

SRNE ASP48120SH3 Modbus Register Map (validated)

Validated Modbus register map for the SRNE ASP48120SH3 three-phase hybrid inverter, confirmed against the live unit on 2026-07-21.

Bus: RS485, 9600 8N1, function code 03 (read holding registers), slave address 1. **Source of truth:** `src/inverter/registers.py` in nfe-modbus-energy-logger (declarative, grouped by OpenEMS nature). This page is the human-readable copy.

Live telemetry registers

Address	Field	OpenEMS nature / channel	Scale	Signed	Unit
0x0210	state_code	System / STATE	enum	no	code
0x0212	bus_v	System / DC_BUS_VOLTAGE	0.1	no	V
0x0228	pbus_v	System / DC_BUS_P_VOLTAGE	0.1	no	V
0x0229	nbus_v	System / DC_BUS_N_VOLTAGE	0.1	no	V
0x0213	grid_v_l1	ElectricityMeter(grid) / VOLTAGE_L1	0.1	no	V
0x022A	grid_v_l2	ElectricityMeter(grid) / VOLTAGE_L2	0.1	no	V
0x022B	grid_v_l3	ElectricityMeter(grid) / VOLTAGE_L3	0.1	no	V
0x0214	grid_i_l1	ElectricityMeter(grid) / CURRENT_L1	0.1	no	A

Address	Field	OpenEMS nature / channel	Scale	Signed	Unit
0x0215	grid_freq	ElectricityMeter(g rid) / FREQUENCY	0.01	no	Hz
0x0216	backup_v_l1	ElectricityMeter(b ackup) / VOLTAGE_L1	0.1	no	V
0x022C	backup_v_l2	ElectricityMeter(b ackup) / VOLTAGE_L2	0.1	no	V
0x022D	backup_v_l3	ElectricityMeter(b ackup) / VOLTAGE_L3	0.1	no	V
0x0217	backup_i_l1	ElectricityMeter(b ackup) / CURRENT_L1	0.1	no	A
0x022E	backup_i_l2	ElectricityMeter(b ackup) / CURRENT_L2	0.1	no	A
0x022F	backup_i_l3	ElectricityMeter(b ackup) / CURRENT_L3	0.1	no	A
0x0218	backup_freq	ElectricityMeter(b ackup) / FREQUENCY	0.01	no	Hz
0x0219	load_i_l1	Load / CURRENT_L1	0.1	no	A
0x021B	load_active_w	Load / ACTIVE_POWER	1	no	W
0x021C	load_apparent_va	Load / APPARENT_POWE R	1	no	VA
0x021F	load_ratio_pct	Load / LOAD_RATIO	1	no	%
0x0100	battery_soc	SymmetricEss / SOC	1	no	%
0x0101	battery_v	SymmetricEss / VOLTAGE	0.1	no	V
0x0102	battery_i	SymmetricEss / CURRENT	0.1	yes	A
0x0220	temp_heatsink_a	Temp / TEMPERATURE_A	0.1	yes	C

Address	Field	OpenEMS nature / channel	Scale	Signed	Unit
0x0221	temp_heatsink_b	Temp / TEMPERATURE_B	0.1	yes	C
0x0222	temp_heatsink_c	Temp / TEMPERATURE_C	0.1	yes	C

Derived values

- Power factor = active power (0x021B) / apparent power (0x021C).
- Battery flow direction from the sign of battery current (0x0102): positive is charging, negative is discharging.
- Machine state label from the code at 0x0210 (see gotchas below).

Registers deliberately NOT used (validated wrong on this model)

Address	Reason
0x021A load PF	Reads 0 (unpopulated). Derive PF from active/apparent instead.
0x0103 device temp	Reads 0. Use the heat-sink temps 0x0220 to 0x0222.
0x0223 heatsink D	Reads 120.0 (bogus/unused).
0x0107 to 0x0111 PV	This backup unit has no PV, reads 0.

Machine state (0x0210)

Only code 2 is verified. The generic SRNE V1.7 state table does NOT match this model (generic says 2 is "initialization"; the live unit at 2 is fully running). Verify the rest by observing transitions.

- 2 = running (mains/bypass) [VERIFIED]
- other codes: treat as unverified until observed.

Writes

Config/control registers reject FC06 ("Illegal function"). Use FC16 (write multiple registers), e.g. pymodbus write_registers. Control area starts at 0xDF00 (power on/off) plus the setting

parameters.

Revision #2

Created 2026-07-20 20:35:49 UTC by hillary.arinda

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