



STANDARD DIGITAL AMMETER



DESCRIPTION

The reference standards require that magnetic particle inspection equipment must be periodically checked to ensure it maintains its original performance over time (calibration check). One of these tests concerns the ammeters installed on the machine. For this purpose, CGM offers a set including standard ammeters for alternating current and rectified current, with related shunts.

USER INSTRUCTIONS

STEP-BY-STEP DESCRIPTION

1. **Safety:** before connecting the ammeter, always ensure that the power supply is switched off and wear appropriate protective equipment, such as insulating gloves.
2. **Series cables:** to measure current, it is necessary to interrupt the circuit at one point and connect the ammeter cables in order to all the current passes through the instrument.



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- Connect the red probe to the point closest to the positive terminal and the black probe to the point closest to the negative terminal, or follow the specific wiring diagram provided by the manufacturer.
 - The ammeter must be connected in series to measure the total current flowing through the part of the circuit.
- 3. Use a current transformer (CT) for high currents:** if the current is too high to pass directly through the meter, use a CT.
- Pass only one load cable (the phase or neutral) through the transformer window.
 - Connect the current transformer cables (e.g., white to "K", black to "I") to the corresponding terminals on the digital ammeter.
 - If both cables pass through, the opposing magnetic fields will nullify each other, resulting in a reading of zero.
- 4. Generating the magnetic field:** connect the MT equipment to the component, using the probes for the contact method or placing the component inside a coil for the coil method.
- 5. Current application:** start the magnetization pulse on the MT equipment.
- 6. Current measurement:** the digital ammeter will display the magnetizing current value. For half-wave rectified current (HWDC), it is important to double the meter reading to obtain the actual peak value.
- 7. Data recording:** document the ammeter reading to confirm that the correct magnetizing strength was used, ensuring that the inspection meets the required standard (e.g., ASTM E1444).
- 8. Disconnection:** once the measurement is complete, disconnect the probes from the circuit and restore the circuit to its original state.

IMPORTANT CONSIDERATIONS

- **Power supply:** ensure that the ammeter has an adequate power source. Some models require a separate power supply, while others can be powered from the same source as the circuit being measured, as long as it falls within the voltage range (e.g., 4–30 V for some models).
- **Meter type:** some digital ammeters can measure both current and voltage. Ensure to use cables of the correct thickness for measuring current, which must be connected in series, unlike the thinner cables used for measuring voltage.
- **Zero adjustment:** if the meter has a zero adjustment function, follow the instructions to reset the ammeter to zero before taking a measurement.



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BENEFIT

- **Unvaried results:** accurate ammeter readings ensure unvaried and repeatable magnetising current levels for every inspection.
- **Defect prevention:** if current is too low, the magnetic field strength will be insufficient to detect thinner defects. If current is too high, it can cause excessive background "noise", obscuring smaller indications.
- **Compliance:** this kind of measurement is often a mandatory part of quality control procedures to comply with reference standards.

AVAILABLE MODELS

PART NUMBER	DESCRIPTION	REF.
05089520	Ammeter + shunt 3000 A 120 mV + shunt 30 A 120 mV	95.2M
04089540	Carrying case	95.4



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