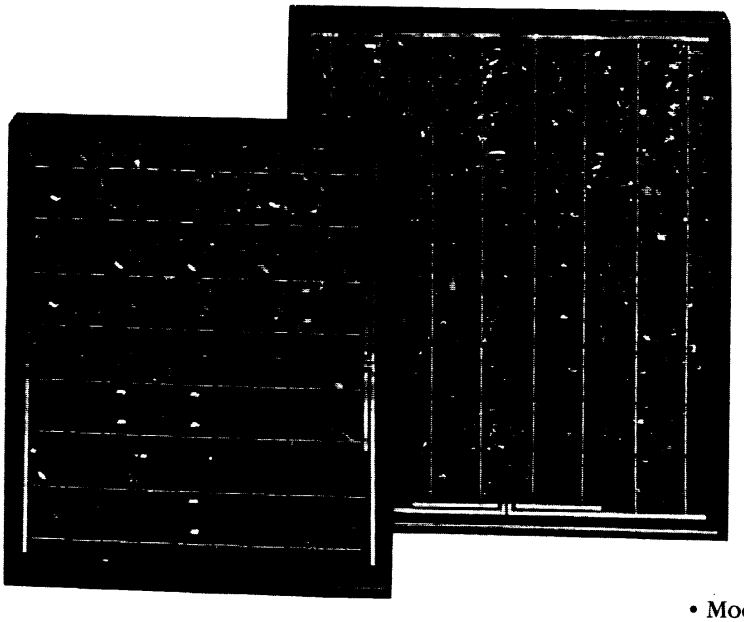
654-048

MSX-30 and MSX-20 Photovoltaic Modules

SOLAREX
An Amoco Company

MSX-30 and MSX-20 photovoltaic (solar-electric) modules are designed to operate DC loads with small to moderate energy requirements. Part of Solarex' **MEGA**™ series, the MSX-30 and -20 generate 30 watts and 20 watts, respectively, of peak power at Standard Test Conditions (STC), and provide sufficient voltage to charge batteries efficiently in virtually any climate. Typical commercial applications include remote telemetry, instrumentation systems, security sensors, signals, and navigation aids. They are also well-suited to small electrical jobs around the home or farm, such as powering radios and portable communications equipment.

These modules may be used in single-module and multiple-module systems; the MSX-30 in particular is useful in applications requiring a midsize array to provide increased current or voltage. Both modules are easily mounted to a broad range of surfaces using Solarex mounting kits or user-fabricated supports.



The MSX-20 (left) and MSX-30 (right)

INDIVIDUAL TESTED, LABELED AND WARRANTED

It is inherent in all photovoltaic manufacturing processes that the electrical characteristics of finished modules vary slightly from one unit to another.

The electrical characteristics listed on the reverse of this sheet are those of typical, or production-average, units.

However, unlike any other manufacturer, Solarex tests each finished module in a solar simulator and labels it with its actual output—peak power, and voltage and current at peak power—at STC. Furthermore, each module is covered by our industry-leading ten-year limited warranty, which guarantees:

- that no module will generate less than its guaranteed minimum power when purchased;
- continued power (at least 90% of guaranteed minimum) for ten years.

Contact Solarex' Marketing Department for full terms and limitations of this unparalleled warranty.

VERSATILE JUNCTION BOX, DUAL VOLTAGE CAPABILITY

These modules consist of 36 semicrystalline silicon solar cells electrically configured as two series strings of 18 cells each. Both strings are terminated in a weatherproof junction box which will accommodate our unique Solarstate™ regulator.

- Strings may be placed in series or in parallel in the field, providing 6V or 12V nominal output, by moving leads in the junction box.
- Allows simple installation of blocking or bypass diodes on 18-cell strings.
- Junction box terminals accept variety of connectors.

PROVEN MATERIALS AND CONSTRUCTION

The materials used in these modules reflect Solarex' more than two decades of experience with solar modules and systems installed in virtually every climate on Earth.

- Semicrystalline silicon solar cells: efficient, attractive, stable.
- Modules are rugged and weatherproof: cell strings are laminated between sheets of ethylene vinyl acetate (EVA) and tempered glass.
- Tempered glass superstrate: self-cleaning, highly transmissive (low iron content), inert, impact-resistant.
- Framed with corrosion-resistant, bronze-anodized extruded aluminum: strong, attractive framing compatible with Solarex mounting hardware and a broad range of other mounting structures.

SAFETY APPROVED

The MSX-30 and MSX-20 modules are listed by Underwriter's Laboratories for electrical and fire safety (class "C" fire rating) and are approved by Factory Mutual Research for application in NEC Class 1, Division 2, Group D hazardous locations.

APPROVED

OPTIONS

- Protective aluminum backplate
- Mounting hardware kits
- Blocking diode
- Solarstate™ voltage regulator
- Marine-climate (NEMA 4X) junction box
- Frame-mounted strain-relief clamp with 12" color-coded output leads (replaces junction box)

RELIABILITY AND ENVIRONMENTAL SPECIFICATIONS

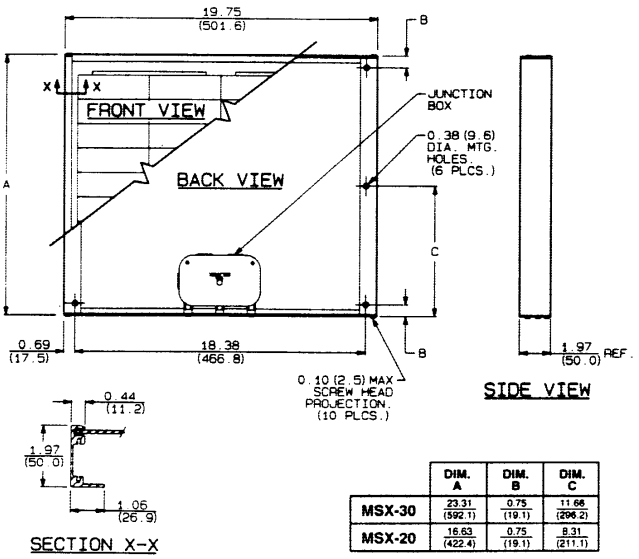
These modules are subjected to intense quality control during manufacture and rigorous testing before shipment. They meet or exceed JPL Block V test criteria, including the following tests, with no performance degradation:

- Repetitive cycling between -40°C and 90°C;
- Repetitive cycling between -40°C and 85°C at 85% relative humidity;
- Wind loading exceeding 125 mph;
- Surface withstands impact of one-inch hail at terminal velocity (52 mph) without breakage.

MECHANICAL CHARACTERISTICS

Weight: MSX-20 6.5 pounds (2.95 kg)
MSX-30 8.5 pounds (3.86 kg)

Dimensions: Dimensions in brackets are in millimeters
Unbracketed dimensions are in inches



	DIM. A	DIM. B	DIM. C
MSX-30	23.31 (592.1)	0.75 (19.1)	11.66 (296.2)
MSX-20	16.63 (422.4)	0.75 (19.1)	8.31 (211.1)

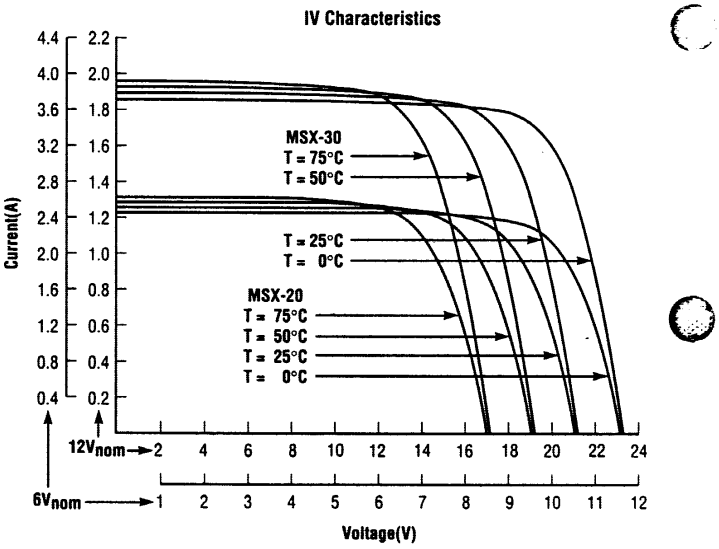
TYPICAL ELECTRICAL CHARACTERISTICS[1]

	12-VOLT CONFIGURATION[2] MSX-30	MSX-20
Typical peak power (Pp)	30W	20W
Voltage @ peak power (Vpp)	17.1V	17.1V
Current @ peak power (Ipp)	1.75A	1.17A
Guaranteed minimum peak power	28W	18W
Short-circuit current (Isc)	1.90A	1.27A
Open-circuit voltage (Voc)	21.1V	20.8V
Temperature coefficient of short-circuit current	1.5 mA/°C	1.2 mA/°C
Temperature coefficient of open-circuit voltage	-73 mV/°C	-73mV/°C
Approximate effect of temperature on power	-0.38%/°C	-0.38%/°C
NOCT	45°C	45°C

NOTES:

(1) These data represent the performance of typical modules as measured at their output terminals, and do not include the effect of such additional equipment as diodes and cabling. The data are based on measurements made at Standard Test Conditions (STC), which are:
- Illumination of 1 kW/m^2 (1 sun) at spectral distribution of AM 1.5
- Cell temperature of 25°C or as otherwise specified (on curves).

(2) Electrical characteristics of modules wired in the nominal 6V configuration may be found by using the 6V scales on the I-V curves. For more exact values, divide the 12V voltage characteristics in the table by 2 and multiply the 12V current characteristics by 2. Power values are unchanged.



For More Information, Contact:

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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