

SAGE Remote Terminal Units

Standard user interface with a choice of hardware



Make the most of your energySM

Schneider
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Industry best technology
provides reliable network
data performance for your
Smart Grid

SAGE Remote Terminal Units

You can count on every model of Schneider Electric's SAGE Smart RTU family to reflect industry-best technology, giving you the reliable network data performance your Smart Grid needs. Each SAGE RTU provides the same browser-based user interface for easy configuration and setup. Each offers IED integration, NERC CIP security, IEC 61131-based logic functions, communications protocols, and a custom applications library.

Yet, with a variety of SAGE RTU models to choose from, you can deploy the hardware that meets the requirements of each installation. Important distinctions such as physical size, physical I/O quantities, and communications port medium details allow you to purchase and install the RTU capabilities meeting each application's requirements — no more and no less.



- IED integration
- NERC CIP security
- IEC 61131-based logic functions
- Communications protocols
- Custom applications library



Browser-based user interface for easy configuration and setup

SAGE 1410 RTU

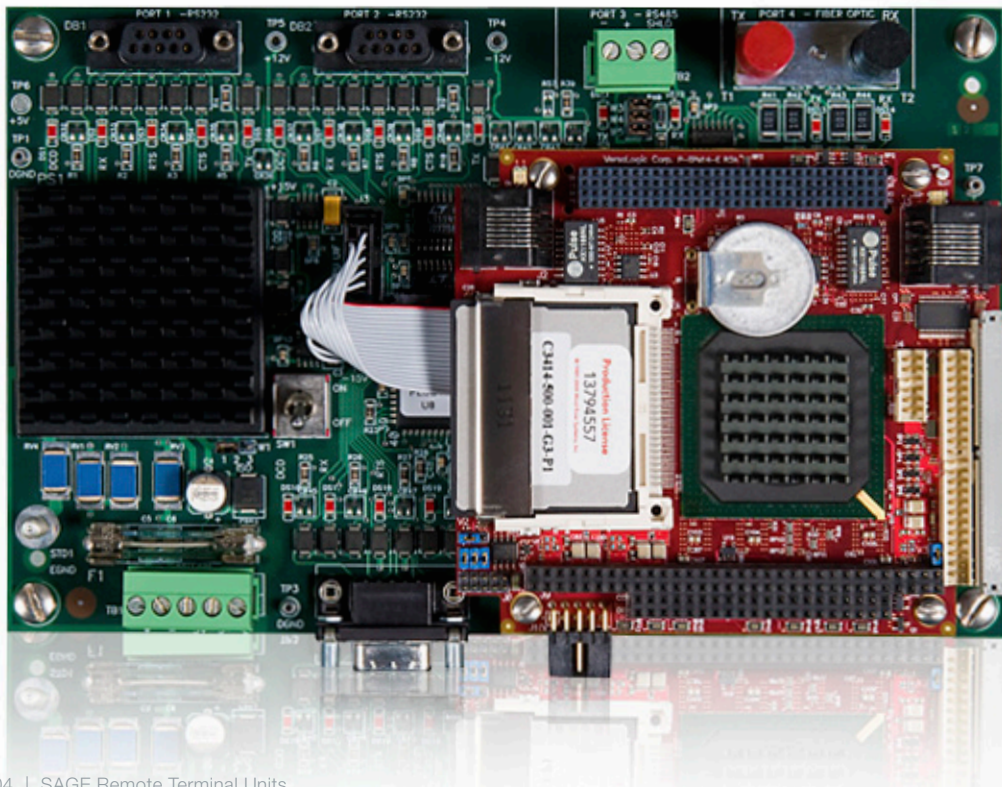
The SAGE 1410 is the smallest model in the SAGE RTU family, both physically — it measures 8 x 5 inches, or 20.3 x 12.7 cm — and in terms of physical I/O. It is designed for applications that don't require hard-wired status or analog or control points; instead, its data comes from other smart devices or IEDs.

As such, the SAGE 1410 RTU is typically applied as a data concentrator. The SAGE browser-based configuration tools make it easy to collect data from many different sources, merge them, and forward them to any number of Master units. Like all SAGE RTU models, it offers a complete protocol library — any of which can be selected for any communications port — so it also is ideal for protocol converter applications.

Still another common application: media converter. Do you need to translate a serial DNP device to Ethernet? The compact SAGE 1410 RTU is the perfect choice.

Summary of SAGE 1410 RTU features

- Two RS232 serial communications ports built-in (can be expanded up to 10, by adding up to two, 4-port comm expansion modules)
- One RS485 communications port built-in
- One Serial Fiber Optic port built-in
- LEDs for visual indications of communications, power, and other functions
- Two 10/100MB Ethernet communications built-in (separate NICs)
- 10-33VDC input power



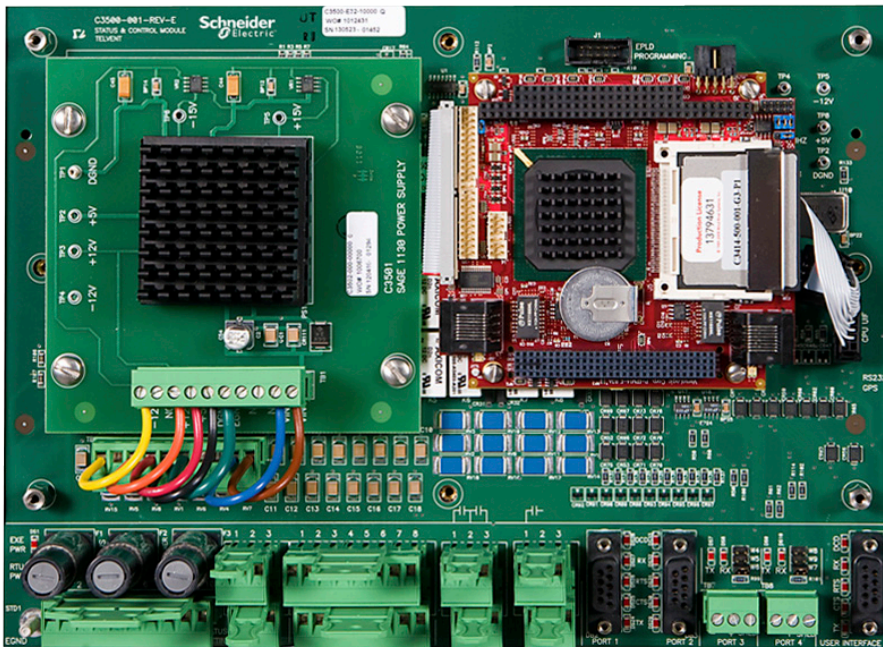
SAGE 1430 RTU

The SAGE 1430 RTU is not as small as the 1410 unit, yet its compact footprint — 9 x 11 inches, or 22.9 x 27.9 cm — makes it easy to integrate into nearly any packaging arrangement. It adds 16 physical digital inputs and eight relay outputs to the capabilities offered in the 1410 unit. Additionally, it has a different mix of communications media and adds some input power supply options, making it ideal for applications such as a controller for a motor operator when upgrading a switch.

The SAGE 1430 RTU supports an optional analog input module that gives the unit the ability to receive traditional transducer-type milliamp inputs. This flexibility makes it an appropriate option where scope might change over time, and footprint is a critical factor, or when integrating into an enclosure with other devices.

Summary of SAGE 1430 RTU features

- Two RS232 serial communications ports built-in (can be expanded up to 10, by adding up to two, 4-port comm expansion modules)
- Two RS485 communications ports built-in
- 16 DI (Status/Accum), and 4 T/C Controls (8 DO)
- LEDs for visual indication of communications and other functions
- Two 10/100MB Ethernet communications built-in (separate NICs)
- 10-33VDC, 20-60VDC, 85-350VDC, 120/220VAC input power options



SAGE 1450 RTU

The SAGE 1450 RTU offers further upgrade in capability. With a footprint of 11 x 11 inches, or 27.9 x 27.9 cm, it is equipped with eight digital inputs, eight control output relays, and adds analog input capability. The analog input capability is the transducer-less type, not the traditional milliamp input available from traditional transducers. The transducer-less or AC analogs receive input directly from the secondary of CT/PTs or from line-post type sensors. The 1450 unit illustrated here is equipped for Lindsey Line Post Sensors, evidenced by the six gray 'tombstone' transformers installed on the left side of the board.

When CT/PT secondaries are desired as the analog inputs, the 'tombstone' transformers are removed and external transformers are used with the SAGE 1450 RTU. These transformers are in potted enclosures, so they are weather proof, and have mounting ears that make them easy to install. With the CT transformer, the secondary is looped through the 'donut hole,' and the terminals from it are connected to the 1450 unit's terminal blocks. This approach means that the secondary does not have to be shorted or otherwise dealt with if the 1450 unit needs to be powered down or disconnected.

Transducer-less analog inputs are scanned 96 times per cycle, and the phase relationship of measurements are maintained to allow more than 100 analog values to be generated from the three current and voltage inputs. They include PF, KW, and KVAR values; harmonics; and others. The SAGE 1450 RTU can measure into a fault with up to 20x over-range capability for currents and 150% of range for voltages.

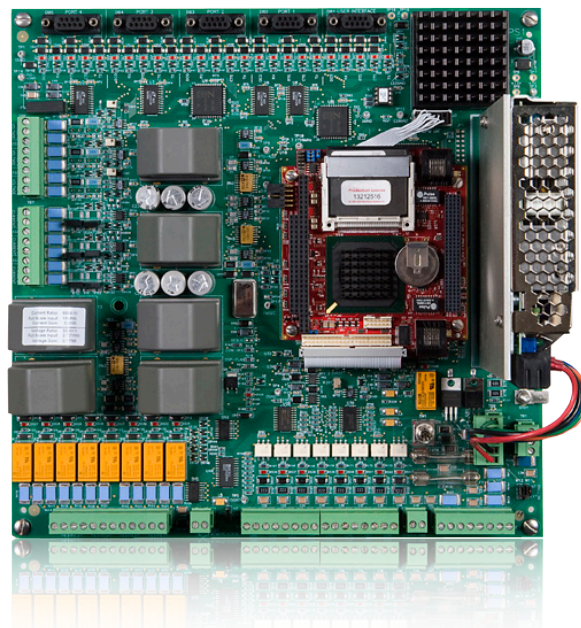


The standard input power for the 1450 unit is 10-33VDC; however, it has options for an on-board power supply that can be outfitted for 48VDC, 129VDV, 120VAC or 220VAC as needed. It also incorporates a built-in battery charger circuit and fail-over so that battery back-up is easy to install.

The SAGE 1450 RTU is often deployed as a switch controller with auto sectionalizing capability and, when installed with each feeder bay, as part of a distributed arrangement.

Summary of SAGE 1450 RTU features

- Four RS232 serial communications ports built-in (can be expanded up to 12, by adding up to two, 4-port comm expansion modules)
- 8 DI (Status/Accum), and 4 T/C Controls (8 DO)
- Three currents and three voltage AC analog inputs (CT/PT/LPS)
- LEDs for visual indications of communications and other functions
- Two 10/100MB Ethernet communications built-in (separate NICs)
- 10-33VDC, 20-60VDC, 85-350VDC, 120/220VAC input power options



SAGE 2400 RTU

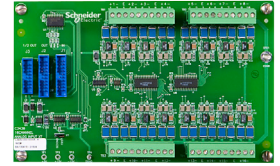
In the SAGE RTU family, the SAGE 2400 RTU offers the most comprehensive physical I/O capabilities and versatile application. Designed for traditional RTU applications, it can accommodate hundreds of analog, digital, and control I/Os. The baseboard unit — measuring 12 x 14 inches, or 30.5 x 35.6 cm — includes eight traditional milliamp-type analog inputs, 16 digital inputs, and eight control output relays. By connecting the appropriate expansion modules, the I/O can be expanded to hundreds.

While offering all the full communications functionality, applications, and protocol sets available in the SAGE product line, the SAGE 2400 RTU also supports analog outputs, digital outputs, 1ms SOE, R/L controls, and AC analog modules. It utilizes 10-33VDC directly, yet it can be equipped with a DIN rail-mounted power supply to match the available source power.

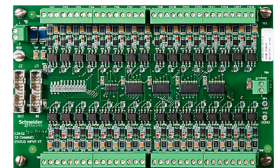
The SAGE 2400 RTU typically is applied where considerable hard-wired I/O is needed, and its comprehensive capability makes it ideal for retrofit and replacement of legacy RTUs. While matching traditional RTU requirements, the SAGE 2400 RTU offers all the abilities of a state-of-the-art gateway or automation platform.

Summary of SAGE 2400 RTU features

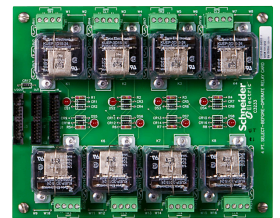
- Four RS232 serial communications ports built-in (can be expanded up to 12, by adding up to two, 4-port comm expansion modules)
- Base I/O - 16 DI (Status/Accum), 8 AI (0-1ma, 4-20ma, etc.) and 4 T/C Controls (8 DO)
- I/O Expansion (240 DI, 232 AI, 128 SBO T/C Control Pairs, 384 1ms SOE, 12 AO, 8 Sets ACI)
- LEDs for visual indications of communications, digital ins & outs, and other functions
- Two 10/100MB Ethernet communications built-in (separate NICs)
- 10-33VDC (20-60VDC, 85-350VDC, 120/220VAC input power options)



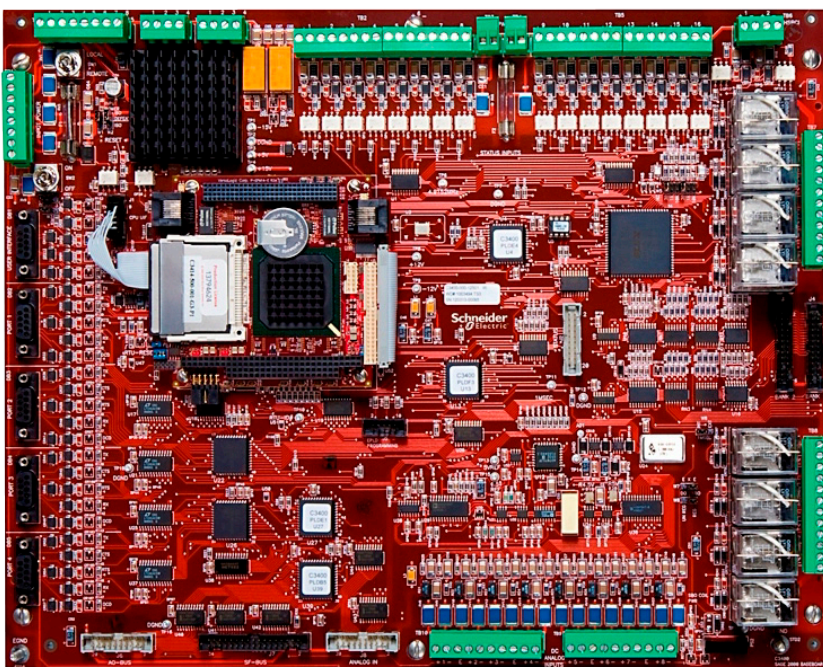
AI Card



DI Card



SBO Card



SAGE 3030 Magnum RTU

The SAGE 3030 Magnum is the newest addition to the SAGE RTU family. Mounted in an aluminum, rack-ready enclosure measuring 19 x 10.5 x 5.25 inches, or 48.3 x 26.7 x 13.3 cm, the 3030M unit is intended for applications where the majority of I/O might source from other IEDs and smart devices.

While the 3030M box does not include any physical I/Os, connectors on the back allow it to use the same I/O modules used by the SAGE 2400 to accommodate traditional I/O when needed. The unit is equipped with 16 built-in serial communications ports and, as with all units in the SAGE family, every comm port is independently configurable and can use any of the protocols available in the large protocol library included with every SAGE unit.

The SAGE 3030M has built-in IRIG-B for time sync and an option for an internal GPS receiver. It provides software control to power pins in the serial DB-9 port connectors for media devices requiring this control.

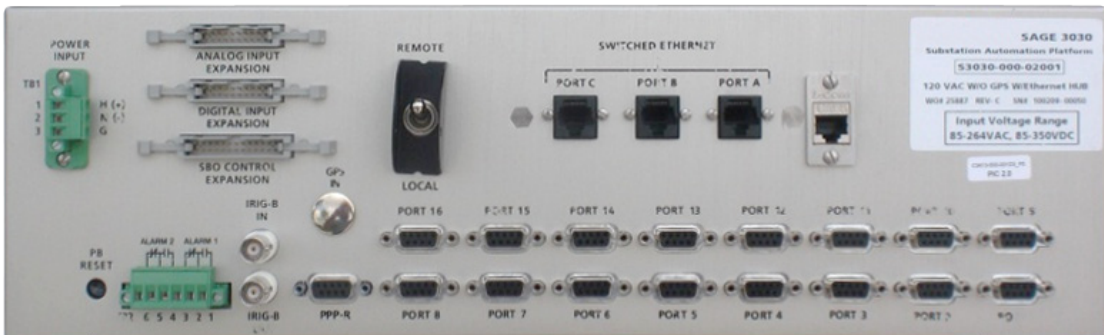
Coupled with its security features, HMI functions, Ethernet gateway and easy-to-use browser interface, the SAGE 3030 Magnum is the premier platform for substation automation applications.

Summary of SAGE 3030M features

- 16 RS232 serial communications ports built-in
- Two 10/100MB Ethernet communications built-in (separate NICs)
- Optional I/O Expansion up to 240 DI, 64 SBO T/C Control Pairs, 256 AI (0-1ma, 4-20ma, etc.)
- LEDs for visual indications of communications, and other functions
- Built-in IRIG-B, optional GPS receiver, optional Ethernet switch
- 20-60VDC or 85-350VDC/85-264VAC input power supply included

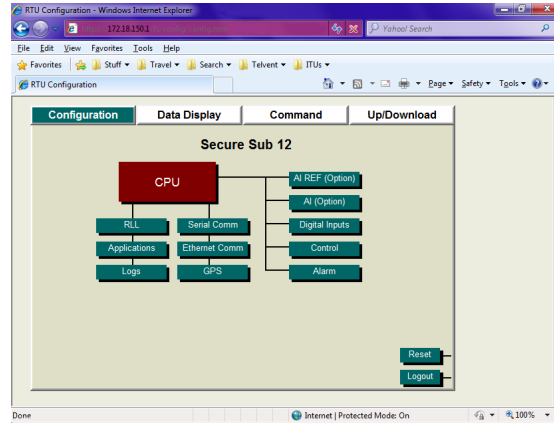


Annunciator Panel App



Enterprise that helps build your Smart Grid

Every unit in the SAGE family of RTUs is more than a traditional remote terminal unit. SAGE RTU technology has been developed by Schneider Electric, first and foremost, to be part of a comprehensive Smart Grid Solutions Suite of solutions, systems, and products that help you efficiently plan, design, and reliably operate your grid. Starting with dependable data collection, the Schneider Electric Smart Grid Solutions Suite adds thorough data monitoring, grid analytics, rules-based economic decision-making tools, and the ability to integrate with traditional business software — all to help you realize your vision as a next-generation energy provider.



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