smartcontroller

Electrical Excellence

USER MANUAL

MODBUS PROTOCOL
SMART VEN 585

INPUT REGISTERS, FUNCTION CODE 04

ADDRESS (REGISTER)	INPUT REGISTER PARAMETER			MODBUS PROTOCOL START ADDRESS HEX			3 Ø	3 Ø	1 Ø
Address	Description	Length (bytes)	Data Format	Units	Hi Byte	Lo Byte	4 W	3 W	2 W
30001	Phase 1 line to neutral volts.	4	Float	V	00	00	√	X	√
30003	Phase 2 line to neutral volts.	4	Float	V	00	02	√	X	X
30005	Phase 3 line to neutral volts.	4	Float	V	00	04	√	X	X
30007	Phase 1 current.	4	Float	A	00	06	√	√	√
30009	Phase 2 current.	4	Float	A	00	08	√	√	X
30011	Phase 3 current.	4	Float	A	00	0A	√	√	X
30013	Phase 1 active power.	4	Float	W	00	0C	√	X	√
30015	Phase 2 active power.	4	Float	W	00	0E	√	X	X
30017	Phase 3 active power.	4	Float	W	00	10	√	X	X
30019	Phase 1 apparent power.	4	Float	VA	00	12	√	X	√
30021	Phase 2 apparent power.	4	Float	VA	00	14	√	X	X
30023	Phase 3 apparent power.	4	Float	VA	00	16	√	X	X
30025	Phase 1 reactive power.	4	Float	VAr	00	18	√	X	√
30027	Phase 2 reactive power.	4	Float	VAr	00	1A	√	X	X
30029	Phase 3 reactive power.	4	Float	VAr	00	1C	√	X	X
30031	Phase 1 power factor (1).	4	Float	None	00	1E	√	X	√
30033	Phase 2 power factor (1).	4	Float	None	00	20	√	X	X
30035	Phase 3 power factor (1).	4	Float	None	00	22	√	X	X
30037	Phase 1 phase angle.	4	Float	Degrees	00	24	√	X	√
30039	Phase 2 phase angle.	4	Float	Degrees	00	26	√	X	X
30041	Phase 3 phase angle.	4	Float	Degrees	00	28	√	X	X
30043	Average line to neutral volts.	4	Float	V	00	2A	√	X	X
30047	Average line current.	4	Float	A	00	2E	√	√	√
30049	Sum of line currents.	4	Float	A	00	30	√	√	√
30053	Total system power.	4	Float	W	00	34	√	√	√
30057	Total system volt amps.	4	Float	VA	00	38	√	√	√
30061	Total system VAr.	4	Float	VAr	00	3C	√	√	√
30063	Total system power factor (1).	4	Float	None	00	3E	√	√	√
30067	Total system phase angle.	4	Float	Degrees	00	42	√	√	√
30071	Frequency of supply voltages.	4	Float	Hz	00	46	√	√	√
30073	Import Wh since last reset.	4	Float	kWh	00	48	√	√	√
30075	Export Wh since last reset.	4	Float	kWH	00	4A	√	√	√
30077	Import VArh since last reset.	4	Float	kVArh	00	4C	√	√	√
30079	Export VArh since last reset.	4	Float	kVArh	00	4E	√	√	√
30081	VAh since last reset.	4	Float	kVAh	00	50	√	√	√

Address	Description	Length (bytes)	Data Format	Units	Hi Byte	Lo Byte	4 W	3 W	2 W
30083	Ah since last reset.	4	Float	Ah	00	52	√	√	√
30085	Total system power demand (2).	4	Float	W	00	54	√	√	√
30087	Maximum total system power demand (2).	4	Float	W	00	56	√	√	√
30089	Import active power demand	4	Float	W	00	58	√	√	√
30091	Import active power max. demand	4	Float	W	00	5A	√	√	√
30093	Export active power demand	4	Float	W	00	5C	√	√	√
30095	Export active power max. demand	4	Float	W	00	5E	√	√	√
30101	Total system VA demand.	4	Float	VA	00	64	√	√	√
30103	Maximum total system VA demand.	4	Float	VA	00	66	√	√	√
30105	Neutral current demand.	4	Float	Amps	00	68	√	X	X
30107	Maximum neutral current demand.	4	Float	Amps	00	6A	√	X	X
30109	Total system reactive power demand.(2)	4	Float	VAr	00	6C	√	X	√
30111	Maximum total system reactive	4	Float	VAr	00	6E	√	X	√
	power demand(2).								
30161	Voltage phase sequence	4	Float	None	00	A0	√	√	X
	(normal=1、reverse=2、Phase=3)								
30163	Current phase sequence	4	Float	None	00	A2	√	√	X
	(normal=1、reverse=2、Phase=3)								
30193	Nature of the load	4	Float	None	00	C0	√	√	√
	(Resistive =1、inductive =2、capacitive =3)								
30195	Nature of L1 load	4	Float	None	00	C2	√	√	√
	(Resistive =1、inductive =2、capacitive =3)								
30197	Nature of L2 load	4	Float	None	00	C4	√	√	X
	(Resistive =1、inductive =2、capacitive =3)								
30199	Nature of L3 load	4	Float	None	00	C6	√	√	X
	(Resistive =1、inductive =2、capacitive =3)								
30201	Line 1 to Line 2 volts.	4	Float	V	00	C8	√	√	X
30203	Line 2 to Line 3 volts.	4	Float	V	00	CA	√	√	X
30205	Line 3 to Line 1 volts.	4	Float	V	00	CC	√	√	X
30207	Average line to line volts.	4	Float	V	00	CE	√	√	X
30225	Neutral current.	4	Float	A	00	E0	√	X	X
30235	Phase 1 L/N volts THD	4	Float	%	00	EA	√	X	√
30237	Phase 2 L/N volts THD	4	Float	%	00	EC	√	X	X
30239	Phase 3 L/N volts THD	4	Float	%	00	EE	√	X	X
30241	Phase 1 Current THD	4	Float	%	00	F0	√	√	√
30243	Phase 2 Current THD	4	Float	%	00	F2	√	√	X
30245	Phase 3 Current THD	4	Float	%	00	F4	√	√	X

Address	Description	Length (bytes)	Data Format	Units	Hi Byte	Lo Byte	4 W	3 W	2 W
30249	Average line to neutral volts THD.	4	Float	%	00	F8	√	X	√
30251	Average line current THD.	4	Float	%	00	FA	√	√	√
30259	Phase 1 current demand.	4	Float	A	01	02	√	√	√
30261	Phase 2 current demand.	4	Float	A	01	04	√	√	X
30263	Phase 3 current demand.	4	Float	A	01	06	√	√	X
30265	Maximum phase 1 current demand.	4	Float	A	01	08	√	√	√
30267	Maximum phase 2 current demand.	4	Float	A	01	0A	√	√	X
30269	Maximum phase 3 current demand.	4	Float	A	01	0C	√	√	X
30335	Line 1 to line 2 volts THD.	4	Float	%	01	4E	√	√	X
30337	Line 2 to line 3 volts THD.	4	Float	%	01	50	√	√	X
30339	Line 3 to line 1 volts THD.	4	Float	%	01	52	√	√	X
30341	Average line to line volts THD.	4	Float	%	01	54	√	√	X
30343	Total kwh (3)	4	Float	kWh	01	56	√	√	√
30345	Total kvarh (3)	4	Float	kVArh	01	58	√	√	√
30347	L1 import kwh	4	Float	kWh	01	5A	√	√	√
30349	L2 import kwh	4	Float	kWh	01	5C	√	√	X
30351	L3 import kWh	4	Float	kWh	01	5E	√	√	X
30353	L1 export kWh	4	Float	kWh	01	60	√	√	√
30355	L2 export kwh	4	Float	kWh	01	62	√	√	X
30357	L3 export kWh	4	Float	kWh	01	64	√	√	X
30359	L1 total kwh	4	Float	kWh	01	66	√	√	√
30361	L2 total kWh	4	Float	kWh	01	68	√	√	X
30363	L3 total kwh	4	Float	kWh	01	6A	√	√	X
30365	L1 import kvarh	4	Float	kVArh	01	6C	√	√	√
30367	L2 import kvarh	4	Float	kVArh	01	6E	√	√	X
30369	L3 import kvarh	4	Float	kVArh	01	70	√	√	X
30371	L1 export kvarh	4	Float	kVArh	01	72	√	√	√
30373	L2 export kvarh	4	Float	kVArh	01	74	√	√	X
30375	L3 export kvarh	4	Float	kVArh	01	76	√	√	X
30377	L1 total kvarh	4	Float	kVArh	01	78	√	√	√
30379	L2 total kvarh	4	Float	kVArh	01	7A	√	√	X
30381	L3 total kvarh	4	Float	kVArh	01	7C	√	√	X
	Harmonic（30403~31157）								
30403	Voltage 2st~63st Harmonic L1	248	Float	%	01	92	√	√	√
30527	Voltage 2st~63st Harmonic L2	248	Float	%	02	0E	√	√	X
30651	Voltage 2st~63st Harmonic L3	248	Float	%	02	8A	√	√	X
30775	Current 2st~63st Harmonic L1	248	Float	%	03	06	√	√	√

30899	Current 2st~63st Harmonic L2	248	Float	%	03	82	√	√	X
31023	Current 2st~63st Harmonic L3	248	Float	%	03	FE	√	√	X
31147	Voltage Total Harmonic L1	4	Float	%	04	7A	√	√	√
31149	Voltage Total Harmonic L2	4	Float	%	04	7C	√	√	X
31151	Voltage Total Harmonic L3	4	Float	%	04	7E	√	√	X
31153	Current Total Harmonic L1	4	Float	%	04	80	√	√	√
31155	Current Total Harmonic L2	4	Float	%	04	82	√	√	X
31157	Current Total Harmonic L3	4	Float	%	04	84	√	√	X
	Max & Min (32673~32739)								
32673	Maximumvalue of phase 1current	4	Float	A	0A	70	√	√	√
32675	Maximumvalue of phase 2 current	4	Float	A	0A	72	√	√	X
32677	Maximumvalue of phase 3 current	4	Float	A	0A	74	√	√	X
32679	Maximumvalue of neutralcurrent	4	Float	A	0A	76	√	√	√
32681	Maximum value of total currents	4	Float	A	0A	78	√	√	X
32683	Maximum value of phase	4	Float	V	0A	7A	√	√	X
	1 line to neutral voltage								
32685	Maximum value ofphase	4	Float	V	0A	7C	√	√	X
	2 line to neutral voltage								
32687	Maximum value ofphase	4	Float	V	0A	7E	√	√	√
	3 line to neutral voltage								
32689	Maximum value ofline 1 to line 2 voltage	4	Float	V	0A	80	√	√	X
32691	Maximum value ofline 2 to line3 voltage	4	Float	V	0A	82	√	√	X
32693	Maximum value ofline 3 to line 1 voltage	4	Float	A	0A	84	√	X	X
32719	Minimum value of phase 1 current	4	Float	A	0A	9E	√	√	√
32721	Minimum value of phase 2 current	4	Float	A	0A	A0	√	√	X
32723	Minimum value of phase 3 current	4	Float	A	0A	A2	√	√	X
32725	Minimum value of neutral current	4	Float	A	0A	A4	√	√	X
32727	Minimum value of total currents	4	Float	V	0A	A6	√	√	√
32729	Minimum value ofphase	4	Float	V	0A	A8	√	√	X
	1 line to neutral voltage								
32731	Minimum value ofphase	4	Float	V	0A	AA	√	√	X
	2 line to neutral voltage								
32733	Minimum value of phase	4	Float	V	0A	AC	√	√	√
	3 line to neutral voltage								
32735	Minimum value ofline 1 to line 2 voltage	4	Float	V	0A	AE	√	√	X
32737	Minimum value ofline 2 to line3 voltage	4	Float	V	0A	B0	√	√	X
32739	Minimum value ofline 3 to line 1 voltage	4	Float	V	0A	B2	√	X	X

Notes:

1. The power factor has its sign adjusted to indicate the direction of the current. Positive refers to forward current, negative refers to reverse current.
2. The power sum demand calculation is for import – export.
3. Total kWh / kVarh equals to Import + export.

HOLDING REGISTER, FUNCTION CODE 03 / 10

Address Register	Parameter Number	Parameter	Modbus Protocol Start Address Hex		Valid Range	Mode
			High Byte	Low Byte		
40001	1	Demand Time	00	00	Read minutes into first demand calculation. When the Demand Time reaches the Demand Period then the demand values are valid. Length: 4 byte Data Format: Float	ro
40003	2	Demand Period	00	02	Write demand period: 0~60 minutes. Default 60. Setting the period to 0 will cause the "Phase # current demand" parameters to show the "Phase # current values"; and "Max. phase # current demand" to show the maximum value of the "Phase # current" parameter since last demand reset. Length : 4 byte Data Format : Float	r/w
40005	3	Slide time	00	02	Default 1, min. Range：1 ~ (Demand Period -1). Length : 4 byte Data Format : Float	r/w
40007	3	Demand Calculation Method	00	06	Default 0, 0 = Slide time 1 = Fixed time Length : 4 byte Data Format : Float	r/w
40011	6	System Type	00	0A	Write system type: 3p4w = 3, 3p3w = 2 & 1p2w= 1 Default, 3 Length : 4 byte Data Format : Float (KPPA is asked)	r/w
40013	7	Pulse 1 Width	00	0C	Write pulse on period in Milliseconds: 60, 100 or 200, default 200 Length : 4 byte Data Format : Float	r/w

Address Register	Parameter Number	Parameter	Modbus Protocol Start Address Hex		Valid Range	Mode
			High Byte	Low Byte		
40015	8	Key Parameter Programming Authorization (KPPA)	00	0E	Read: to get the status of the KPPA 0= not authorized；1 = authorized Write the correct password to get KPPA, enable to program key parameters. Length : 4 byte Data Format : Float	r/w
40019	10	Parity and Stop bits	00	12	Write the network port parity/stop bits for MODBUS Protocol, where: 0 = One stop bit and no parity, default. 1 = One stop bit and even parity. 2 = One stop bit and odd parity. 3 = Two stop bits and no parity. Length : 4 byte Data Format : Float	r/w
40021	11	Modbus Address	00	14	Write the network port node Address: 1 to 247 for MODBUS Protocol, default 1. Length : 4 byte Data Format : Float	r/w
40023	12	Pulse 1 Rate	00	16	Write pulse rate index: n = 0 to 6 0-0.001 kwh/imp, (default) 1-0.01kwh/imp 2-0.1kwh/imp 3-1kwh/imp 4-10kwh/imp 5-100kwh/imp 6-1000kwh/imp Length : 4 byte Data Format : Float	r/w
40025	13	Password	00	18	Read: to get the password of the meter Write: to program the new password of the meter Default 1000 Length : 4 byte Data Format : Float	r/w
40029	15	Network Baud Rate	00	1C	Write the network port baud rate for MODBUS Protocol, where: 0 = 2400 baud. 1 = 4800 baud. 2 = 9600 baud, (default) 3 = 19200 baud. 4 = 38400 baud Length : 4 byte Data Format : Float	r/w

Address Register	Parameter Number	Parameter	Modbus Protocol Start Address Hex		Valid Range	Mode
			High Byte	Low Byte		
40047	24	PT1	00	2E	PT1 Range 100- 500000V, Default 400 Length : 4 byte Data Format : Float (KPPA is asked)	r/w
40049	25	PT2	00	30	PT2 Range 100- 480V, Default 400 Length : 4 byte Data Format : Float (KPPA is asked)	r/w
40051	26	CT1	00	32	CT1 Range 1-9999A, Default 5, Length : 4 byte Data Format : Float (KPPA is asked)	r/w
40053	27	CT2	00	34	CT2 Default 5A Range: 1A or 5A Length : 4 byte Data Format : Float (KPPA is asked)	r/w
40057	29	Current Direction correction（when the external CT is connected reversely）	00	38	Default0 0 = A Frd, B Frd, C Frd 1 = A Rev, B Frd , C Frd 2 = A Frd , B Rev, C Frd 3 = A Rev, B Rev, C Frd 4 = A Frd , B Frd , C Rev 5 = A Rev, B Frd , C Rev 6 = A Frd , B Rev , C Rev 7 = A Rev , B Rev , C Rev Length : 4 byte Data Format : Float (KPPA is asked)	r/w
40059	30	Automatic Scroll Display Time	00	3A	Default 5, second Range 1~255 Length : 4 byte Data Format : Float	r/w

Address Register	Parameter Number	Parameter	Modbus Protocol Start Address Hex		Valid Range	Mode
			High Byte	Low Byte		
40061	31	Backlit time	00	3C	Default 0, min Range 0~120, 0 means backlit always on Length : 4 byte Data Format : Float	r/w
40087	44	Pulse 1 Energy Type	00	56	Write MODBUS Protocol input parameter for pulse output 1 1: import active energy 2: total active energy 4: export active energy 5: import reactive energy 6: total reactive energy 8: export reactive energy Length : 4 byte Data Format : Float	r/w
461445	30723	Running time	00	14	Day-hour-minute, day = 2byte;hour = 1byte; minute=1byte Length : 4 byte Data Format:BCD Explame: 04 23 21 57means: Running time=423 day + 21 hour + 57 min Write: Only allow write 00 00 00 00, which means clearing the running time	r/w
461457	30729	Reset	F0	10	00 00：reset Demand Information 00 03：reset Energy Informaiton（Non Mid） 00 04：reset Max And Min Information Length : 2 byte Data Format:Hex	wo
464513	32257	Serial Number	FC	00	Serial Number Length : 4 byte Data Format : unsigned int32 Note: Only read	ro

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