

Clamp-On Ammeter – MET-005



The Model MET-005 Clamp-on Ammeter is an instrument designed to enable the operator to get quick, accurate, reliable, safe measurements of alternating current without interrupting the circuit. When used in conjunction with the PulserPlus Pro's pulsing feature, it facilitates finding ground faults in industrial environments. Designed for glove or barehanded use and insulated for 4160 volt service, the unit features a six-position positive action selector switch which selects the amperage range; a single scale serves all ranges, with large easy-to-read values. The instrument can be hung on a conductor or conduit for ease of operation. A rugged case and insulated jaws ensure long life in the factory or field environments and during operation. The jaws will accommodate conductors up to 6 inches in diameter, and provide direct mea-



surements of conductor current. This unit comes complete in a sturdy foam-lined carrying case.

- Accurate, well damped movement
- Easy to read analog dial
- Hang on conductor, freeing operator's hands
- Positive, convenient selector switch
- Safety style trigger
- 20 Amp maximum continuous duty
- Quickly replaceable 9-volt batter in handle
- Maximum operating temperature range -5°F to +150°F (-20°C to +65°C)



Operating Instructions for MET-005 Ground Fault Detector

Description

This *Ground Fault Detector* is used for preventative maintenance.

1. As insulation ages, its insulating properties often deteriorate.
2. Humidity and foreign matter aid in this deterioration.
3. The *Ground Fault Detector* will indicate ground faults and electrical leakage while the equipment is in operation. This saves considerable time in making leakage readings, as well as saving operating time.
4. Electrical motor magnetic forces and the accompanying mechanical stress on the windings often contribute to higher leakage under operating conditions.
5. In addition to the magnetic stress, there are the rotational forces on the windings that may induce higher leakage currents. Circuit breakers and fixed current monitors are designed to open the circuit or warn of ground faults as they occur. They react to failures in the circuit, but do not indicate

their causes. The *Ground Fault Detector* is designed to isolate these impending failures before they become serious enough to cause a fire or a costly shutdown.

Application

How the detector measures current leakage:

1. The detector measures the leakage current that is shunted to ground caused by an insulation fault. It enables the operator to locate Failures quickly when or even before they occur, without shutting down equipment or spending hours troubleshooting.
2. The *Ground Fault Detector* is a clamp-on current transformer that is sensitive to AC currents passing through it.
3. When a generator supplies an AC load through a pair of wires in an insulated cable, total current going out on one wire is equal to the current coming back on its return. The sum equals zero.
4. A ground fault changes this equality, and *Ground Fault Detector* detects it, measures it, and indicates the severity of the fault causing the unbalance.
 - a. It can only give a reading other than zero if it does not enclose

the ground conductor.

- b. It makes no difference whether the circuit is single or three-phase, three- or two-wire, balanced or unbalanced. The detector "sees" the leakage current to ground.
- c. On a single-phase installation consisting of a motor and an oven, both grounded, tile numbers indicate the amplitudes of the currents in the conductors.
5. The installation has no faults if the detector is clamped around the cables and the reading is zero.
 - a. If there is a fault in the motor, the reading on this main line before the oven will be 1 Amp (the difference between 16 Amps and 15 Amps), indicating that there is a fault downstream.
 - b. At the point between the main line and the oven the reading will be zero; therefore, the fault is not in the oven.
 - c. If the reading is 1 Amp on the main line between the oven and the motor and on the line between the main line and motor, the fault is in the motor.
 - d. If the leakage current increases, the circuit breaker will trip.
 - e. Motor must be disconnected immediately and repaired.