# FieldBlock (FN)

StoneL's FieldBlock enclosure is designed for use in general purpose, nonincendive and intrinsically safe process applications. It may be used with flexible or hard conduit wiring systems. With its rugged corrosion proof enclosure, variety of module and connector configurations, and its mounting adaptability, it will prove invaluable for field networking projects.

Features
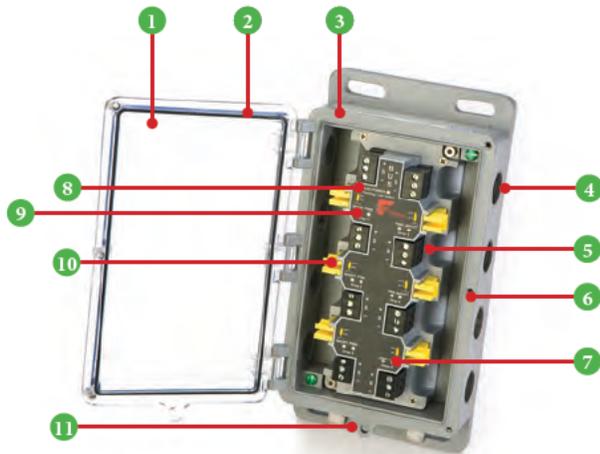
1. Durable corrosion proof enclosure is made of epoxy-coated anodized aluminum with an impact-resistant Lexan polycarbonate cover.
2. Sealed for heavy washdown applications the enclosure is rated for NEMA 4, 4X & 6 (IP67).
3. Suitable for hazardous environments in nonincendive (Div 2/Zone 2) or intrinsically safe (Div 1/Zone 0) applications.
4. Multiple connector/cable gland options include quick connectors (mini or micro), cable glands, ½" NPT or M20. Special models with varying combinations may also be specified for unique requirements.
5. Fast, convenient wiring is possible with easy access fully labeled terminal blocks, and the quick entry durable hinged cover.
6. Space-efficient design minimizes external dimensions while offering ample room for wire connection and drop switching.

7. Clear operation status is displayed using LED system to show drop connector, bus power, and short circuit status. LED display may also be conveniently viewed while the enclosure cover is closed and sealed.
8. Bus power monitoring system provides a flashing LED warning display if voltage levels fall outside specified limits. This aids in trouble-shooting and preempts potential problems.
9. Wide variety of drop connectors includes passive, protected, and switched options.
10. Individually switched drops enable each circuit to be independently energized or de-energized from the bus, saving valuable maintenance and set-up time.
11. Safety lock provision adds an extra measure of security for lock out, tag out conditions.

Flexible wiring systems

Cable glands

General purpose nonincendive and intrinsically safe wiring may be connected into the FieldBlock via compression sealed cable glands. Glands with rubber grommets will compress wires tightly, providing excellent mechanical strength and a waterproof seal. Cable glands also include plugs to seal any unused entries.

Connectors

Mini-connectors designed for four-wire bus networks (fifth wire for shield/ground) and micro-connectors for two-wire buses (third wire for shield/ground) are standard options. Mini- and micro-connectors provide a convenient, secure method for disconnecting spurs from the bus trunk. And, with the switched drop connectors, field devices may be conveniently removed without dropping power to the network.

NPT or M20 conduits

1/2" NPT or M20 conduits are available to attach to traditional hard conduit systems. Liquid tight flexible conduit may also be used with conventional conduit entries providing support for PLTC/ITC cable used in tray systems.

Individually switched drop connector features

Each drop connection (device coupler) may be individually energized or de-energized with an hermetically sealed proximity switching mechanism. As a result users may realize several benefits including:

Reduced maintenance costs

Each instrument may be separately disconnected while keeping all other instruments live, even in hazardous areas.

Improved safety

With hermetically sealed proximity switches on each drop connection (device coupler) circuit no arcs or sparks are possible in the atmosphere. Wiring changes may also be performed on a de-energized drop with live bus connection.

Reduced set-up and commissioning costs

As the network is initially energized each instrument may be individually powered up on the network. Physical confirmation of electronically addressed instruments is quick and convenient.

Greater convenience for quick connectors in hazardous areas

For removal of quick connectors in circuits with significant current flow the circuit must be powered down. Individually switched drop circuits make that convenient and foolproof.

Two-wire networks

Four-wire networks

FieldBlock (FN) functions

Drop connectors

Drop connectors enable individual spurs to be securely wired to the bus trunk. Drop connectors are available in either passive or protected versions. The FieldBlock (FN) offers 6 drops from the bus trunk as standard.

Passive drop connectors directly interconnect bus and wiring for all spurs with no protection circuitry.

Protected drop connectors include a solid state protection circuit which detects a fault condition on each of the spurs individually and isolates the affected spur from the bus. Bus operation and the other spurs are unaffected, yet the bus master will be able to detect the faulted spur. Local LED indication may be viewed through the clear Lexan cover indicating a fault condition.

Specifications (passive)	
Protocols	FNT models AS-i, FF/PB-PA, DN, MB/PB-DP
Configuration	6 drops from bus trunk
Maximum rated voltage	35VDC
Maximum drop current	2.0 amps
Maximum voltage drop	Negligible
Current consumption	20mA (AS-i & FF/PB-PA) 10mA (DN & MB/PB-DP)

Specifications (protected)	
Protocols	FNT models AS-i, FF/PB-PA, DN, MB/PB-DP
Configuration	6 individual drops from bus trunk
Maximum rated voltage	35VDC
Maximum trunk current	8 amps
Maximum trunk voltage drop	Negligible
Maximum drop current	limited to rated value
Maximum drop voltage drop	1.0V
Rated drop currents	Select from 40mA or 240mA
Holding current (after break)	28mA
Reset current level	Current falls below 28mA
Current consumption	20mA

Switched drop connectors

Individual switches enable each circuit to be independently energized or de-energized from the bus. Protection circuitry comes standard in each two-wire bus drop connection providing fault protection for the bus while the spurs are energized.

The FieldBlock (FN) switched drop connector may be locked, and/or tagged out, assuring safe working conditions for the maintenance of field devices attached to the spurs while the bus trunk remains energized.

Specifications (protected)	
Protocols	FNS models AS-i & FF/PB-PA
Configuration	6 drops from bus trunk
Maximum rated voltage	35VDC
Maximum trunk current	8 amps
Maximum trunk voltage drop	Negligible
Maximum drop current	Limited to rated value
Maximum drop voltage drop	1.0V
Rated drop currents	Select from 40mA or 240mA
Holding current (after break)	28mA
Reset current level	Current falls below 28mA
Current consumption	20mA

Specifications (protected)	
Protocols	FNS models DN & PB-DP/MB
Configuration	6 drops from bus trunk
Maximum rated voltage	35VDC
Maximum trunk current	8 amps
Maximum trunk voltage drop	Negligible
Maximum drop current (on V+)	240 mA*
Maximum drop voltage drop	1.0V
Holding current (after break)	28mA
Reset current level	Current falls below 28mA
Current consumption	10mA

*Short circuit protection only on V+. Communication wires are passive.

FieldBlock (FN) I/O and relay I/O modules

I/O modules

Interface field devices into the bus network in hazardous environments with FN I/O modules. Connect discrete inputs and outputs to the module and take advantage of incredible installation savings.

Specifications (I/O modules)	
Protocols	AS-Interface
Models	FNM96 and FNM97 (extended addressing)
AS-Interface profile	96: ID = F, I/O = 7 (4DI, 4D) 97: ID = A, I/O = 7 (4DI, 3DO)
Discrete inputs	(4) 3mA @ 28VDC gold contact mechanical, low power reed, or proximity sensor
Discrete outputs	96: (4) 28VDC (4 watts total power available) 97: (3) 28VDC (4 watts total power available)
Operating voltage	AS-Interface voltage
Current consumption	<40mA (with no outputs energized)
Indication (96)	(4) input state LEDs (green) (4) output state LEDs (green) (1) AS-i power OK LED (green)
Indication (97)	(4) input state LEDs (green) (3) output state LEDs (green) (1) AS-i power OK LED (green)

Relay modules

Independent or Interlocked relay modules are integrated with each of the I/O modules to provide high power output switching capabilities. 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 (Relay I/O modules)		
Protocols	AS-Interface	
Models	Independent relays: FNR96 and FNR97 (extended addressing) Interlocking relays: FNI96 and FNI97 (extended addressing)	
AS-Interface profile	96: ID = F, I/O = 7 (4DI, 4DO) 97: ID = A, I/O = 7 (4DI, 3DO)	
Discrete inputs	(4) 3mA @ 28VDC gold contact mechanical, low power reed, or proximity sensor	
Discrete outputs (relay)		
	independent	(2) 120/250VAC fused @ 2A independant for other AC/DC loads
	interlocking	(2) 120/250VAC fused @ 2A interlocked for motor operation
Bus powered outputs	96: (2) 28VDC (4 watts total power available) 97: (1) 28VDC (4 watts total power available)	
Operating voltage	AS-Interface voltage	
Current consumption	<40mA (with no outputs energized)	
Indication (96)	(4) input state LEDs (green) (4) output state LEDs (green) (1) AS-i power OK LED (green)	
Indication (97)	(4) input state LEDs (green) (3) output state LEDs (green) (1) AS-i power OK LED (green)	
External voltage (relay outputs)	Up to 250VAC; 30VDC	

Model selector

Series

FN	FieldBlock nonincendive

Functions

Drop connectors - passive

T02	AS-i; 6 drop
T04	FF & Profibus-PA; 6 drop
T06	DeviceNet™; 6 drop
T08	Profibus-DP & Modbus; 6 drop

Drop connectors - protected

P02	AS-i; 6 drop
P04	FF & Profibus-PA; 6 drop
P06	DeviceNet™; 6 drop (power protected)
P08	Profibus-DP & Modbus; 6 drop (power protected)

Drop connectors - switched protected

S02	AS-i (240 mA); 6 drop
S04	FF & Profibus-PA (40 mA); 6 drop
S06	DeviceNet™ (240 mA); 6 drop (power protected)
S08	Profibus-DP & Modbus (240 mA); 6 drop (power protected)

I/O modules

M96	AS-i; 4-DI, 4-DO
M97	AS-i; 4-DI, 3-DO (extended addressing)

I/O modules - Independent relays

R96	AS-i; 4-DI, 2-DO, 2-DO (relay)
R97	AS-i; 4-DI, 2-DO, 2-DO (relay) [extended addressing]

I/O modules - Interlocking relays

I96	AS-i; 4-DI, 2-DO, 2-DO (relay)
I97	AS-i; 4-DI, 2-DO, 2-DO (relay) [extended addressing]

ENCLOSURE

C	North American (NEC/CEC)

Entry options

C01A	(2) 1/2" NPT & (6) M20 cable glands [available with all protocols]
C02A	(2) 1/2" NPT & (6) 4-pin mini-connectors [available with AS-i and FF/PB-PA]
C03A	(2) 1/2" NPT & (6) 5-pin mini-connectors [available with DeviceNet™ and PB-DP/MB]
C04A	(2) 1/2" NPT & (6) 4-pin micro-connectors [available with AS-i and FF/PB-PA]
C05A	(2) 1/2" NPT & (6) 5-pin micro-connectors [available with DeviceNet™ and PB-DP/MB]
G01A	(8) Cable glands [available with all protocols]
M01A	(8) 4-pin micro-connectors, (1) male [available with AS-i and FF/PB-PA]
M02A	(8) 5-pin micro-connectors, (1) male [available with DeviceNet™ and PB-DP/MB]
N01A	(8) 4-pin mini-connectors, (1) male [available with AS-i and FF/PB-PA]
N02A	(8) 5-pin mini-connectors, (1) male [available with DeviceNet™ and PB-DP/MB]
P01A	(8) 1/2" NPT [available with all protocols]
P02A	(8) M20 [available with all protocols]

Model number example

FN	S04	C	G01A	–	OPTIONAL

model number	partnership ID

Some models may include
5-digit identification suffix.

FieldBlock (FN) specifications and ratings

Materials of construction	
Housing	Anodized aluminum with epoxy-coating
Cover	Lexan® polycarbonate
Elastomer seals	Buna-N
Fasteners	Stainless steel
Enclosures protection	NEMA 4, 4X, 6 & 7; IP 67
Approvals	See StoneL.com/approvals

Temperature ratings	
Drop connectors, switched drop connectors, I/O modules and relay I/O modules	-40° to +80°C (-40° to +176°F)

Warranty	
Complete assemblies	Two years

Dimensions (mm)
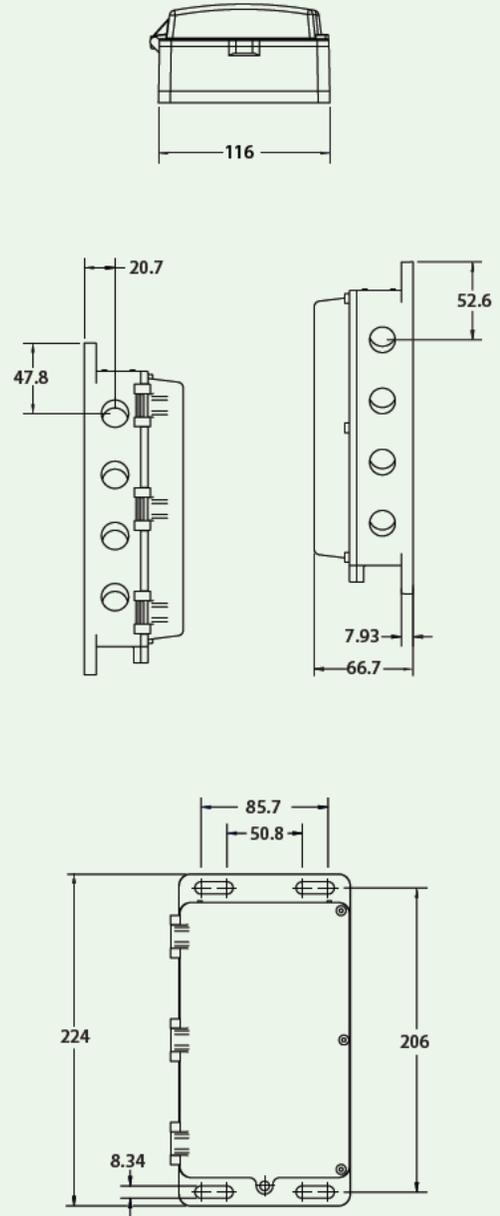
Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

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