



ENGINEERING SPECIFICATION
SYMCOM MODEL 201A and 201A-9
3-PHASE VOLTAGE MONITOR/PROTECTION RELAY

PART 1 GENERAL

1.1 REFERENCES

- A. UL 508 Industrial Control Equipment – Underwriters Laboratories
- B. IEC 60947 Low Voltage Switchgear and Controlgear – International Electrotechnical Commission
- C. ANSI/IEEE C62.41 – American National Standards Institute/Institute of Electrical & Electronics Engineers
- D. CSA C22.2 No. 14 Industrial Control Equipment – Canadian Standards Association

1.1 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 Model 201A

The equipment specified shall be the Model 201A, manufactured by SymCom, Inc.

For Model 201A-9

The equipment specified shall be the Model 201A-9, manufactured by SymCom, Inc.

2.2 DESCRIPTION

- A. Regulatory Requirements:
 - 1. The equipment shall be UL Listed as type NKCR—Industrial Control Equipment-Motor Controllers-Auxiliary Devices.
 - 2. The equipment shall be ULC Listed as type NKCR7—Industrial Control Equipment-Motor Controllers-Auxiliary Devices Certified for Canada.
 - 3. The equipment shall be CE marked for use in the European Union and evaluated against IEC 60947 Low Voltage Switchgear and Controlgear.

2.3 PERFORMANCE/DESIGN CRITERIA: 3-PHASE VOLTAGE MONITOR/PROTECTION RELAY

- A. Protective Relay Functions
 - 1. The equipment shall provide protection against the following conditions:
 - a. *For the 201A-9 only*
 - 1) high voltage (110% of nominal setting)
 - b. *For the 201A and 201A-9*
 - 1) phase loss
 - 2) phase reversal
 - 3) low voltage (90% of nominal setting)
 - 4) voltage unbalance
- B. Capabilities and Features
 - 1. The equipment shall include:
 - a. *For the 201A-9 only*
 - 1) a high voltage trip 110%
 - 2) a trip delay of 4 seconds for high voltage
 - b. *For the 201A and 201A-9*
 - 1) an adjustable voltage range of 190-480VAC
 - 2) a low voltage trip 90%
 - 3) a trip delay of 4 seconds for low voltage, and 2 seconds for unbalanced voltage and single-phasing faults
 - 4) a restart delay of 2 seconds
 - 5) voltage accuracy $\leq \pm 1\%$
 - 2. The equipment shall include one isolated SPDT output relay contact pilot duty rated 480VA @ 240VAC.
 - 3. The equipment shall include one isolated SPDT output relay contact general purpose rated 10A @ 240VAC.
 - 4. The equipment shall have an indicator light. The indicator light has the capability to indicate whether the phase monitor is in run mode, restart delay mode, or fault mode.
 - a. Fault modes shall include:
 - 1) *For the 201A-9 only*
 - a) high voltage
 - 2) *For the 201A and 201A-9*
 - a) low voltage, unbalance/single-phase and phase reversal



C. 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 4. Specified limits shall be 4kV.
3. The equipment shall be immune to electrical surges per IEC 61000-4-5, Level 4. Specified limits shall be Level 4, 4kV line-to-line, and Level 4, 4kV line-to-ground.
4. The equipment shall be immune to electrical surges per ANSI/IEEE C62.41 Surge and Ring Wave. Specified limits shall be 6kV line-to-line.
5. The equipment shall be immune to radiated radio frequency emissions. Specified limits shall be 10V/m at 150 MHz.

D. Dielectric Isolation: Equipment withstands an alternating current potential of 1000V plus twice the rated voltage of the equipment for 1 minute without breakdown between uninsulated live parts and the enclosure with the contacts open and closed; between terminals of opposite polarity with the contacts closed; and between uninsulated live parts of different circuits.

E. Environmental Requirements

1. The equipment shall operate continuously without derating in surrounding air temperatures of -20° to 70°C (-4° to 158°F).
2. The equipment shall operate continuously without derating in relative humidity of 10% 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).

F. Dimensions: The equipment dimensions shall not exceed 1.750" H x 2.375" W x 4.125" D (with socket).

G. Mounting:

1. The equipment shall be mounted using the SymCom OT08-PC 8-pin octal socket.
 - a. The socket shall be 600V rated.
 - b. The socket shall be 10A rated.
 - c. The socket shall provide a means for mounting on the surface or on a DIN rail.

End of Section