

## GRTU-SG Gillam Remote Terminal Unit Smart Grid



YOUR NEEDS, OUR LIFE.

# GRTU-SG



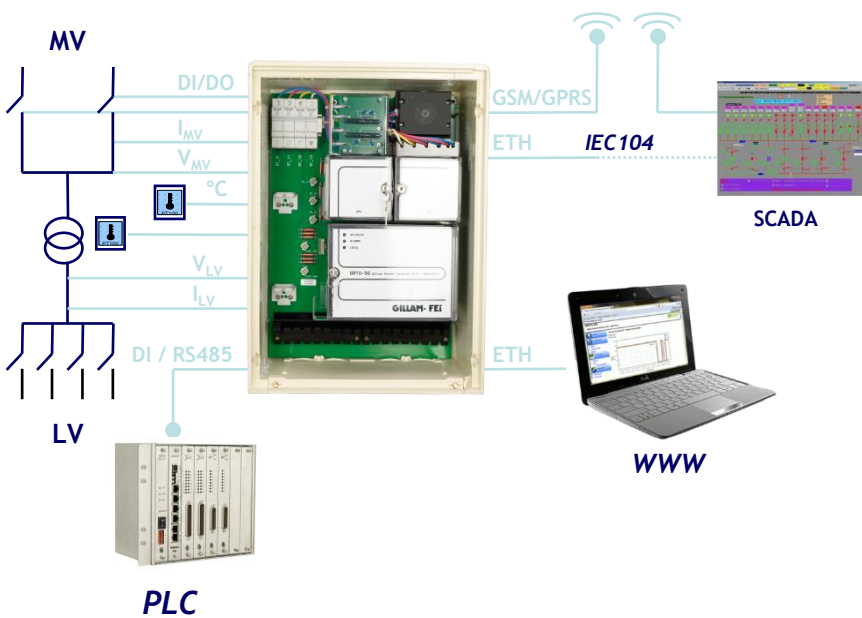
The GRTU-SG is a modular automate intended for supervision and control of medium and low voltage electrical networks (MV/LV). This automate allows a complete supervision of a MV/LV distribution substation.

Its modular design offers you the possibility to adapt its functionality to each specific need of a distribution substation within a single and same enclosure.

The GRTU-SG brings new solutions to operators to improve the network's energy efficiency and brings solutions to distributed power generation issue (Photovoltaic, wind power, ...)

The GRTU-SG supports modern communication channels such as Ethernet, GPRS, ...

## Functionality



## Advantages

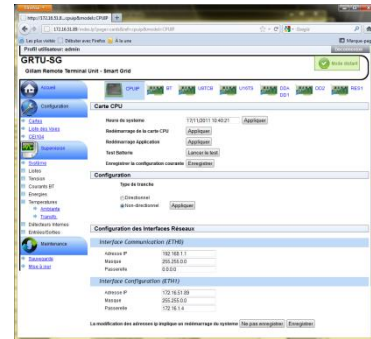
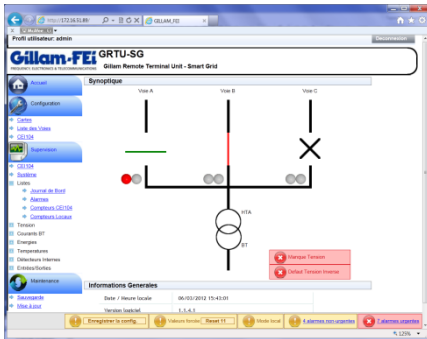
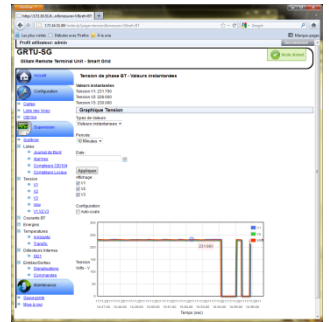
- ✓ MV cable failure detection
- ✓ Current fault detection
- ✓ Directional fault detection
- ✓  $U_{ph}$  and  $I_{ph}$  measurement (LV side)
- ✓ Power measurement (LV side)
- ✓ Two temperature measurements
- ✓ 1 UPS module
- ✓ 16 digital inputs (16 DI)
- ✓ 8 digital outputs (8 DO)
- ✓ 3 complementary secured outputs
- ✓ 1 spare slot
- ✓ IEC 60870-5-104 compatible
- ✓ Local HTTP connection
- ✓ GSM/GPRS modem available

## Product's specific functions:

- Electrical substations supervision
- Aerial electrical network supervision
- Supervision of underground compensated neutral electrical network
- Supervision of underground impedent neutral electrical network
- Alarms transmission to the dispatching
- Power measurement

## Local web interface

- Definition of several users with different authorizations
- Display of all collected information by the automate
- Configuration of the different functions
- Display and export of the sampling values
- Import / Export of the configuration
- Software upgrade through web interface
- Alarms list
- Time-stamped logbook



## Accessories

- Rogowski current sensors
- External LED fault display
- Medium voltage sensors (PPACS)
- Ambient temperature sensor
- Transformer temperature sensor



## Standards

Reference	Title
H-R44-2010-00895-FR	Specifications for the Smart Network Interface for the Linky-network.
HN 45-S-50	Fault current detection and signalling equipment.
HN 45-S-51	Zero-sequence fault current with direction indication and polyphase fault current detection equipment
IEC 60870-5-104	Network access for IEC 60870-5-101 using standard transport profiles
HN 62-S-20	Compact electricity or gas meterboxes for individual houses
NF EN 61000-4-2	Electrostatic discharge immunity test
NF EN61000-4-3	Radiated, radio-frequency, electromagnetic field immunity test
NF EN61000-4-4	Electrical fast transient/burst immunity test
NF EN61000-4-5	Surge immunity test
NF EN61000-4-6	Immunity to conducted disturbances, induced by radio-frequency fields
NF EN61000-4-8	Power frequency magnetic field immunity test
EN61000-4-9	Pulse magnetic field immunity test.
EN61000-4-16	Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz
EN61000-4-18	Testing and measurement techniques - Damped oscillatory wave immunity test
IEC 1180-1	High-voltage test techniques for low-voltage equipment 1: Definitions, test and procedure requirements
IEC 60870-4	Telecontrol equipment and systems. Part 4: Performance requirements

## Technical features

GRTU-SG power supply		
Nominal voltage	Single-phase voltage N, L1 (230VAC)	
Maximum voltage	400VAC (10 minutes)	
Input voltage range	± 15 %	
Dielectric strength		
AC supply	Common mode: 10 KV <sub>RMS</sub> / 20 KV <sub>Surge</sub>	
	Differential mode: 8 KV <sub>Surge</sub>	
Isolated circuits	Common mode: 2 KV <sub>RMS</sub> / 5 KV <sub>Surge</sub>	
	Differential mode: 1 KV <sub>RMS</sub> / 3 KV <sub>Surge</sub>	
DDA card : Amperemetric Fault Detection (HN45-S-50)		
Single-phase fault	Residual current measurement / Adjustable between 20A and 160A (80A by default)	
Polyphase fault	Phase current measurement / Fault present on at least 2 phases	
	Adjustable between 500A and 1600A (500A by default)	
Double fault	Residual current measurement / Adjustable between 250A and 1200A (450A by default)	
Fault detection delay	Adjustable between 20msec and 3 sec	
Voltage presence	Detection realized by the LV card	
Faults processing	Polyphase and double faults signalling is a priority	
Harmonics rejection	> 20dB to 150Hz	
Insensitivity to harmonics	Residual current detection is insensitive to an injected current of 400A to 150Hz, 160A to 250Hz.	
	With a threshold set to 40A to 50Hz	
Fault counter	Single-phase, double and polyphase counters	
	Accessible through user interface (includes a reset)	
DDD card : Directional Fault Detection (HN45-S-51)		
Single phase fault (directional)	Set 1 (default)	Set 2
Residual current threshold (peak)	30A <sub>pk</sub> ± 5A <sub>pk</sub>	60A <sub>pk</sub> ± 10A <sub>pk</sub>
Residual voltage threshold (peak)	4kV <sub>pk</sub> ± 1kV <sub>pk</sub>	9kV <sub>pk</sub> ± 2kV <sub>pk</sub>
Residual voltage threshold (validation)	1.75kV <sub>eff</sub> ± 0.25kV <sub>eff</sub>	3.5kV <sub>eff</sub> ± 0.5kV <sub>eff</sub>
Residual voltage validation: time window	30-50ms after residual current threshold crossing	
Frequency range	Residual current peak : 50-500Hz / Residual voltage peak : 25-250 Hz	
	Confirmation residual voltage : 35-75Hz	
Polyphase fault	500 A / 80 ms (on minimum two phases)	
Double fault	250 A / 80 ms (residual current)	
LV card : Low voltage measurement (voltage, current, power)		
Measured input voltage range	0-400V (Phase-neutral voltage)	
Averaging time constant	Settable between 1 and 60 minutes	
MV resistive fault detection	Settable threshold on negative sequence voltage	
Input current / Accuracy	25...2000A / < 2% of I <sub>n</sub>	
Measured active power range	-1380kW to +1380kW	
Measured reactive power range	-1380kVA to +1380kVA	
Active / reactive power accuracy	Class 3 according to NF EN 60044	
16 DI card : Digital inputs		
Inputs quantity	16 optocoupled inputs	
Signalling voltage	24VDC (generated by the card)	
Filtering time constant	24 ms	
8 DO card : Digital outputs		
Outputs	8 bistable electromechanical relays	
Switchable nominal current / voltage	8A / 440Vac / 230Vdc	
3 DDO card : Complementary digital output		
Outputs	3 IN/OUT outputs for motor command	
Dimensions and weight		
Height / Width / Depth	400 x 304 x 140 mm	
Total mass	5,65 kg	

## Contact



**Mont Saint-Martin 58**  
**B-4000 LIEGE – BELGIUM**  
**Tel.: +32 4 232 95 95**  
**Fax: +32 4 223 42 76**

[www.gillam.be](http://www.gillam.be) – [info@gillam.be](mailto:info@gillam.be)