

OMU Optical Metering Unit

72.5-550 kV Systems, 50/60 Hz

Application

The Optical Metering Unit (OMU) system was developed to provide combined optical current and voltage measurement which can be interfaced to electronic meters in high voltage substations. The OMU combines the Magneto Optic Current Transducer (MOCT) and Electro Optic Voltage Transducer (EOVT) technologies for current and voltage sensing into a single phase unit which is lightweight and compact in size. The reduced size and increased accuracy of the OMU, relative to conventional oil-filled current and voltage transformers, make the design particularly well-suited for the addition of revenue metering to existing substations where space may be a premium.

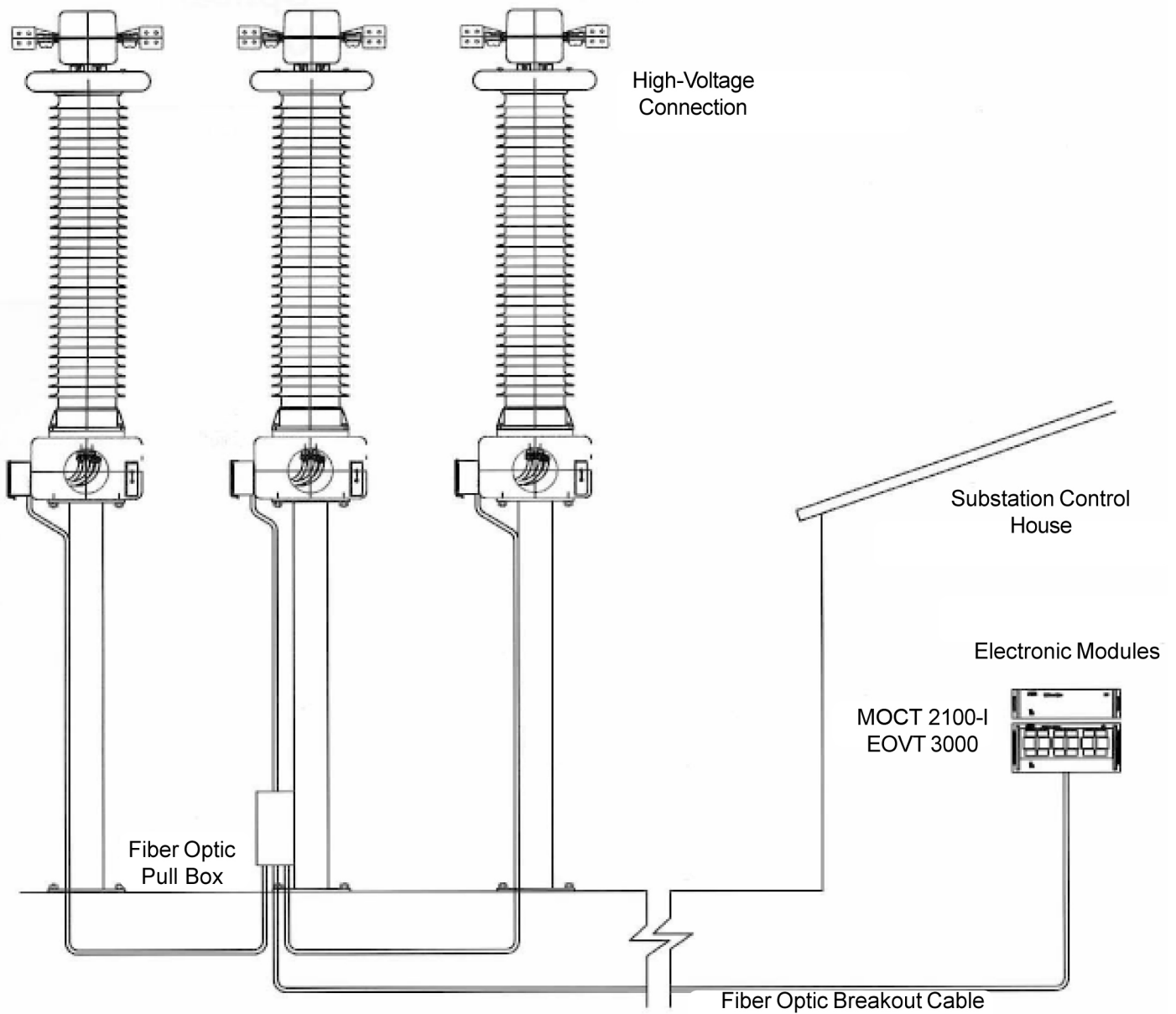
- Maximum continuous current ratings at 2000 A or 4000 A are available.
- The OMU is a completely passive optical measurement unit that combines the MOCT and EOVT technologies into a single-phase device.

The EOVT optical voltage sensing element operates in an SF₆ atmosphere contained in a hollow tube composite insulator, consisting of a fiberglass tube support and silicone rubber sheds. The full line-to-ground voltage is sensed across one single sensing element. This design permits true optical voltage measurement to be performed for the highest possible accuracy and stability. The elimination of oil/paper insulation provides enhanced safety and reduced maintenance costs.

The MOCT optical current sensing element is mounted at the top of the OMU, outside the SF₆ environment in a protective housing assembly. Connections between the MOCT and EOVT sensors in the OMU and the electronic modules in the control house are via optical fiber breakout cable.

- Metering accuracy:
ANSI class 0.15 s, 0.3
IEC class 0.2 s



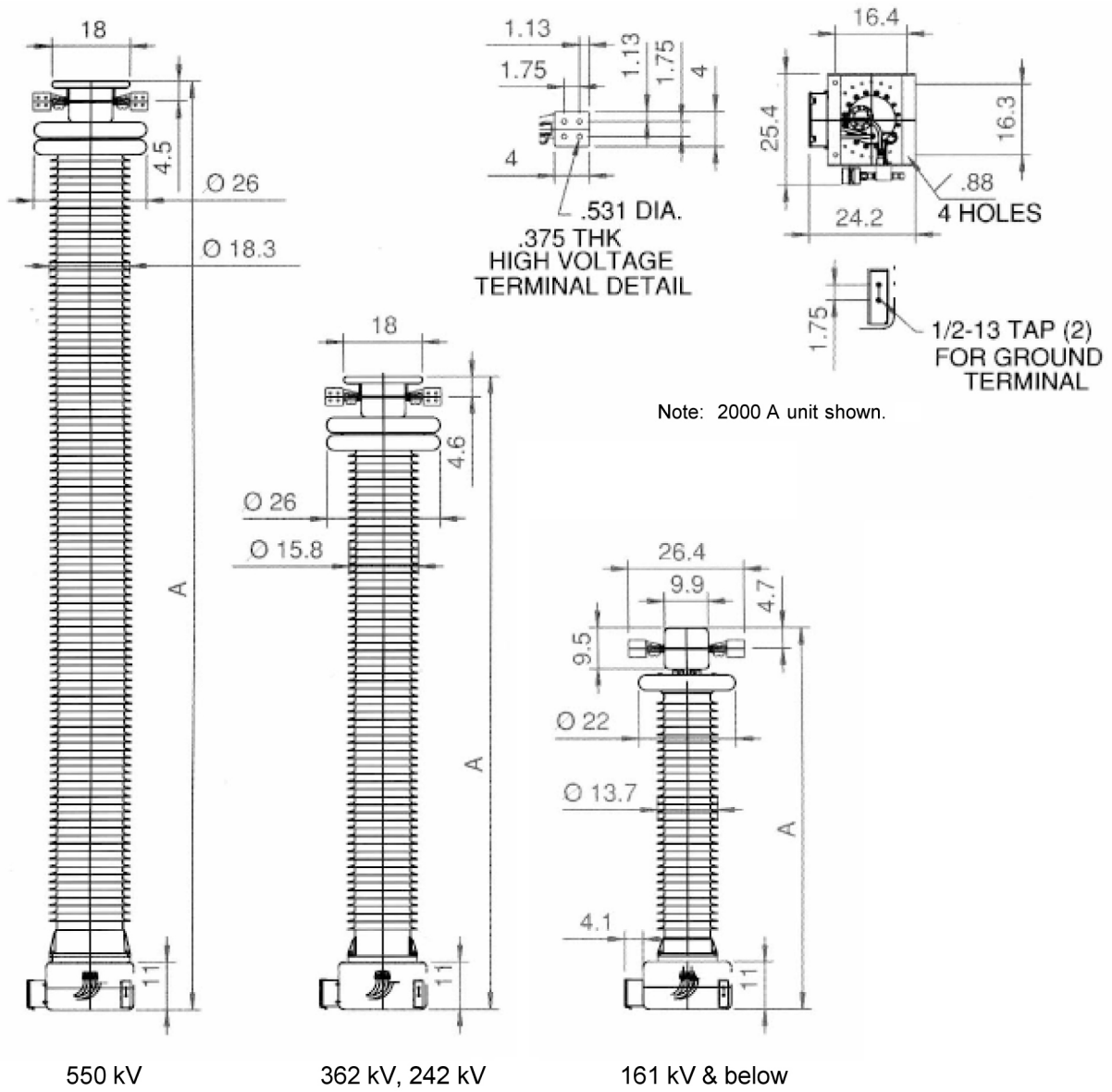


OMU System Configuration

The OMU system consists of four major components:

- Three phases of OMU units installed in the substation which contain the optical current (MOCT) and voltage (EOVT) sensors.
- MOCT 2100-I electronic module which provides the signal processing for current metering. This module provides a 1.0 A nominal current output for direct connection to a standard electronic meter.
- EOVT 3000 electronic module which provides the signal processing for voltage metering. This module has a 120 V nominal voltage output.
- Fiber optic breakout cable which provides the optical link between the OMU units and the electronic modules.

All dimensions in inches unless specified otherwise



Maximum System Voltage kV	BIL kV	Dimension A		Minimum Creep Distance		Weight	
		inches	mm	inches	mm	lbs.	kg
169	750	87.2	2214	135.6	3445	294	133.4
242	1300	144.6	3674	277.9	7060	396	179.7
362	1300	144.6	3674	277.9	7060	396	179.7
550	1800	213.1	5411	436.2	11,080	610	276.7

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