

## • MST – Direct-Mount

### Instruction Sheet

#### General Information

This instruction sheet provides information about Solarex MST direct-mount photovoltaic modules.

Before installing, wiring or using a module, it is important to read and understand the instructions in this information sheet.

#### Electrical Shocks and Burn Hazards

Photovoltaic (PV) modules generate direct current (DC) when exposed to sunlight or other sources of light. Even though single modules produce low voltage and current, shocks and burns can result from contact with module output wiring. These hazards are increased when multiple modules are connected together to provide higher voltage or current levels. PV modules do not have to be "connected" (i.e., powering a load) to generate electricity. Modules produce electricity whenever light is present. When working with modules always observe appropriate electrical safety procedures.

#### System Components

When using other devices in the PV system such as batteries, charge controllers, inverters, etc., be sure to follow the manufacturers' safety recommendations.

#### General Handling and Use

Even though the module is rugged, handle it with care. Impact on the glass surfaces can damage the module.

- Do not bend the module.
- Do not attempt to disassemble the module.
- Do not concentrate light on the surface of the module in an attempt to increase its power output.

#### Maintenance

- Inspect the module as necessary for overall integrity.
- Keep the module clean. Dirt accumulation on the module's front surface can reduce the light energy collected by the module, decreasing its power output.

#### Disclaimer of Liability

Since the conditions or methods of installation, operation, use and maintenance of

PV modules are beyond its control, Solarex does not assume responsibility and expressly disclaims liability of loss, damage or expense arising out of or in any way connected with such installation, operation, use or maintenance.

#### Applicable Codes

In some areas, local or national codes (such as the United States' NEC) may govern the installation and use of PV modules. In particular, these codes may specify requirements for module installation on rooftops, exterior walls, and vehicles. Installers must comply with these codes when applicable.

#### Underwriters Laboratories (UL) Listing Information

These modules' listing covers installations directly to the surface of a roof or wall of a building that is appropriately fire rated for its application. The modules are listed by and have received a Class C Fire Rating from UL. To satisfy the conditions of the UL listing when these modules are installed in a system be sure to:

- Follow wiring practices consistent with outdoor installations, meeting the requirements of applicable codes. (for USA Ref. NEC art. 690) for array output wiring. The electrical characteristics to be used in determining these requirements are printed on the module label. The actual module characteristics are within +/- 10% of the indicated values for  $I_{sc}$ ,  $V_{oc}$ , and  $P_{max}$  under Standard Test Conditions ( $100\text{mW}/\text{cm}^2$ , AM 1.5 spectrum, and a cell temperature of  $25^\circ\text{C}$ .)
- Grounding locations are provided at the ends of the frame siderails.
- Maximum module series fuse rating is marked on module label.

#### Application Information

Solarex MST Modules produce DC electricity. See the appropriate data sheet for detailed mechanical and electrical characteristics of the module. Specific electrical characteristics of each module are listed on its label. Under normal conditions, a PV module may experience conditions that produce more current and/or voltage than reported at Standard Test Conditions. Ac-



cordingly, the values for short-circuit current and open-circuit voltage marked on UL listed modules should be multiplied by a factor of 1.25 when determining component ratings and capacities. Refer to Section 690-8 of the NEC for an additional multiplying factor of 1.25 (for a total 1.56 multiplier) which needs to be applied to short-circuit current when determining conductor sizes and fuse ratings.

The use of bypass diodes is not required on MST modules.

#### Installation Instructions

- Place module on roof with long axis oriented vertically (portrait mode). Sealant for mounting bolts should be applied to lower frame surface surrounding the mounting holes before placement.
- Fasten the modules in place using lag bolts, machine bolts, or a fastener appropriate for the particular structure's surface. The minimum fastener for mounting the module to a roof with  $\frac{1}{2}$  in. (12mm) plywood sheathing is a  $\frac{5}{16}$  in. (8mm) steel lag bolt of sufficient length to achieve complete thread engagement in the plywood. A bolt should be used in each of the four mounting holes. For other roofing construction consult a structural engineer familiar with local requirements and practices.
- Attach ground conductor at grounding location using 6-32 (M4) machine screw. The use of a star washer for this attachment is necessary to penetrate the nonconductive aluminum anodization.

