CLAIMS

1. A measurement apparatus comprising:

a measurement unit including any two or more of

a first measurement unit configured to, calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a first leakage current detector which detects the leakage current flowing in a wireway to be measured to which a load is connected and a waveform of a voltage detected by a first voltage detector which detects the voltage applied between two phases to which a load is connected in a wireway branched from a wireway to be measured to which a star-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a star-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed,

a second measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a second leakage current detector which detects the leakage current flowing in a wireway to be measured to which a load is connected and a waveform of a voltage detected by a second voltage detector which detects the voltage applied between two phases to which a load is connected in a wireway branched from a wireway to be measured to which a star-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a star-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed,

a third measurement unit configured to, calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a third leakage current detector which detects the leakage current flowing in a

single-phase circuit branched from a delta connection and a waveform of a voltage detected by a third voltage detector which detects the voltage applied between phases to which a load is connected in a wireway branched from a wireway to be measured to which a delta-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a delta-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed, and

a fourth measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a fourth leakage current detector which detects the leakage current flowing in the wireway to be measured to which a load is connected and a waveform of a voltage detected by a fourth voltage detector which detects the voltage applied between phases to which a load is connected in a wireway branched from a wireway to be measured to which a delta-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a delta-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed; and

a selection processor configured to select any one of the measurement units in the measurement unit.

2. The measurement apparatus of claim 1, wherein

the first measurement unit calculates the leakage current component caused by the ground insulation resistance by integration by synchronous detection based on the waveform of the leakage current detected by the first leakage current detector and the waveform of the voltage detected by the first voltage detector,

the second measurement unit calculates the leakage current component caused by the ground insulation resistance by integration by synchronous detection based on the waveform of

the leakage current detected by the second leakage current detector and the waveform of the voltage detected by the second voltage detector,

the third measurement unit calculates the leakage current component caused by the ground insulation resistance by integration by synchronous detection based on the waveform of the leakage current detected by the third leakage current detector and the waveform of the voltage detected by the third voltage detector, and

the fourth measurement unit calculates the leakage current component caused by the ground insulation resistance by integration by synchronous detection based on the waveform of the leakage current detected by the fourth leakage current detector and the waveform of the voltage detected by the fourth voltage detector.

3. A measurement apparatus comprising:

a measurement unit configured to measure a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a first leakage current detector which detects the leakage current flowing in the wireway to be measured to which a load is connected and a waveform of a voltage detected by a first voltage detector which detects the voltage applied between two phases to which a load is connected in a wireway branched from a wireway to be measured to which a star-connected or delta-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a star-connected or delta-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed; and

a selection processor configured to select one state from two or more of a first state in which a three-phase AC power source in which a first phase, a second phase, a third phase, and a neutral line are star-connected is connected to the wireway to be measured and a load is

connected to any one or two of the first phase, the second phase, or the third phase and the neutral line, a second state in which a three-phase AC power source in which a first phase, a second phase, and a third phase are star-connected is connected to the wireway to be measured and a load is connected to any two or three of the first phase, the second phase, and the third phase, a third state in which a three-phase AC power source in which a first phase, a second phase, and a third phase are delta-connected and any one of the phases is grounded is connected to the wireway to be measured and a load is connected to the grounded phase and any one or two of the non-grounded phases, and a fourth state in which a three-phase AC power source in which a first phase, a second phase, and a third phase are delta-connected and any one of the phases is grounded is connected to the wireway to be measured and a load is connected to the non-grounded two or three phases, and

the measurement unit calculates,

in a case in which the selection processor selects the first state or the third state, a leakage current component caused by a ground insulation resistance included in a leakage current flowing in the wireway to be measured based on a waveform of the leakage current and a waveform of a voltage applied between any one of the first phase, the second phase, or the third phase to which the load is connected and the neutral line,

in a case in which the selection processor selects the second state, a leakage current component caused by a ground insulation resistance included in a leakage current, flowing in the wireway to be measured based on a waveform of the leakage current and a waveform of a voltage applied between the two phases to which the load is connected, and

in a case in which the selection processor selects the fourth state, a leakage current component caused by a ground insulation resistance included in a leakage current, flowing in the wireway to be measured based on a waveform of the leakage current and a waveform of a voltage applied between the phases to which the load is connected.

4. A measurement method comprising:

selecting, in a selection processing step, any one of a plurality of arithmetic units configured to calculate, by different configurations, a leakage current component caused by ground insulation resistance of a wireway branched from a wireway to be measured to which a star-connected or delta-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a star-connected or delta-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed, and

performing, in a measurement step, measurement by the measurement unit having been selected in the selection processing step, and

the plurality of measurement units includes any two or more of

a first measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a first leakage current detector which detects the leakage current flowing in a wireway to be measured to which a load is connected and a waveform of a voltage detected by a first voltage detector which detects the voltage applied between two phases to which a load is connected in a wireway branched from a wireway to be measured to which a star-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a star-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed,

a second measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a second leakage current detector which detects the leakage current flowing in a wireway to be measured to which a load is connected and a waveform of a voltage detected by

a second voltage detector which detects the voltage applied between two phases to which a load is connected in a wireway branched from a wireway to be measured to which a star-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a star-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed,

a third measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a third leakage current detector which detects the leakage current flowing in a single-phase circuit branched from a delta connection and a waveform of a voltage detected by a third voltage detector which detects the voltage applied between phases to which a load is connected in a wireway branched from a wireway to be measured to which a delta-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a delta-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed, and

a fourth measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a fourth leakage current detector which detects the leakage current flowing in the wireway to be measured to which a load is connected and a waveform of a voltage detected by a fourth voltage detector which detects the voltage applied between phases to which a load is connected in a wireway branched from a wireway to be measured to which a delta-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a delta-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed.

5. A measurement program causing a computer to execute

selecting, in a selection processing step, any one of a plurality of arithmetic units configured to calculate, by different configurations, a leakage current component caused by a ground insulation resistance of a wireway branched from a wireway to be measured to which a star-connected or delta-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a star-connected or delta-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed, and

performing, in a measurement step, measurement by the measurement unit having been selected in the selection processing step, and

the plurality of measurement units includes any two or more of

a first measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a first leakage current detector which detects the leakage current flowing in a wireway to be measured to which a load is connected and a waveform of a voltage detected by a first voltage detector which detects the voltage applied between two phases to which a load is connected in a wireway branched from a wireway to be measured to which a star-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a star-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed,

a second measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a second leakage current detector which detects the leakage current flowing in a wireway to be measured to which a load is connected and a waveform of a voltage detected by a second voltage detector which detects the voltage applied between two phases to which a load is connected in a wireway branched from a wireway to be measured to which a star-connected

three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a star-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed,

a third measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a third leakage current detector which detects the leakage current flowing in a single-phase circuit branched from a delta connection and a waveform of a voltage detected by a third voltage detector which detects the voltage applied between phases to which a load is connected in a wireway branched from a wireway to be measured to which a delta-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a delta-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed, and

a fourth measurement unit configured to calculate a leakage current component caused by a ground insulation resistance based on a waveform of a leakage current detected by a fourth leakage current detector which detects the leakage current flowing in the wireway to be measured to which a load is connected and a waveform of a voltage detected by a fourth voltage detector which detects the voltage applied between phases to which a load is connected in a wireway branched from a wireway to be measured to which a delta-connected three-phase AC power source is connected or a wireway to be measured to which a three-phase circuit composed of a delta-connected three-phase AC power source is connected and branched from a three-phase AC to a single-phase AC and distributed.