "Advanced Capabilities" brings cost-effective and seamless connectivity and control, with web and IT friendly features, to a small amount of process signals for integration over the Ethernet network with a variety of asset management applications.

Hardware: Each JNIOR comes with a core compliment of digital I/O, including digital inputs and relay outputs. The JNIOR also contains 2 serial ports for serial control and integrating with serial devices. The JNIOR has an expansion port that allows more I/O to be added including analog signals (4 – 20 mA, 10 VDC, RTD and digital temperature sensors). The JNIOR Control Panel provides the option to have push buttons and status LEDs to interact with the JNIOR.

Software: The most important benefit of using the JNIOR is its software. At the core is its operating system packed with numerous built-in features that make the JNIOR easy to use for a variety of applications without any programming required. The JNIOR contains a web page for monitoring and manually controlling the JNIOR I/O, configuring the I/O and setting up alarms and e-mail events.

The JNIOR supports a variety of communication protocols including TCP/IP (JNIOR protocol), Modbus/TCP, OPC and simple ASCII commands. Advanced software applications are included with each JNIOR that bring additional functionality to the JNIOR. Custom software applications can be added by the user or by INTEG on behalf of the user by using the JNIOR Software Development Kit. Here is a subset of software that is available:

- Serial Control Plus
- Serial to Ethernet
- Task Manager
- Utility Usage Monitor
- Data Buffer
- Data Collector
- Cinema.JNIOR

Support: The JNIOR Support Tool software program makes configuring and maintaining the JNIOR easy. The JNIOR Support Tool runs on a PC and can be used to configure the JNIOR IP settings, gather logs, update a JNIOR and even back-up data and other files. Technical support and training is provided by the INTEG team via the phone and web.

- *Cost Effective, Flexible, Robust and Reliable I/O Device*
- *No Programming Required - Built-in Software Functions*
- *Intelligent Ethernet I/O - "Expandable"*
- *Buffer and Push Data to the Cloud*
- *Flexible Communications*
- *Web Based Configuration Screen*
- *Alternative to Expensive, Complex PLCs*
- *Integrates Easily with Other Applications*
- *E-mail Notification of Alarms and Events*
- *Fast, Friendly Technical Support and Training*
- *Over 30,000 JNIORs Sold to Over 250 Customers in Over 35 Countries*

JNIOR Model 310

JNIOR Model 312

JNIOR Model 314

JNIOR Model 410

Get Connected. Get Results.

JNIOR

Series 3

JNIOR	JNIOR Model 310	JNIOR Model 312	JNIOR Model 314
Catalog Number	JNR-100-003B	JNR-200-003B	JNR-300-003B
Optically Isolated Digital Inputs	8	4	12
Counter Inputs	8	4	12
	Inputs Double as Counters; up to 2 kHz each; 32-bit counter value; Power Fail Counter Storage		
Relay Outputs	8	12	4
Relay Output Configurations	8 - Normally Open Contacts	10 - Normally Open Contacts	2 - Normally Open Contacts
		2 Selectable Normally Open / Normally Closed Contacts	
	Additional Relay Outputs available via Digital Expansion Modules (4 Relay Output & Power 4 Relay Output)		
CPU / Operating System	8-bit Microprocessor / JNIOR OS		
Power	9 to 24 Volts DC or AC		
Memory	2MB Battery backed RAM - 1 MB Flash - Blocks of Immutable Memory: up to 64k each		
Custom Applications	Compiled as .JNIOR file		
Physical Size / Weight / Case	6 x 4 x 1.2 in. (152 x 102 x 31 mm) / 11 ounces (312 grams) / Flame Retardant ABS Plastic		
Analog Inputs / Analog Outputs	Analog Input / Output Signals available via Expansion I/O - up to 2 Modules per JNIOR		
Operating Temperature / Storage Temperature / Humidity	-15ºF to160ºF (-25ºC to 70ºC) / -40ºF to185ºF (-40ºC to 85ºC) / 5 to 95% Non-Condensing		
Serial Port (COM)	1- RS232 (COM: Command port & 2nd application use)		
Auxiliary Serial Port (AUX)	1 - RS232 / RS422 / RS485 (AUX: Application use, provides additional hardware handshaking)		
Ethernet Port	1 - RJ45 (10/100 Mbps)		
Sensor Port	1 - Sensor Port for Expansion Modules and Sensors		
Connections / Mounting	2 Piece Connectors / Tabs with DIN Rail option		
Certification	TUV for Safety, FCC Class B for Noise Immunity, CE Mark, RoHS Compliant		
Warranty	2 Years		

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JNIOR	JNIOR Model 410	JNIOR Model 412 *Coming Soon*	JNIOR Model 414 *Coming Soon*
Catalog Number	JNR-100-004B	JNR-200-004B	JNR-300-004B
Optically Isolated Digital Inputs	8	4	12
Counter Inputs	8	4	12
	Inputs Double as Counters; Up to 2 kHz each; 32-Bit Counter Value; Power Fail Counter Value Storage		
Relay Outputs	8	12	4
Relay Output Configurations	8 - Normally Open Contacts	10 - Normally Open Contacts	2 - Normally Open Contacts
		2 - Selectable Normally Open / Normally Closed Contacts	
	Additional Relay Outputs available via Digital Expansion Modules (4 Relay Output & Power 4 Relay Output)		
CPU / Operating System	32-bit Microprocessor / JANOS (by INTEG)		
Power	12 to 24 Volts DC or AC		
Memory	2MB Battery backed RAM – 16 MB Flash (Optional: 32 MB or 64 MB Flash) Blocks of Immutable Memory: up to 64k each		
Custom Applications	Executes as .JAR file for easy development		
Physical Size / Weight / Case	6 x 4 x 1.2 in. (152 x 102 x 31 mm) / 11 ounces (312 grams) / Flame Retardant ABS Plastic		
Analog Inputs / Analog Outputs	Analog Input/Output Signals Available via Expansion I/O – up to 2 Modules per JNIOR		
Operating Temperature / Storage Temperature / Humidity	15ºF to160ºF (-25ºC to 70ºC) / -40ºF to185ºF (-40ºC to 85ºC) / 5 to 95% Non-Condensing		
Serial Port (COM)	1- RS232 (COM: Command port & 2nd application use)		
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JNIOR

Analog Expansion Modules

- *Plug-and-Play:*
  - *4 - 20mA Analog Expansion Module*
  - *10 VDC Analog Expansion Module*
  - *PT100 RTD Expansion Module*
- *Compatible with a Variety of Sensors*
- *Works Seamlessly with the JNIOR*
- *Cost-Effective*
- *Web-based Configuration and Viewing*
- *Integrates Easily with Other Applications*
- *TCP/IP, MODBUS/TCP and OPC Communications*

The JNIOR platform of Ethernet I/O modules is more than just I/O. Starting with a core compliment of digital I/O, the user can now easily add analog signals at any time. The JNIOR provides the central controller for seamlessly integrating the analog expansion modules. The modules can be plugged in and out while under power and with a reboot they are automatically recognized.

The JNIOR can be used as a simple I/O gateway or as an advanced controller. With built-in features, optional add-on free software and the ability to easily integrate the JNIOR into your own software applications, the JNIOR meets all your needs now and in the future.

Any combination of two plug-and-play expansion modules can be daisy-chained to the JNIOR via the Sensor Port.

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4 - 20 mA Expansion Module
- *4 Analog Inputs*
- *4 Analog Outputs*

The INTEG 4 - 20 mA Expansion Module provides the capability for 4 inputs and 2 outputs to be added to the JNIOR. The JNIOR automatically recognizes the analog module when connected via the Sensor Port. The analog points are integrated with the JNIOR I/O data structure and made available via the built-in web pages, Windows API (DLL), OPC Server, Modbus/TCP protocol, and JNIOR/TCP data packets. The module configuration is completed via the built-in web page.

10 VDC Expansion Module
- *4 Analog Inputs*
- *2 Analog Outputs*

The INTEG 10 VDC Expansion Module provides the capability for 4 inputs and 2 outputs to be added to the JNIOR. The JNIOR automatically recognizes the analog module when connected via the Sensor Port. The analog points are integrated with the JNIOR I/O data structure and made available via the built-in web pages, Windows API (DLL), OPC Server, Modbus/TCP protocol, and JNIOR/TCP data packets. The module configuration is completed via the built-in web page.

PT100 RTD Expansion Module
- *4 RTD Inputs*

The INTEG PT100 RTD Expansion Module provides the capability for 4 RTD sensors to be added to the JNIOR. The JNIOR automatically recognizes the RTD module when connected via the Sensor Port. The RTD points are integrated with the JNIOR I/O data structure and made available via the built-in web pages, Windows API (DLL), OPC Server, Modbus/TCP protocol, and JNIOR/TCP data packets. The module configuration is completed via the built-in web page.

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Analog Expansion Modules

JNIOR	4 - 20 mA	10 VDC	PT100 RTD
Catalog Number	**EXP-200-001**	**EXP-200-002**	**EXP-200-003**
Inputs	Analog	Analog	RTD
Quantity	4	4	4
Range	4 - 20 mA	-10 to +10 VDC	Compatible with 2, 3 4 wire PT100
			Connects as a 3 Wire RTD
A/D Resolution	12 bits	12 bits	12 bits
Full Scale Accuracy	Better than 1% full-scale range	Better than 1% full-scale range	Better than 1% full-scale range
Outputs	Analog	Analog	
Quantity	2	2	
Range	4 - 20 mA	0 to +10 VDC	
A/D Resolution	12 bits	12 bits	
Full Scale Accuracy	Better than 1% full-scale range	Better than 1% full-scale range	
Physical Size	4 x 2 x 1.2 in. (102 x 51 x 31 mm)		
Weight	4 ounces (115 grams)		
Power	None required - Module draws power via Sensor Port on JNIOR		
Case	Flame Retardant ABS Plastic		
Sensor Port	I/O Expansion via Sensor Port—Connector cable included		
Operating Temperature	-15ºF to160ºF (-25ºC to 70ºC)		
Storage Temperature	-40ºF to185ºF (-40ºC to 85ºC)		
Humidity	5 to 95% Non-Condensing		
Wiring	2 piece connectors		4 (3 wires ea.) - 2 piece connectors
Mounting	Tabs with Din Rail Option		
Warranty	2 Years		

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Digital Expansion Modules

- **Plug-and-Play:**
    - **4 Relay Output Expansion Module**
    - **Power 4 Relay Output Expansion Module**
- **Works Seamlessly with the JNIOR**
- **Outputs Can Be Pulsed Individually**
- **Cost Effective**
- **Web-based Configuration and Viewing**
- **Integrates Easily with Other Applications**
- **TCP/IP, MODBUS/TCP and OPC Communications**

The JNIOR platform of Ethernet I/O modules is more than just I/O. Starting with a core compliment of digital I/O, the user can easily add relay outputs at any time. The JNIOR provides the central controller for seamlessly integrating the expansion modules. The modules can be plugged in and out while under power and with a reboot they are automatically recognized.

The JNIOR can be used as a simple I/O gateway or as an advanced controller. With built-in features, optional add-on free software and the ability to easily integrate the JNIOR into your own software applications, the JNIOR meets all your needs now and in the future.

Any combination of two plug-and-play expansion modules can be daisy-chained to the JNIOR via the Sensor Port.

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4 Relay Output Expansion Module

- **4 Relay Outputs**
- **0 - 30 VDC**

The INTEG 4 Relay Output Expansion Module provides the capability for 4 relay outputs to be added to the JNIOR. The JNIOR automatically recognizes the module when connected via the Sensor Port. The relay outputs are integrated with the JNIOR I/O data structure and made available via the built-in web pages, Windows API (DLL), OPC Server, Modbus/TCP protocol, and JNIOR/TCP data packets. The module configuration is completed via the built-in web page.

Power 4 Relay Output Expansion Module

- **4 Relay Outputs**
- **120/240 VAC**

The INTEG Power 4 Relay Output Expansion Module provides the capability for 4 relay outputs to be added to the JNIOR and each relay can handle 120/240 VAC at 10 amps. The JNIOR automatically recognizes the module when connected via the Sensor Port. The relay outputs are integrated with the JNIOR I/O data structure and made available via the built-in web pages, Windows API (DLL), OPC Server, Modbus/TCP protocol, and JNIOR/TCP data packets. The module configuration is completed via the built-in web page.
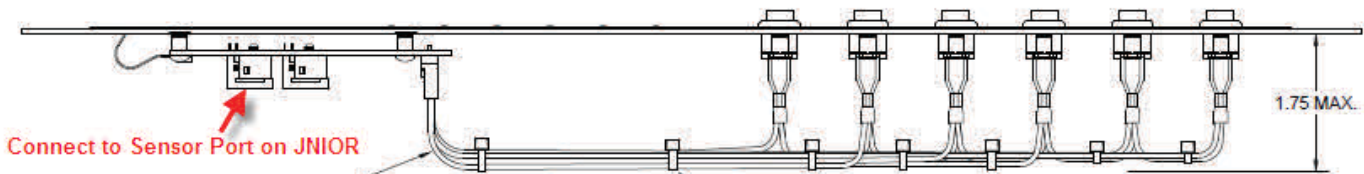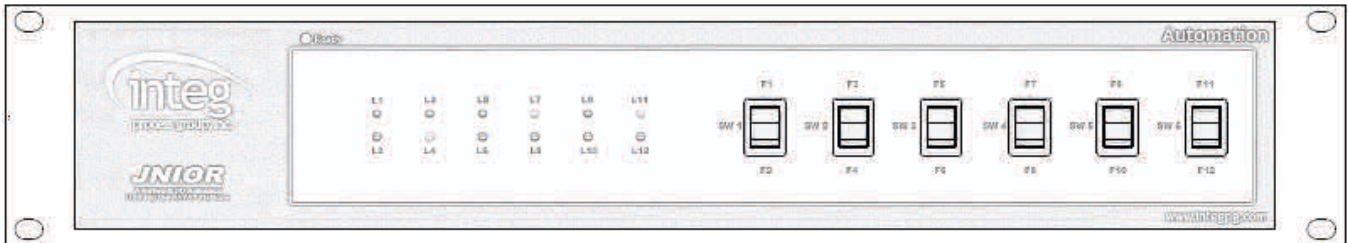

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Digital Expansion Modules

JNIOR	4 Relay Output	Power 4 Relay Output	
Catalog Number	**EXP-200-004**	**EXP-200-005**	
Outputs	Digital	Digital	
Quantity	4	4	
Voltage Range	0 - 30 Volts DC or AC	120/240 VAC	
Type	SPST, Form A	SPST, Form C	
	1 Normally Open or Closed Contact	1 Normally Open Contact	
		1 Normally Closed Contact	
Contact Rating	1 Amp @ 24 Volts AC/DC	10 Amp @ 120/124 Volts AC	
Physical Size	4 x 2 x 1.2 in. (102 x 51 x 31 mm)	4.25 x 2.63 x 1.27 in. (108 x 67 x 32 mm)	
Weight	4 ounces (115 grams)	6 ounces (170 grams)	
Power	None required - Module draws power via Sensor Port on JNIOR		
Case	Flame Retardant ABS Plastic		
Sensor Port	I/O Expansion via Sensor Port—Connector cable included		
Operating Temperature	-15ºF to160ºF (-25ºC to 70ºC)		
Storage Temperature	-40ºF to185ºF (-40ºC to 85ºC)		
Humidity	5 to 95% Non-Condensing		
Wiring	2 piece connectors		
Mounting	Tabs with Din Rail Option		
Warranty	2 Years		

JNIOR	
	JNIOR Control Panel
Catalog Number	**JCP-600-001**
Installation	The JNIOR Control Panel can be mounted in any 19-inch equipment rack. The Control Panel is 2U in height. As an option, the Control Panel can be mounted in a box so that the complete unit can be wall mounted.

COMPLETE ASSEMBLY

Connect to Sensor Port on JNIOR

1.75 MAX.

Accessories

JNIOR	 **Power Supply**	**JNIOR**	 **Rugged External Temperature Sensor**

Catalog Number	**PSA-120-125**	Catalog Number	**SEN-100-002**

Input		**Features**	
Rated Input Voltage	100 V - 240 V ac	Probe	304 Stainless Steel
Input Voltage Range	90 V - 264 V ac	Probe: Standard Length	3 inches
Rated Frequency	50 V - 60 Hz	Cable: Standard Length	12 feet (CAT 5)
Frequency Range	47 V - 63 Hz	Pressure Tested	Water Resistant to 60 PSI
Rated Input Current	300 mA RMS max.	Environments	Harsh
Inrush Current	15 A max. at 115 / 30 A max. at 230 V ac cool start	Chemical Resistant	YES
		Waterproof	YES

Output		**Temperature**	
Output Voltage	12 V dc at 1.0 A	Probe	-67ºF to 257ºF (-55ºC to 125ºC)
Output Min. Current	0 A	Cable	-94ºF to 302ºF (-70ºC to 150ºC)
Line Regulation	± 1%	**Accuracy**	
Load Regulation	± 5%		
Over Voltage Protection	15 ~ 18 V dc max. (output shutdown)	-10ºC to 85ºC	-0.5ºC to 0.5ºC
Short Circuit Protection	Output Shut Down and Auto Restart	-55ºC to 125ºC	-2.0ºC to 2.0ºC
		Dimensions	
Ripple Voltage	150 mV (p-p) (100 - 240 V at Full Load)	Body Diameter (in.)	.216 min - .220 max (.218 typical)
Efficiency	60% min.	Tip Diameter (in.)	.218 min - .233 max

Safety and EMI		
HI POT	Input to output (3000 V ac at 10 mA for 1 min.)	• Contains RJ11 jack to plug directly into the JNIOR 1-Wire/Sensor Port
Insulation Resistance	Input to output (> 100 M Ohm at 500 V dc)	• Automatically recognized by the JNIOR software
Safety Approvals	UL/cUL	• Submersible, Rugged, Wide Temperature Range Probe suitable for use in harsh environments
EMI Standard	Meets FCC class B, VCCI:II	
RoHS Compliant	Yes	
Leakage Current	0.25 mA	

JNIOR	**Connector Kit**	**DIN Rail Adapter**
Catalog Number	A00-102	DIN-300-001 for JNIOR DIN-300-002 for Expansion Modules

A00-102 Replacement Connector Kit - 003B

- **DIN Rail Adapter attached to the JNIOR.**
- **The DIN metal clip can be rotated in any direction.**