Transmission & Distribution
Material & Installation Specification

Three Phase Recloser Installation – 600 Amp Max

I. Quantity

The base bid shall include the indicated number of three phase recloser assemblies as shown or required, furnished and installed as hereinafter specified

II. Material

A. Contactor

a. The recloser device shall be oil immersed and the basis of design shall be Cooper type VWE. The oil shall not contain PCBs.

b. Recloser shall be electronically controlled, three-phase oil recloser suited for systems operating through 14.4 kV.

c. Vacuum interruption shall be utilized by Types VWE reclosers. A single break on each phase shall be accomplished by separating a set of contacts within the vacuum chamber. Low-energy arc interruption in a vacuum shall extend the duty cycle and results in less shock and demonstration, extending recloser mechanism life.

d. Closing force shall be supplied by a closing solenoid, which is energized by line-to-line connections inside the recloser. This solenoid shall close the main contacts of all phases while simultaneously charging the opening springs in preparation for a tripping operation. The control signals tripping and closing.

e. Line currents shall be sensed by three 1000:1 ratio sensing current transformers, located in the recloser. These CTs shall provide a continuous measurement of line current, and shall be monitored by the electronic control. When current level exceeds the programmed minimum trip level, the control shall energize the trip coil in the recloser. This action shall release the tripping springs, opening the main contacts of all three phases. When and if reclosing is programmed, the control shall then activate the closing mechanism. The recloser shall be self-contained; it shall require no external power source (except as required by certain accessories specified herein).

f. The electronic recloser control shall provide simple determination of phase and ground trip sequences and operations to lockout. Minimum phase and ground trip values, timing of tripping, and resetting timing shall be adjustable at the control, without de-energizing the recloser.

g. Application flexibility shall be enhanced by dual-timing characteristics from a choice of time-current curves for phase and ground tripping levels.

h. Heads shall be aluminum castings.

i. Tanks shall be heavy-gauge steel, finished with polyester powder paint (Munsell 5BG 7.0/0.4, light gray).

j. An “O” – ring gasket confined in a groove shall provide an oil-tight and weatherproof seal between the head and tank. A ½” brass oil sampling and drain valve, located near the bottom of the tank, shall be provided.

k. Bolts through the head casting shall support the recloser, and shall secure it to the mounting. The complete internal mechanism shall be suspended from the head casting, allowing tank removal without disturbing the mechanism and head assembly. Lowering the tank with a wire rope winch shall permit easy access to the mechanism.

l. Insulating supports, from which the three interrupters are suspended, shall be made of filament wound epoxy for high electrical and mechanical strength, and moisture resistance.

m. Vacuum interrupters shall provide fast, low-energy arc interruption with long contact and interrupter life, low mechanical stress, and maximum operating safety.

n. The recloser shall be capable of being manually tripped at any time by lowering a yellow manual operating handle under the sleet hood. With the handle down, the control cannot close the recloser. Raising the yellow handle on the recloser may or may not close the recloser depending upon the control type and settings.

o. Three 1000:1 ratio current sensing transformers shall be provided with the recloser, supplying both phase and ground (zero-sequence) currents. They shall

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be connected to the control cabinet by means of a plug-in cable, which can be up to 125 ft. in length.

p. Apparatus shall be mounted broadside toward the pole in either direction. Mounting hanger type KA146W6 shall be provided.

q. All steel hardware to be hot dipped galvanized.

r. Summary of ratings:

Nominal system voltage (kV)	2.4-14.4
Maximum rated voltage (kV)	15.5
Interrupting current (kA rms)	12
Rated impulse withstand voltage (BIL) (kV crest)	110
60 Hz withstand voltage (kV rms) Dry, one minute, Wet, ten seconds	 50 45
Rated maximum continuous current (A)	560
Bushing creepage distance (in.)	13

B. Controller – Controller basis of design shall be Eaton Form 6 control cabinet #KME6P2A1122316E with:

a. AST-PeerComm on Proview 5.1

b. KA18ME control cable, 30 ft.

c. KME6-1775-A 120V low voltage close receptacle

d. KA11ME1 input cable length 30 feet

e. KME6-1774-2 automation provision

f. KME4-711 battery charger kit

C. Potential transformer – Potential transformer shall be 5 kVA. Transformer, wiring, cutout fuses, and lightning arresters shall be installed in accordance with TDMIS-801, 802, 803, and 804. PT may be installed up to one span away and secondary extended to recloser with approval of engineer.

D. Bypass Switches – Bypass switches shall be installed underarm on the line and vertical above the recloser. Bypass switches shall comply with TDMIS-908.

E. Lightning Arresters – Lightning arrester shall comply with TDMIS-27.

F. Crossarms, Braces and Hardware – Crossarms, braces and hardware shall comply with TDMIS-10 and 11.

G. Riser Conductor and Connections – Riser conductors and connections shall comply with TDMIS-1300, 1301, 1302, and 1303.

H. Grounding – Provide grounding and bonding to comply with TDMIS-7 and 1607.

III. Installation

A. The installation shall be as shown on drawing TDMIS-905.

B. Installation shall include all equipment, crossarms, hardware, conductors, switches relays, controllers, transformers labor equipment, transportation and supervision require for a complete and operational recloser as shown and described herein.

C. Obtain/confirm settings for operation of recloser with DOP. Incorporate settings prior to initially energizing.

IV. Method of measurement

Shall be per each completed assembly including bracket, bolts, washers, conductor, and ground connections, recloser, controller, PT, wiring, risers, cross arms and associated hardware, tools, labor, equipment and all miscellaneous required for a complete and operational module.

V. Basis of payment

Items	Unit	Description
TDMIS-905	Each	Three phase recloser assembly

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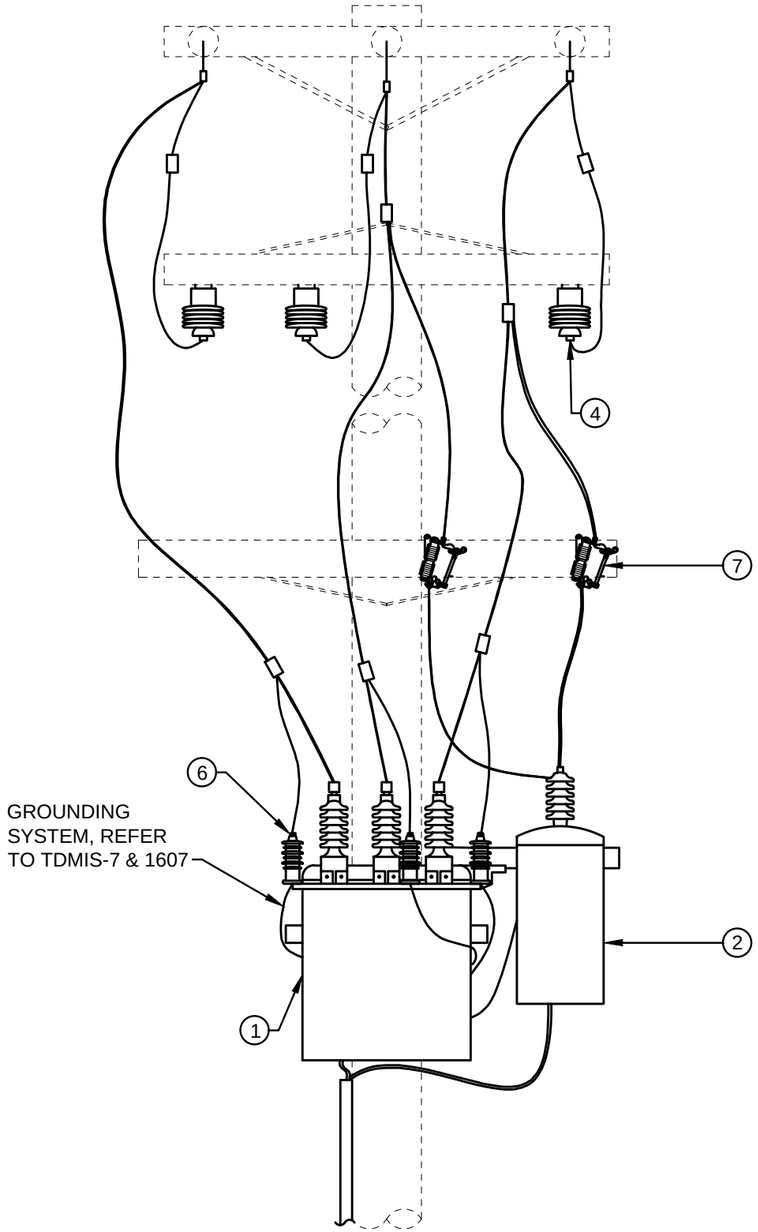
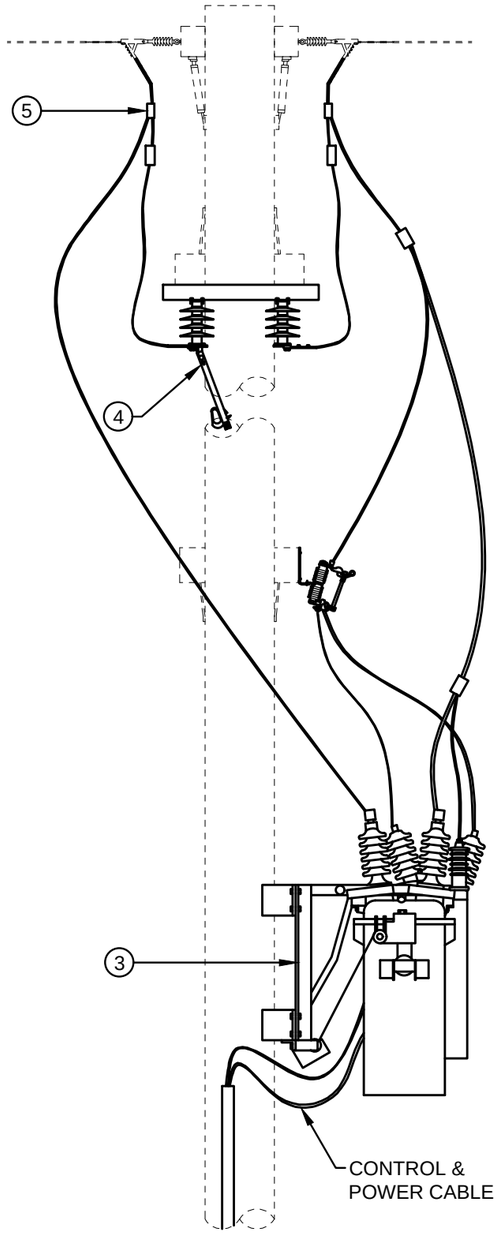


DETAIL 1
OVERHEAD CONNECTION - FRONT VIEW



DETAIL 2
OVERHEAD CONNECTION - SIDE VIEW

REFERENCE LIST

TDMIS	DESCRIPTION
1	WOOD POLES
7	OVERHEAD DISTRIBUTION CIRCUIT GROUNDING
10	WOOD CROSSARM - WOOD BRACES
11	WOOD CROSSARM -STEEL BRACES
406	DEADEND ASSEMBLY
1607	GROUND ROD TEST

ITEM LIST

ITEM #	DESCRIPTION	PART #	QTY.
①	THREE PHASE RECLOSER	20481	1
②	POTENTIAL TRANSFORMER 14.4 KV TO 124/240V	*	1
③	BRACKET	*	1
④	SOLID BLADE SWITCH	20495	3
⑤	COMPRESSION CONNECTOR	*	11
⑥	LIGHTNING ARRESTER	20371	6
⑦	CUTOUT	20383	2

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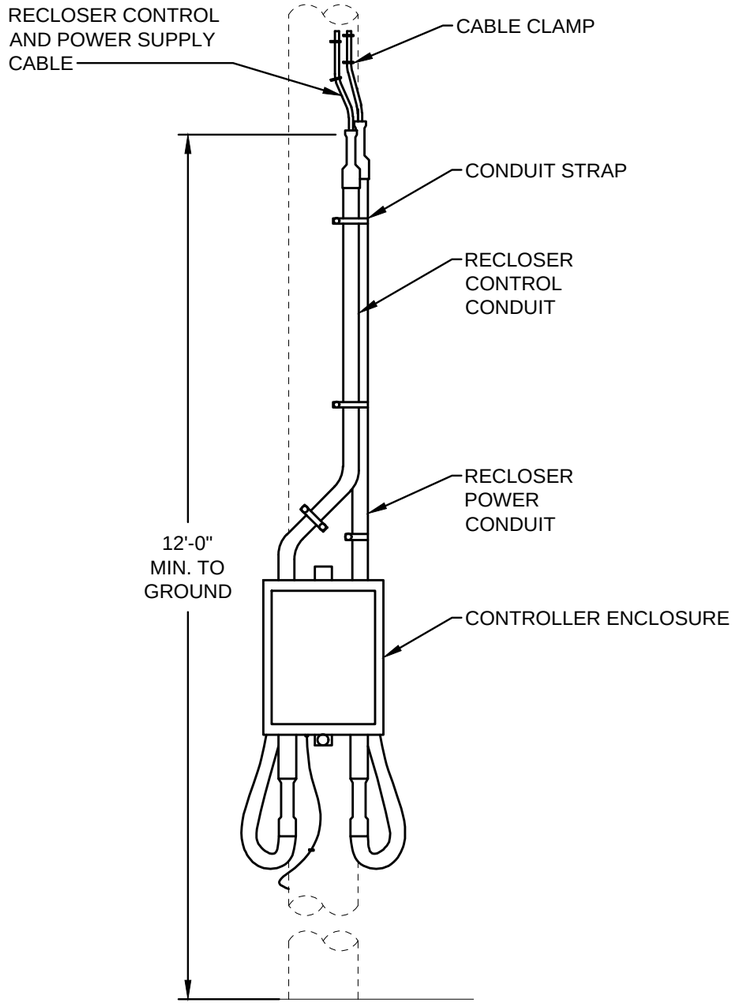

DETAIL 3
CONTROLLER INSTALLATION

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