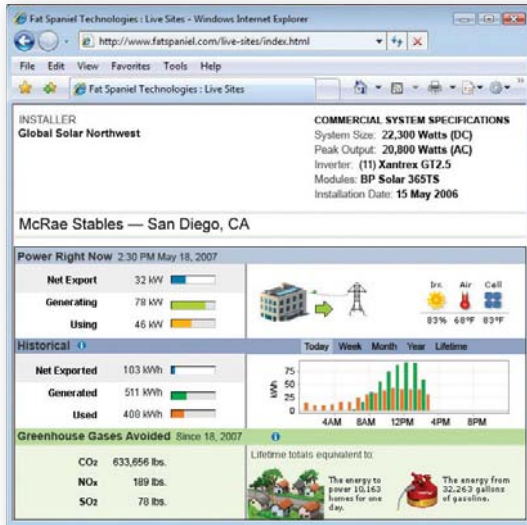**Fat Spaniel**
T E C H N O L O G I E S

Commercial Solar Electric Systems Monitoring and Reporting Services Data Sheet

For commercial solar electric systems with revenue grade monitoring and reporting, we provide four types of core service packages: CSI Basic, Standard, Advanced and Premium.

For 3-phase systems rated at 20 kW DC and above.

Customer's Web view is accessible from the Fat Spaniel global portal page at http://monitor.fatspaniel.com. View shown is typical of Advanced Monitoring or Premium Monitoring systems.

Chart showing Fat Spaniel's core packages with their service features.

Basic Commercial PBI-Compliant Monitoring

208V, 3-Phase
SKU # 1438

480V, 3-Phase
SKU # 1439

- Meets metering and monitoring requirements of California Solar Initiative (CSI) Performance-Based Incentive (PBI) and EPBB programs, and of all states requiring revenue grade metering
- Includes ANSI standard revenue grade meter (+/- 0.5%)
- Simple Web-based views
- Alerts include inverter off and communications failure – 24-hour notification
- Use with 3-phase inverters, either 208V measured at 208V or 480V measured at 480V
- Outdoor-rated enclosure (NEMA 3, 3R, 3S, 4, 4X)
- Includes communications gateway
- Licensed for systems rated at 20 kW DC – requires license upgrade 7100-xx for larger systems
- Not upgradable to Weather Station or Building Demand options
- **Includes 5 years of monitoring service and PUC reporting service**

Standard Commercial PBI-Compliant Monitoring

208V, 3-Phase
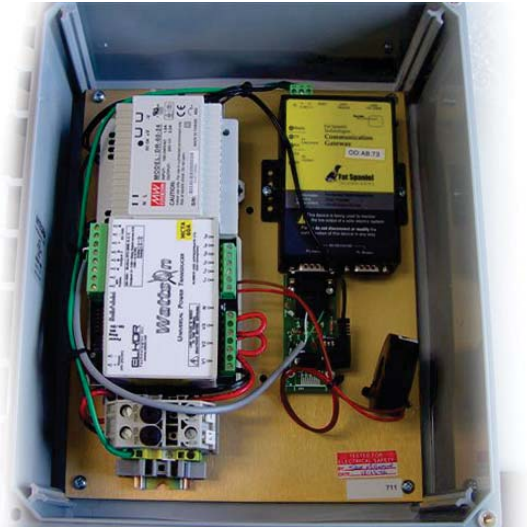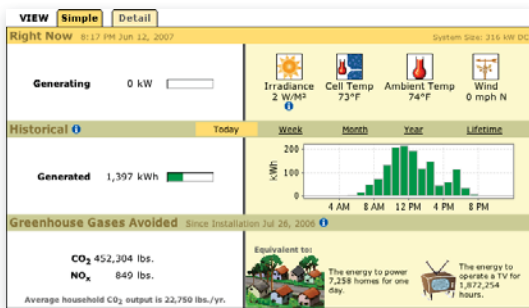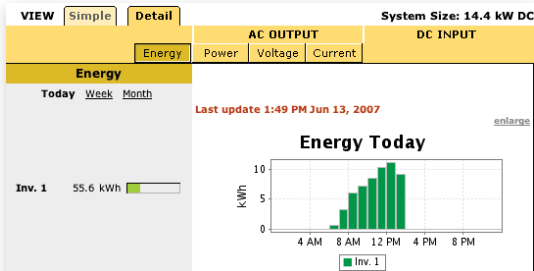SKU # 1538

480V, 3-Phase
SKU # 1539

- Meets metering and monitoring requirements of California Solar Initiative (CSI) Performance-Based Incentive (PBI) and EPBB programs, and of all states requiring revenue grade metering
- Includes ANSI standard revenue grade meter (+/- 0.5%)
- Detail and Simple Web-based views
- Alerts include inverter off and communications failure – 24-hour notification
- 5-minute sampling interval for monitoring
- Use with 3-phase inverters, either 208V measured at 208V or 480V measured at 480V
- Outdoor-rated enclosure (NEMA 3, 3R, 3S, 4, 4X)
- Includes communications gateway
- Licensed for systems rated at 20 kW DC – requires license upgrade 7100-xx for larger systems
- Can be upgraded to Weather Station or Building Demand options
- Advanced Hardware Replacement service in US and Canada
- **Includes 1 year of monitoring and PUC reporting service**

View of enclosure (without its cover) and components including communications gateway and revenue-grade meter.

Simple Web view showing current and historical power generated along with greenhouse gases avoided. On the top right is the optional Full Weather Station data: irradiance, cell temperature, ambient temperature, wind speed and wind direction.

Detail Web view of Independent Revenue-Grade Monitoring showing today's energy generated from inverter. To the right is a chart showing the system's energy production.

Advanced Commercial PBI-Compliant Monitoring

208V, 3-Phase
SKU # 6438

480V, 3-Phase
SKU # 6439

- Meters for 4-wire Building Demand and 3-wire/4-wire 3-phase Revenue Grade Metering
- Includes two ANSI standard revenue grade meters (+/- 0.5%)
- Basic Weather Station for module temperature, air temperature and irradiance monitoring
- Meets metering and monitoring requirements of California Solar Initiative (CSI) Performance-Based Incentive (PBI) and EPBB programs, and of all states requiring revenue grade metering
- Detail and Simple Web-based views
- Alerts include inverter off and communications failure – 24-hour notification
- 5-minute sampling interval for monitoring
- Use with 3-phase inverters, either 208V measured at 208V or 480V measured at 480V
- Outdoor-rated enclosure (NEMA 3, 3R, 3S, 4, 4X)
- Includes communications gateway
- Licensed for systems rated at 20 kW DC – requires license upgrade 7100-xx for larger systems
- Advanced Hardware Replacement service in US and Canada
- **Includes 1 year of monitoring and PUC reporting service**

Premium Commercial PBI-Compliant Monitoring

208V, 3-Phase
SKU # 6438FW

480V, 3-Phase
SKU # 6439FW

- Meters for 4-wire Building Demand and 3-wire/4-wire Revenue Grade Metering
- Includes two ANSI standard revenue grade meters (+/- 0.5%)
- Full Weather Station for module temperature, air temperature, irradiance, wind speed and wind direction monitoring
- Meets metering and monitoring requirements of California Solar Initiative (CSI) Performance-Based Incentive (PBI) and EPBB programs, and of all states requiring revenue grade metering
- Detail and Simple Web-based views
- Alerts include inverter off and communications failure – 24-hour notification
- 5-minute sampling interval for monitoring
- Use with 3-phase inverters, either 208V measured at 208V or 480V measured at 480V
- Outdoor-rated enclosure (NEMA 3, 3R, 3S, 4, 4X)
- Includes communications gateway
- Includes cellular modem hardware (does not include cellular modem service)
- Licensed for systems rated at 20 kW DC – requires license upgrade 7100-xx for larger systems
- Advanced Hardware Replacement service in US and Canada
- **Includes 1 year of monitoring and PUC reporting service**

Commercial Monitoring License and Service Options

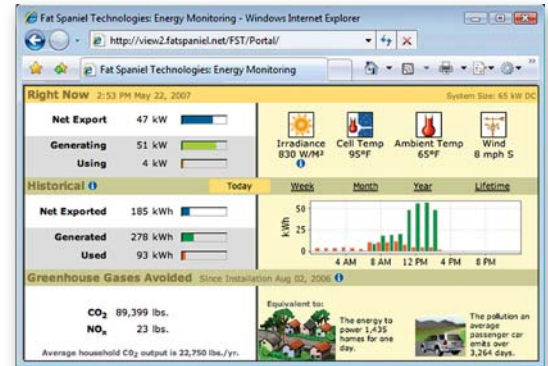|	
SKU# 7100-xxxx	• Licence for maximum kW capacity rating level – one-time cost based on maximum kW system capacity rating supported
SKU# 7101-xxxx	• Five additional years of Fat Spaniel services for Basic, Standard, Advanced and Premium monitoring
SKU# 7105-xxxx	• One additional year of Fat Spaniel services for Basic, Standard, Advanced and Premium monitoring
	Note: *xx to xxxx is the maximum kW Capacity; the capacities are 20, 30, 50, 75, 100, 250, 500 and 1000kW. Example: 7100-250 = 7100-250kW system*

Commercial Monitoring Options	
SKU# 2160 SKU# 3160	**Xantrex Inverter-Direct Fault Monitoring (for Xantrex PV Series inverters only)** **For all core packages: SKU # 14xx, 15xx, 64xx, 64xxFW** • For use with ONE Xantrex inverter using direct monitoring (for obtaining inverter generated status and fault codes) • Includes outdoor-rated enclosure (NEMA 3, 3R, 3S, 4, 4X) and conduit-ready power • Includes communications gateway
SKU# 9041 (For US and Canada: GPRS-based) SKU# 9046 (For outside North America: GSM-based)	**Cellular Modem add-on (cellular service NOT included)** **For core packages with SKU # 14xx, 15xx and 64xx (NOT 64xxFW)** • Provides Internet access for Fat Spaniel gateway • Requires purchase of cellular service from a communications service provider (not Fat Spaniel) • Requires customer-provided SIM chip • This is an alternative to the typical deployment which would use a local network connection via Cat-5 cable to the Internet access device (the router)
SKU# 8205	**Basic Weather Station with temperature and sunlight monitoring:** **For core packages with SKU # 1538 or 1539** • Irradiance (pyranometer) • Module temperature • Ambient air temperature • Includes outdoor-rated enclosure
SKU# 8295	**Full Weather Station with temperature and sunlight monitoring:** **For core packages with SKU # 1538 or 1539** • Irradiance (pyranometer) • Module temperature • Ambient air temperature • Wind speed • Wind direction • Includes outdoor-rated enclosure
SKU# 0710	**Flash View – Standard** • Provides Flash-based implementation of Simple View live data • Includes "How it Works" module explaining operation of a solar electric system • Can be viewed from either lobby kiosk display or online with a Web browser
SKU# 0711	**Flash View – Custom** • Builds on the Standard Flash View to add custom graphical display elements for marketing or educational purposes. Charged on a professional services basis.
SKU# 0737	**Data Feed – Non-billing** • Per year, per site pricing • Used for non-billing purposes such as graphing • Data: average power (kW), incremental energy (kWh) and incremental irradiance (Wh) in 15-minute increments • Retrievable on an hourly basis • CSV and / or XML format

Simple Web view showing real-time and historical net energy export, production and usage. Data also shows greenhouse gases avoided. A Full Weather Station monitors irradiance, module (cell) and ambient temperature as well as wind speed and wind direction.

Commercial Monitoring System Specifications

Gateway
- Operating Temperature: 10 to 60°C (14 to 140°F)
- Relative Humidity: 5 to 95%
- Storage Temperature: -20 to 85°C (-4 to 185°F)
- Power Consumption: 340mA @12Vdc

System Enclosure
- Dimensions
  6 x 6 x 4 (xx51W)
  12 x 10 x 4 (xx51, xx51W, 1235)
  12 x 10 x 6 (1272-xx, 1235, 9041)
- Material: Polycarbonate
- Rating: NEMA 3, 3R, 3S, 4, 4X

Enclosure Assembly (with Fat Spaniel Gateway and Independent meter)
- Certifications: TÜV, IEC 61010-1, FCC Part 15 Class B, meets ANSI C12

Inverter-Direct
- Xantrex Accuracy: +/- 5%

Inverter-Indirect Meter (Elkor)
- AC Voltage Error: +/- 0.5%
- AC Current Accuracy: +/- 0.5%
- Power Accuracy: +/- 0.5%
- Power Consumption: 100mA max
- Certifications: meets ANSI C12

Weather Station
- Irradiance
  Type: Silicon Pyranometer
  Directional Accuracy: +/- 5%
  Sensitivity change per year: < 2%
- Ambient Temperature
  Type: K-type thermistor
  Accuracy: +/- 2° C
- Module Temperature
  Type: K-type thermistor
  Accuracy: +/- 2° C
- Wind speed
  Type: Direction & Speed Anemometer
  Range: 3 - 175 mph
  Accuracy: +/- 5%
- Wind direction
  Accuracy: +/- 7°

Cellular Wireless Modem
- Operating Temperature: -30° to 70°C (-22° to 158°F)
- Modem Type: GSM / GPRS Class 10
- SIM Connector: Standard 3V SIM receptacle

SKU# 0738	Data Feed – Billing
	• Per year, per site pricing
	• Used for billing purposes
	• Data: average power (kW), incremental energy (kWh),
	  last energy (kWh), incremental irradiance (Wh) and last
	  irradiance (Wh) in 15-minute increments
	• Retrievable on a 30-minute basis
	• CSV and / or XML format

SKU# 7014	Data Feeds and Reports – Custom
SKU# 0712	Commercial System Installer Portal • Web-based aggregated view of data from all of an installer's end-user systems • Access to views for each individual installed system • Access to system status info and to data download
SKU# 7501	Display Kiosk: Basic Floor Model with 17" display (FST-17FL2) For Standard or Custom Flash View • KIS. Aluminum with NO keyboard, NO trackball, No touchscreen. Resolution 1280x1024
SKU# 7502	Display Kiosk: Basic Floor Model with 17" display (FST-17FL3) For Standard or Custom Flash View • KIS. Aluminum with keyboard and trackball, No touchscreen. Resolution 1280x1024
SKU# 7503	Display Kiosk: Basic Floor Model with 17" display (FST-17FL4) For Standard or Custom Flash View • KIS. Aluminum with touchscreen, NO keyboard, No trackball. Resolution 1280x1024
SKU# 7615	Display Kiosk: Basic Floor Model with 15" display For Standard or Custom Flash View • Monegonet. Aluminum with reduced set keyboard and trackball.
SKU# 7617	Display Kiosk: Basic Floor Model with 17" display For Standard or Custom Flash View • Monegonet. Aluminum with reduced set keyboard and trackball.
SKU# 7619	Display Kiosk: Basic Floor Model with 19" display For Standard or Custom Flash View • Monegonet. Aluminum with reduced set keyboard and trackball.

Display kiosk presents graphical, Flash-based views for educational or marketing purposes. Typically used in a lobby. Enables clear yet compelling presentation of information from the clean energy system. Standard Flash view shows live data from the solar electric system as well as a "how it works" page.

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