



# SMU ST series MODBUS RTU Memory Map Compatibility Table

rev. 1.2  
11 December 2020



# MEMORY MAP

Each board has the following memory map, it's made of 16 bits locations (1 word) called "REGISTER". Because each REGISTER is composed by 16 bits, its maximum value will be 65535.

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
			2 Bit 0 - Bit 1	4 Bit 0 - Bit 1 Bit 2 - Bit 3	2 Bit 0 - Bit 1	4 Bit 0 - Bit 1 Bit 2 - Bit 3	2 Bit 0 - Bit 1	4 Bit 0 - Bit 1 Bit 2 - Bit 3	2 Bit 0 - Bit 1	2 Bit 0 - Bit 1	4 Bit 0 - Bit 1 Bit 2 - Bit 3	2 Bit 0 - Bit 1
30001	RO	Inputs										
30002	RO	Inst Curr Str_01	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30003	RO	Inst Curr Str_02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30004	RO	Inst Curr Str_03	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30005	RO	Inst Curr Str_04	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30006	RO	Inst Curr Str_05	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30007	RO	Inst Curr Str_06	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30008	RO	Inst Curr Str_07	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30009	RO	Inst Curr Str_08	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30010	RO	Inst Curr Str_09	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
30011	RO	Inst Curr Str_10	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
30012	RO	Inst Curr Str_11	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
30013	RO	Inst Curr Str_12	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
30014	RO	Inst Curr Str_13	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
30015	RO	Inst Curr Str_14	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
30016	RO	Inst Curr Str_15	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
30017	RO	Inst Curr Str_16	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
30018	RO	Inst Curr Str_17	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
30019	RO	Inst Curr Str_18	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
30020	RO	Inst Curr Str_19	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
30021	RO	Inst Curr Str_20	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
30022	RO	Inst Curr Str_21	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
30023	RO	Inst Curr Str_22	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
30024	RO	Inst Curr Str_23	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
30025	RO	Inst Curr Str_24	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215	
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH	
30026	RO	Inst Curr Str_25	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30027	RO	Inst Curr Str_26	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30028	RO	Inst Curr Str_27	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30029	RO	Inst Curr Str_28	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30030	RO	Inst Curr Str_29	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30031	RO	Inst Curr Str_30	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30032	RO	Inst Curr Str_31	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30033	RO	Inst Curr Str_32	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30034	RO	Fuse status (Ch01...Ch16)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30035	RO	Fuse status (Ch17...Ch32)	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓
...													
30040	RO	Inst V_1 (V [0...1500])	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...													
30042	RO	Inst Aux 1 (0 ... 10 V) [0...1000]	Unused	✓	Unused	✓	Unused	✓	Unused	Unused	✓	Unused	Unused
30043	RO	Inst Aux 2 (0 ... 20 mA) [0...1000]	Unused	✓	Unused	✓	Unused	✓	Unused	Unused	✓	Unused	Unused

BOARDS		STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215	
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
30044	RO	Inst T_1 - PT100 (°C [-20...+120])	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30045	RO	Inst T_2 - on board (°C [-22,0...+83,0])	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
30047	RO	Sum of all currents (A / 10)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30048	RO	Power (W) - LSW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30049	RO	Power (W) - MSW	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
30052	RO	RMS Curr Str_01 (average value on last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30053	RO	RMS Curr Str_02 (average value on last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30054	RO	RMS Curr Str_03 (average value on last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30055	RO	RMS Curr Str_04 (average value on last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30056	RO	RMS Curr Str_05 (average value on last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30057	RO	RMS Curr Str_06 (average value on last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30058	RO	RMS Curr Str_07 (average value on last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30059	RO	RMS Curr Str_08 (average value on last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
30060	RO	RMS Curr Str_09 (average value on last 6 seconds)	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
30061	RO	RMS Curr Str_10 (average value on last 6 seconds)	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
30062	RO	RMS Curr Str_11 (average value on last 6 seconds)	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
30063	RO	RMS Curr Str_12 (average value on last 6 seconds)	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
30064	RO	RMS Curr Str_13 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
30065	RO	RMS Curr Str_14 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
30066	RO	RMS Curr Str_15 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
30067	RO	RMS Curr Str_16 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
30068	RO	RMS Curr Str_17 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
30069	RO	RMS Curr Str_18 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
30070	RO	RMS Curr Str_19 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
30071	RO	RMS Curr Str_20 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
30072	RO	RMS Curr Str_21 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
30073	RO	RMS Curr Str_22 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
30074	RO	RMS Curr Str_23 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
30075	RO	RMS Curr Str_24 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
30076	RO	RMS Curr Str_25 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30077	RO	RMS Curr Str_26 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30078	RO	RMS Curr Str_27 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30079	RO	RMS Curr Str_28 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30080	RO	RMS Curr Str_29 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30081	RO	RMS Curr Str_30 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30082	RO	RMS Curr Str_31 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30083	RO	RMS Curr Str_32 (average value on last 6 seconds)	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
30084	RO	RMS V_1 (V [0...1500]) (average last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
30086	RO	RMS Aux 1 (0 ... 10 V) (average last 6 seconds)	Unused	✓	Unused	✓	Unused	✓	Unused	Unused	✓	Unused
30087	RO	RMS Aux 2 (0 ... 20 mA) (average last 6 seconds)	Unused	✓	Unused	✓	Unused	✓	Unused	Unused	✓	Unused

BOARDS		STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215	
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
30088	RO	RMS Inst T_1 (°C) (average last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30089	RO	RMS Inst T_2 (°C) (average last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
30091	RO	RMS Sum of all currents (average last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30092	RO	RMS Power (W) - LSW (average last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30093	RO	RMS Power (W) - MSW (average last 6 seconds)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
30201	RO	Firmware Version	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30202	RO	SMU Model	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use
30203	RO	Channels Number	8	8	12	12	16	16	20	24	24	32
30204	RO	Shunt Type	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30205	RO	End Scale	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30206	RFU	Reserved for Future Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30207	RFU	Reserved for Future Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30208	RFU	Reserved for Future Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
30209	RFU	Reserved for Future Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30210	RFU	Reserved for Future Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30211	RO	Unique ID code [0]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30212	RO	Unique ID code [1]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30213	RO	Unique ID code [2]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30214	RO	Unique ID code [3]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30215	RO	Unique ID code [4]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
30216	RO	Unique ID code [5]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
40001	RW	Set up PARITY mode : 1: None; 2: Even; 3: Odd	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40002	RW	Offset Curr Str_01	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40003	RW	Offset Curr Str_02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40004	RW	Offset Curr Str_03	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40005	RW	Offset Curr Str_04	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
40006	RW	Offset Curr Str_05	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40007	RW	Offset Curr Str_06	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40008	RW	Offset Curr Str_07	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40009	RW	Offset Curr Str_08	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40010	RW	Offset Curr Str_09	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
40011	RW	Offset Curr Str_10	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
40012	RW	Offset Curr Str_11	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
40013	RW	Offset Curr Str_12	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
40014	RW	Offset Curr Str_13	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
40015	RW	Offset Curr Str_14	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
40016	RW	Offset Curr Str_15	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
40017	RW	Offset Curr Str_16	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
40018	RW	Offset Curr Str_17	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
40019	RW	Offset Curr Str_18	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
40020	RW	Offset Curr Str_19	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
40021	RW	Offset Curr Str_20	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
40022	RW	Offset Curr Str_21	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
40023	RW	Offset Curr Str_22	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
40024	RW	Offset Curr Str_23	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
40025	RW	Offset Curr Str_24	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
40026	RW	Offset Curr Str_25	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40027	RW	Offset Curr Str_26	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40028	RW	Offset Curr Str_27	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40029	RW	Offset Curr Str_28	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40030	RW	Offset Curr Str_29	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40031	RW	Offset Curr Str_30	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40032	RW	Offset Curr Str_31	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40033	RW	Offset Curr Str_32	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓

BOARDS		STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215	
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
40034	RW	Answer Delay (msec)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40035	RW	Time Com Active (1/10 sec.)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40036	RW	Parity (1 = None, 2 = Even, 3 = Odd) = 40001	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40037	RW	Fuse Threshold	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40038	RW	Reversing the sign of current (Ch01...Ch16)	ONLY STOHS	Unused	ONLY STOHS	Unused	ONLY STOHS	Unused	ONLY STOHS	ONLY STOHS	Unused	Unused
40039	RW	Reversing the sign of current (Ch17...Ch32)	Unused	Unused	Unused	Unused	Unused	Unused	ONLY STOHS	ONLY STOHS	Unused	Unused
40040	RW	Offset V_1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
40042	RW	Offset Aux_1	Unused	✓	Unused	✓	Unused	✓	Unused	Unused	✓	Unused
40043	RW	Offset Aux_2	Unused	✓	Unused	✓	Unused	✓	Unused	Unused	✓	Unused
40044	RW	Offset T_1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40045	RW	Offset T_2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
40052	RW	Gain Curr Str_1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40053	RW	Gain Curr Str_2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
40054	RW	Gain Curr Str_3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40055	RW	Gain Curr Str_4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40056	RW	Gain Curr Str_5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40057	RW	Gain Curr Str_6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40058	RW	Gain Curr Str_7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40059	RW	Gain Curr Str_8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40060	RW	Gain Curr Str_9	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
40061	RW	Gain Curr Str_10	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
40062	RW	Gain Curr Str_11	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
40063	RW	Gain Curr Str_12	Unused	Unused	✓	✓	✓	✓	✓	✓	✓	✓
40064	RW	Gain Curr Str_13	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
40065	RW	Gain Curr Str_14	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
40066	RW	Gain Curr Str_15	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓
40067	RW	Gain Curr Str_16	Unused	Unused	Unused	Unused	✓	✓	✓	✓	✓	✓

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
40068	RW	Gain Curr Str_17	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
40069	RW	Gain Curr Str_18	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
40070	RW	Gain Curr Str_19	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
40071	RW	Gain Curr Str_20	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓	✓
40072	RW	Gain Curr Str_21	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
40073	RW	Gain Curr Str_22	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
40074	RW	Gain Curr Str_23	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
40075	RW	Gain Curr Str_24	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓	✓	✓
40076	RW	Gain Curr Str_25	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40077	RW	Gain Curr Str_26	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40078	RW	Gain Curr Str_27	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40079	RW	Gain Curr Str_28	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40080	RW	Gain Curr Str_29	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40081	RW	Gain Curr Str_30	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓

BOARDS		STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215	
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
40082	RW	Gain Curr Str_31	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
40083	RW	Gain Curr Str_32	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused	✓
...												
40090	RW	Gain V_1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
40092	RW	Gain Aux_1	Unused	✓	Unused	✓	Unused	✓	Unused	Unused	✓	Unused
40093	RW	Gain Aux_2	Unused	✓	Unused	✓	Unused	✓	Unused	Unused	✓	Unused
40094	RW	Gain T_1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40095	RW	Gain T_2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
40101	RW	User Memory 01	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40102	RW	User Memory 02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40103	RW	User Memory 03	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40104	RW	User Memory 04	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40105	RW	User Memory 05	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

BOARDS			STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
40106	RW	User Memory 06	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40107	RW	User Memory 07	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40108	RW	User Memory 08	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
...												
40201	RO	Shunt Type (= 30204)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40202	RO	SMU Model (= 30202)	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use	Internal Use
40203	RO	Firmware Version = 30201	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40204	RO	Channels Number = 30203	8	8	12	12	16	16	20	24	24	32
40205	RO	End Scale (= 30205)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40206	RFU	Reserved for Future Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40207	RFU	Reserved for Future Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40208	RFU	Reserved for Future Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40209	RFU	Reserved for Future Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40210	RO	Unique ID code [0] (= 30211)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



BOARDS		STOHS 0825 STOHS 0845 STOHS 0860 STON 0825	ST2N 0840 ST2 0825	STOHS 1225 STOHS 1245 STOHS 1260 STON 1225	ST2N 1240 ST2 1225	STOHS 1625 STOHS 1645 STOHS 1660 STON 1625	ST2N 1635 ST2 1625	STOHS 2025 STOHS 2045 STOHS 2060 STON 2025	STOHS 2425 STOHS 2445 STOHS 2460 STON 2415	ST2N 2425	STON 3215	
MODBUS Register	TYPE	DESCRIPTION	8 CH		12 CH		16 CH		20 CH	24 CH		32 CH
40211	RO	Unique ID code [1] (= 30212)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40212	RO	Unique ID code [2] (= 30213)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40213	RO	Unique ID code [3] (= 30214)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40214	RO	Unique ID code [4] (= 30215)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
40215	RO	Unique ID code [5] (= 30216)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

### NOTES

- The cards with the OPTIC FIBER have the same memory map of the respective cards with the RS\_485.
- Each “Offset Register” has 0 as default value. Each “Gain Register” has 1000 as default value. *The value 1000 means x1*, in this way, for example, is possible write 500 and make the value x0,5.

### Memory Map Description

**30001** : the first two/four bits of these register are the mirror status of the two digital inputs on the board (INP0, INP1, INP2 and INP3 on CN4). So if 30001 = 0000000000000011 [bin] = 3 [dec], it means that two digital inputs are ON.

**30002 ... 30033** : these registers contains the current value of the current reading on each channel. It is in mA

**30034, 30035** : the sixteen bits of 30034 and the sixteen bits of 30035 show if each channel current reading is under 200 mA or not. This threshold represent the fuse status.

**30040 ... 30049** : these registers show the value of some readings as the temperatures (T1 and T2), voltage reading (on connector CN3) etc...

**30052 ... 30083** : these registers contains the average value on last 6 seconds of the current reading. Obviously these values are more stable than the instantaneous values show in registers 30002 ... 30033

**40001** : through this register is possible set the communication parity. The default value is zero, so “no parity”

**40002 ... 40033** : these are the offset registers. These registers (whose default value is 0) allow to add a constant value to the current reading. This allow to adjust a possible reading error. For example if 30002 show 2300 (it means that channel CH1 read 2,3A), writing 40002 = 200 the new value of the reading will be 30002 = 2500 (it means that channel CH1 read 2,5A).

**40052 ... 40083** : these are the gain registers. These registers (whose default value is 1000) allow to multiply a constant value to the current reading. This allow to adjust a possible reading error. For example if 30002 show 2300 (it means that channel CH1 read 2,3A), writing 40052 = 1500 the new value of the reading will be 30002 = 3450 (it means that channel CH1 read 3,45A,  $2300 \times 1,5 = 3450$ ).

**40101 ... 40108** : these are 8 registers available to the user. They can contain data useful to the customer, for example a different progressive number for each board.

**40201** : Shunt Type (= 30204) - READ ONLY

**40202** : SMU Model (= 30202) - READ ONLY

**40203** : Firmware Version (= 30201) - READ ONLY

**40204** : Channels Number (= 30203) - READ ONLY

**40205** : End Scale (= 30205) - READ ONLY

**40206 ... 40209** : Not Used - Reserved for Future Use (RFU)

**40210 ... 40215** : **Unique device ID register (96 bits)** (organized in six 16 bit words) that is unique for any board.  
(= 30211 ... 30216) - READ ONLY

The unique device identifier is ideally suited :

- for use as serial numbers (for example string serial numbers or other end applications).
- for use as part of the security keys in order to increase the security.

The 96-bit unique device identifier provides a reference number which is unique for any device and in any context. These bits cannot be altered by the user. The code is composed of the following parts :

UID [31:00] : X and Y coordinates on the wafer expressed in BCD format  
 UID [39:32] : WAF\_NUM [07:00] > Wafer number (8-bit unsigned number)  
 UID [63:40] : LOT\_NUM [23:00] > Lot number (ASCII encoded)  
 UID [95:64] : LOT\_NUM [55:24] > Lot number (ASCII encoded)

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