

# S650 SMA510AT/CT Series 4

## Smart Grid Terminal

The S650 SMA510AT/CT Smart Grid Terminal is specifically designed to support utilities to improve network visibility at existing installations in a cost-efficient and easy way.

This market leading solution has been developed based on the proven industrial meter E650 and now incorporates 3 Rogowski sensors suitable for use across a wide current range up to 3000A.

The upgrade of existing installations by field engineers takes place safely and speedily, in less than 1 hour, with no installation shutdown necessary.

S650 SMA510A is compatible with all plug-and-play E65C communication modules.

**Applications** Retrofit of electrical distribution installations:

- Medium/low voltage transformer stations
- Distributed energy renewables
- Low voltage switchboards





Accurate, non-intrusive metering solution based on the E650 proven hardware platform, combining modern technology, robustness and features dedicated for smart grid applications



Comprehensive package of measurements supporting effective decision-making to control network reliability and capacity



The S650 SMA510 comes complete with 3 Rogowski sensors already assembled and calibrated



The simple “click and twist” installation of the Rogowski sensors requires less than one hour, without any power interruption, resulting in a safe station upgrade as well as offering significant time and cost saving



Significantly improved billing accuracy (IEC Class 1, MID Class B approved) compared to traditional sensor solutions



Future-proof modular communication thanks to compatibility with all E65C multi-technology communication modules from the E/S650 range



Compatibility with the same tools used for the industrial & commercial E650/S650 meter software, such as the MAP110 and MAP120 parameterization tools

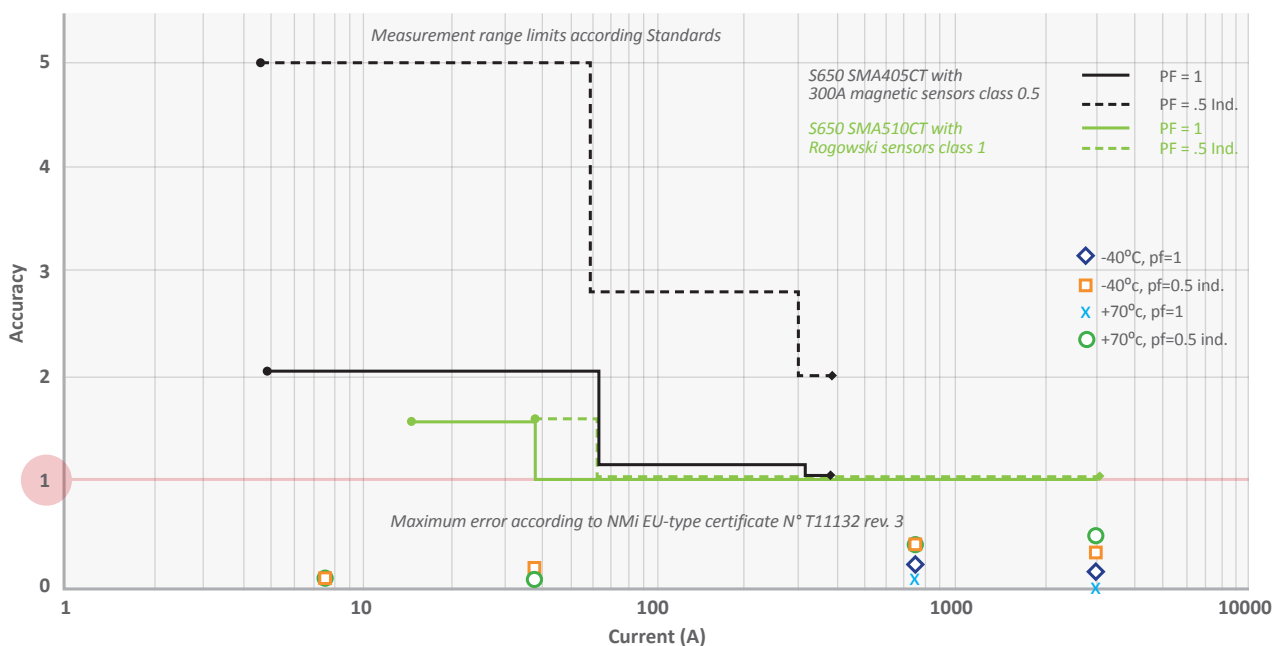


Rogowski sensors are suitable for a wide current range (200A up to 3000A) resulting in simplified procurement processes



Cost efficient solution: no extra components are required such as a short-circuit block or testing box, means less material and labour expenses

### Comparison of accuracy performances between the various sensor technology solutions





### Medium voltage/ low voltage transformer monitoring

Due to the deployment of electric vehicles and decentralised renewable generation, distribution network operators (DSO) are faced with increasingly complex and volatile network conditions. The S650 SMA510 Smart Grid Terminal provides extra visibility at MV/LV transformer stations enabling an efficient and differentiated answer to capacity and reliability challenges.



### Renewable and microgeneration integration

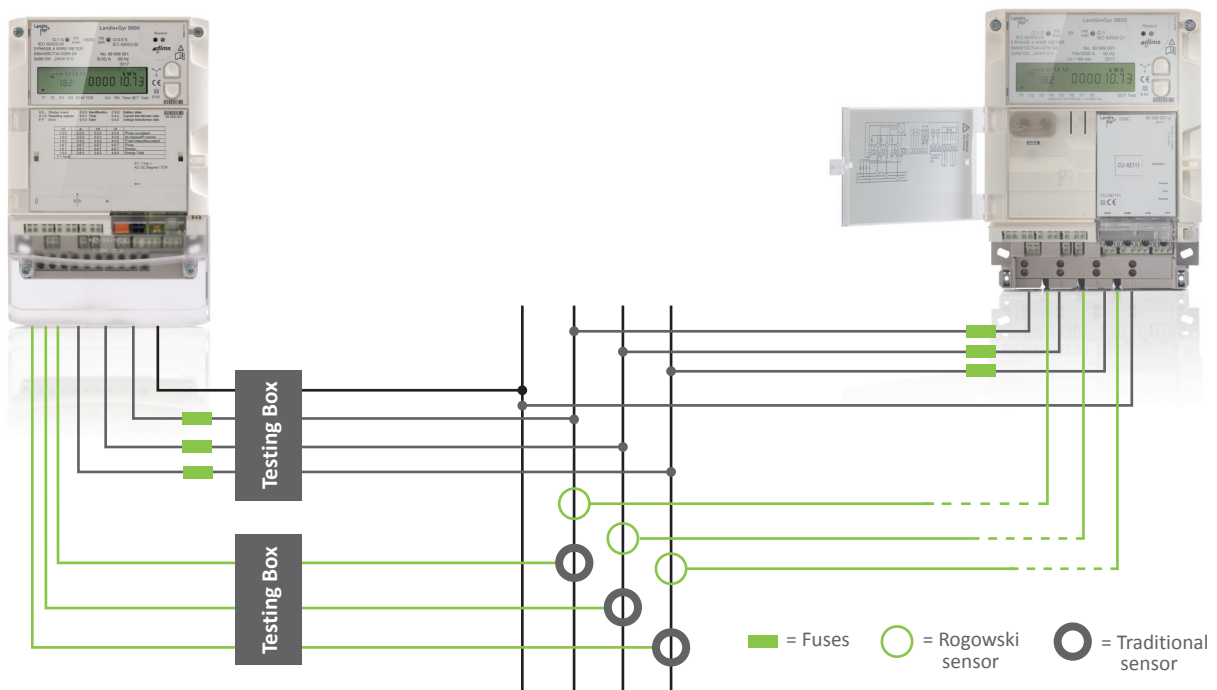
With S650 SMA510 at decentralised energy generation installations DSOs benefit from wide and accurate measurement information to improve billing, operation and voltage control processes.



### Low voltage switchboard monitoring

Industrial and commercial complexes operate large switchboards controlling the energy consumption of a wide range of equipment and appliances. For operators seeking better transparency in their consumption patterns, S650 SMA510 provides highly accurate consumption data with a minimum of installation efforts.

## Optimised installation and cost management with S650 SMA510



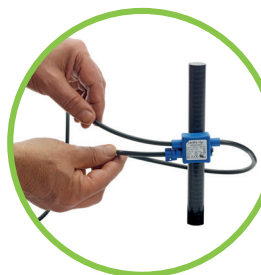
#### Traditional installation

About 20 different magnetic current transformers references to cover power range 200A to 3000A

Different suppliers

Extra components

Installation 3-4 hours



#### S650 SMA510 installation with Rogowski sensors

One single Rogowski sensor reference to cover power range 200A to 3000A

One comprehensive delivery

No extra components

Installation < 1 hour

Easy «Click-and-Twist» installation of Rogowski sensors for fast and safe retrofit without station shutdown

# S650 SMA510AT/CT 3-Phase Smart Grid Terminal with communication modules E65C and Rogowski sensors

## Functions

### Energy measurements

- Active and reactive energies

### Measured values

- RMS voltage
- RMS current
- Apparent power
- Reactive power
- Operating time

### Alarming

- Over/Undervoltage
- Over/Undercurrent
- Overcurrent
- Digital input status

### SMS Alarming

- Customised message on event

### Super capacity (option)

- Last gasp with 15s reserve

### Recording

- 1000 events
- 2 load profiles (1...60mn)
- Min/max voltage 1s recorded

### Calendar clock

- <5 ppm (-20°C...+55°C)
- Backup with supercapacitors > 20 days (battery optional)

## Communications

### Communication module E65C CU-U52

- 2G/3G WAN connection

### Communication module E65C CU-L52

- 2G/4G modern LTE communication

### Communication module E65C CU-XE

- Dual Fast Ethernet, RS485 and RS232 interfaces
- Secured web interface for configuration tasks
- Secure remote firmware upgrade
- DLMS passthrough
- Secured communications
- Ethernet bridging

### Coming soon

Compatibility with SCADA, AMI and other Energy Management Systems

## Technical Specifications

### Voltage connection type

- 4 wires

### Electrical Main

- Nominal voltage  $U_n$ : 3 x 220/380V to 240/415V

### Frequency

- 50/60Hz

### Current

- Suitable nominal current range 200A ... 2400A
- Nominal (I<sub>b</sub>): 750A
- Maximum (I<sub>max</sub>): 3000A
- Starting current: 1.5A

### Measurement accuracy and behaviour

- Active energy:  
Class 1 according to IEC 62053-21  
Class B according to MID
- Reactive energy:  
Class 1S according to IEC 62053-24

### Electrical backup (option)

- 100 ... 240VAD or 12 ... 48VDC

### Digital inputs/outputs (standard)

- 3 inputs/2 outputs

### Digital inputs/outputs (main options)

- 4 active inputs (no additional low voltage power supply needed) / 2 relay outputs 8A
- 3 control inputs/2 relay outputs 8A/ power supply 12 ... 24VDC
- 4 outputs / power supply 12 ... 48VDC

### Protection index IP51

### Temperature range according to IEC 62052-11

- Storage: -40°C...85°C
- Operation: -40°C...+70°C

### Product safety according to IEC 62052-31

- Overvoltage category III

### Voltage terminals

- up to 240V +15% L-N

## Rogowski sensors

### Delivery

- Set of 3 Rogowski coils, assembled and precalibrated in factory

### Dimensions

- Opening 125mm, cable length 4.5m

### CT range upto 3000A

### Accuracy class 0.5 (IEC 618692)

### Protection index IP67

### PTB certified



Get in touch! Please contact your local sales office.

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