SolarEast Parameter Map vs Onze Adlar Modbus Implementatie

> **Bron A:** `4_Unit_System_Parameter.xlsx` — Compleet SolarEast OEM parameterdocument (263 params, P000–P262) **Bron B:** Onze ESPHome YAML registermap — Huidige Homey implementatie (8 params + 23 sensoren + stuurregisters) **Datum:** 9 februari 2026

---

1. Kernbevindingen

Metric	Waarde
Totaal parameters in Excel	263 (P000–P262)
Parameters in onze map	8
Ontbrekend	255 parameters
Dekking	3.0%
Adresrange Excel	0x0100–0x0206
Alle RW	Ja (alle 263 zijn Read/Write)

---

2. Validatie Onze 8 Bestaande Parameters

Alle 8 adresssen kloppen. Eén **functionele fout** gevonden:

Param	Adres	Onze Naam	Excel Naam	Eenheid	Status
P026	0x011A	Hysterese watertemp	Air conditioner return difference	℃	✅ (naam verschilt)
P088	0x0158	Silent comp max freq	Max. Silent mode compressor frequency	Hz	✅
P089	0x0159	Silent fan max freq	Max. Quiet mode fan frequency	Hz	✅
P099	0x0163	Pomp temp verschil	Pump speed control temperature differenc	℃	✅
P100	0x0164	Pomp min snelheid	PWM water pump minimum speed	%	✅
P163	0x01A3	Pomp min flow snelheid	Minimum feedback of pump speed regulatio	%	⚠ **FOUT:** unit=L/min → moet % zijn
P260	0x0204	Max pomp snelheid	Max rotate speed of DC Water Pump	%	✅
P261	0x0205	Pomp constant speed	Rotate Speed of DC water pump under cons	%	✅

⚠ P163 Bug — Impact op Flow Cards

Onze map: P163 = "Pomp minimum flow snelheid" [L/min] 0–70 **Excel (correct):** P163 = "Minimum feedback of pump speed regulation" [%] 0–70

Dit is géén flowsnelheid maar een **minimum percentage terugkoppeling van de pompsnelheidsregeling**. Live waarde Slave 1 = **32** (= 32%, niet 32 L/min). Alle flow cards die P163 als L/min interpreteren moeten gecorrigeerd worden.

---

3. Alle 255 Ontbrekende Parameters — Gecategoriseerd

🔵 HOOG Hot Water (Warm Tapwater) (20 params)

Essentieel voor DHW-sturing, boilerbeheer en tapwateroptimalisatie

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P048	0x0130	Whether the tank temperature probe is enabled		0–10	1
P049	0x0131	Hot water frequency operating percentage	%	30–100	70
P060	0x013C	Hot water target frequency constant B, Y=B-X		-100–100	75
P061	0x013D	Hot water target frequency upper limit value Y=B-X	Hz	50–120	70
P062	0x013E	Hot water target frequency lower limit value Y=B-X	Hz	15–120	50
P063	0x013F	Hot water minimum frequency 1	Hz	15–60	30

P064	0x0140	Hot water minimum frequency 2	Hz	15–60	35
P065	0x0141	Hot water minimum frequency 3	Hz	15–60	40
P096	0x0160	Hot water return difference	℃	0–10	7
P097	0x0161	Water tank temperature automatic compensation		0–10	0
P098	0x0162	Manual compensation value of water tank temperature	℃	-10–10	0
P107	0x016B	Hot water mode operating ambient temperature limit	℃	10–60	55
P108	0x016C	Hot water setting temperature upper limit	℃	30–80	65
P109	0x016D	Hot water setting temperature lower limit	℃	10–30	20
P140	0x018C	Hot water electric heating options		0–10	0
P151	0x0197	Hot water Solar heat source return difference (P_e)	℃	0–40	0
P153	0x0199	Combined hot water heat source upper temperature limit	℃	15–80	65
P162	0x01A2	Anti-freezing interval for hot water pipes	min	0–360	0
P168	0x01A8	Hot water mode start ratio	%	1–100	50
P169	0x01A9	Non-hot water mode start ratio	%	1–100	100

HOOG Smart Grid / PV / Solar (3 params)

Dynamische energieprijzen, PV-optimalisatie

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P152	0x0198	Heating Solar heat source return difference (P_e)	℃	0–40	0
P255	0x01FF	Smart Grid Options		0–1	0
P256	0x0200	Peak grid running time	min	30–999	30

HOOG Pump Control (extra) (7 params)

Aanvullende pompregelingen bovenop onze bestaande 4

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P028	0x011C	Pump control mode when the device reaching target tempe		0–10	1
P029	0x011D	Antifreeze water pump running time (every 10min)	min	0–10	2
P095	0x015F	Cascade water pump running mode		0–10	0
P101	0x0165	Pump control mode		0–10	1
P146	0x0192	Pump range setting value	L/min	0–100	60
P150	0x0196	Secondary heating pump selection (P_b)		0–10	1
P161	0x01A1	Auxiliary pump selection (P_c)		0–10	3

MIDDEL Defrost (17 params)

Ontdooiparameters — invloed op COP en comfort

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P030	0x011E	Defrost mode selection		0–10	3
P031	0x011F	Enter the defrost accumulated running time threshold va	℃	0–120	45
P032	0x0120	Enter the defrost coil temperature value	℃	-30–0	-5
P033	0x0121	Enter defrost temperature difference 1	℃	0–20	6
P034	0x0122	Enter defrost temperature difference 2	℃	0–20	8
P035	0x0123	Max defrost time	℃	0–30	10
P036	0x0124	Exit defrost coil temperature	℃	0–30	12
P138	0x018A	Defrost compressor frequency	Hz	40–120	70

P141	0x018D	Dew point duration of defrost	min	0–60	5
P142	0x018E	Dew point constant of defrost		0–60	8
P143	0x018F	Water Temperature to enter Defrost mode	℃	0–60	12
P144	0x0190	Ambient temperature to enter Defrost mode	℃	-20–30	17
P174	0x01AE	Defrost valve opening	P	0–480	350
P176	0x01B0	Minimum defrosting time	S	0–999	0
P177	0x01B1	Defrost segmented water temperature setting value	℃	0–80	40
P178	0x01B2	High water temperature defrosting frequency	Hz	40–120	70
P181	0x01B5	defrost mode		0–2	1

MIDDEL Protection & Safety (16 params)

Beveiliging, drukschakelaars, lockouts — read-only monitoring

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P001	0x0101	High pressure switch settings		0–10	0
P002	0x0102	Low pressure switch settings		0–10	0
P003	0x0103	Water flow switch settings		0–10	0
P004	0x0104	Thermal overload protection switch settings		0–10	1
P005	0x0105	Linkage switch settings		0–10	0
P007	0x0107	High Pressure Protection Lockout Setting		0–10	0
P008	0x0108	Low Pressure Protection Lockout Setting		0–10	0
P009	0x0109	Exhaust Protection Lockout Setting		0–10	0
P010	0x010A	Water flow switch protection lock setting		0–10	0
P011	0x010B	High Pressure protection value	℃	40–150	80
P013	0x010D	Low Pressure protection value	℃	-50–-10	-36
P015	0x010F	Exhaust temperature protection value	℃	100–130	110
P041	0x0129	Heating high pressure protection and frequency limit co	℃	-10–10	0
P043	0x012B	Medium Pressure Switch Settings		0–10	0
P134	0x0186	Water flow is too low protection value	L/min	0–100	15
P145	0x0191	Water outlet antifreeze protection value	℃	-20–10	-30

MIDDEL Temperature Limits & Compensation (13 params)

Setpoint grenzen, compensatiewaarden, antivriesdrempels

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P024	0x0118	Return water temperature compensation value	℃	-10–10	2
P025	0x0119	Outlet water temperature compensation value	℃	-10–10	2
P105	0x0169	Cooling mode operating ambient temperature limit	℃	10–60	15
P106	0x016A	Heating mode operating ambient temperature limit	℃	10–60	40
P110	0x016E	Heating set temperature upper limit	℃	30–80	60
P111	0x016F	Heating set temperature lower limit	℃	15–30	20
P112	0x0170	Cooling set temperature upper limit	℃	20–40	25
P113	0x0171	Cooling set temperature lower limit	℃	5–20	7
P120	0x0178	Low temperature start limit		0–10	1
P154	0x019A	Combined heating heat source upper temperature limit	℃	15–80	60
P158	0x019E	Heating limit water temperature, start the ambient temp	℃	-45–30	0

P159	0x019F	Limit temperature constant P159		0–150	75
P160	0x01A0	Limit temperature coefficient P160		-500–500	25

MIDDEL Heating/Cooling Mode & Curve (9 params)

Mode switching, elektrisch bijverwarmen, medium selectie

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P022	0x0116	Electric heating start ambient temperature value	℃	-15–40	-7
P027	0x011B	Floor heating difference	℃	0–10	0
P103	0x0167	Mode switching minimum runtime	min	0–10	3
P115	0x0173	Model selection		0–10	1
P139	0x018B	Air conditioning electric heating options		0–10	2
P182	0x01B6	Pipe electric heating option		0–2	3
P254	0x01FE	heating medium		0–1	1
P257	0x0201	Dual temperature zone selection		0–2	2
P262	0x0206	Floor heating test mode selection		0–1	1

MIDDEL Anti-freeze (4 params)

Vorstbescherming parameters

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P117	0x0175	Ambient temperature to enter Antifreeze Mode	℃	0–10	5
P118	0x0176	Antifreeze Inlet and Outlet Water Temperature	℃	0–20	3
P147	0x0193	Cooling Anti-Freeze Mode		0–10	2
P148	0x0194	Cooling Anti-Freeze Temperature Value	℃	-30–-10	1

LAAG Fan Control (14 params)

Ventilator frequentie-instellingen

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P006	0x0106	Fan motor type setting		0–10	1
P017	0x0111	Refrigeration fan speed increase value	℃	0–60	37
P018	0x0112	Cooling fan deceleration value	℃	0–60	32
P019	0x0113	Heating fan deceleration value	℃	0–60	12
P020	0x0114	Heating fan speed increase value	℃	0–60	8
P066	0x0142	DC fan initial frequency	Hz	20–60	50
P067	0x0143	DC fan heating minimum frequency	Hz	20–60	20
P068	0x0144	DC fan heating maximum frequency	Hz	20–80	50
P069	0x0145	DC fan cooling minimum frequency	Hz	20–60	20
P070	0x0146	DC fan cooling maximum frequency	Hz	20–80	50
P133	0x0185	Fan module		0–10	0
P172	0x01AC	Target frequency constant c of DC fan	HZ	40–70	50
P173	0x01AD	Target frequency of heating fan lower limit	Hz	20–65	40
P246	0x01F6	35 Low water temperature rated fan frequency	Hz	0–60	40

LAAG Frequency Control (compressor) (31 params)

Compressor frequentiegrenzen, shield ranges

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P012	0x010C	High Pressure frequency limit value	℃	40–150	70
P014	0x010E	Low Pressure frequency limit value	℃	-50–-10	-32
P016	0x0110	Exhaust temperature limit frequency	℃	90–120	102
P050	0x0132	Cooling target frequency constant A, Y=9X/5+A		-100–100	20
P051	0x0133	Cooling minimum frequency limit	Hz	15–60	30
P052	0x0134	Cooling target frequency upper limit	Hz	40–120	85
P053	0x0135	Cooling target frequency lower limit	Hz	15–120	42
P054	0x0136	Heating target frequency constant B,Y=B-X		-100–100	85
P055	0x0137	Heating target frequency upper limit	Hz	50–120	95
P056	0x0138	Heating target frequency lower limit	Hz	20–120	50
P057	0x0139	Heating minimum frequency 1	Hz	15–60	20
P058	0x013A	Heating minimum frequency 2	Hz	15–60	40
P059	0x013B	Heating minimum frequency 3	Hz	15–60	50
P071	0x0147	Turn on enthalpy control frequency	Hz	20–80	45
P072	0x0148	Stop enthalpy increase frequency	Hz	20–80	35
P104	0x0168	Operating frequency percentage when switching modes	%	20–100	25
P121	0x0179	Heating frequency shield 1 stage low value	Hz	0–120	58
P122	0x017A	Heating frequency shield 1 stage high value	Hz	0–120	60
P123	0x017B	Heating frequency shield 2-stage low value	Hz	0–120	0
P124	0x017C	Heating frequency shield 2-stage high value	Hz	0–120	0
P125	0x017D	Heating frequency shield 3-stage low value	Hz	0–120	0
P126	0x017E	Heating frequency shield 3-stage high value	Hz	0–120	0
P127	0x017F	Cooling frequency shield 1 stage low value	Hz	0–120	58
P128	0x0180	Cooling frequency shield 1 stage high value	Hz	0–120	60
P129	0x0181	Cooling frequency shield 2-stage low value	Hz	0–120	0
P130	0x0182	Cooling frequency shield 2-stage high value	Hz	0–120	0
P131	0x0183	Cooling frequency shield 3-stage low value	Hz	0–120	0
P132	0x0184	Cooling frequency shield 3-stage high value	Hz	0–120	0
P149	0x0195	Water out of the high limit frequency value	℃	40–80	75
P179	0x01B3	Strong mode frequency increase value	Hz	0–40	15
P180	0x01B4	Powerful mode frequency cap increase value	Hz	0–40	5

LAAG Valve Control (EEV/EVI) (44 params)

Expansieventielen, superheat instellingen

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P037	0x0125	Device reaching target temperature and shutdown mode		0–10	0
P038	0x0126	Heating main valve initial opening constant		-999–999	400
P040	0x0128	Cooling target superheat correction value	℃	-5–10	1
P042	0x012A	Heating target superheat correction value	℃	-5–10	2
P046	0x012E	The return difference of the opening of the liquid inje	℃	0–15	8
P047	0x012F	EVI target superheat constant		0–12	1
P073	0x0149	Refrigeration main valve initial opening 1	P	20–480	480

P074	0x014A	Refrigeration main valve initial opening 2	P	20–480	480
P075	0x014B	Refrigeration main valve initial opening 3	P	20–480	480
P076	0x014C	Minimum opening of refrigeration main valve	P	0–300	100
P077	0x014D	Minimum opening of heating main valve	P	0–300	50
P078	0x014E	Main valve maximum opening	P	100–500	480
P079	0x014F	Main valve initial opening constant c	P	20–300	120
P080	0x0150	Main valve initial opening coefficient a		-999–999	60
P081	0x0151	Main valve initial opening coefficient b		-999–999	30
P082	0x0152	Auxiliary valve maximum opening	P	100–500	480
P083	0x0153	Auxiliary valve minimum opening	P	50–300	40
P084	0x0154	Main Valve Regulation Period	S	10–120	40
P085	0x0155	Auxiliary valve initial opening constant c		-200–900	50
P086	0x0156	Auxiliary valve initial opening coefficient a		-999–999	30
P087	0x0157	Auxiliary valve initial opening coefficient b		-999–999	20
P090	0x015A	Ambient temperature to enter EVI	℃	0–45	23
P091	0x015B	Time to forbit entering into EVI time	min	0–30	3
P092	0x015C	Temperature Difference to enter EVI	℃	0–60	2
P093	0x015D	Compressor continuous running time to enter EVI	min	0–20	1
P094	0x015E	Auxiliary valve adjustment cycle	S	10–120	40
P102	0x0166	Four-way valve control mode		0–10	0
P136	0x0188	Ambient temperature to open Throttle bypass valve	℃	-20–50	25
P137	0x0189	Throttle Bypass Valve Delay Compressor	S	0–999	0
P156	0x019C	Auxiliary electronic expansion valve selection		0–10	1
P157	0x019D	Auxiliary electronic expansion valve to reduce the temp	℃	0–99	0
P204	0x01CC	35D operating condition main valve target superheat	℃	-10–10	5
P209	0x01D1	55D operating condition main valve target superheat	℃	-10–10	4
P210	0x01D2	55C operating condition main valve target superheat	℃	-10–10	5
P224	0x01E0	35D operating condition auxiliary valve target superhea	℃	-10–10	0
P225	0x01E1	35C operating condition auxiliary valve target superhea	℃	-10–10	0
P226	0x01E2	35B operating condition auxiliary valve target superhea	℃	-10–10	0
P247	0x01F7	Initial opening of main valve under 35 low water temper	P	0–500	320
P248	0x01F8	Initial opening of main valve under 55 high water tempe	Hz	0–60	40
P249	0x01F9	Initial opening of main valve under 55 high water tempe	P	0–500	270
P250	0x01FA	Target superheat of main valve under 35 low water tempe	℃	-10–10	4
P252	0x01FC	Target superheat of main valve under 55 high water temp	℃	-10–10	4
P258	0x0202	Mixed water regulating valve cycle	min	5–20	7
P259	0x0203	Mixing valve full cycle time	S	0–180	120

○ OEM Working Conditions (OEM tuning) (54 params)

35°/55° werkpunt matrices — OEM kalibratie, normaal niet wijzigen

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P184	0x01B8	35D working condition compressor frequency	HZ	0–120	20
P185	0x01B9	35C working condition compressor frequency	HZ	0–120	20
P186	0x01BA	35B working condition compressor frequency	HZ	0–120	34

P187	0x01BB	35A working condition compressor frequency	HZ	0–120	70
P188	0x01BC	35E working condition compressor frequency	HZ	0–120	88
P189	0x01BD	55D working condition compressor frequency	HZ	0–120	20
P190	0x01BE	55C working condition compressor frequency	HZ	0–120	20
P191	0x01BF	55B working condition compressor frequency	HZ	0–120	36
P192	0x01C0	55A working condition compressor frequency	HZ	0–120	76
P193	0x01C1	55E working condition compressor frequency	HZ	0–120	92
P194	0x01C2	35D working condition fan frequency	HZ	0–60	20
P195	0x01C3	35C working condition fan frequency	HZ	0–60	20
P196	0x01C4	35B working condition fan frequency	HZ	0–60	45
P197	0x01C5	35A working condition fan frequency	HZ	0–60	50
P198	0x01C6	35E working condition fan frequency	HZ	0–60	50
P199	0x01C7	55D working condition fan frequency	HZ	0–60	20
P200	0x01C8	55C working condition fan frequency	HZ	0–60	25
P201	0x01C9	55B working condition fan frequency	HZ	0–60	35
P202	0x01CA	55A working condition fan frequency	HZ	0–60	50
P203	0x01CB	55E working condition fan frequency	HZ	0–60	50
P205	0x01CD	35C working condition main valve target superheat	℃	-10–10	5
P206	0x01CE	35B working condition main valve target superheat	℃	-10–10	4
P207	0x01CF	35A working condition main valve target superheat	℃	-10–10	4
P208	0x01D0	35E working condition main valve target superheat	℃	-10–10	3
P211	0x01D3	55B working condition main valve target superheat	℃	-10–10	3
P212	0x01D4	Target superheat of main valve in 55A working condition	℃	-10–10	3
P213	0x01D5	55E working condition main valve target superheat	℃	-10–10	3
P214	0x01D6	Initial opening of main valve in 35D working condition	P	0–500	100
P215	0x01D7	Initial opening of main valve in 35C working condition	P	0–500	105
P216	0x01D8	Initial opening of main valve in 35B working condition	P	0–500	115
P217	0x01D9	Initial opening of main valve in 35A working condition	P	0–500	180
P218	0x01DA	Initial opening of main valve in 35E working condition	P	0–500	205
P219	0x01DB	Initial opening of main valve in 55D working condition	P	0–500	90
P220	0x01DC	Initial opening of main valve in 55C working condition	P	0–500	95
P221	0x01DD	Initial opening of main valve in 55B working condition	P	0–500	120
P222	0x01DE	Initial opening of main valve in 55A working condition	P	0–500	180
P223	0x01DF	Initial opening of main valve in 55E working condition	P	0–500	205
P227	0x01E3	35A working condition auxiliary valve target superheat	℃	-10–10	0
P228	0x01E4	35E working condition auxiliary valve target superheat	℃	-10–10	0
P229	0x01E5	55D working condition auxiliary valve target superheat	℃	-10–10	0
P230	0x01E6	55C working condition auxiliary valve target superheat	℃	-10–10	0
P231	0x01E7	Auxiliary valve target superheat in 55B working conditi	℃	-10–10	0
P232	0x01E8	Auxiliary valve target superheat in 55A working conditi	℃	-10–10	0
P233	0x01E9	Auxiliary valve target superheat in 55E working conditi	℃	-10–10	0
P234	0x01EA	Initial opening of auxiliary valve in 35D working condi	P	0–500	0
P235	0x01EB	Initial opening of auxiliary valve in 35C working condi	P	0–500	0
P236	0x01EC	Initial opening of auxiliary valve in 35B working condi	P	0–500	0

P237	0x01ED	Initial opening of auxiliary valve in 35A working condi	P	0–500	0
P238	0x01EE	Initial opening of auxiliary valve in 35E working condi	P	0–500	0
P239	0x01EF	Initial opening of auxiliary valve in 55D working condi	P	0–500	0
P240	0x01F0	Initial opening of auxiliary valve in 55C working condi	P	0–500	0
P241	0x01F1	Initial opening of auxiliary valve in 55B working condi	P	0–500	0
P242	0x01F2	Initial opening of auxiliary valve in 55A working condi	P	0–500	0
P243	0x01F3	Initial opening of auxiliary valve in 55E working condi	P	0–500	0

🟢 LAAG Other / System (23 params)

Diverse systeem- en configuratieparameters

Param	Adres	Naam	Eenheid	Bereik	S1 waarde
P000	0x0100	T1 external ambient temperature sensor		0–10	0
P021	0x0115	The unit prohibits starting low temperature value	℃	-40–-10	-26
P023	0x0117	The temperature difference between the inlet and outlet	℃	10–30	12
P039	0x0127	Pressure sensor settings		0–10	0
P044	0x012C	Water flow switch failure detection settings		0–10	0
P045	0x012D	Communication address code		1–16	1
P114	0x0172	Selection of the number of compressor		1–2	1
P116	0x0174	Unit temperature control method		0–10	1
P119	0x0177	Refrigerant type		0–20	3
P135	0x0187	Temperature difference to start Anti-condensation	℃	0–50	5
P155	0x019B	Compressor code (Function Reserved)		0–9999	0
P164	0x01A4	Level control		0–10	0
P165	0x01A5	Load return difference	℃	1–15	3
P166	0x01A6	Load shedding hysteresis	℃	1–15	2
P167	0x01A7	Emergency stop return difference	℃	1–15	5
P170	0x01AA	Loading cycle	min	3–60	7
P171	0x01AB	Shield low voltage switch ambient temperature	℃	-50–0	-15
P175	0x01AF	Constant temperature operation cycle	min	0–360	30
P183	0x01B7	Parameter password setting		0–9999	998
P244	0x01F4	Target water flow in 35 low water temperature condition	L/min	0–100	40
P245	0x01F5	Target water flow under 55 high water temperature condi	L/min	0–100	25
P251	0x01FB	PFC shutdown current	A	0–50	9
P253	0x01FD	PFC turn-on current	A	0–50	10

4. Implementatie Prioriteiten voor Homey App

Fase 1 — Direct Toevoegen (🔵 hoge waarde)

Param	Adres	Waarom	Actie
P163	0x01A3	**Bug fix:** eenheid L/min → %	Corrigeer unit + naam in service
P255	0x01FF	Smart Grid aan/uit (0=enable, 1=disable)	Flow card + capability
P256	0x0200	Peak grid runtime (30–999 min)	Flow card + capability
P096	0x0160	Hot water hysterese (0–10°C)	Capability + expert mode

P108	0x016C	Hot water max temp (30–80°C)	Setpoint limiet
P109	0x016D	Hot water min temp (10–30°C)	Setpoint limiet
P110	0x016E	Heating max temp (30–80°C)	Setpoint limiet validatie
P111	0x016F	Heating min temp (15–30°C)	Setpoint limiet validatie
P116	0x0174	Temp control method: inlet vs outlet	Essentieel voor regeling
P254	0x01FE	Verwarmingsmedium: water vs antivries	Beïnvloedt berekeningen
P027	0x011B	Vloerverwarming hysterese (0–10°C)	Complement van P026
P028	0x011C	Pomp modus bij target temp bereikt	Pompregeling
P037	0x0125	Shutdown modus (intelligent/direct/hybrid)	Gedragsbepalend
P101	0x0165	Pomp modus: ON/OFF vs PWM	Pomptype detectie

Fase 2 — Monitoring & Diagnostiek (🟠 middel)

Param	Adres	Waarom
P030–P036	0x011E–0x0124	Defrost parameters — COP-impact monitoring
P134	0x0186	Flow te laag bescherming (L/min drempel)
P146	0x0192	Pomp bereik instelling (L/min)
P117–P118	0x0175–0x0176	Antivries drempels
P145	0x0191	Uitlaat antivries bescherming (°C)
P011–P016	0x010B–0x0110	Druk/temp beschermingswaarden (read monitoring)
P257	0x0201	Dual zone selectie

Fase 3 — Expert Mode (🟠 optioneel)

Groep	Params	Waarom
Compressor freq limieten	P050–P065	Tuning voor COP-optimalisatie
Fan control	P066–P070, P172–P173	Geluidsoptimalisatie
Defrost tuning	P138, P141–P144, P174–P178	Efficiency bij vorst
Valve tuning	P073–P087	EEV/EVI fijnregeling
Working conditions	P184–P253	OEM kalibratie (70 params) — ⚠ voorzichtig

---

5. Vergelijking met Eerdere Register Map Analyse

Wat de Excel bevestigt

- Alle 8 adressen in onze map zijn correct
- Range 0x0100–0x0206 bevat exact 263 parameters (P000–P262)
- Alle parameters zijn RW (Read/Write)
- Lineaire mapping: P-nummer + 0x0100 = Modbus adres

Wat de Excel toevoegt t.o.v. onze vorige analyse

- **Exacte naamgeving** in Engels én Duits voor alle 263 params
- **Live waarden** van 2 slaves — werkelijke configuratie
- **Bereikgrenzen** (min/max) voor elke parameter
- **Enum beschrijvingen** voor 48 parameters (bijv. P028 pomp modus opties)
- **Default waarden** uit de handleiding

Wat de Excel bevestigt over gaten in onze vorige analyse

- **0x0302 (hot water setpoint)** — Niet in deze Excel (die gaat P000–P262 = 0x0100–0x0206)
- De Excel bevat alleen het *parameter* blok (0x0100+). Status (0x0000), sensoren (0x0027–0x0058) en stuurregisters (0x0300+) zitten in andere blokken.
- Onze sensor- en stuurregisters zijn dus **niet door deze Excel gevalideerd** — die komen uit een ander documentdeel

---

6. Adresformule & Registerblokken

```
Parameter P(n) → Modbus adres = 0x0100 + n

Voorbeeld: P163 → 0x0100 + 163 = 0x0100 + 0xA3 = 0x01A3 ✓
```

Compleet registeroverzicht van de SolarEast controller:

Blok	Adresrange	Inhoud	Bron
Status	0x0000	Bitmask (10 status bits)	ESPHome YAML
Sensoren	0x0027–0x0058	Temperaturen, stroom, flow	ESPHome YAML
Parameters	**0x0100–0x0206**	**P000–P262 (263 params)**	**← Deze Excel**
Stuurregisters	0x0300–0x0316	Setpoints, mode, curves	ESPHome YAML