



Power and Lightning Protection for Measurand ShapeAccelArray SAAF (FIELD) Arrays





Notices

Measurand shall have no liability for incidental or consequential damages of any kind arising out of the sale, installation, or use of its products.

Please read this document and any notes and instructions carefully before proceeding with installation and operation.

ShapeAccelArray is covered by patents including
6127672
6563107
7296363
WO 02/055958
WO 02/055958
WO 98/41815
others pending

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Power



Non-Solar POWER

Configurations without a Solar Power System may require a portable power supply if no "mains power" (110V or 220V) is available.

Even if mains power is available, it may not be sufficiently reliable for uninterrupted data acquisition. Interruptions during data storage can ruin an entire collection of data.

This can be improved for short interruptions by using a "UPS" (Uninterruptible Power Supply) or a battery/inverter with enough energy for the entire session, or a battery/inverter/trickle charger.

Measurand can advise on or supply portable power supplies. Often the user will want to provide their own. Energy requirements will depend on size of array, type of laptop, duration of acquisition, and type of software.



Typical portable supply re-chargeable from car battery or mains power



Typical 12V-110VAC inverter for use in a car

Typical UPS





In most cases, a Solar-powered system will provide the best uninterrupted power source, and at modest cost.

In most cases, Measurand will supply all components except the battery, enclosure, the mast (for solar panel and antenna), ground rod, and conduit.

Normally, the battery is supplied by the customer, due to high cost of shipping a 100 AH battery.

Solar POWER

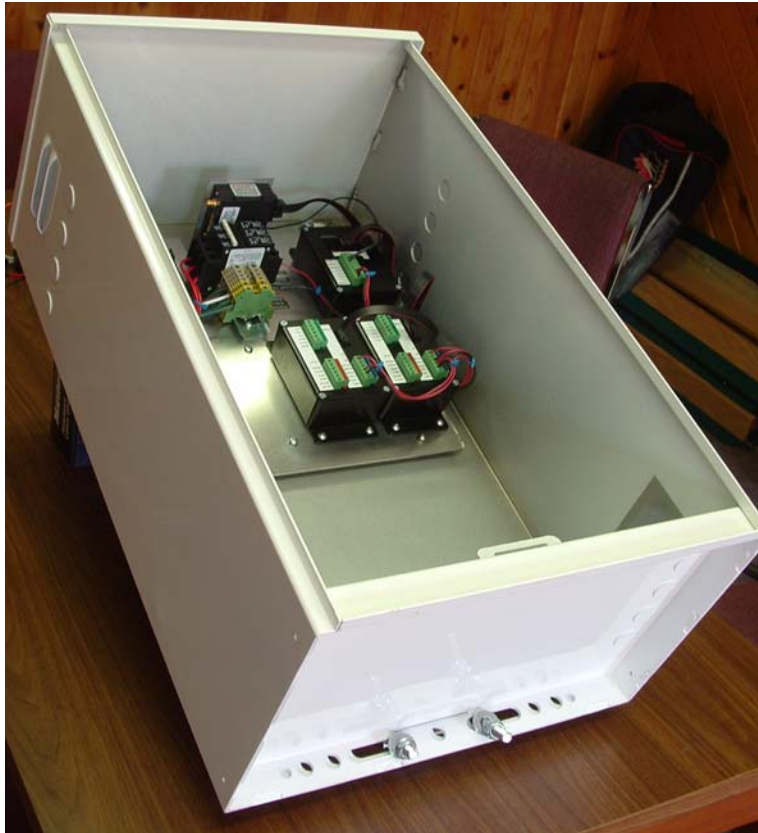
Typical Field Installation with customer-supplied cabinet and mast

Typical Measurand Equipment in the Cabinet



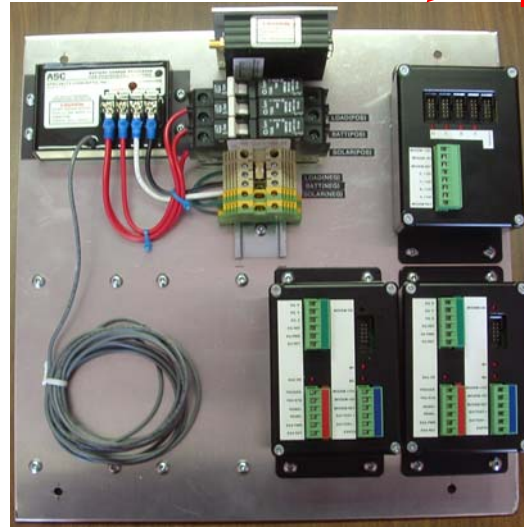


Solar POWER



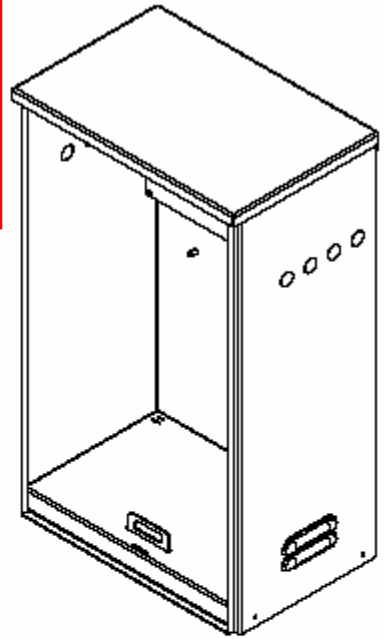
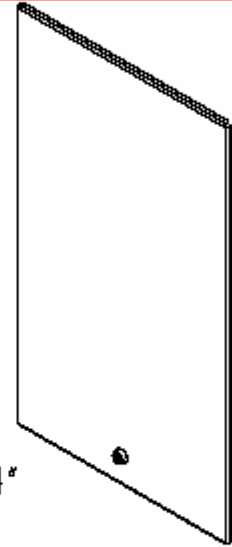
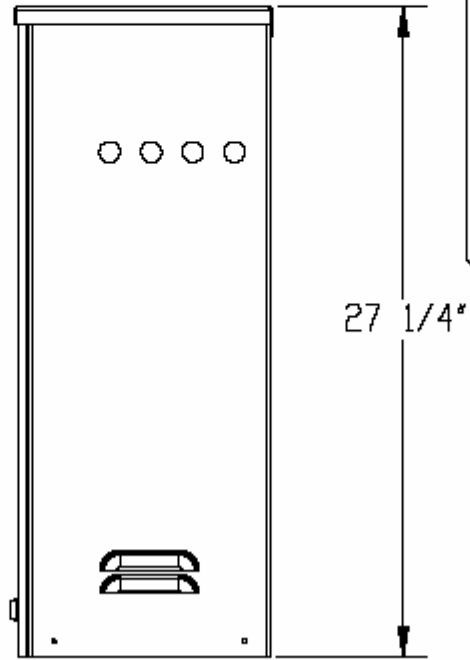
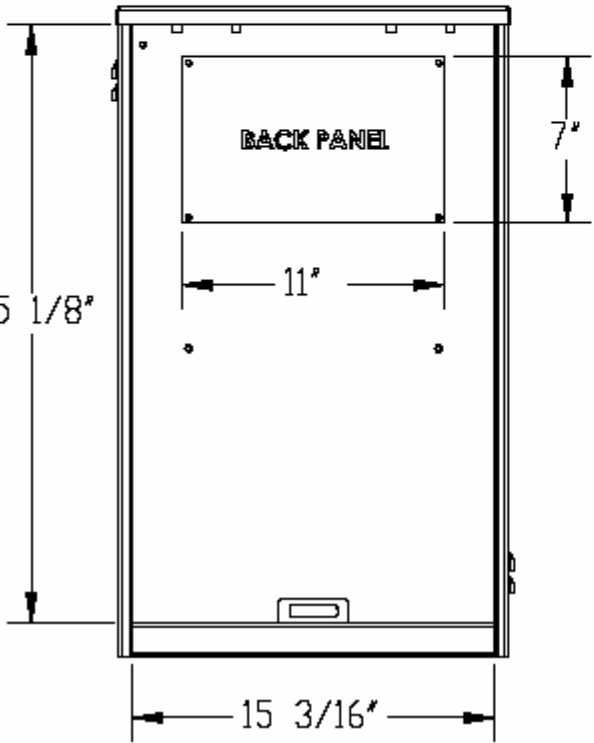
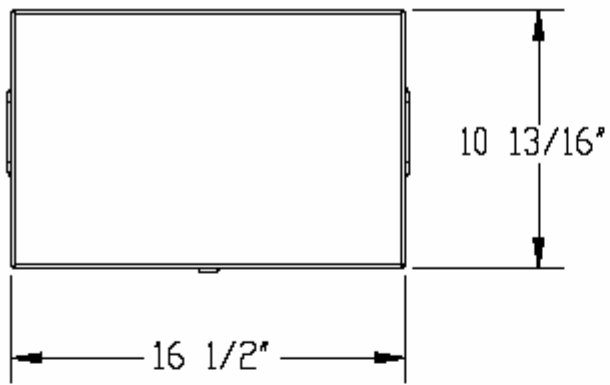
Typical light-duty cabinet with Measurand equipment for Cellnet system and space for a deep-cycle battery. The enclosure has provision for mounting on a pole.

Typical cabinet contents (w/o battery), showing two loggers, MUX, and wireless modem



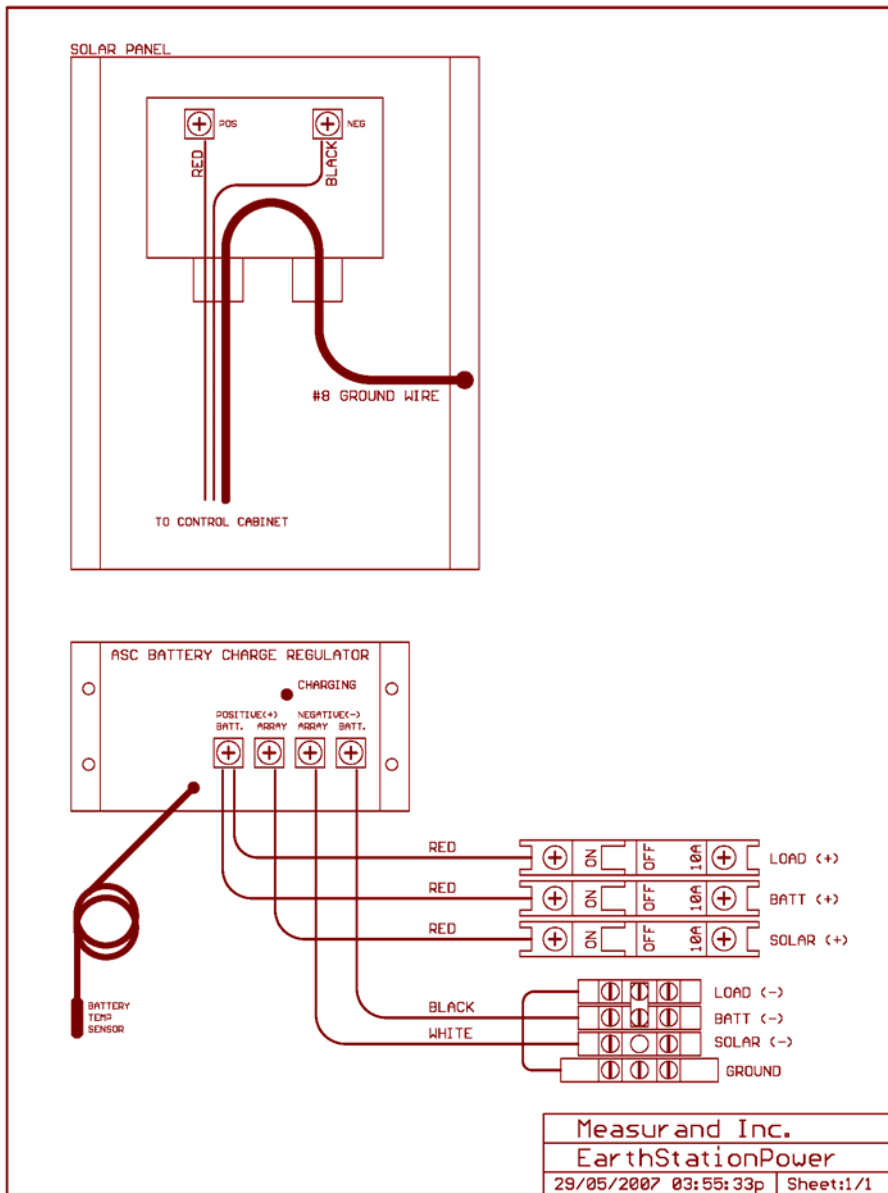


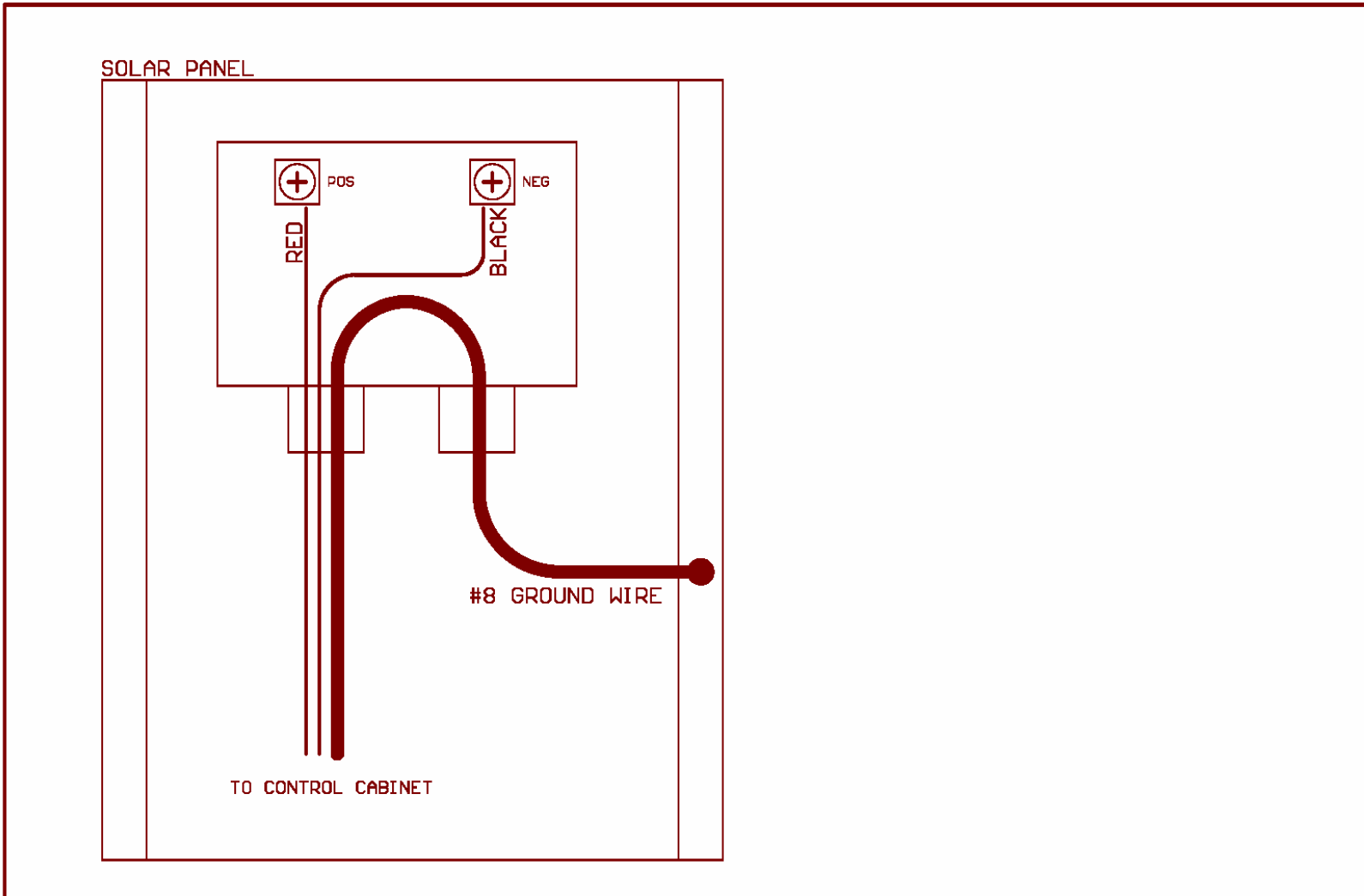
Typical light-duty cabinet available from Measurand. If security is an issue, it is recommended to use a heavier cabinet.

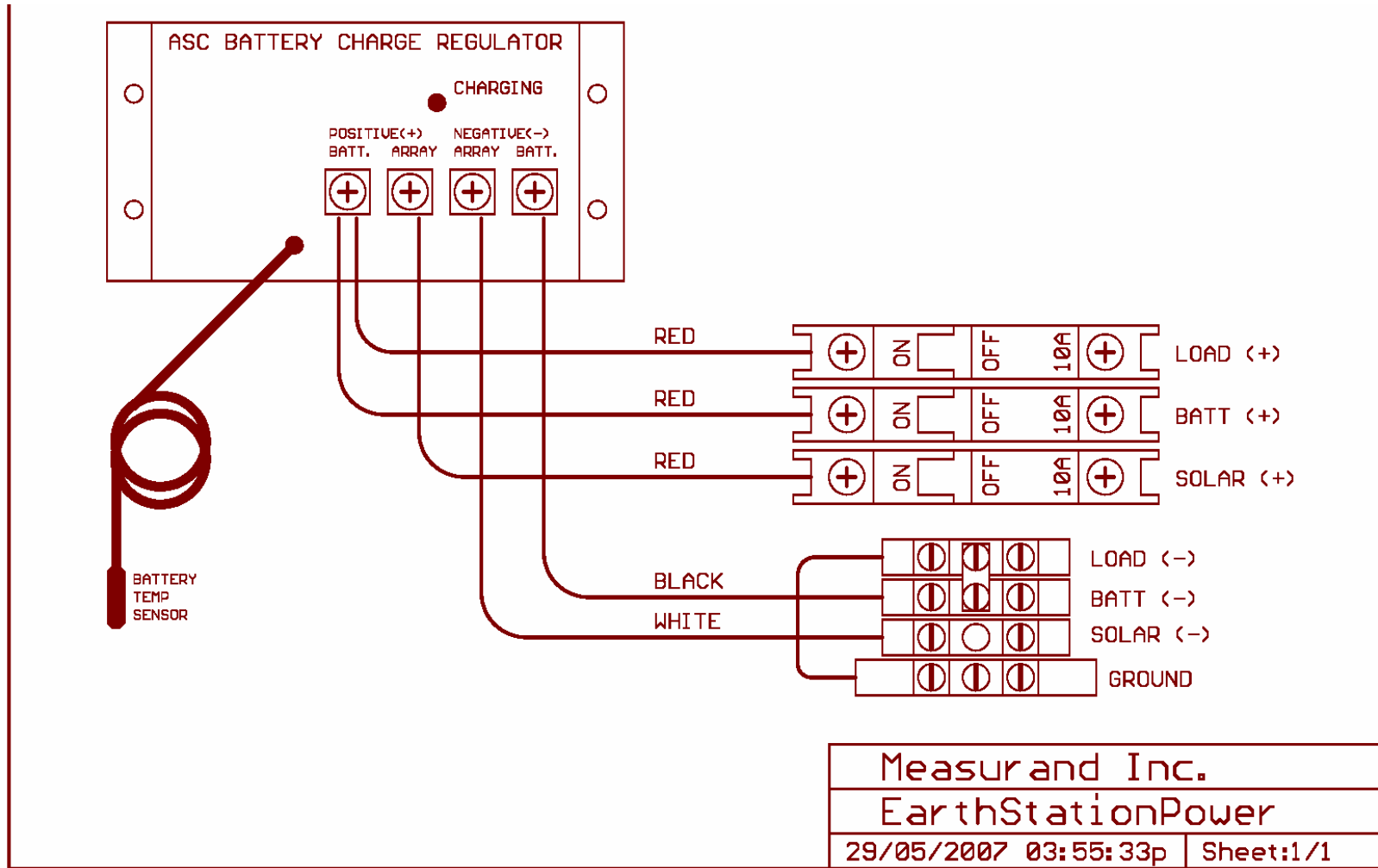




Wiring of Solar Panel and Charge Control Circuitry
(See enlargements on following pages).









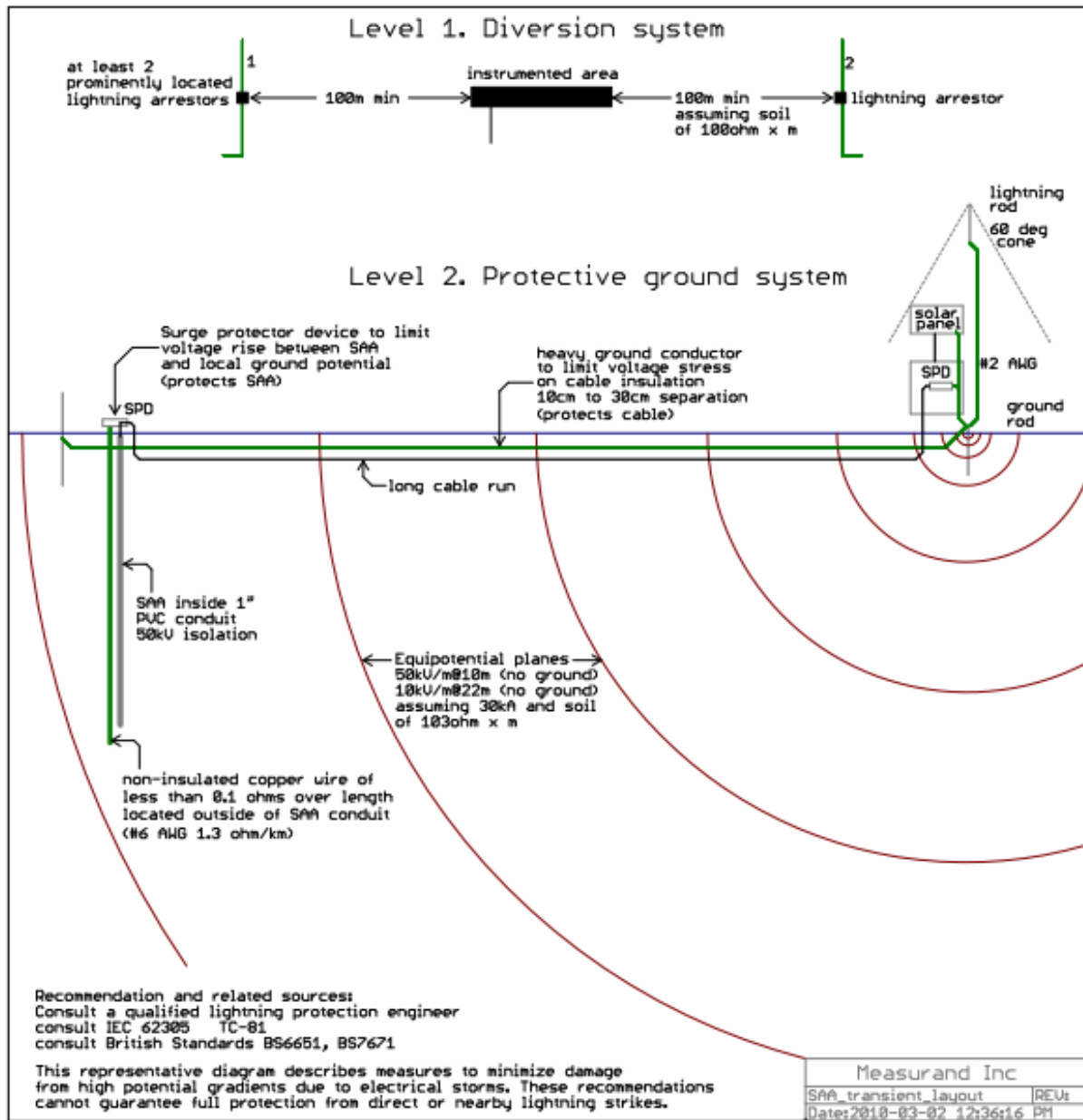
Connections

Lightning:

Measurand shall not be responsible for lightning damage to equipment or personnel. To minimize risk of lightning damage, ensure that the cabinet containing Measurand equipment is metallic and grounded to a specification at least as stringent as that for grounding of domestic or industrial electrical entrances in the jurisdiction of the equipment location. It is further recommended that precautions at least as stringent as those outlined in the following “Diversion System; Protective Ground System” diagram be taken. All grounds shall be arranged to minimize conduction of atmospheric currents through any cables travelling to Measurand equipment, or through the conduit containing the cables.

Lightning protection can lessen the chances of damage to equipment. It is not a guarantee of results.

Caution: All external cables are to be mechanically and electrically protected using conduit.





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