

Technical note

How to connect the Generator to Sigen Energy Gateway

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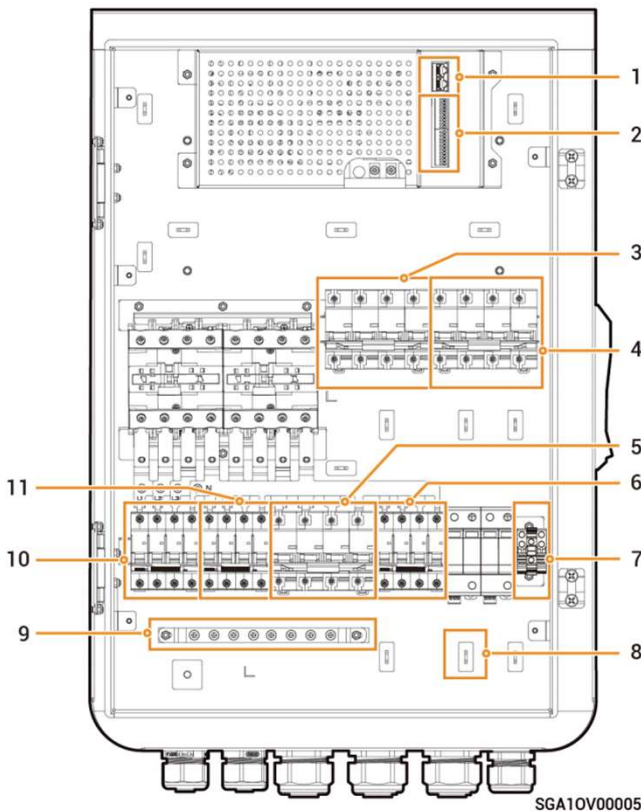
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Introduction

The Generator can provide more than enough backup power for your home or C&I scenario. Sigen Energy Gateway is a very versatile energy hub that supports smart control of the Generator, and this technical note describes how to connect the Generator to the Sigen Energy Gateway HomeMax (Three Phase as an example)

Confirm the connection port in the Gateway

The following pictures show the interior of the Sigen Energy Gateway HomeMax. First of all, you need to confirm the generator-related circuit breaker and I/O control port locations in the Gateway. As shown in the diagram above, NO. 3 is the generator power access circuit breaker and NO. 2 is the I/O control port of the Gateway

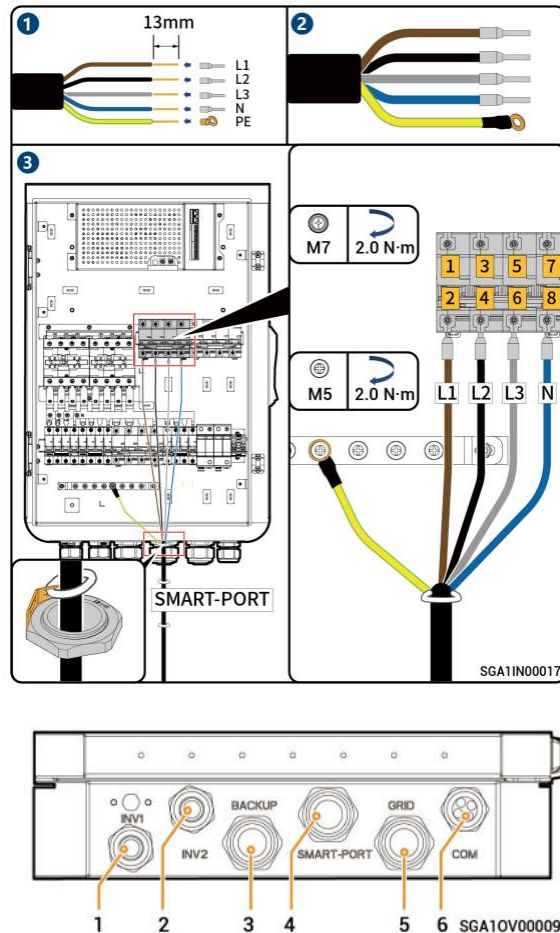


S/N	Name
1	FE1, FE2
2	RS485, DI, and DO interfaces
3	Miniature circuit breaker (Controllable loads/Diesel generator)
4	Miniature circuit breaker (Power grid)
5	Miniature circuit breaker (Distribution panel)
6	Miniature circuit breaker + Surge protection device
7	GND
8	Cable clamp
9	Earthing bar
10	Miniature circuit breaker (Inverters 1)
11	Miniature circuit breaker (Inverters 2)

Gateway internal view

Connecting the Power Circuit of the Generator

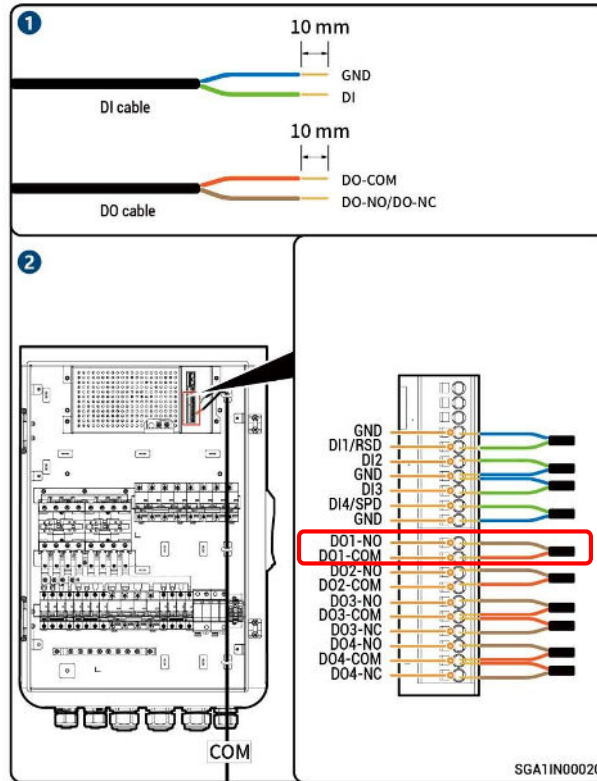
Follow the instructions in the diagram above to connect the Generator power wires to the Gateway's SMART-PORT circuit breaker. Then refer to the user manual of Gateway, switch off all circuit breakers and wait for at least 5 minutes before connecting the wires, and then switch on the circuit breakers one by one.



S/N	Name	Marking
1	Wire-in port of inverter 1	INV1
2	Wire-in port of inverter 2	INV2
3	Wire-in port of distribution panel	BACKUP
4	Wire-in port for diesel generator/Electric equipment	SMART-PORT
5	Wire-in port of power grid	GRID
6	Wire-in port of communication	COM

Connecting the Generator Control Circuit

Confirm the position of the DO port for the Generator control signal access. As shown in the figure, the DO1/GEN port is a normally open relay and currently supports access to the maximum power of 24V DC/40mA or 12V AC/40mA.



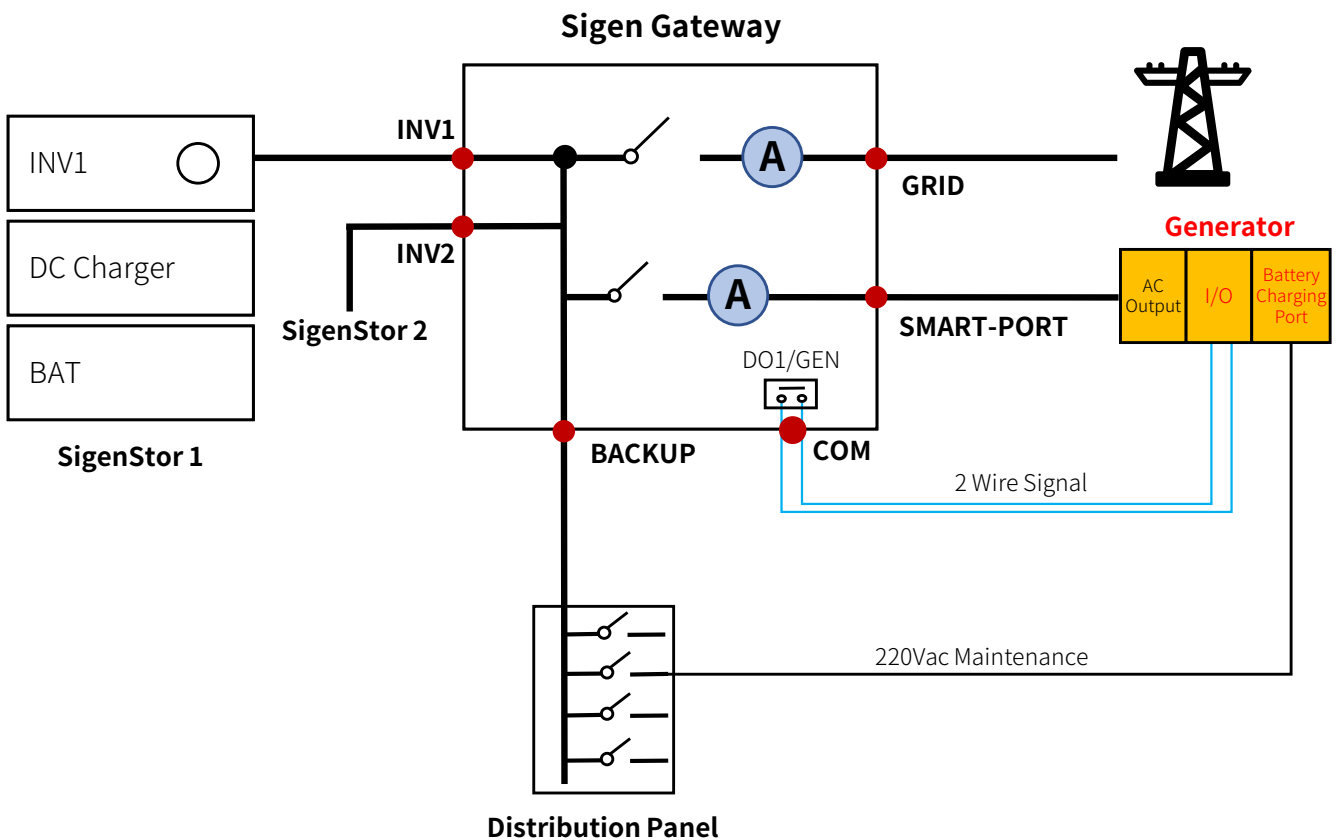
Interface Description	Definition	Function	Description
DI (Digital input)	GND	Signal GND	Universal DI interfaces, supporting rapid shutdown input signal and surge protection device status feedback input signal, among others.
	DI1/RSD	Digital input 1 / Rapid shutdown	
	DI2	Digital input 2	
	GND	Signal GND	
	DI3	Digital input 3	
	DI4/SPD	Digital input 4 / surge protection device	
DO1/GEN (Digital output 1 / Diesel Generator startup)	DO1-NO	Digital output 1 - Normal Open	Universal DO interfaces with contact capacity of 30 V DC at 1 A. NO/COM is normally open contact and NC/COM is normally close contact. The DO1/GEN interface can be used for controlling diesel generator start in two-wire start mode.
	DO1-COM	Digital output 1 - Common	
DO2 (Dry contact 2)	DO2-NO	Digital output 2 - Normal Open	
	DO2-COM	Digital output 2 - Common	
DO3 (Dry contact 3)	DO3-NO	Digital output 3 - Normal Open	
	DO3-COM	Digital output 3 - Common	
	DO3-NC	Digital output 3 - Normal Close	
DO4 (Dry contact 4)	DO4-NO	Digital output 4 - Normal Open	
	DO4-COM	Digital output 4 - Common	
	DO4-NC	Digital output 4 - Normal Close	

Generator Start-up Method 1: Two-wire-start

IMPORTANT NOTICE: The existing version of the Sigen Energy Gateway HomeMax Three Phase support Generator two-wire start, but since the maximum power of the DO1/GEN port is only 24V DC/40mA, **you must ensure that the Dry contact switch voltage/current of the Generator is lower than 24V DC/40mA.**

Conditions: the Generator supports Two-wire remote start and the Dry contact switch voltage/current of the Generator is lower than 24V DC/40mA.

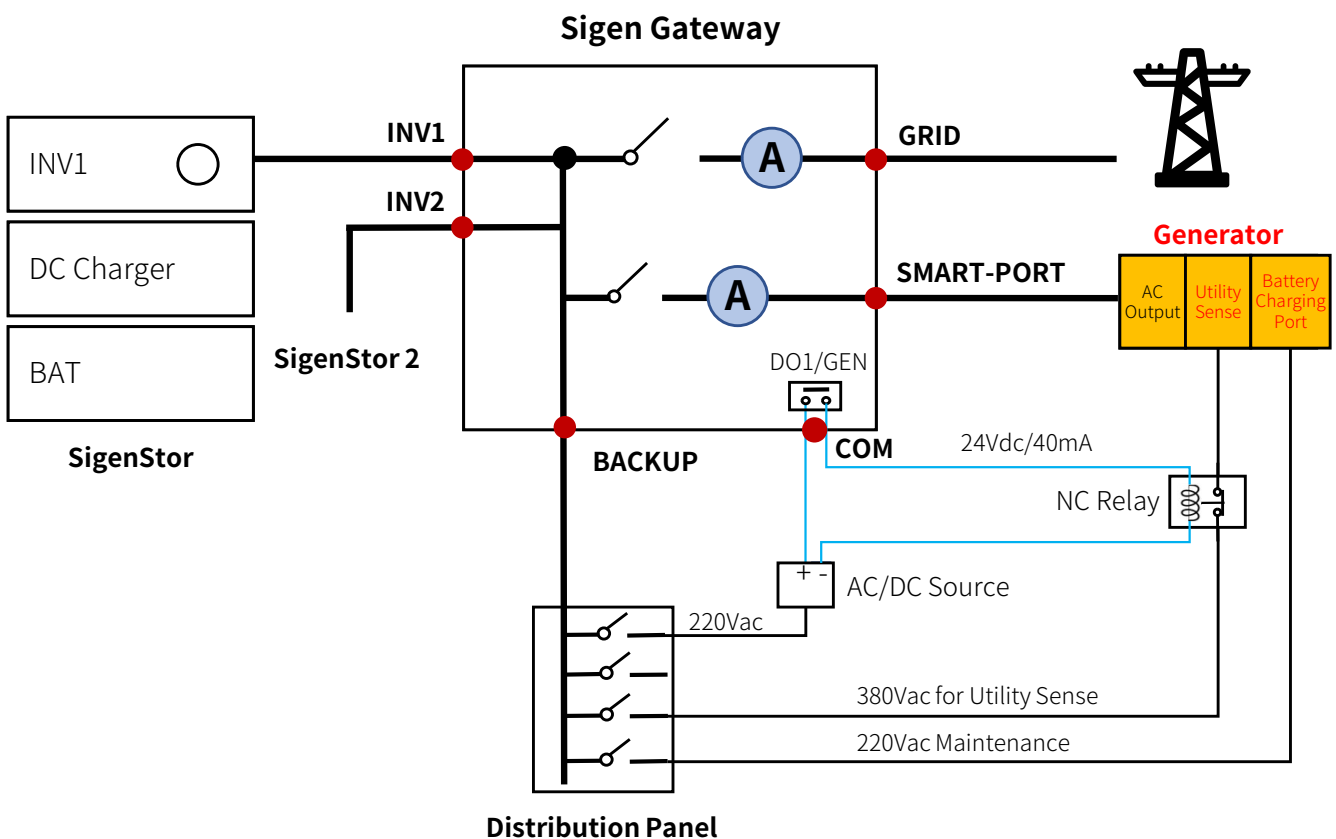
Connect the I/O control signal of the Generator to the DO1/GEN port of the Gateway, and lead 220V AC from the Distribution Panel to the Battery Charging Port of the Generator.



Generator Start-up Method 2: Utility Sense Start

Conditions: If the Generator does not meet the requirement of Two-wire remote start

- 1) Derive 380V AC from the Distribution Panel to the Utility Sense port of the generator, series connect the NC Relay (normally closed relay, specifications are selected according to the requirements of the Generator), and the NC Relay coil circuit is connected to the DO1/GEN port of the Gateway for controlling the start of the Generator, and the maximum power of the relay coil needs to be less than 24V DC/40mA.
- 2) Derive 220V AC from the Distribution Panel to the Generator battery charging port.



S/N	Component	Contact specification	Coil specification	Recommended model
1	Contactor	400V/3A	220V/3A	
2	Relay	220V/3A	24V/40mA	
3	QF1~QF4	400V/3A	/	