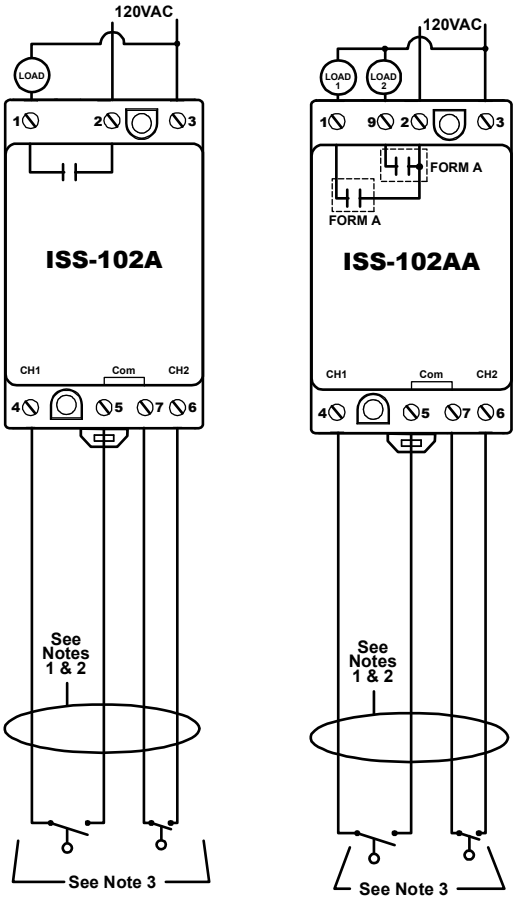
ISS-102 SERIES

Two-Channel Intrinsically Safe Switch

Wiring Diagrams



For more wiring diagrams and notes, see next page.

Description

The ISS-102 is a two-channel, intrinsically-safe switch designed for multiple uses including a pump-up/pump-down (latching) controller or two-channel switch. LEDs indicate the state of the intrinsically-safe inputs and output relays and user-selectable options are available including a variable resistance threshold for float inputs. The ISS-102 enclosure is surface or DIN rail mountable.

-LC Each input channel is active when the corresponding switch is closed. When the lag input (CH2) is activated, the output closes. Applying latching logic, the output contact remains closed until the lead (CH1) and the lag (CH2) inputs are deactivated. Sensitivity is fixed at 100kOhms with a debounce time delay of 2 seconds.

-DCS This dual-channel switch has two Form A output relays. Two LEDs illuminate the output state of their respective Form A relay. Resistance probes or switches can be used on its inputs. Sensitivity is fixed at 100kOhms with a debounce time delay of 0.5 seconds.

-MC By selecting the proper functionality through the DIP switches, you can define a pump-up or pump-down, single or dual channel non-latching switch. The sensitivity adjustment (4.7k-100kOhms) allows you to define the input impedance at which the output relays (one Form A & one Form C) will change state, with a debounce time delay of 0.5 or 2 seconds.

Features & Benefits

FEATURES	BENEFITS
Finger-safe terminals	Meets IEC 61000 safety requirements
Compact design for DIN rail or surface mount	Allows flexiblility in panel installation
LED status indicator	Visual indication of relay engagement
Two input channels	Flexibility for pump up/pump down latching controller or two-channel switch applications

Ordering Information

MODEL	LINE VOLTAGE	DESCRIPTION
ISS-102A-LC	120VAC	Latching Controller
ISS-102AA-DCS	120VAC	Dual Channel Switch
ISS-102ACI-MC	120VAC	Multi-function Controller
ISS-102C-M-LC	120VAC	MSHA* evaluated
ISS-102CCI-M-MC	120VAC	MSHA* evaluated

* Mine Safety and Health Administration

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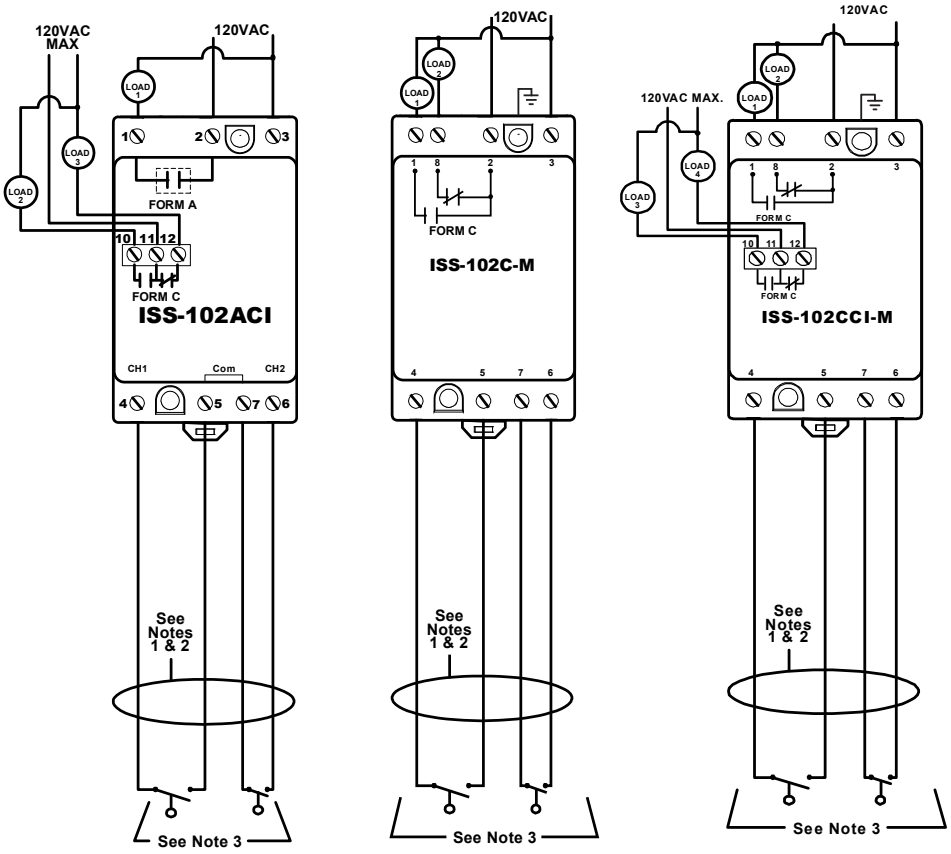
Wiring Diagrams (continued)



NOTES:

1. Maximum distance between unit and switch contact is 10,000 feet.
2. All non-intrinsically-safe wiring shall be separated from intrinsically-safe wiring. Description of special wiring methods can be found in the National Electrical Code ANSI/NFPA 70, Article 504 Intrinsically-Safe Systems. Check your state and local codes for additional requirements.
3. All switch contacts shall be non-energy storing, containing no inductance or capacitance.

Specifications

Functional Characteristics

Debounce Time	0.5 or 2 seconds
Probe Sense Voltage	5vdc pulsed

Output Characteristics

Output Contact Rating	
Pilot Duty	180VA @120VAC, C150
General Purpose	5A @120VAC
Relay Contact Life (Electrical)	100,000 cycles min. @ rated load
Relay Contact Life (Mechanical)	10,000,000 cycles
Output Relay Type	
ISS-102A-LC	One Form A
ISS-102AA-DCS	Two Form A
ISS-102ACI-MC	One Form A & One isolated Form C
ISS-102C-M-LC	One Form C
ISS-102CCI-M-MC	Two Form C (one isolated)

General Characteristics

Temperature Range	-20° to 55°C (-4° to 131°F)
Maximum Input Power	2 W
Wire Range	12 to 20 AWG
Terminal Torque	3.5 to 4.5 in.-lbs. (max. 4.5 in.-lbs.)

Provides Intrinsically-Safe Circuits in the following locations:

Division 1 and 2
Class I, Groups A,B,C,D;
Class II, Groups E,F,G;
Class III

Entity Parameters

V_{oc} = 16.8V
I_{sc} = 1.2mA
L_a = 100mH
C_a = 0.39uF

$$Po = \frac{Voc * Isc}{4}$$

Standards Passed

Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 3, 6kV contact, 8kV air.
Radio Frequency Immunity (RFI)	IEC 61000-4-3, Level 3, 10V/m
Fast Transients	IEC 61000-4-4, Level 3, 4kV input power

Safety Mark

UL	UL913 Sixth Edition (File #E233355) (except Models ISS-102C-M-LC & ISS-102CCI-M-MC which have been evaluated by MSHA)
Dimensions	**H** 88.9 mm (3.5"); **W** 52.93 mm (2.08"); **D** 59.69 mm (2.35")
Weight	0.7 lb. (11.2 oz., 317.51 g)
Mounting Method	35mm DIN rail or Surface Mount (#6 or #8 screws)

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