

SGC180

SWITCHGEAR CONTROL UNIT



1 DESCRIPTION

The SGC180 switchgear control unit is for MV automation. Its main function is switchgear controlling/monitoring and communication to control center by means of an RTU unit connected to it using PROCOME communication protocol.

2 FUNCTIONS

The SGC180 can provide several control functions such as:

- Fault Passage Detection (5 – 1000A).

- Voltage presence detection.
- Sag/swell alarm and report.
- Fully programmable auto sectionalizer.
- Inrush current restraint.
- Password resettable auto sectionalizer operation count.
- Remote/Local operation selectable with a front panel switch.
- Select before operate.
- Fully field/remote upgradable software.
- Voltage, current, phasor, power and harmonic metering.
- 8-channel oscillography with 64 samples/cycle (COMTRADE format).
- Non volatile storage for up to 200 events.
- 16 optoisolated configurable digital inputs.
- 8 SPDT 16A configurable relay outputs.
- Continuous self-monitoring.

There is 5 LEDs in order to show the SGC180 state for an easy field operation.

Pug-in screw connectors for fast a secure connection.

The unit is configurable by connecting to a PC through the COM1 port by serial protocol using a standard terminal software (such as puTTY, HyperTerminal, TeraTerm).

The device is available with a commissioning / configuration software that allows defining different settings profiles, storing the event log and oscillograms in a file, simulating communication transfers to verify a correct interoperability with control center and showing internal and external signal status.

3 COMMUNICATIONS

The SGC180 switchgear is completely interoperable with any commercial RTU compliant with either PROCOME or MODBUS communication standards. They use RS485 port, COM2 and COM3 respectively.

4 TECHNICAL SPECIFICATIONS

Power supply			
Auxiliary input voltage	Option 12:		9 – 18 Vdc
	Option 24:		18 – 36Vdc
	Option 110:		36 – 150 Vdc
	Option 220:		85 – 264 Vac
Power rating			<5 W
Fault Passing Detection			
Current Threshold			0.1 – 20A (secondary)
Detection time			< 20 ms
Upstream trip verify time			50 – 5000 ms
Self Reset Time			0 – 240 min.
Voltage Detection Reset Time			0 – 30 s
I ₂ Blocking Threshold			5 – 50 %
Voltage Monitor			
Voltage Threshold (low)			10 – 95 %Unom
Voltage Threshold (high)			105 – 200 %Unom
Voltage Verify Time			50 – 1000 ms
Voltage Detection Time			0.1 – 300 s
Voltage Anomaly Detection Time			0.1 – 300 s
Sag Threshold			50 – 90 %Unom
Sag Max Increment			-25 ... -5 %Unom
Swell Threshold			110 – 150 %Unom
Swell Increment			+5 ... +25 %Unom
Sag/Swell Min Time			100 – 1000 ms
Sag/Swell Max Time			1 – 300 s
Automatic Sectionalizer			
Cycle Count			1 - 100
Cycle Forget Time			0.1 – 500 s
Digital Inputs			
Detection Level (Bipolar)	Option 12:	Low:	0 – 4 Vdc
		High:	8,6 – 18 Vdc
	Option 24:	Low:	0 – 8 Vdc
		High:	16 – 36 Vdc
	Option 110:	Low:	0 – 10 Vdc
		High:	34 – 150 Vdc

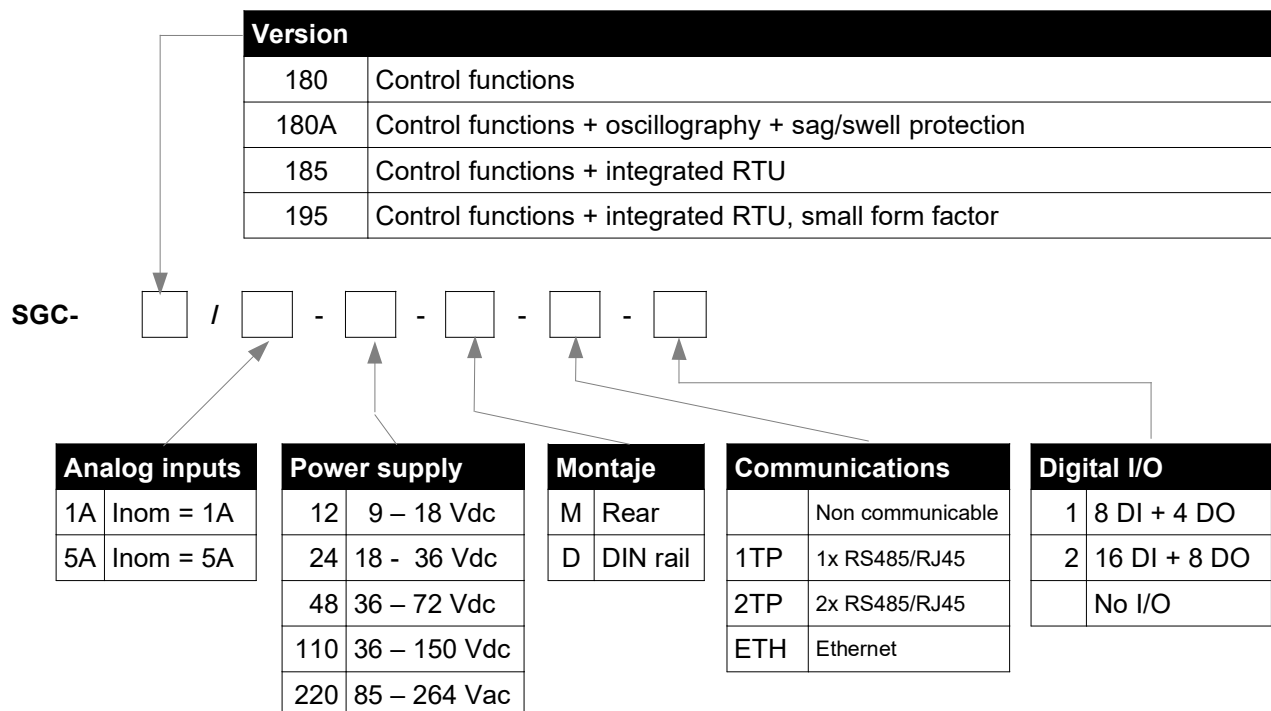
TECHNICAL SPECIFICATIONS

	Option 220:	Low:	0 – 40 Vacs
		High:	160 – 264 Vac
Power consumption	<0,1 W		
Cabling section	2,5 mm²		
Option 1: 3 isolated inputs and 5 inputs with 1 common. Option 2: 6 isolated inputs and 2 groups of 5 inputs with 1 common.			
Digital Outputs			
Nominal Voltage	250 V		
Max Load Current	8 A		
Cabling Section	2,5 mm²		
Configuration	SPDT Relay Output		
Current			
Nominal Current			
Nominal Consumption	1 o 5 A		
Nominal Consumption	0,05 VA		
Thermal Current (I _{th})	5 Inom (permanent) / 100 Inom (1s)		
Accuracy	0,1 Inom < I < 20 Inom		1%
Voltage			
Nominal Voltage	Option 12/220:	230 Vac	
	Option 24/48/110:	120 / √3 Vac	
Max input voltage	Option 12/220:	275 Vac	
	Option 24/48/110:	150 Vac	
Accuracy	0,8 Unom <U<1.2 Unom		1%
Sampling Frequency	64 samples/cycle		
Analog Bandwidth	1 kHz		
Other			
Temperature range	-10 °C ÷ 60 °C		
Body Dimensions (W x H x L)	83 mm x 177 mm x 116 mm		
Weight	1.5 kg		

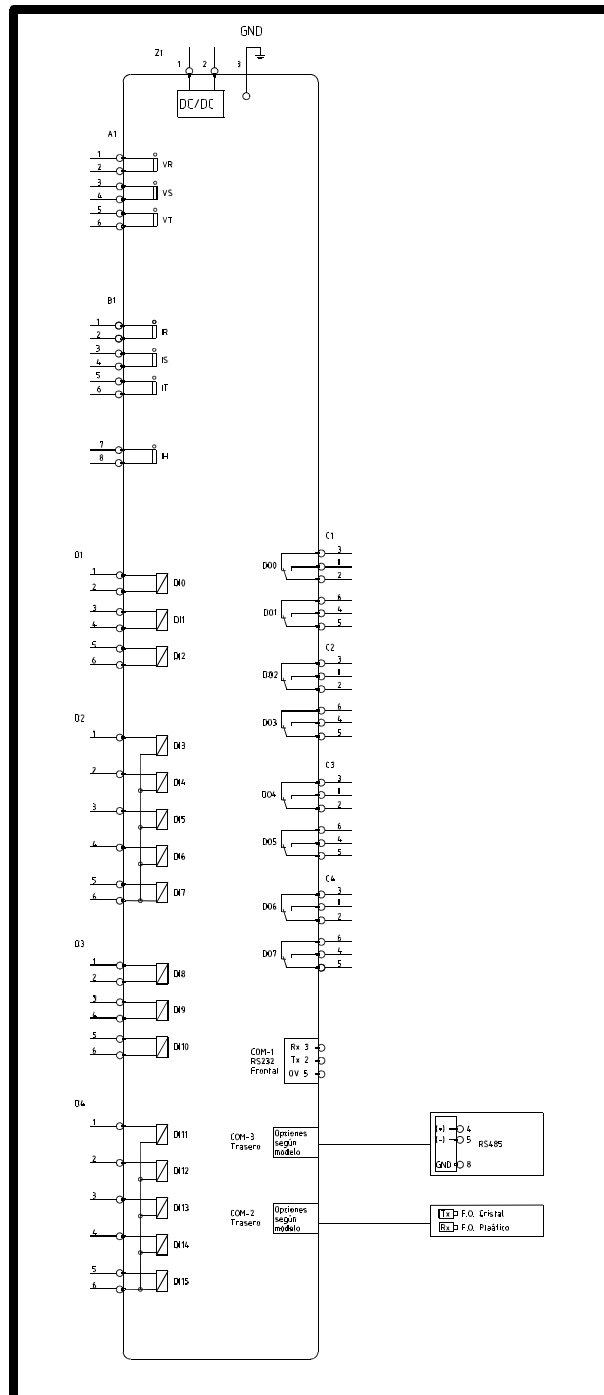
5 TESTINGS

- Dielectric strength: 2kV / 50Hz 1 min. according C.E.I 255-5.
- Surge 5 kV. peak 1.2/50 μ s according C.E.I 255-5.
- Electrical disturbance testing of 1 MHz: 2.5 kV longitudinal y 1kV transversal, class III according CEI 255-5.
- Fast transient: 2kV according CEI 255-22-4 class III.
- Electromagnetic immunity tests: according to document UNIPED ref NORM (SPEC) 13."Automation and Control Apparatus for Generating Stations and Substations – Electromagnetic Compatibility Requirements."

6 ORDERING CODES

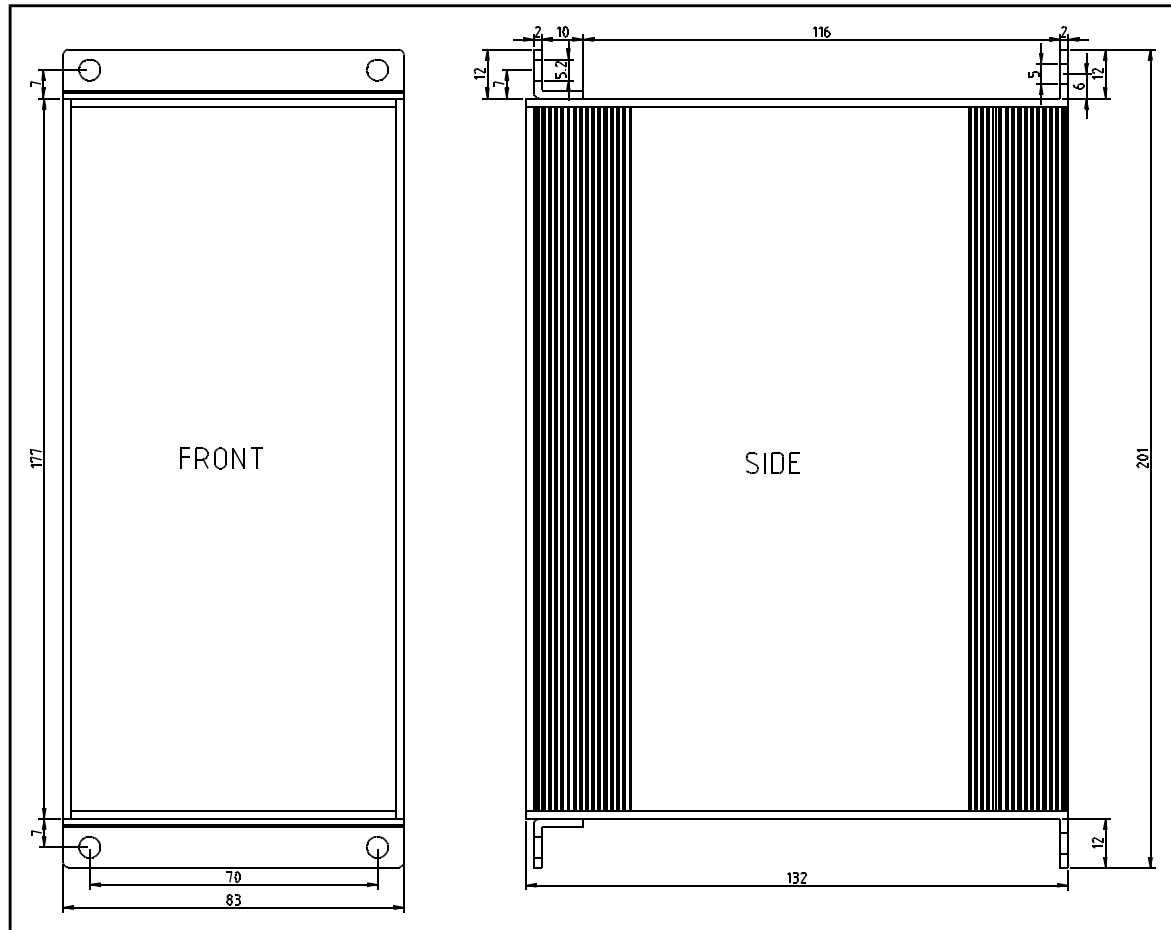


7 CONNECTION SCHEMATICS



SGC180

8 SIZE



Flush/wall mount version shown. Device without frontal fastenings and rear DIN rail mount also available.