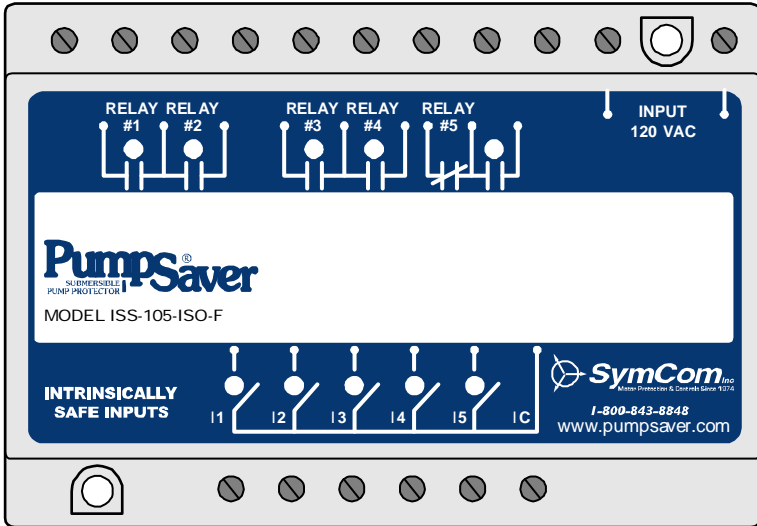


# PumpSaver®

## Model ISS-105-ISO-F

### Installation Guide



Visit our website [www.symcom.com](http://www.symcom.com) for our complete product listing!

IH-ISS-105ISO-F-B

**WARNING:** TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER FROM SYSTEM PRIOR TO INSTALLATION OR SERVICE.

**CAUTION:** Installation must comply with all national, state, and local codes. Personnel trained in intrinsically safe systems should only perform installation of this equipment. Improper installation may result in serious injury or damage. Before proceeding with installation, read and understand these instructions completely. The ISS-105-ISO-F Isolated Switch is UL913 listed as an associated apparatus for interfacing between hazardous and non-hazardous areas. The ISS-105-ISO-F must be installed in a non-hazardous area. Follow SymCom's Control Drawing 105 on the last page of this bulletin for proper installation. All wiring connected to a hazardous location must be separated from all non-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.

**INSTALLATION:**

1. Mount the ISS-105-ISO-F in a non-hazardous location on a DIN-rail, or by installing two #6-#8 screws into mounting holes provided.
2. Connect wiring per SymCom's Control Drawing 105. Follow all hazardous code requirements while installing wiring to switch input terminals.

**OPERATION:**

The ISS-105-ISO-F relay, powered by 120VAC, is an isolated switch suitable for applications with switch inputs in a hazardous location. In a powered state, the ISS-105-ISO-F will actuate each output relay within .75 second of the corresponding input switch closing/opening (dependent on positive/negative logic mode). Each red LED illuminates when the corresponding output relay is energized. Each green LED illuminates when the corresponding input is closed.

**CHANNEL INVERT:**

The inversion adjustment on the side of the product allows all channels to be positive or negative logic. Channels cannot be inverted independently.

**Positive Logic:**

Invert adjustment is fully counter clockwise; the relay will close when the corresponding input closes.

**Negative Logic:**

Invert adjustment is fully clockwise; the relay will close when the corresponding input opens.

## ISS-105-ISO-F SPECIFICATIONS

<b>Control Voltage</b>	108-132VAC
<b>Frequency</b>	50/60 Hz
<b>Power</b>	4 Watts max.
<b>Operating Temperature</b>	-20 to 55°C
<b>Terminals</b>	
Wire AWG	12-20 AWG
Torque	6 in.-lbs.
<b>Relay Contacts</b>	
	B 300 or 480VA @ 240VAC, Pilot Duty
	240VAC, 7A max., General Purpose
<b>Entity Parameters</b>	
	Voc = 16.8 V
	Isc = 1.2 mA
	La = 100mH
	Ca = 0.39uF
	$P_o = \frac{V_{oc} * I_{sc}}{4}$
<b>Provides Intrinsically Safe Circuits in the Following Locations:</b>	
	Class I, Divisions I & II, Groups A, B, C & D
	Class II, Divisions I & II, Groups E, F & G
	Class III
<b>Standards Passed</b>	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 3, 6 kV contact, 8 kV air
Radio Frequency Immunity (RFI)	IEC 61000-4-2, Level 3, 10V/m
Fast Transients	IEC 61000-4-4, Level 3, 4 kV input power
	2 kV inputs/outputs

SymCom warrants its microcontroller-based products against defects in material or workmanship for a period of five (5) years from the date of manufacture. All other products manufactured by SymCom shall be warranted against defects in material and workmanship for a period of two (2) years from the date of manufacture. For complete information on warranty, liability, terms, returns, and cancellations, please refer to the SymCom Terms and Conditions of Sale document.

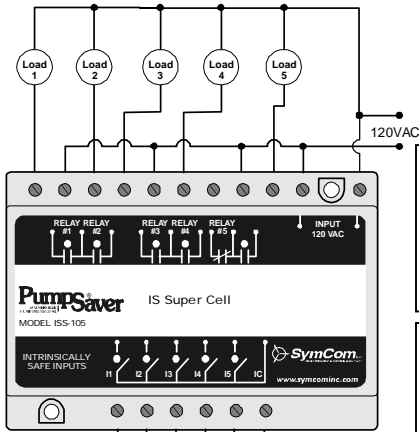
# CONTROL DRAWING 105

## Non-Hazardous Location

**Supply Voltage**  
120VAC

**Relay Output Rating**  
7 Amps @ 240VAC General Purpose  
Pilot Duty 480VA @ 240VAC, B300

**Maximum Ambient Temperature Rating**  
55°C



**DEVICE MUST BE INSTALLED IN A SUITABLE ENCLOSURE**

### WARNING!

TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTABLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING.

**DEVICE MAY ONLY BE REPAIRED BY THE MANUFACTURER**

### WARNING!

SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

### AVERTISSEMENT!

LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SÉCURITÉ INTRINSÈQUE.

## Hazardous Location

Class I, Divisions I & II, Groups A, B, C & D;  
Class II, Divisions I & II, Groups E, F & G; and  
Class III locations

### NOTES:

- Maximum distance between unit and switch contact is 10,000 feet.
- 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.
- All switch contacts shall be non-energy storing, containing no inductance or capacitance.
- Entropy Parameters:

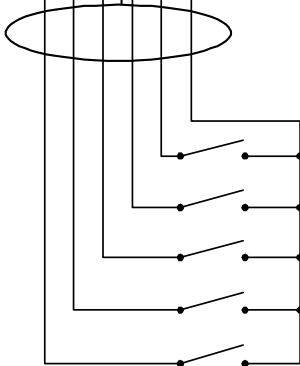
$$\begin{aligned} V_{oc} &= 16.8V \\ I_{sc} &= 1.2mA \\ L_a &= 100mH \end{aligned}$$

$$\begin{aligned} C_a &= 0.39\mu F \\ P_o &= \frac{V_{oc} * I_{sc}}{4} \end{aligned}$$

- Entropy Parameter Relationships:

<u>IS Equipment</u>	<u>Associated Apparatus</u>
$V_{max}$ (or $U_i$ )	$\geq V_{oc}$ or $V_t$ (or $U_o$ )
$I_{max}$ (or $I_i$ )	$\geq I_{sc}$ or $I_t$ (or $I_o$ )
$P_{max}$ , $P_i$	$\geq P_o$
$C_i + C_{cable}$	$\leq C_a$ (or $C_o$ )
$L_i + L_{cable}$	$\leq L_a$ (or $L_o$ )

See Notes 1 & 2



See Note 3

Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in the table above. Cable capacitance,  $C_{cable}$ , plus intrinsically safe equipment capacitance,  $C_i$ , must be less than the marked capacitance,  $C_a$  (or  $C_o$ ), shown on any associated apparatus used. The same applies for inductance ( $L_{cable}$ ,  $L_i$  and  $L_a$  or  $L_o$ , respectively). Where the cable capacitance and inductance per foot are not known, the following values shall be used:  $C_{cable} = 60pF/ft.$ ,  $L_{cable} = 0.2\mu H/ft.$