

FieldBlock Enclosure



StoneL's FieldBlock enclosure is designed to be used in general purpose and nonincendive (Class I, Div 2) process applications with flexible wiring systems. With its rugged corrosion proof enclosure and a variety of module and connector configurations, it will prove invaluable for bus projects.

Flexible Wiring Systems

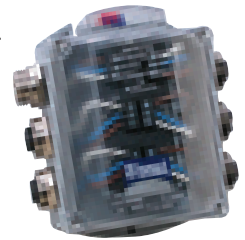
Cable Glands

General purpose 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 water proof seal. Six cable glands are standard with included plugs to seal any unused entries.



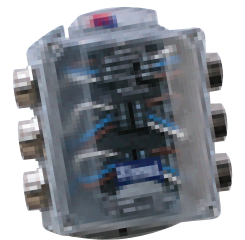
Connectors

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 connector, field devices may be conveniently removed without dropping power to the network.



NPT Conduit Adapters

1/2" NPT conduit hubs are available to attach conventional, conduit systems. Use the FieldBlock for PLTC/ITC cable applications on Class I, Division 2 areas and realize significant savings for standard bus applications in hazardous areas.



FieldBlock Features Include

Durable Corrosion Proof Enclosure

The enclosure is constructed of Lexan® Polycarbonate, also used for jet fighter canopies, high impact parts, and nonincendive instrumentation enclosures. The FieldBlock enclosure will withstand attack from acids, basic solutions and salts. A special coating is available for aggressive organic solvents.

Fully Sealed

The enclosure is fully sealed and may be used in heavy wash-down environments. Connectors and cable glands are static o-ring sealed.

Multiple Connector/Cable Gland Options

Select from mini-connectors, micro-connectors, cable glands, or 1/2" NPT. Special models may also be constructed for specific bus networking applications.

Convenient Wiring

Experience quick and secure wiring with the clearly labeled, terminal strips.

Space Efficient Design

The space efficient design minimizes external dimensions while providing ample internal space for wiring and function modules.

Wide Variety of Functions

Select from multi-drop connectors, switched drop connectors, I/O modules, relay modules and special module configurations.

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 offers 4 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), FBT models

Configuration	4 drops from bus trunk
Max. Rated Voltage	35VDC
Max. Current	8 Amps
Max. Voltage Drop	Negligible

Specifications (Protected), FBP models

Configuration	4 individual drops from bus trunk
Max. Rated Voltage	35VDC
Max. Trunk Current	8 Amps
Max. Trunk Volt Drop	Negligible
Max. Drop Current	Limited to Rated Value
Max. Drop Volt Drop	1.0 V
Rated Drop Currents	Select from 40mA or 240mA (see model numbers)
Holding Current (After Break)	28mA
Reset Current Level	Current falls below 28mA

See pages 85, 86, 107, 123, 124, 134, 138, 139 and 148 for more information.

Switched Drop Connectors

All of the spurs are simultaneously energized or deenergized using the FieldBlock switched drop connector. Protection circuitry comes standard in each drop connection providing fault protection for the bus while the spurs are energized. The FieldBlock 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, FBS models

Max. Rated Voltage	35VDC
Max. Trunk Current	8 Amps
Max. Trunk Volt Drop	Negligible
Max. Drop Current	Limited to Rated Value
Max. Drop Volt Drop	1.0 V
Rated Drop Currents	Select from 40mA or 240mA (see model numbers)
Holding Current (After Break)	28mA
Reset Current Level	Current falls below 28mA

See pages 87, 125 and 137 for more information.

I/O Modules

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



Specifications

AS-Interface, FBM96 (See page 71 for more information.)

Configuration	4 DI & 4 DO
Input Switching	3 mA @ 28 VDC1
Output Power	160mA @ 24 -30VDC Individual or All Combined

DeviceNet, FBM92 (See page 104 for more information.)

Configuration	2 DI, 2 DO, & 1 AI (4 to 20 mA)
Input Switching	7 mA @ 24 VDC1
Output Power	160mA @ 24 VDC Individual or All Combined

Modbus, FBM95 (See page 145 for more information.)

Configuration	2 DI, 2 DO, & 1 AI (4 to 20 mA)
Input Switching	7 mA @ 24 VDC1
Output Power	160mA @ 24 VDC Individual or All Combined

Foundation Fieldbus, Bus Powered, FBM93

(See page 117 for more information.)

Configuration	2 DI & 2 DO
Input Switching	.045mA @ 6.5 VDC2
Output Power	20mA @ 6.5 VDC Each

Foundation Fieldbus, Externally Powered, FBM94

(See page 118 for more information.)

Configuration	2 DI, 2 DO and 1AI, 1AO (Both 4 to 20mA)
Input Switching	.045mA @ 6.5 VDC2
Output Power	160mA @ 24VDC Individual or All Combined

1. May use StoneL 2-wire solid state, low power reed or gold mechanical switches.
2. May use StoneL 3-wire solid state or low power reed switches.

Relay Modules

Independent or interlocked relay modules are integrated with each of the I/O modules to provide high power output switching capabilities. (AS-Interface, DeviceNet, Modbus and Foundation Fieldbus externally powered I/O modules are available with relay outputs.) The 2-DOs 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, FBI and FBR models

Interlocking Outputs	2 A @ 125/250 VAC/VDC (Only one output will operate at a time.)
Independent Outputs	2 A @ 125/250 VAC/VDC
Operating Temperature (AS-I only)	-25° to +70°C (-13° to 158° F)
Operating Temperature (other protocols)	-40° to +85° C (-40° to 185° F)

See pages 73, 74, 105, 119 and 146 for more information.

Special Modules, FBX models

A variety of other functions are available with the FieldBlock to provide additional networking capabilities in general purpose and nonincendive process applications.

AS-Interface Power Conditioner

Power for two-wire bus networks must be decoupled from the communication signal for proper operation. With the FieldBlock 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. Two separate power supplies may be connected to the same conditioner for redundancy.

Specifications

Configuration	DC or AS-I Power In*, AS-I Power Out, Redundant Inputs
Max Input Current	3 Amps
Max Input Voltage	32 VDC

*May use standard 30VDC power supply or AS-I power supply (integral power conditioner).

See page 66 for more information.

AS-Interface Combination Repeater and Power Conditioner

AS-Interface Combination Repeater and Power Conditioner extends your network length easily in hazardous (division 2) and general purpose locations using our unique AS-i Repeater and Power Conditioner Package.



AS-Interface Repeater

This repeater extends the usable length of the AS-Interface network by 100 meters. The Repeater requires no configuration and has no address on the bus. The Repeater requires one (1) AS-Interface power supply or an AS-Interface Power Conditioner.

AS-Interface Repeater Specifications

Operating Voltage	AS-i Voltage
Operating Current	60mA per segment
Connection	Bus in, Bus out
Indication	Power OK on Bus in (Green LED) Power OK on Bus out (Green LED)

See page 67 for more information.

Bus Powered Foundation Fieldbus with Hawkeye Sensors

StoneL has developed ultra-low power Hawkeye sensors which are fully functional with the FF bus powered module. For applications with linear operators, or for those requiring point sensing discrete inputs in the process environment, this is an ideal solution.



Specifications

Configuration	2DO, 2.5mA @ 6.5VDC (Piezo recommended) and 2DI, 2 Hawkeye inductive proximity position sensors
Sensor Ratings	Class I and II All Groups Division 2
Sensor Materials	Stainless Steel and Lexan
Sensing Distance	4 mm (0.16 inches)
Triggering Material	Any conductive metal
Operating Temperature	-40° to +85° C (-40° to +185° F)

See page 117 and 197 for more information.

Specifications and Ratings

Materials of Construction

Housing & Cover	Lexan® Polycarbonate
Elastomer Seals	Buna-N
Fasteners	Stainless Steel
Enclosure Protection	NEMA 4, 4X, 6 & IP 67

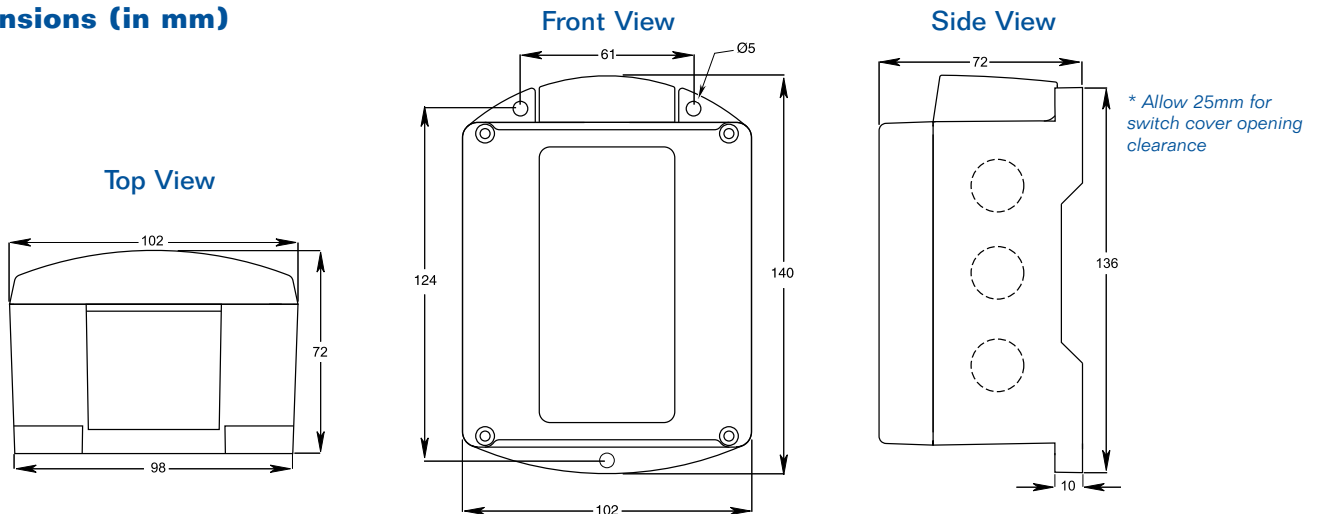
Temperature Ratings

Switched Drop Connectors, Drop Connectors, and Power Conditioners	-40° to +85°C (-40° to +185°F)
I/O and Relay Modules (AS-i only)	-25° to +70°C (-13° to +158°F)
I/O and Relay Modules (other protocols)	-40° to +85°C (-40° to +185°F)
Special Modules	See Special Modules Section

Warranty

Complete Assemblies	Two years
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Dimensions (in mm)



FieldBlock™ Model Numbers

Drop Connectors

Example: FBT06002

Function		Entry Options* (Select one)
FB	Protected	
	P06 FF-H1 & Profibus-PA (40mA); 1-4 (see pg. 124 and 138 for specs)	003, 004, 006, 007, 009 or 038
	P08 AS-i (240mA); 1-4 (pg. 86)	003, 004, 006, 007, 009 or 038
	Passive	
	T02 AS-i; 1-4 (pg. 85)	003, 004, 006, 007, 009 or 038
	T04 DeviceNet; 1-4 (pg. 107)	001, 002, 005, 007, 009 or 038
	T06 Profibus-DP & Modbus; 1-4 (pg. 134 and 148)	001, 002, 005, 007, 009 or 038
	T08 FF-H1 & Profibus-PA; 1-4 (pg. 123 and 139)	003, 004, 006, 007, 009 or 038

*See Page 165 for Entry Option Description

Switched Drop Connectors (protected)

Example: FBS08004

Function		Entry Options* (Select one)
FB	S06 FF & Profibus-PA (40mA); 1-4 (see pg. 125 and 137 for specs)	003, 004, 006, 007, 009 or 038
	S08 AS-i (240mA); 1-4 (pg. 87)	003, 004, 006, 007, 009 or 038

*See Page 165 for Entry Option Description

I/O Modules

Example: FBM96013

Function		Entry Options* (Select one)
FB	M92 DeviceNet; 2-DI, 2-DO, 1-AI (see pg. 104 for specs)	002, 007, 009, or 017
	M93 FF-H1 (Bus Powered); 2-DI, 2-DO (pg. 117)	004, 006, 007, or 009
	M94 FF-H1 (Externally Powered); 2-DI, 2-DO, 1-AI, 1-AO (pg. 118)	007, 018, 019, or 035
	M95 Modbus; 2-DI, 2-DO, 1-AI (pg. 145)	002, 007, 009, or 017
	M96 AS-i; 4-DI, 4-DO (pg. 71)	007, 013, 016, or 035
	M97 AS-i; 4-DI, 3-DO (Extended Addressing) (pg. 72)	007, 013, 016, or 035

*See Page 165 for Entry Option Description

Relay Modules

Example: FBR92021

Function		Entry Options* (Select one)
FB	Independent Relays	
	R92 DeviceNet; 2-DI, 2-DO (relay), 1-AI (see pg. 105 for specs)	007, 020, 021, or 035
	R94 FF (Externally Powered); 2-DI, 2-DO (relay), 1-AI, 1-AO (pg. 119)	007, 022, 023, or 035
	R95 Modbus; 2-DI, 2-DO (relay), 1-AI (pg. 146)	007, 020, 021, or 035
	R96 AS-i; 4-DI, 2-DO, 2-DO (relay) (pg. 73)	007, 024, 025, or 035
	R97 AS-i; 4-DI, 1-DO, 2-DO (relay; extended addressing) (pg. 74)	007, 013, 016, or 035
	Independent Relays	
	I92 DeviceNet; 2-DI, 2-DO, 1-AI (pg. 105)	007, 020, 021, or 035
	I94 FF (Externally Powered); 2-DI, 2-DO, 1-AI, 1-AO (pg. 119)	007, 022, 023, or 035
	I95 Modbus; 2-DI, 2-DO, 1-AI (pg. 146)	007, 020, 021, or 035
	I96 AS-i; 4-DI, 2-DO, 2-DO (relay) (pg. 73)	007, 024, 025, or 035
	I97 AS-i; 4-DI, 1-DO, 2-DO (relay; extended addressing) (pg. 74)	007, 024, 025, or 035

*See Page 165 for Entry Option Description

Special Function Modules

Example: FBX02033

Function		Entry Options* (Select one)
FB	X00 AS-i; Repeater (see pg. 67 for specs)	007, 026, 027, or 037
	X01 AS-i; (1) Repeater & (1) Power Conditioner (redundant) (pg. 66 & 67)	007, 028, 029, or 036
	X02 AS-i; Power Conditioner (redundant) (pg. 66)	007, 032, 033, or 036
	X04 FF (Bus Powered); I/O Module with (2) FF Hawkeye Point Sensors (p.117 & 163)	004, 006, 007, or 009
	X05 AS-i; Power Conditioner (daisy chain) (p.66)	007, 030, 031, or 036
	X06 AS-i; (1) Repeater and (1) Power Conditioner (daisy chain) (pg. 66 and 67)	007, 032, 033, or 036

*See Page 165 for Entry Option Description

FieldBlock Enclosure Entry Options

Cable Glands

- 009** (6) Cable Glands
 - 035** (8) Cable Glands
 - 036** (4) Cable Glands
 - 037** (3) Cable Glands
 - 038** (2) 1/2" NPT Conduit Adapters, (4) Cable Glands
- Note: Cable glands suitable for cable diameters of 5mm to 9mm.
Cable glands are available for cable diameters of 7mm to 12mm (consult factory for availability).

Conduit Adapters

- 007** (6) 1/2" NPT Stainless Steel Conduit Adapters
- 038** (2) 1/2" NPT Conduit Adapters, (4) Cable Glands

Mini Connectors

- 001** (6) 5 Pin Mini Connectors - (1) Male, (5) Female
- 003** (6) 4 Pin Mini Connectors - (1) Male, (5) Female
- 026** (3) 4 Pin Mini Connectors - (2) Male, (1) Female
- 028** (4) 4 Pin Mini Connectors - (3) Male, (1) Female
- 030** (4) 4 Pin Mini Connectors - (1) Male, (3) Female
- 032** (4) 4 Pin Mini Connectors - (2) Male, (2) Female

Micro Connectors

- 002** (6) 5 Pin Micro Connectors - (1) Male, (5) Female
- 004** (6) 4 Pin Micro Connectors - (1) Male, (5) Female
- 013** (10) 4 Pin Micro Connectors - (1) Male, (9) Female
- 019** (8) 4 Pin Micro Connectors - (2) Male, (6) Female
- 021** (8) 5 Pin Micro Connectors - (2) Male, (6) Female
- 023** (10) 4 Pin Micro Connectors - (3) Male, (7) Female
- 025** (10) 4 Pin Micro Connectors - (2) Male, (8) Female
- 027** (3) 4 Pin Micro Connectors - (2) Male, (1) Female
- 029** (4) 4 Pin Micro Connectors - (3) Male, (1) Female
- 031** (4) 4 Pin Micro Connectors - (1) Male, (3) Female
- 033** (4) 4 Pin Micro Connectors - (2) Male, (2) Female

Mini and Micro Connector Combinations

- 005** (6) Connectors - (1) 5 Pin Male Mini, (1) 5 Pin Female Mini, (4) 5 Pin Female Micro
- 006** (6) Connectors - (1) 4 Pin Male Mini, (1) 4 Pin Female Mini, (4) 4 Pin Micro female
- 016** (10) Connectors - (1) 4 Pin Male Mini, (1) 4 Pin Female Mini, (8) 4 Pin Micro female
- 017** (6) Connectors - (1) 5 Pin Male Mini, (5) 5 Pin Female Micro
- 018** (8) Connectors - (2) 4 Pin Male Mini, (6) 4 Pin Female Micro
- 020** (8) Connectors - (2) 5 Pin Male Mini, (1) 5 Pin Female Mini, (5) 5 Pin Female Micro
- 022** (10) Connectors - (3) 4 Pin Male Mini, (1) 4 Pin Female Mini, (6) 4 Pin Female Micro
- 024** (10) Connectors - (2) 4 Pin Male Mini, (8) 4 Pin Micro Female

Entry Option Quick Reference Legend

#	Category
001	Mini Connector
002	Micro Connector
003	Mini Connector
004	Micro Connector
005	Mini/Micro Combination
006	Mini/Micro Combination
007	Conduit Adapter
009	Cable Gland
013	Micro Connector
016	Mini/Micro Combination
017	Mini/Micro Combination
018	Mini/Micro Combination
019	Micro Connector
020	Mini/Micro Combination
021	Micro Connector
022	Mini/Micro Combination
023	Micro Connector
024	Mini/Micro Combination
025	Micro Connector
026	Mini Connector
027	Micro Connector
028	Mini Connector
029	Micro Connector
030	Mini Connector
031	Micro Connector
032	Mini Connector
033	Micro Connector
035	Cable Gland
036	Cable Gland
037	Cable Gland
038	NPT/Cable Gland