



ENGINEERING SPECIFICATION

SYMCOM MODEL ISS-100 Intrinsically Safe Pump Control

PART 1 GENERAL

1.1 REFERENCES

- A. UL 913 Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division I, Hazardous (Classified) locations, Sixth Edition – Underwriters Laboratories
- B. CAN/CSA-C22.2 No. 157-1992, "Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations"
- C. ANSI/IEEE C62.41 – American National Standards Institute/Institute of Electrical & Electronics Engineers

Equipment shall be installed according to the latest version of the National Electrical code.

1.2 WARRANTY

- A. Manufacturer Warranty: The manufacturer shall guarantee the pump control to be free from material and workmanship defects for a period of five years from the date of manufacture when installed and operated according to the manufacturer's requirements.

PART 2 PRODUCTS

2.1 MANUFACTURERS

The equipment specified shall be the Model ISS-100, manufactured by SymCom, Inc.

2.2 DESCRIPTION

- A. Regulatory Requirements:
 1. The equipment shall be UL Listed as type QUZW—Process Control Equipment for Use in Hazardous Locations, Sixth Edition.
 2. The equipment shall be cUL Listed as type QUZW7—Process Control Equipment for Use in Hazardous Locations Certified for Canada, Sixth Edition.

2.3 PERFORMANCE/DESIGN CRITERIA

A. General I/O Capability:

1. Outputs:

- a. The equipment shall include one SPST output relay contact pilot duty rated at 180VA @ 120VAC, 8 amps @ 120VAC general purpose.

2. Inputs:

- a. The equipment shall provide one control input to the hazardous area.
- b. The equipment shall accept single-phase input voltage rated 120 VAC.

B. Functions:

1. The equipment shall provide single-channel switch logic.
 - a. The equipment shall activate the output relay upon activation of the input channel.
 - b. The equipment shall illuminate the LED upon activation of the output relay.

C. Human Interface Features:

1. The equipment shall provide an indicator LED capable of indicating the status of the output relay.

D. Intrinsically Safe Requirements:

1. The equipment shall have the following entity parameters

- a. $V_{oc}=16.8V$
- b. $I_{sc}=1.2mA$
- c. $L_a=100mH$
- d. $C_a=0.39\mu F$
- e. $P_o = \frac{V_{oc} * I_{sc}}{4}$

2. The equipment shall provide intrinsically safe circuit into the following locations:

- a. Class I, Divisions I & II, Groups A, B, C, & D
- b. Class II, Divisions I & II, Groups E, F & G
- c. Class III

3. The equipment shall provide one input to the hazardous area.



- E. Electromagnetic Compatibility:
 - 1. The equipment shall be immune to electrostatic discharge per IEC 61000-4-2, Level 3, 6 kV contact discharge and 8 kV air discharge.
 - 2. The equipment shall be immune to electrical fast transient bursts per IEC 61000-4-4, Level 4, 4 kV power supply port, 2 kV input/output ports.
 - 3. The equipment's power supply port shall be immune to electrical surges per IEC 61000-4-5, Level 4. Specified limits shall be 4kV line-to-line and line-to-ground.
 - 4. The equipment shall be immune to radiated radio frequency emissions. Specified limits shall be 10V/m at 150 MHz.
- F. Dielectric Isolation: The equipment shall provide 2000VAC dielectric withstand between the AC mains and the relay contacts and between the AC mains and enclosure for one minute.
- G. Enclosure Class of Protection: The equipment shall provide IEC IP20 (finger safe) protection.
- H. Environmental Requirements:
 - 1. The equipment shall operate continuously without derating in ambient temperatures of -20° to 55°C (-4° to 131°F).
 - 2. The equipment shall operate continuously without derating in relative humidity of up to 95% non-condensing per IEC 68-2-3.
 - 3. The equipment shall operate properly after storage in ambient temperatures of -40° to 80°C (-40° to 176°F).
- I. Dimensions: The equipment dimensions shall not exceed 2.1" in width x 3.5" in length x 2.4" in height.
- J. Mounting:
 - 1. The equipment shall be mountable on standard 35 mm DIN rail.
 - 2. The equipment shall be surface mountable on a backplane using two screws, bolts or similar mounting hardware.

End of Section