Application note
- How to connect the Generator to Sigen Energy Gateway

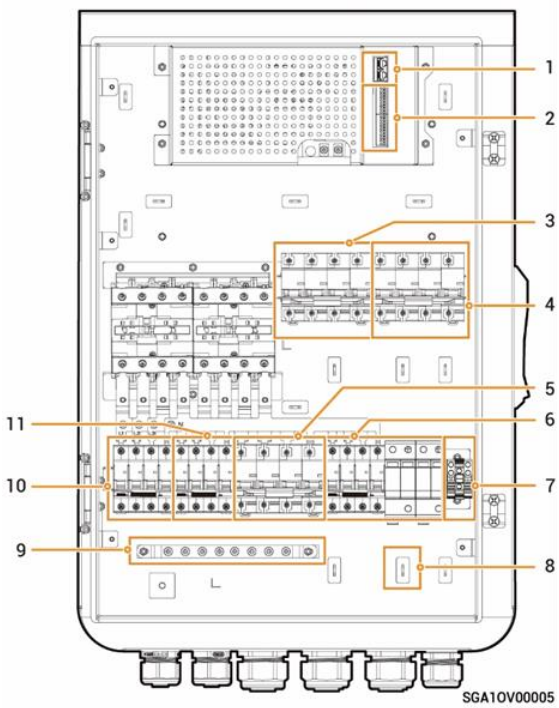
Revision History

Version 1.0, May 2024 – Initial release

For the Sigen Energy Gateway HomeMax, it supports diesel generator access and smart control to provide your home/business with more adequate backup energy, this article describes how to realize the access to the diesel generator.

Technical Description

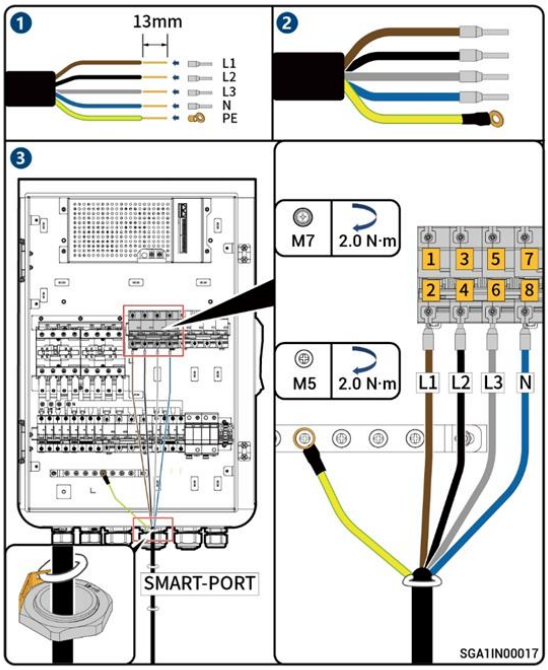
1. Gateway internal view



S/N	Name
1	FE1, FE2
2	RS485, DI, and DO interfaces
3	Miniature circuit breaker (smart loads/diesel generator)
4	Miniature circuit breaker (power grid)
5	Miniature circuit breaker (backup home loads)
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)

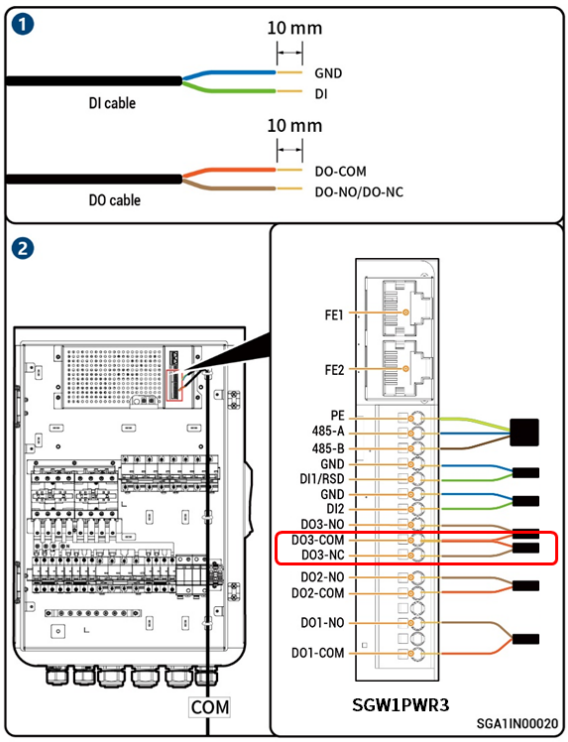
Confirm generator-related circuit breaker and I/O control port locations in the Gateway. As shown in the diagram above, NO. 3 is the generator power access circuit breaker and NO. 2 is the I/O control port of the Gateway.

2. Connecting the Generator Power Circuit



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.

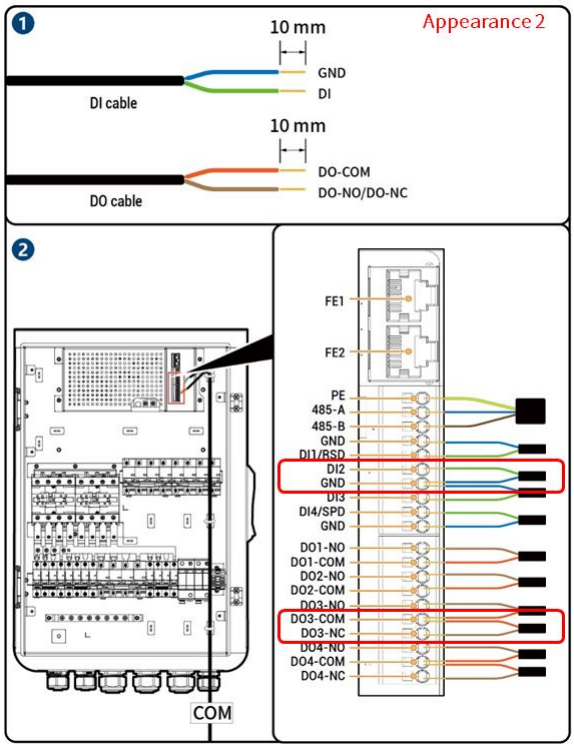
3.1 Connecting the Generator Control Circuit (Appearance 1)



Before wiring the generator, please confirm the Gateway control board version, if there is SGW1PWR3 printed on the label, please refer to the corresponding generator network diagram, and wire according to the above port location and definition.

Interface Description		Definition	Function	Description
FE (Network cable interface)		FE1	Fast Ethernet 1	Used to connect an inverter.
		FE2	Fast Ethernet 2	Used to connect an Sigen EV AC Charger, inverter, router and so on.
485 (RS485 interface)		PE	Signal shield GND	Used to connect smart loads including heat pump, air conditioner, and diesel generator.
		485-A	RS485 signal 2_A+	
		485-B	RS485 signal 2_B-	
DI1 (Digital input 1)		GND	Signal GND	Universal DI interfaces, DI 1support rapid shutdown input signal.
		DI1(RSD)	Digital input 1(Rapid shutdown)	
DI2 (Digital input 1)		GND	Signal GND	
		DI2(ATS)	Digital input 2	
DO3 (Dry contact 3)	-	DO3-NO	Digital output 3 - Normal Open	• Universal DO interface. DO1 has a contact capacity of 250 Va.c./1 A. DO2 and DO3 have a contact capacity of 30 V/1 A. • NO/COM is normally open contact and NC/COM is normally close contact. • The DO3-COM and DO3-NC interface can be used for controlling generator start in two-wire start mode.
	GEN (Diesel generator startup)	DO3-COM	Digital output 3 - Common	
		DO3-NC	Digital output 3 - Normal Close	
DO2 (Dry contact 2)		DO2-NO	Digital output 2 - Normal Open	
		DO2-COM	Digital output 2 - Common	
DO1 (Dry contact 1)		-	-	
		DO1-NO	Digital output 1 - Normal Open	
		-	-	
		DO1-COM	Digital output 1 - Common	

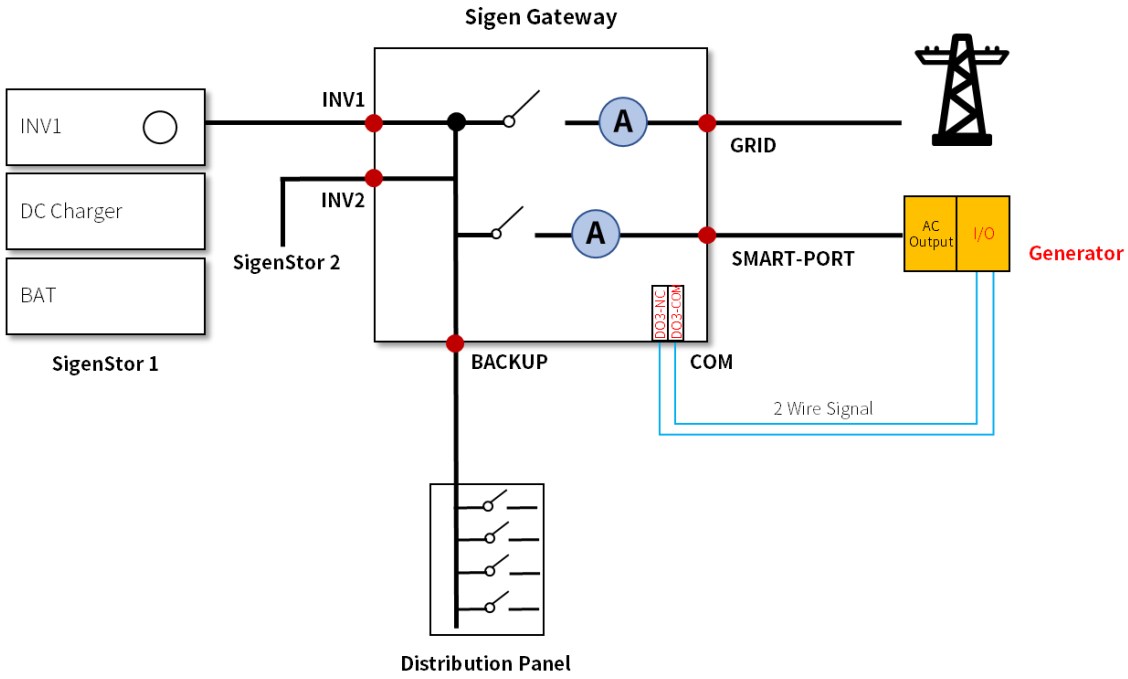
3.2 Connecting the Generator Control Circuit (Appearance 2)



Please confirm the Gateway control board version before wiring the oil machine, if SGW1PWR3 is not printed on the label, please refer to the corresponding generator network diagram and wire according to the above port location and information.

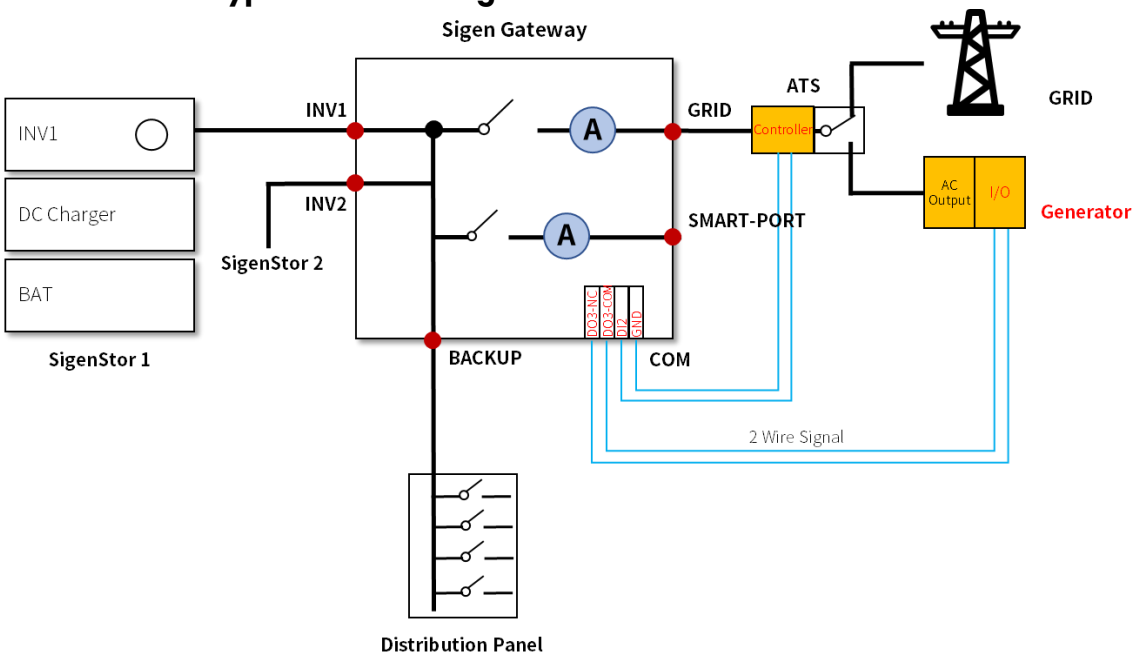
Interface Description		Definition	Function	Description
DI (Digital input)		GND	Signal GND	Universal DI interfaces, DI 1 support rapid shutdown input signal and DI 4 support surge protection device status feedback input signal, among others.
		DI1/RSD	Digital input 1 / Rapid shutdown	
		DI2	Digital input 2	
		GND	Signal GND	
		DI3	Digital input 3	
		DI4/SPD	Digital input 4 / surge protection device	
		GND	Signal GND	
DO1/GEN (Digital output 1 / Diesel Generator startup)		DO1-NO	Digital output 1 - Normal Open	Universal DO interface. The contact capacity of 24 V/40 mA. NO/COM is normally open contact and NC/COM is normally close contact. The DO3-COM and DO3-NC interface can be used for controlling 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	
	GEN	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	

4.1 Generator Typical Networking



Generator two-wire start: Generator power output is connected to the SMART-PORT port of the Gateway. Generator DI port (please refer to the generator manual) is connected to the DO3-NC and DO3-COM ports of the Gateway control board. In this way, you can control the start and stop of the generator.

4.2 Generator Typical Networking with ATS



When the generator is connected to the Gateway in two-wire start mode through ATS networking, the generator power output is connected to the ATS backup port, and the signal ports are wired as follows:

Generator: The DI port of generator (please refer to the manual of generator controller) is connected to DO3-NC and DO3-COM ports of Gateway control board, which is used for starting and stopping of generator controlled by Gateway;

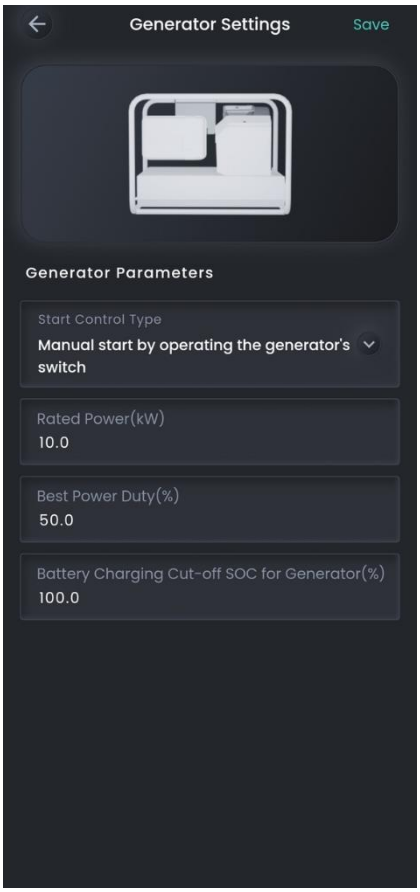
ATS: The DO port of ATS controller (please refer to the manual of ATS controller) is connected to the DI2 port of Gateway, which is used for Gateway to control the switching of ATS. When the ATS position signal is low impedance, it means the grid is connected, otherwise, it means the generator is connected.

5. mySigen App Setup

Step 1 The system can automatically recognize and connect the diesel generator. Check the details and make settings in "Device" → "GENERATOR".

Step 2 Manual start by operating the generator's switch

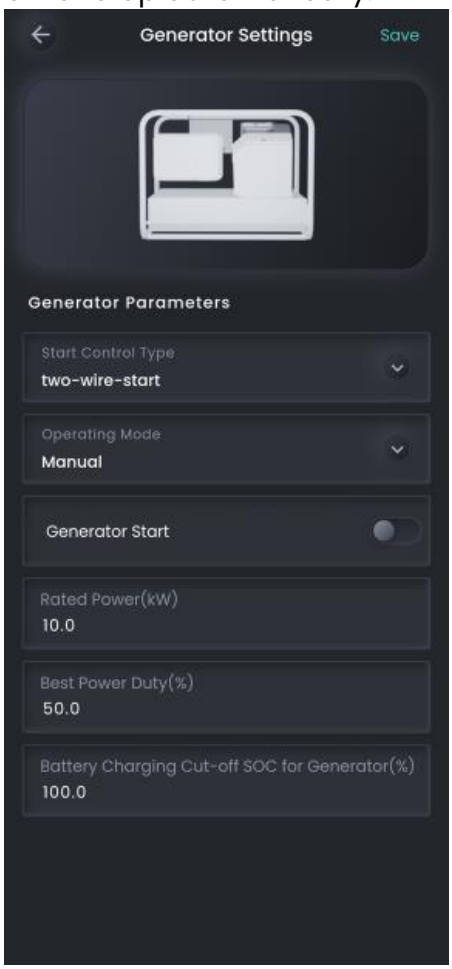
In this mode, you must switch on and off the system on the generator side.



No.	Parameter name	Description
1	Rated Power	Sets the rated power of the diesel generator.
2	Best Power Duty	To guarantee the optimal functioning status of the system, you are advised to control the output power of the diesel generator not more than 80%.

Step 3. Two - Wire – Start

In this mode, you can start and stop the diesel generator in the App, or the diesel generator can start or stop automatically.



No.	Parameter name	Description
1	Operating Mode	ManualAuto
2	Generator Start	In "Manual" mode, when it is set to , you can start or stop the diesel generator using the icon in the App.
3	Rated Power	Sets the rated power of the diesel generator.

4	Best Power Duty	To guarantee the optimal functioning status of the system, you are advised to control the output power of the diesel generator not more than 80%.
5	Time of Use	In "Auto" mode, set the time period and SOC threshold for automatic power-on/off of the diesel generator.