

E650 **S4e**

Enhanced metering for Commercial and Industrial Applications

Built on the time-tested platform, the S4e extends the “build a meter concept” into the realm of open-architecture protocol, fully supporting the ANSI C12.18, C12.19 and C12.21 communication protocol standards.

A changing meter for a changing market:

The S4e maintains its flexibility with a FLASH technology programmable microprocessor. Field re-programmability via the ANSI standard type II optical port preserves your investment with the evolving requirements of the ANSI protocol, and changing demands of the market. The S4e incorporates 128k of on-board memory storage for load profile, self-reads and event logs providing an easy upgrade path without the need for an additional option board. Load profile can be configured for up to 15 channels of information from a choice of 24 different storage metrics.

The build-a-meter concept provides modular growth in the S4e with software upgrades for time of use, reactive energy metering, transformer kloss compensation, load profile as well as the flexibility of adding any combination of communication and relay option boards.

The S4e is an ‘AMI friendly’ meter with the largest space under the cover for AMI integration. A wide range of modular and integrated communication options are currently available, either factory installed or for retrofit. Technologies include power line carrier, mesh network, digital cellular, RS-232, RS-485 and the advanced modem.



Load Profile

- 128K on-board option available
- Up to 15 channels from choice of 24 metrics available in S4e meter

Key Benefits

- KYZ with Programmable Pulse Output Value
- EOI
- Demand Threshold Alert
- Voltage Threshold Alert
- Diagnostics
- Load Control
- Up to two inputs from external devices
- Pulses input to load profile
- Activate real-time rate
- Optional transformer loss compensation
- AMI friendly

Landis
|Gyr+
manage energy better

Product Specification and Schedule Sheet

Specifications

| | |
|---------------------------|---|
| General Specifications | Active Energy “kWh-kW” and optional Reactive kVAh-kVA kVARh-kVAR |
| | Digital Multiplication Measurement Technique |
| | Non-Volatile Memory |
| | Designed for 20+ years life |
| | Meets ANSI standards for performance |
| | Utilizes ANSI protocol (between meter and AMI device) |
| | 9 digit LCD |
| | Display scroll sequence programmable (factory or end user) |
| Operating Temperature | -40C to 85C under cover |
| Operating Voltage | 60% to 115% of Vn |
| Frequency | 50 or 60Hz +/- 5% |
| Humidity | 5% to 95% relative humidity, non condensing |
| Accuracy Class | Class 20, 120, 200 & 320 Meters +/- 0.2% |
| | Class 480 Meters and Forms 36S, 29S, 36A +/- 0.5% |
| | Over Voltage Withstand |
| | Temporary (.5 sec) 150% rated voltage |
| | Continuous (5 hours) 120% rated voltage |
| Applicable Standards | ANSI C12.1 for electric meters |
| | ANSI C12.10 for physical aspects of watt hour meters |
| | ANSI C12.20 for electricity meters, 0.2 and 0.5 accuracy classes |
| | CAN3-C17-M84 Canadian specifications for approval of type of electricity meters |
| | CAN3-Z234.4-79 Canadian Specs for all numeric dates and times |
| Voltage Burden | ≤ 2.5W |
| Landis+Gyr Communication | 2 Way Gridstream RF |
| | 2 Way Gridstream PLC |
| | 1 Way PLC |
| | 1 Way Fixed Network RF |
| Third Party Communication | Aclara STAR Network — RF |
| | Aclara TWACS Technology — PLC |
| | Metrum CDMA/1xRTT and GSM/GPRS under glass |
| | Cooper Power Systems 2 Way PLC |
| | Silver Spring Network 2 Way RF Mesh |

| | AXS4e & AXRS4e | RXS4e & RXRS4e | AXL |
|---|----------------|----------------|-----|
| Wide Dynamic Voltage Range (120-480) | ● | ● | ● |
| Service Scan Automatic service recognition | ● | ● | ● |
| GyrBox™ Site Diagnostics | ● | ● | ● |
| 6 Self-reads available with load profile memory installed | ● | ● | |
| Available up to 15 Channel Data Recording Underglass | ● | ● | |
| Five TOU Rates | ● | ● | |
| Available Internal Modem | ● | ● | |
| Up to four output relays | ● | ● | |
| Up to two external inputs | ● | ● | |
| Firmware Upgradeable | ● | ● | ● |
| True Three-phase Calibration | ● | ● | ● |
| 4 or 5 digit x1 or x10 display | ● | ● | ● |
| Optional 128k Memory | ● | ● | |
| VAR, VA rms and VA vectorial measurements | | ● | |
| Calculates neutral current | | ● | |
| Direct Power Factor Calculation | | ● | |

The S4e meter is available in the following forms:

| Form | Nominal Voltage | Current Class | Test Amps | Starting Load | Kh |
|------------|-----------------|---------------|-----------|-------------------|------|
| 45S (5S) | 120V – 480V | CL 20 | 2.5 | 0.005 Amp (0.6W) | 1.2 |
| 45A (5A) | 120V – 480V | CL 20 | 2.5 | 0.005 Amp (0.6W) | 1.2 |
| 36S (6S) | 120V – 480V | CL 20 | 2.5 | 0.005 Amp (0.6W) | 1.8 |
| 36A (6A) | 120V – 480V | CL 20 | 2.5 | 0.005 Amp (0.6W) | 1.8 |
| 29S | 120V – 480V | CL 20 | 2.5 | 0.005 Amp (0.6W) | 1.8 |
| 9S/8S | 120V – 480V | CL 20 | 2.5 | 0.005 Amp (0.6W) | 1.8 |
| 10A/8A | 120V – 480V | CL 20 | 2.5 | 0.005 Amp (0.6W) | 1.8 |
| 12S | 120V – 480V | CL 200 | 30 | 0.050 Amp (6.0W) | 14.4 |
| 12SE | 120V – 480V | CL 320 | 50 | 0.080 Amp (9.6W) | 14.4 |
| 12K | 120V – 480V | CL 480 | 50 | 0.120 Amp (14.4W) | 28.8 |
| 27K | 120V – 480V | CL 480 | 50 | 0.120 Amp (14.4W) | 28.8 |
| 16/15/14S | 120V – 480V | CL 200 | 30 | 0.050 Amp (6.0W) | 21.6 |
| 16/15/14A | 120V – 480V | CL 120 | 30 | 0.050 Amp (6.0W) | 21.6 |
| 15/15/14SE | 120V – 480V | CL 320 | 50 | 0.080 Amp (9.6W) | 21.6 |
| 16/15/14K | 120V – 480V | CL 480 | 50 | 0.120 Amp (14.4W) | 43.2 |
| 2S | 120V – 480V | CL 200 | 30 | 0.050 Amp (6.0W) | 7.2 |
| 2SE | 120V – 480V | CL 320 | 50 | 0.080 Amp (9.6W) | 7.2 |
| 3S | 120V – 480V | CL 20 | 2.5 | 0.005 Amp (0.6W) | 0.3 |
| 1S | 120V – 480V | CL 200 | 15 | 0.050 Amp (6.0W) | 1.8 |
| 4S | 120V – 480V | CL 20 | 2.5 | 0.005 Amp (0.6W) | 0.6 |
| 25S | 120V – 480V | CL 200 | 30 | 0.050 Amp (6.0W) | 14.4 |

S4e S-Base:

| Form | Net Lbs. | Single Pack Weight | Single Pack Dimensions | Four Pack Weight | Four Pack Dimensions | Pallet Weight | Pallet Dimensions |
|--------|----------|--------------------|------------------------|------------------|-------------------------|---------------|-------------------|
| 2S | 5 | 6 lbs. | 9" x 11" x 9" | 19 lbs. | 15 1/2" x 10" x 15 1/2" | 370 lbs. | 31" x 46" x 45" |
| 3S) | 5 | 6 lbs. | 9" x 11" x 9" | 19 lbs. | 15 1/2" x 10" x 15 1/2" | 370 lbs. | 31" x 46" x 45" |
| 5S/45S | 4 | 6 lbs. | 9" x 11" x 9" | 19 lbs. | 15 1/2" x 10" x 15 1/2" | 370 lbs. | 31" x 46" x 45" |
| 6S/36S | 5 | 6 lbs. | 9" x 11" x 9" | 19 lbs. | 15 1/2" x 10" x 15 1/2" | 370 lbs. | 31" x 46" x 45" |
| 8S/9S | 5 | 6 lbs. | 9" x 11" x 9" | 19 lbs. | 15 1/2" x 10" x 15 1/2" | 370 lbs. | 31" x 46" x 45" |
| 12S(E) | 4 | 6 lbs. | 9" x 11" x 9" | 19 lbs. | 15 1/2" x 10" x 15 1/2" | 370 lbs. | 31" x 46" x 45" |
| 16S(E) | 5 | 6 lbs. | 9" x 11" x 9" | 19 lbs. | 15 1/2" x 10" x 15 1/2" | 370 lbs. | 31" x 46" x 45" |

S4e K-Base:

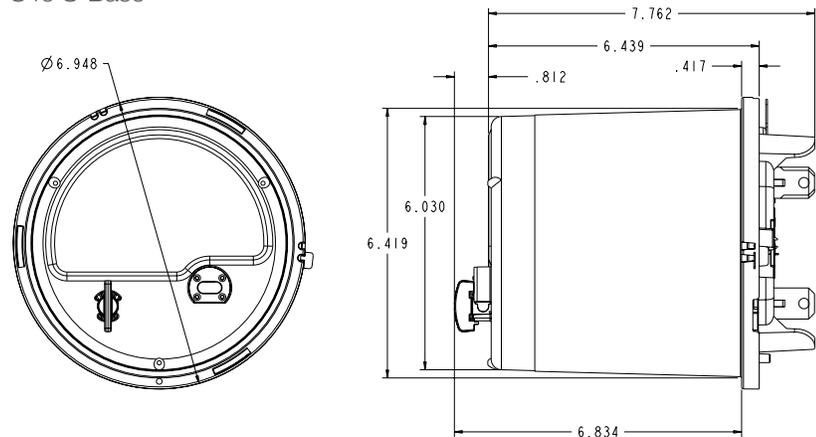
| | | | | | | | |
|-----|---|---------|---------------------|-----|-----|-----------|-----------------|
| 12K | 7 | 10 lbs. | 10 3/4" x 15" x 12" | N/A | N/A | 250 lbs.* | 31" x 46" x 43" |
| 16K | 8 | 12 lbs. | 10 3/4" x 15" x 12" | N/A | N/A | 250 lbs.* | 31" x 46" x 43" |
| 27K | 9 | 12 lbs. | 10 3/4" x 15" x 12" | N/A | N/A | 250lbs.* | 31" x 46" x 43" |

S4e A-Base:

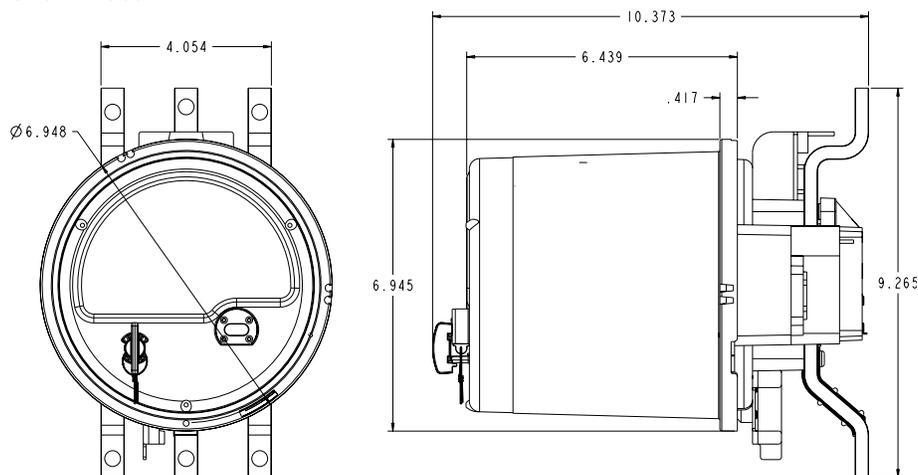
| | | | | | | | |
|--------|---|--------|---------------------|-----|-----|-----------|-----------------|
| 5A | 7 | 9 lbs. | 10 3/4" x 15" x 12" | N/A | N/A | 250 lbs.* | 31" x 46" x 43" |
| 6A | 7 | 9 lbs. | 10 3/4" x 15" x 12" | N/A | N/A | 250 lbs.* | 31" x 46" x 43" |
| 8A/10A | 7 | 9 lbs. | 10 3/4" x 15" x 12" | N/A | N/A | 250 lbs.* | 31" x 46" x 43" |
| 16A | 7 | 9 lbs. | 10 3/4" x 15" x 12" | N/A | N/A | 250 lbs.* | 31" x 46" x 43" |

Standard pallet size of 96 meters
 * Denotes alternate pallet size of 30 meters

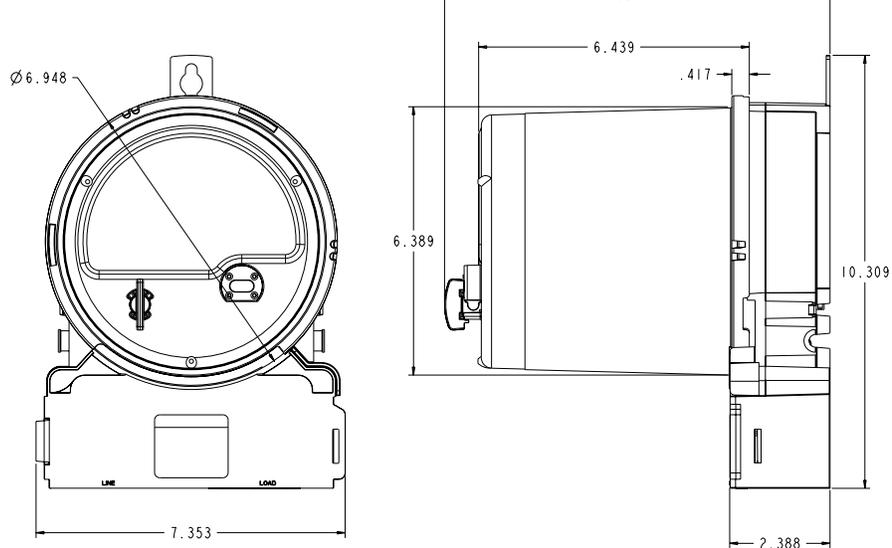
S4e S-Base



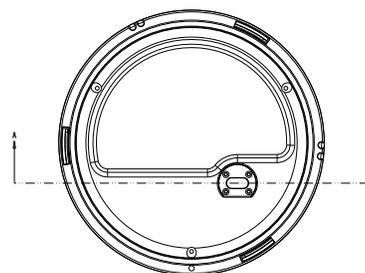
S4e K-Base



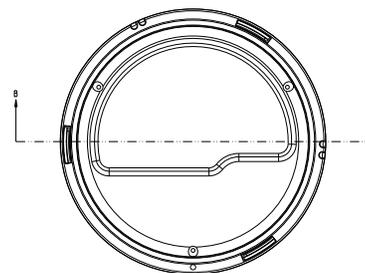
S4e A-Base



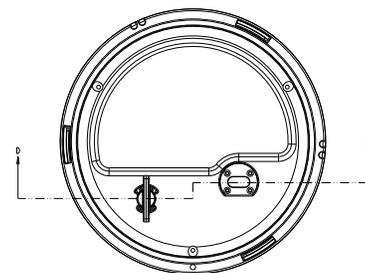
Cover Options



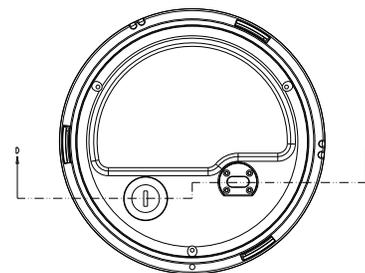
Optical Port Only



Optical Port/No Reset



Optical Port/Reset (Default)



Optical Port/Keylock Reset (90°)

E650 S4e Upgrade Kits

Firmware Upgrade Kits

Meter firmware upgrades are controlled by a Hardlock Key. The Hardlock Key is attached to a USB port of the computer. Meter upgrades are placed into the Hardlock Key by contacting the factory and referencing the purchase order for the meter upgrades. A code will be given via phone or fax that will enable the number of upgrades purchased. Firmware upgrades are handled using ProPak software and the USB Hardlock Key.

Load Profile Memory Upgrades

The S4e Ram or Load Profile Memory can be activated using ProPak software and a USB Hardlock key. The RAM consists of 128K of memory. Once the memory is activated with ProPak, a program with Load Profile function can be loaded into the meter using 1132PROG/COM Software. This gives the S4e a distinct advantage for monitoring power quality and billing data.

Internal Modem Upgrade Kits

The S4e internal modem kit consists of a modem card that is installed below the S4e main board in the S4e's communication slot. The kit contains the modem card, communication cable and instructions for installation. Once installed in the S4e meter, the modem is programmed by the 1132Prog/1132Com software. The modem may be used for remote access of the S4e meter's billing data, load profile and for displaying the meter's instantaneous data for real-time monitoring with the DATAGYR EIS Energy Information System software. The modem communicates at 300, 1200, 2400 or 9600 baud and can be programmed with flexible answer hours. The S4e with a modem can also be programmed to initiate calls to report power recovery, error conditions and more.

RS-232 Interface Upgrade Kit

The S4e internal RS-232 Interface Kit consists of an RS-232 card installed below the S4e board in the S4e's communication slot. The kit contains the RS-232 card, communication cable and instructions for installation. Once installed in the S4e meter, the RS-232 Interface can be used for direct RS-232 connection to the meter from a computer or external cell phone. The RS-232 interface may be used to extend communication with the Reader/Programmer outside of the meter's enclosure

in situations where direct access to the meter's optical port is restricted. The Landis+Gyr 1132Prog/ 1132Com Reader/Programmer and DATAGYR EIS software both support RS-232 connections without the need for additional equipment installed in the computer. These software packages can read the S4e meter's billing and load profile data and can display the meter's instantaneous data for real-time monitoring. The interface communicates at 1200 or 9600 baud.

Option Upgrade Kits

An optional input/output kit provides up to four, form C, solid-state relays and up to two external inputs for recording pulses from a remote source. The kit consists of the option board, retainers, connection cable and installation instruction. Once external input can also be used for real-time rate changes or self-read actuation. The board can be easily added in the field without the need for special tools or soldering. The S4e KYZ outputs are from "C", opto FET, general purpose, output relays and the external inputs are general purpose non-wetted inputs.

Option Capabilities

One Relay/No Input – Part #69520-1

- Programmable for KYZ, End of Interval (EOI), Load Control (LC), Demand Threshold Alert, GyrBox™ Alert Output, Power Factor Threshold Alert and Voltage Threshold Alert
- No input option

Two Relay/One Input – Part #69520-2

- Each relay programmable for KYZ, End of Interval (EOI), Load Control (LC), Voltage Threshold Alert, GyrBox™ Alert Out and Power Factor Threshold Alerts
- Input programmable for Real Time, Load Profile Channel Input or Self-Read Activation

Four Relay/Two Input – Part #69520-3

- Each relay programmable for KYZ, End of Interval (EOI), Load Control (LC), Demand Threshold Alert, Voltage Threshold Alert, GyrBox™ Alert Output and Power Factor Threshold Alerts
- Input 1 programmable for Real Time, Load Profile Channel input or Self-Read Activation
- Input 2 programmable for Lead Profile Channel input



With focus on customer satisfaction, we are committed to providing the best metering solution in terms of capability, technology and affordability. By utilizing our experience and technology with that of our strategic allies and development partners, we provide metering solutions that cover the range of utilities' commercial and industrial metering needs.

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