

PART 1 **GENERAL**

1.1 **SECTION INCLUDES**

- .1 Equipment, fabrication and installation for ground fault protection.

1.2 **RELATED SECTIONS**

- .1 Section 01 29 83 - Payment Procedures for Testing Laboratory Services.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 45 00 - Quality Control.
- .4 Section 26 80 00 – Commissioning of Electrical Systems.
- .5 Section 26 05 00 – Common Work Results - Electrical.

1.3 **PAYMENT PROCEDURES**

- .1 Pay for field testing of ground fault equipment performed by equipment manufacturer.

1.4 **REFERENCES**

- .1 Canadian Standards Association (CSA)
 - .1 CAN/CSA-C22.2 No. 144, Ground Fault Circuit Interrupters.
- .2 National Electrical Manufacturers Association (NEMA)
 - .1 NEMA PG 2.2, Application Guide for Ground Fault Protection Devices for Equipment.

1.5 **SUBMITTALS**

- .1 Submit product data and shop drawings.
- .2 Submit test report for field testing of ground fault equipment to Departmental Representative and certificate that system as installed meets criteria specified.

PART 2 **PRODUCTS**

2.1 **EQUIPMENT**

- .1 Ground fault protective equipment: components of one manufacturer.
- .2 Provide ground fault protection on 1000A, 600V, 4 wire, 3 phase service and 2000 A, 208V, 4 wire, 3 phase service and above: to NEMA PG 2.2 and CAN/CSA-C22.2 No. 144.

- .3 Ground fault unit to contain:
 - .1 Ground sensing relay suitable for operation at 500 mA as indicated on electrical drawings. Control voltage: 120 V.
 - .2 Ammeter with scale 0 to 5 A to indicate ground current value.
 - .3 Three position sensitivity control switch to select value of leakage current at which relay will operate.
 - .4 Indicating lamp illuminated when no ground fault exists, extinguished on ground fault or test.
 - .5 Switch:
 - .1 SPDT contacts for alarm and trip.
 - .2 Mechanical target indication.
 - .3 Manually reset.
 - .6 Reset button for contacts and target.
 - .7 Suitable for panel mounting.
- .4 Zero sequence transformer toroidal type with 300 - 3000 mA range.
- .5 Neutral:
 - .1 Use an artificial neutral and grounding resistor.
 - .2 Use neutral ground resistor unit.
- .6 System to operate instantaneously at ground current setting.

2.2 FABRICATION

- .1 Install following components in equipment specified in other Sections and as indicated.
 - .1 Zero sequence transformer.
 - .2 Ground fault relay.
 - .3 Ground resistor unit.

2.3 RELATED EQUIPMENT

- .1 Shunt trip breakers. Load break disconnect switch.

PART 3 EXECUTION

3.1 INSTALLATION

- .1 Do not ground neutral on load side of sensor.
- .2 Install phase conductors including neutral through zero sequence transformer.
- .3 Install ground fault protection system.
- .4 Make connections as indicated and in accordance with manufacturer's recommendations.

3.2 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 – Common Work Results - Electrical and Section 26 80 00 – Commissioning of Electrical Systems.
- .2 Arrange and pay for field testing of ground fault equipment by ground fault equipment manufacturer before commissioning service.
- .3 Check trip unit settings to ensure proper working operation and protection of components.
- .4 Demonstrate simulated ground fault tests.

END OF SECTION