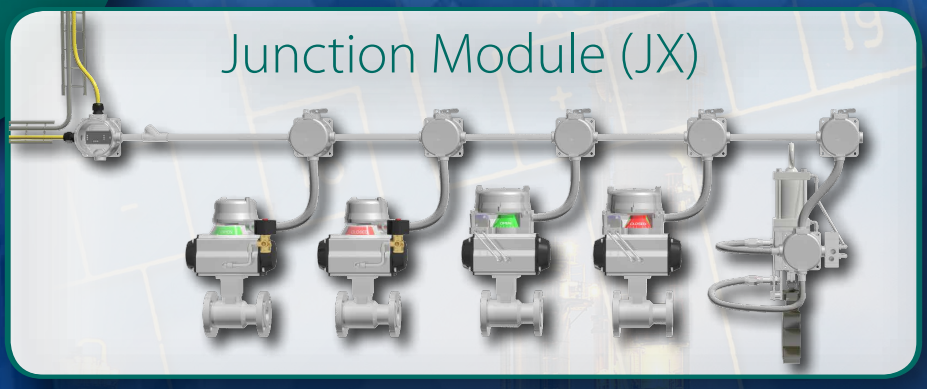
Junction Module (JX)

FieldLink: process networking

StoneL®

An essential building block for bus network users in the processing industries



Junction module (JX)

StoneL's Junction Module (JX) enclosure is an environmentally hardened platform which is suitable for use in the most extreme corrosive and hazardous process environments. The JX features a wide variety of bus networking capabilities for protocols used in the process industries. Because of its flexibility and functionality it has become an essential building block for bus network users in the processing industries.

Features

1. **Rugged enclosure**
   This enclosure is constructed of durable, marine grade anodized aluminum with two coats of epoxy. Optional clear polycarbonate cover enables observation of circuit status without opening the enclosure.
2. **Hazardous approval ratings**
   JX may be used in explosionproof and general purpose applications.
3. **Quick access**
   Screw-on cover enables convenient access to the enclosure.
4. **Vapor tight and submersible**
   Rated for IP66/67 and NEMA 4, 4X and 6, the JX withstands rigorous washdowns and corrosive environments.
5. **Wide variety of functions**
   Select from drop connectors, switched drop connectors, relay modules, I/O modules, power conditioners, and special module configurations.
6. **Compact design**
   JX's size minimizes space requirements for wiring and conduit layout.
7. **Convenient wiring**
   Experience quick and secure wiring with the clearly labeled, top insertion terminal strips.

JX enclosure functions

Drop connectors (JXT and JXP models)

Drop connectors enable individual spurs to be conveniently wired to the bus trunk. They are available in either passive or protected versions.

Passive drop connectors directly connect bus and spur wiring via standard pre-labeled wire terminals.

Protected drop connectors include a solid state protection circuit which detects a fault condition on the spur and isolates the spur from the bus. Local LED indication may be viewed through the clear Lexan cover indicating a fault condition.

Specifications	
Protocols	AS-Interface, DeviceNet, Foundation Fieldbus, Profibus-PA, Profibus-DP and Modbus
Passive	JXT models
Protected	JXP models
Maximum voltage	35 VDC
Maximum current, trunk	8 amps
Voltage drop	Passive: Negligible (trunk and drop) Protected: Negligible (trunk) Protected: 1 volt (drop)
Trip current (drop)	Passive: no trip current Protected: 40 mA (FF/PB-PA) Protected: 240 mA (AS-i, DN, PB-DP, MB)
Holding current (after trip)	Protected: 28 mA (FF/PB-PA) Protected: 35 mA (AS-i, DN, PB-DP, MB)
Reset current level	Protected: drop current falls below 28 mA (FF/PB-PA) Protected: drop current falls below 35 mA (AS-i, DN, PB-DP, MB)
Maximum devices per drop	Passive: no limit Protected: 1
Current consumption	Passive: 5 mA Protected: 10 mA

Switched drop connectors (JXS models)

Each spur may be individually energized or de-energized using the switched drop connector. Protection circuitry comes standard in the drop connection providing fault protection for the bus while the spur is energized. The JX switched drop connector may be locked and/or tagged out assuring safe working conditions for the maintenance of field device(s) attached to the spur while the bus remains energized. The bold on and off labeling may be seen clearly up to 20 feet away, making bus status clearly viewable in the plant environment.

Specifications	
Protocols	AS-Interface, DeviceNet, Foundation Fieldbus, Profibus-PA, Profibus-DP, & Modbus
Protected	JXS models (AS-i & FF/PB-PA)
Power protected	JXS models (DN & MB/PB-DP)
Maximum voltage	35 VDC
Maximum current (trunk)	8 amps
Voltage drop (trunk)	Negligible
Voltage drop (drop)	<1V
Trip current (drop)	40 mA (FF/PB-PA) 240 mA (AS-i) 200 mA (DN & MB/PB-DP)
Holding current (after trip)	28 mA
Reset current level	Current falls below 28 mA
Maximum devices per drop	1
Current consumption	None

JX enclosure functions

I/O modules (JXM models)

Interface field devices into the bus network in hazardous environments with JX I/O modules. Connect analog 4 to 20 mA instrumentation inputs and outputs or discrete inputs and outputs to the module and take advantage of incredible installation savings.

Specifications for I/O modules

Protocol	AS-Interface	DeviceNet	Foundation
Models	JXM96 JXM97 (extended addressing)	JXM92	JXM93 (bus powered) JXM94 (externally powered)
AS-Interface profile	JXM96: ID = F, I/O = 7 (4DI, 4DO) JXM97: ID = A, I/O = 7 (4DI, 3DO)		
Discrete inputs	(4) 3 mA @ 28 VDC gold contact mechanical, low power reed, or proximity sensor	(2) 7 mA @ 24 VDC gold contact mechanical, low power reed, or proximity sensor	(2) 6.5 VDC <.045 mA, must be low power dry contact capable of operating at <.045 mA @ 6.5 VDC or solid state pnp capable of operating at 6.5 VDC and <1 mA
Discrete outputs	JXM96: (4) 28 VDC (4 Watts total power available) JXM97: (3) 28 VDC (4 Watts total power available)	(2) 24 VDC (4 watts total power available)	JXM93: (2) 6.5 VDC 2 mA. Suitable for StoneL piezo valve JXM94: (2) 24 VDC (4 watts total power)
Analog input		(1) Analog (4-20 mA) input 10-bit resolution (0.1%)	JXM94: (1) analog (4-20 mA) input 10-bit resolution (0.1%)
Analog output			JXM94: (1) analog (4-20 mA) output 10-bit resolution (0.1%)
Operating voltage	AS-Interface voltage	24 VDC via DeviceNet voltage	9 to 32 VDC via Foundation Fieldbus voltage
Current consumption	<40 mA (with no outputs energized)	<60 mA (with no outputs energized)	<17 mA
Indication	(2) LEDs indicate discrete input status (red/green)	(2) LEDs indicate discrete input status (red/green)	(2) LEDs indicate discrete input status (red/green)
External voltage			JXM94: 24 VDC via external power
Data rate	167 kb/s	125, 250, 500 kb/s	31.25 kb/s

JX enclosure functions

Relay modules (JXR and JXI models)

Independent or Interlocked relay modules are integrated with each of the I/O modules to provide high power output switching capabilities. (AS-Interface, DeviceNet and Foundation Fieldbus externally powered I/O modules are available with relay outputs.) The 2-DO from the I/O modules drive the two relays providing high power switching operation to separate high power circuits. All other functions of the I/O modules remain the same.

Specifications for relay modules

Protocol	AS-Interface	DeviceNet	Foundation
Models: independent	JXR96 JXR97 (extended addressing)	JXR92	JXR94 (externally powered)
Models: interlocking	JXI96 JXI97 (extended addressing)	JXI92	JXI94 (externally powered)
AS-Interface profile	JX_96 ID = F, I/O = 7 (4DI, 4DO) JX_97 ID = A, I/O = 7 (4DI, 3DO)		
Discrete inputs	(4) 3 mA @ 28 VDC gold contact mechanical, low power reed, or proximity sensor	(2) 7 mA @ 24 VDC gold contact mechanical, low power reed, or proximity sensor	(2) 6.5 VDC <.045 mA, must be low power dry contact capable of operating at <.045 mA@6.5 VDC or solid state pnp capable of operating at 6.5 VDC and <1 mA
Discrete outputs (relay) Inpendent	(2) 120/250 VAC fused @ 2A independent for other AC loads	(2) 120/250 VAC @ 2A independent for other AC loads	(2) 120/250 VAC @ 2A independent for other AC loads
Discrete outputs (relay) Interlocking	(2) 120/250 VAC fused @ 2A interlocked for motor operation	(2) 120/250 VAC @ 2A interlocked for motor operation	(2) 120/250 VAC @ 2A interlocked for motor operation
Bus powered outputs	96: (2) 28 VDC (4 Watts total power available) 97: (1) 28 VDC (4 Watts total power available)		
Analog input		(1) analog (4-20 mA) input 10-bit resolution (0.1%)	(1) analog (4-20 mA) input 10-bit resolution (0.1%)
Analog output			(1) analog (4-20 mA) output 10-bit resolution (0.1%)
Operating voltage	26.5 to 31.6 VDC	11 to 25 VDC	9 to 32 VDC
Current consumption	<40 mA (with no outputs energized)	<60 mA (with no outputs energized)	<17 mA
Indication	(2) LEDs indicate discrete input status (red/green)	(2) LEDs indicate discrete input status (red/green)	(2) LEDs indicate discrete input status (red/green)
External voltage (analog I/O)			24 VDC via external power
External voltage (relay outputs)	Up to 250 VAC; 30 VDC	Up to 250 VAC; 30 VDC	Up to 250 VAC; 30 VDC

Special modules

A variety of other functions are available with the JX. The following options provide essential networking capabilities in hazardous or general purpose environments.

12 pole terminal block (JXB models)

This convenient option is a junction box with a 12 pole terminal block inside. This be used to securely terminate and connect wires for a wide range of applications.

AS-Interface combination repeater and power conditioner (JXX models)

AS-Interface combination repeater and power conditioner extends your network length easily in hazardous and general purpose locations.

AS-Interface power conditioner

Power for two-wire bus networks must be decoupled from the communication signal for proper operation. With the JX power conditioner, the power supply may be located in a safe area with the power conditioner located in the field. Distance from the power supply to the power conditioner does not add to effective bus length.

AS-Interface repeater

This repeater extends the usable length of the AS-Interface network by 100 meters. The repeater requires one (1) AS-Interface power supply or an AS-Interface power conditioner.

Specifications		
12 pole terminal block		
Models	JXB12	
Current ratings	10 amps, 300 volts UL/C8A	
Number of poles	12	
Wire size	AWG #12-22 CU	
AS-Interface power conditioner		
Models	JXX01 and JXX02 (redundant) JXX05 and JXX06 (daisy chain)	
Maximum operating voltage	35 VDC	
Maximum current	3 amps	
LED displays	Voltage low LED Voltage OK LED	Solid red < 25.5 volts Solid green > 26.1 volts
AS-Interface repeater		
Models	JXX00, JXX01 and JXX06	
Communication protocol	AS-Interface v3.0	
Operating voltage	26.5 - 31.6 VDC (AS-I voltage)	
Maximum current	3 amps	
AS-interface cycle time	0.15 ms X(number of slaves +1)	
Current usage	60 mA per segment, 120 mA total	
Bus on LEDs	Green if AS-i power applied	

JX specifications and ratings

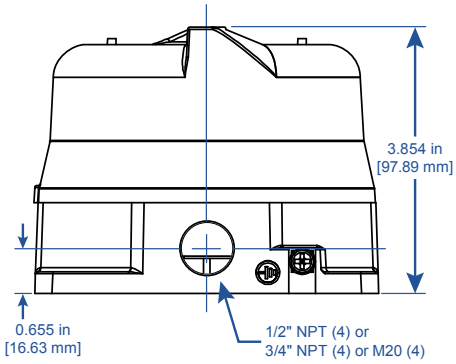
Specifications	
Materials of construction	
Housing & cover	Epoxy-coated anodized aluminum or CF3M stainless steel
Clear cover	Polycarbonate
Elastomer seals	Buna-N
Fasteners	Stainless steel
Operating life	Unlimited
Temperature range	-40° C to 80° C (-40° F to 176° F) +60° C (+140° F) maximum ambient for special function modules X00, X01 and X06
Enclosure protection	Type 4, 4X and 6 and IP66/67
Warranty	
Mechanical components	Two years
Modules	Five years

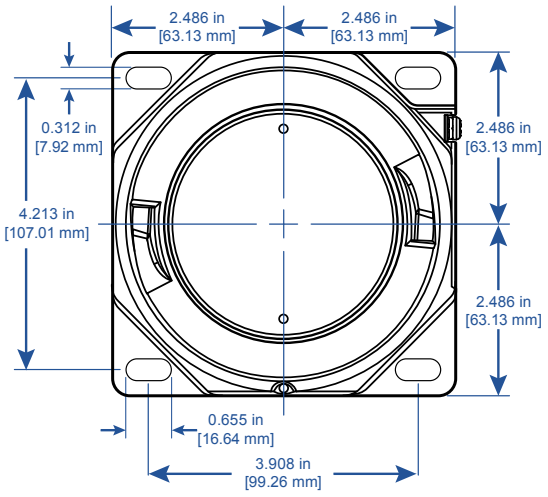
Unit weights	
Aluminum housing and cover	1.40 kg / 3.10 lb
Aluminum housing and clear cover	1.20 kg / 2.65 lb
Stainless steel housing and cover	3.40 kg / 7.50 lb
Stainless steel housing and clear cover	2.72 kg / 6.00 lb
Unit dimensions	
Unit height	97.89 mm [3.85 in]
Cover removal clearance	25.40 mm [1.00 in]
Hazardous area ratings	US and CA (XP) Class I,II,III, Division 1 US and CA (NI) Class I,II,III, Division 2 ATEX/IECEx Ex db ATEX/IECEx Ex tb
Approvals*	cFMus, ATEX, IECEx See StoneL.com/approvals for details

* Only models listed on StoneL's official website are approved per specific rating.

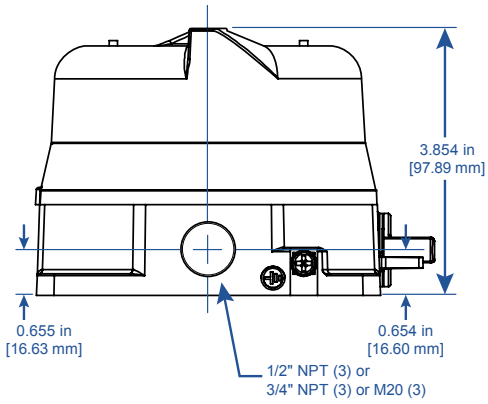
Dimensions

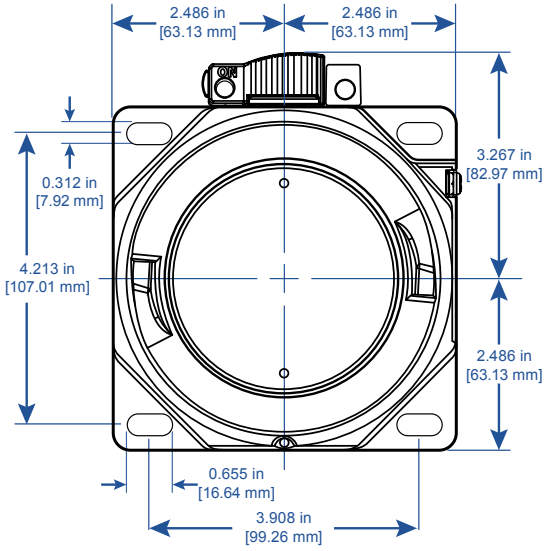
Without switch





With switch - "S"





Model selector

SERIES

JX Junction module

FUNCTIONS

Drop connectors - passive

T02	AS-Interface
T04	Foundation Fieldbus and Profibus PA
T06	DeviceNet™
T08	Modbus and Profibus DP

Drop connectors - protected

P02	AS-Interface (240 mA)
P04	Foundation Fieldbus and Profibus PA (40 mA)
P06	DeviceNet™ (240 mA power protected)
P08	Modbus and Profibus DP (240 mA power protected)

Drop connectors - switch protected

S02	AS-Interface (240 mA)
S04	Foundation Fieldbus and Profibus PA (40 mA)
S06	DeviceNet™ (240 mA power protected)
S08	Modbus and Profibus DP (240 mA power protected)

I/O modules

M92	DeviceNet™
M93	Foundation Fieldbus (bus powered outputs)
M94	Foundation Fieldbus (externally powered outputs)
M96	AS-Interface
M97	AS-Interface with extended addressing

I/O modules - relay outputs

R92	DeviceNet™ (independent)
R94	Foundation Fieldbus (independent)
R96	AS-Interface (independent)
R97	AS-Interface with extended addressing (independent)
I92	DeviceNet™ (interlocked)
I94	Foundation Fieldbus (interlocked)
I96	AS-Interface (interlocked)
I97	AS-Interface with extended addressing (interlocked)

Special function modules

000	Empty enclosure
B12	(12) pole terminal block
X00	AS-Interface repeater
X01	AS-Interface repeater and power conditioner (redundant)
X02	AS-Interface power conditioner (redundant)
X05	AS-Interface power conditioner (daisy chain)
X06	AS-Interface repeater and power conditioner (daisy chain)

PNEUMATIC VALVE

11 No pneumatic valve

ENCLOSURE

Epoxy-coated aluminum housing

C	Clear cover North American (NEC/CEC)
D	Clear cover International (IEC)
E	Aluminum cover North American (NEC/CEC)
R	Aluminum cover International (IEC)

Stainless steel housing

Y	Clear cover North American (NEC/CEC)
Z	Clear cover International (IEC)
S	Stainless steel cover North American (NEC/CEC)
T	Stainless steel cover International (IEC)

CONDUIT/CONNECTORS

Drop connectors

03A	(3) ½" NPT
06A	(3) M20
09A	(3) ¾" NPT

I/O modules and special

0NA	(4) ½" NPT
0MA	(4) M20
0TA	(4) ¾" NPT

Model number example

JX	M96	11	C	0NA	OPTIONAL

MODEL NUMBER

Mounting hardware required and sold separately.

PARTNERSHIP ID

Some models may include 5-digit identification suffix.

StoneL®

Valve Communication Solutions

26271 US Highway 59, Fergus Falls, MN 56537
USA
Tech hotline +1 218 737 0701
Tel. +1 218 739 5774, fax +1 218 739 5776
Email: sales@stoneL.com
StoneL.com

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