Monitoring Solutions

Accurate revenue grade metering & data communication

Contents

This document provides important information
for the metering & data communication of SMA inverters.

Summary
POWER MEASUREMENT KIT

For use with Sunny Centrals, Sunny Towers, and Sunny Boys

HARDWARE

- i.LON SmartServer
- Shark 100
- Current Transformers (3)
- Fuse Kit

i.LON SmartServer

Shark 100

The SmartServer is a high-performance controller, network manager, remote network interface, and Web server that connects LonWorks, Modbus and M-Bus devices to enterprise applications and the Internet via XML formatted messages utilizing SOAP protocol.

The Shark 100 meter excels in metering energy accurately, exceeding Ansi C12.20 (0.2%) and IEC 687 (0,2%) energy measurement standards. This device communicates to the SmartServer over Modbus RTU.

For regions where PBI incentives are available, certified reporting organizations may be required as the transport mechanism to the incentive administration organization.

SOFTWARE

The SMA i.LON SmartServer configuration supports Energy Performance verification integration with the NergyOS monitoring web service. This subscription service can be purchased in five year intervals. The system uses client only access internet protocols to support operation behind firewalls on private networks.

Summary
MODBUS GATEWAY

For use with the Sunny Central Inverter Series

HARDWARE

- » i.LON SmartServer
- » 232/485 Adapter

i.LON SmartServer

The Modbus Gateway solution offered by SMA is for PV plants with Energy Management Systems (EMS) where the plant operators require inverter operating data via Modbus protocol. SMA utilizes the i.LON SmartServer to provide this functionality. The SmartServer polls the Sunny Central inverter channels via SMA Data 1 protocol and makes this data available to EMS Modbus enabled devices.

The SmartServer is capable of polling all of the inverter channels and providing a subset of these values which are of greatest interest to the PV plant operator. For example:

- » E_Total
- » E_Today
- » VacL1
- » VacL2
- » VacL3
- » Pac
- » Vpv
- » Ipv
- » Cabinet Temp
- » Transformer Temp

SUPPORTED PROTOCOLS

i.LON SmartServer Standards Based Protocols:

The i.LON SmartServer is compatible with the most popular IP local and wide area networking protocols including TCP, IPv4, IPv6, PPP, CHAP, PAP, ICMP, NAT, SMTP, DHCP, SNTP, FTP, DNS, MD5, and HTTP. HTML, XML, SOAP, and DIME application protocols are also supported. Dynamic IP addresses are supported using the Dynamic DNS service from DynDNS. It fully supports the ANSI/CEA-709.1-B (EN14908.1) protocol as well as ANSI/ CEA-709.2 or 709.3 (EN14908.2 or EN14908.3) physical layers. When the IP-852 routing option is enabled, the i.LON SmartServer also supports the ANSI/CEA-852 (EN14908.4) control network IP tunneling protocol. Regardless of whether one is connecting to a LAN, WAN, or ANSI/CEA-709.1 (EN14908.1) protocol based system, the i.LON SmartServer offers interoperable networking based on open standards.

Technical Data

i.LON SMARTSERVER

Processor	MIPS32™, 264 MHz
Memory	64MB Flash 64MB RAM
Operating Input Voltage	100 – 240VAC, 50/60 Hz
Power Consumption	<15 Watts
Controls	Service button, Reset button
Indicators	Power On/Wink Ethernet link, Ethernet activity, 10/100 Mbps
Ethernet Port	10/100BaseT, auto-selecting, auto polarity
Ethernet Connector	RJ-45, 8 conductor
Serial Ports	(1) Isolated RS-485 port (1) EIA-232 port
Console Port	EIA-232
Console Connector	DB-9
Temperature	Operating PL Models: -40 to +60°C Non-operating PL Models: -40 to +85°C
Dimensions	H: 3.51", W: 5.47", D: 2.60" (8TE DIN, H: 8.9 cm, W: 13.8 cm, D: 6.6 cm)
EMC	FCC Part 15 Class B, EN55022 Class B, EN55024, CISPR 22 Class B, VCCI Class B
Agency Listings	UL 60950, cUL C22.2 No. 60950-00, TÜV EN60950, CE, C-Tick
Mounting	DIN, Enclosure 8TE

SHARK 100

Voltage Inputs	20-416 Volts Line To Neutral, 20-721 Volts Line to Line Universal Voltage Input Programmable Voltage Range to Any PT ratio Supports: 3 Element WYE, 2.5 Element WYE, 2 Element Delta, 4 Wire Delta Systems Input wire gauge max (AWG 12 / 2.5mm2)
Current Inputs	Programmable Current to Any CT Ratio
Isolation	All Inputs and Outputs are galvanically isolated to 2500 Volts AC.
Environmental Rating	Storage: (-40 to +85)° C Operating: (-20 to +70)° C Humidity: to 95% RH Non-Condensing Faceplate Rating: NEMA12 (Water Resistant) Mounting Gasket Included
Sensing Method	RMS
Power Supply	Universal AC/DC Supply
Communication Format	2 Com Ports (Back and Face Plate) RS485 Port (Through Back Plate) Com Port Baud Rate: (9600 to 57,600) 8 Bit, No parity Modbus RTU, ASCII or DNP 3.0 Protocols
Dimensions and Shipping	Weight: 2 lbs Basic Unit: H4.85 x W4.82 x L4.25 Shark100 – mounts in 92mm DIN and ANSI C39.4" Round Cut-outs Shark100T-DIN rail mounted transducer Shipping Container Dimensions: 6" cube
Compliance	IEC687 (0.2% Accuracy) ANSI C12.20 (0.2% Accuracy)

www.SMA-America.com
Phone 916 625 0870
Toll Free 888 4 SMA USA

SMA America, Inc.