



## 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