ENGINEERING SPECIFICATION

SYMCOM MODEL ISS-105-ISO / ISS-105-ISO-3 / ISS-105-ISO-4 Intrinsically Safe Switch

PART 1 GENERAL

1.1 REFERENCES

A. UL 913 Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, 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

1.2 WARRANTY

A. Manufacturer Warranty: The manufacturer shall guarantee the product 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

For the ISS-105-ISO-3
The equipment specified shall be the Model ISS-105-ISO-3, manufactured by SymCom, Inc.

*OR**

For the ISS-105-ISO-4
The equipment specified shall be the Model ISS-105-ISO-4, manufactured by SymCom, Inc.

*OR**

For the ISS-105-ISO
The equipment specified shall be the Model ISS-105-ISO, 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: INTRINSICALLY SAFE SWITCH

A. General IO Capability

   1. Outputs:
      For the ISS-105-ISO-3
      a. The equipment shall include 2 SPST output relay contacts pilot duty rated at 480VA at 240VAC.

      *OR**

      For the ISS-105-ISO-4
      a. The equipment shall include 3 SPST output relay contacts pilot duty rated at 480VA at 240VAC.

      *OR**

      For the ISS-105-ISO
      a. The equipment shall include 4 SPST output relay contacts pilot duty rated at 480VA at 240VAC.

      b. The equipment shall include 1 SPDT output relay contact pilot duty rated at 480VA at 240VAC.

   2. Inputs
      For the ISS-105-ISO-3
      a. The equipment shall provide 3 inputs from the hazardous area.

      *OR**

      For the ISS-105-ISO-4
      a. The equipment shall provide 4 inputs from the hazardous area.

      *OR**

      For the ISS-105-ISO
      a. The equipment shall provide 5 inputs from the hazardous area.

* Select one.

B. Functions

1. The equipment shall provide both normal and inverted logic depending on the user's selection.
   a. Normal logic: The relay becomes active when the path between the corresponding input and common closes.
   b. Inverted logic: The relay becomes inactive when the path between the corresponding input and common closes.

For the ISS-105-ISO-3

2. The equipment shall provide 3 linked inputs and outputs.

*OR**

For the ISS-105-ISO-4

2. The equipment shall provide 4 linked inputs and outputs.

*OR**

For the ISS-105-ISO

2. The equipment shall provide 5 linked inputs and outputs.

C. Human Interface Features

1. The equipment shall include an adjustment to invert the logic for all channels.
2. The equipment shall have an indicator LED for each input and output to indicate the state of the corresponding input or output.

D. Intrinsically Safe Requirements

1. The equipment shall have the following entity parameters:
   a. Voc=16.8V
   b. Isc=1.2mA
   c. La=100mH
   d. Ca=0.39µF
   e. $Po = \frac{Voc * Isc}{4}$
2. The equipment shall provide intrinsically safe circuit into the following locations:
   a. Class I, Divisions 1 & 2, Groups A, B, C, & D
   b. Class II, Divisions 1 & 2, Groups E, F & G
   c. Class III

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 exceeding IEC 61000-4-4, Level 3. Specified limits shall be 4 kV input power 2 kV inputs/outputs.
3. The equipment shall be immune to electrical surges per IEC 61000-4-5, Level 4. Specified limits shall be 4 kV line-to-line and line-to-ground.
4. The equipment shall be immune to radiated radio frequency emissions. Specified limits shall be 10 V/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 1 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 133°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 3.703" in width X 5.025" in length X 2.35" 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 2 screws, bolts or similar mounting hardware.

End of Section

* Select one