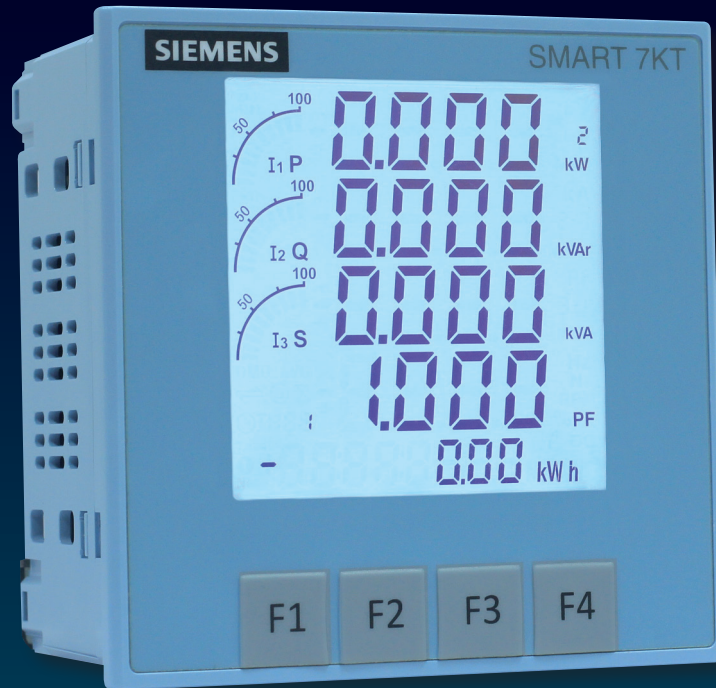




MANUAL

SMART 7KT

Multifunction meter

7KT0310

SMART 7KT power monitoring devices

SIEMENS

Index

SMART 7KT
Multifunction meter
7KT0310

Manual

1.	Introduction	3
2.	Safety precautions	4
3.	Technical specification	5
4.	Installation	7
5.	Connection	9
6.	Configuration	10
7.	Communication	14
8.	Maintenance	19

Introduction

1

1.1 Purpose of this document

This present manual describes the SMART 7KT multifunction meter.

It is intended for the use of:

- Planners
- Plant operators
- Commissioning engineers
- Service and maintenance personnel

1.2 Required basic knowledge

A general knowledge of the field of electrical engineering is required to understand this manual.

Knowledge of the relevant safety regulations and standards is required for installing and connecting the device.

1.3 Components of the product

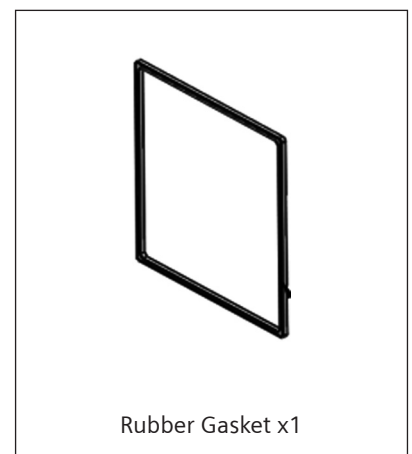
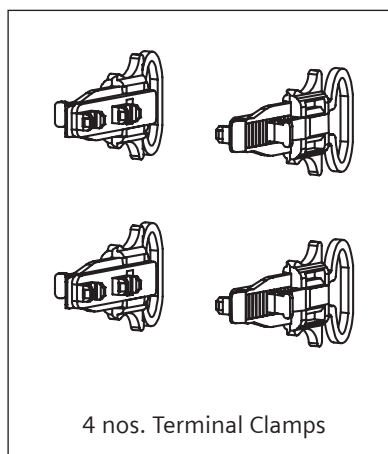
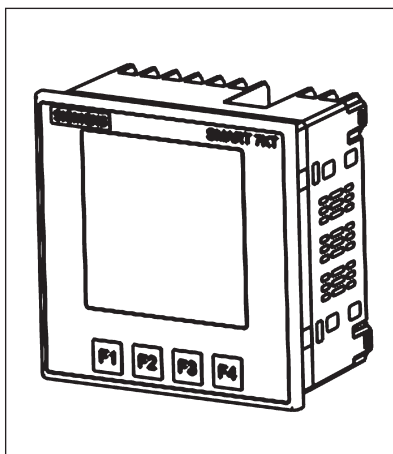
The carton for the products contain

1 SMART 7KT meter

1 set of clamps (4 clamps) for mounting the meter on the panel door

1 Gasket

1 Operating instruction



Safety precautions

2

Please read and understand these instructions before installing, operating, or maintaining the equipment.



DANGER

Hazardous voltage. Will cause death or serious injury. Turn off and lock out all power supply to this device before working on this device.

Replace all covers before power supplying this device is turned on.

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument. If the equipment is not used in a manner specified by the manufacturer it might impair the protection provided by the equipment.

Do not use the equipment if there is any mechanical damage.

Ensure that the equipment is supplied with correct voltage.



CAUTION:

1. Read complete instructions prior to installation and operation of the unit.
2. Risk of electric shock.
3. The equipment in its installed state must not come in close proximity to any heating sources, oils, steam, caustic vapors or other unwanted process by products.

Technical specification

3

Display	
Type and specifics	• Large backlit Liquid Crystal display • 4 Lines with 4 digits each to show measured values • 5th Line with 8 digits to show energy values • Graph for current loading indication
Size of display (mm x mm)	60.3 mm x 60.3 mm
LCD Indications	I Integration of energy PRG Unit is in configuration menu  Communication in progress MAX DMD Maximum and Minimum Demand Power
Display update time	1 sec. for all parameters
Display scrolling	Automatic or Manual (Programmable)
Password protected	Yes
Wiring input	3 Ø - 4 wire, 3 Ø - 3 wire, 1 Ø - 2 wire
Measuring inputs	
Rated input voltage	11 to 300V AC (L-N); 19 to 519V AC (L-L); Installation Category III (600V)
Frequency range	45-65 Hz
Rated input current	Nominal 1A / 5A AC (Min-11mA , Max-6A for 5A)
Auxiliary supply	95V to 240V AC, ±10%, 50/60Hz (±5%)
Memory (behaviour in the event of power failure)	Retains all energy values, On hours counter value and configuration settings in case of power failure
CT/PT Settings	
CT Type	Measurement C.T, FS 10
CT Primary	1A / 5A to 10,000A (Programmable for any Value) • 1A to 10,000A when CT secondary is 1 • 5A to 10,000A when CT secondary is 5
CT Secondary	1A or 5A (Programmable)
Burden	0.5 VA@5A per phase
PT Primary	100V to 500kV (Programmable for any value)
PT Secondary	100V to 500V AC (L-L) (Programmable for any value)
Power consumption	Less than 8VA
Environmental conditions	• Temperature (Operating): -10°C to 55°C • Temperature (Storage): -20°C to 75°C • Humidity: Up to 85% non-condensing • Altitude: of up to 2000 meters • Indoor use • Pollution degree II
Mounting	Panel-door mounting
Protection Class	II
Degree of protection according to IEC 60529	Front: IP 65 (when mounted on the panel door) Rear: IP20
Overvoltage Category	III
Dimensions and weight	L x B x D: 96 x 96 x 55 mm Weight: 360 gms
Digital Input	
Number	1
Input voltage	Maximum input voltage: 28 V DC Switching threshold for signal "1" >__ V DC
Input current	For signal "1": typ __mA

Measured variables

Measured variable	On display	On communication
Voltage V_{L-N} , V_{L-L}	•	•
Current	•	•
Neutral current	•	•
Frequency	•	•
Power factor	•	•
Active power	•	•
Reactive power	•	•
Apparent power	•	•
Active energy (Import, Export, Total)	•	•
Reactive energy (Import, Export, Total)	•	•
Apparent energy	•	•
Max demand (current) over set demand period	•	•
Max demand (active, reactive and apparent power) over set demand period	•	•
Phase angle of 3 phases	•	—
THD% (Current)	•	•
THD% (Voltage)	•	•
Individual harmonics (Current)	—	•
Individual harmonics (Voltage)	—	•

—: Not there

•: Available

Measuring accuracy

Measured variable	Error limits
Voltage V_{L-N}	0.5% of Full scale (300V AC)
Voltage V_{L-L}	Full scale 0.5%
Current	Phase Current: 0.5% of full scale Neutral current: 1% of full scale
Frequency	0.1% For L-N Voltage >20V, For L-L Voltage >35V
Power factor	0.01 Digit
Active power	1%
Reactive power	1%
Apparent power	1%
Active energy	Class 1 (as per IEC 62053-21)
Reactive energy	Class 2 (as per IEC 62053-23)
Apparent energy	1%
Phase angle of 3 phases	1%
THD (Current)	1%
THD (Voltage)	1%
Harmonics (Current)	1%
Harmonics (Voltage)	1%

When measuring on external current transformers or voltage transformers, the accuracy of the measurement depends on the quality of the transformer.

IEC Standards

Description	Standard
Energy accuracy	IEC 62053-21 Active energy
EMC requirements	IEC 61326-1: 2012
Degree of protection test (IP)	IEC 60529
Safety requirements	IEC 61010-1:2010 and IEC 61010-2-030:2010
Vibration and mechanical shock	IEC 62052-11

Certifications

SMART 7KT multifunction meter conforms to IEC standards, IPC electronics assembly standard and



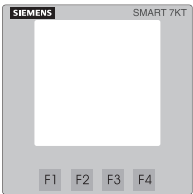
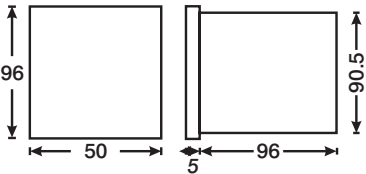
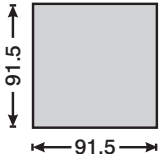
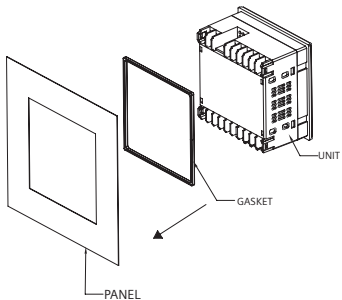
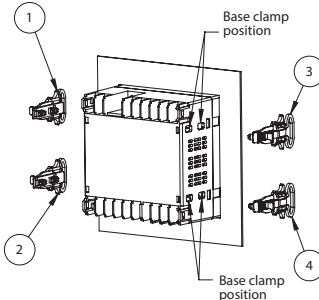
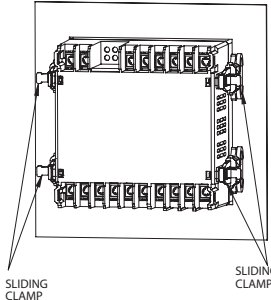
Assembly

4

Installation

For installing the meter

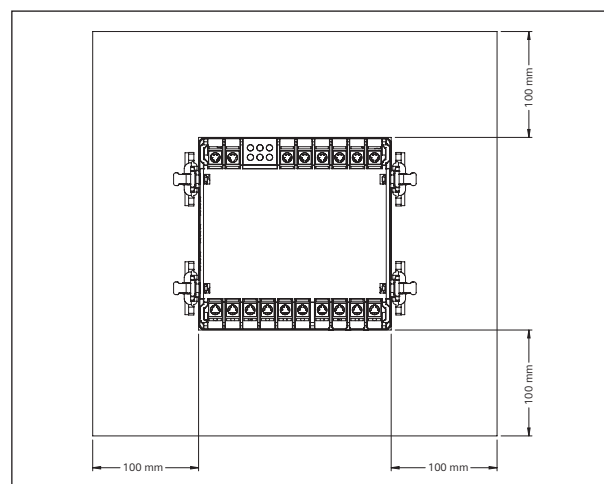
Prepare the panel cutout with proper dimensions as shown below.

 FRONT PANEL DESCRIPTION	OUTLINE Dimensions (in mm)	PANEL CUTOUT Dimensions (in mm)
		
1. Insert unit into the panel 	2. Position the clamps (as shown in the figure) and push the same into the slots in their respective locations. 	3. Push/Slide all 4 clamps towards the panel evenly till the lowest possible tooth of the clamp is engaged. Ensure the meter is properly tightened and it does not move. 

Note: Terminal screw tightening torque: 0.7 N-m to 0.8 N-m (6 In-Lb to 7 In-Lb)

Mounting distance

The distance to be maintained between two meters while mounting on a panel door should be at least 100 mm.



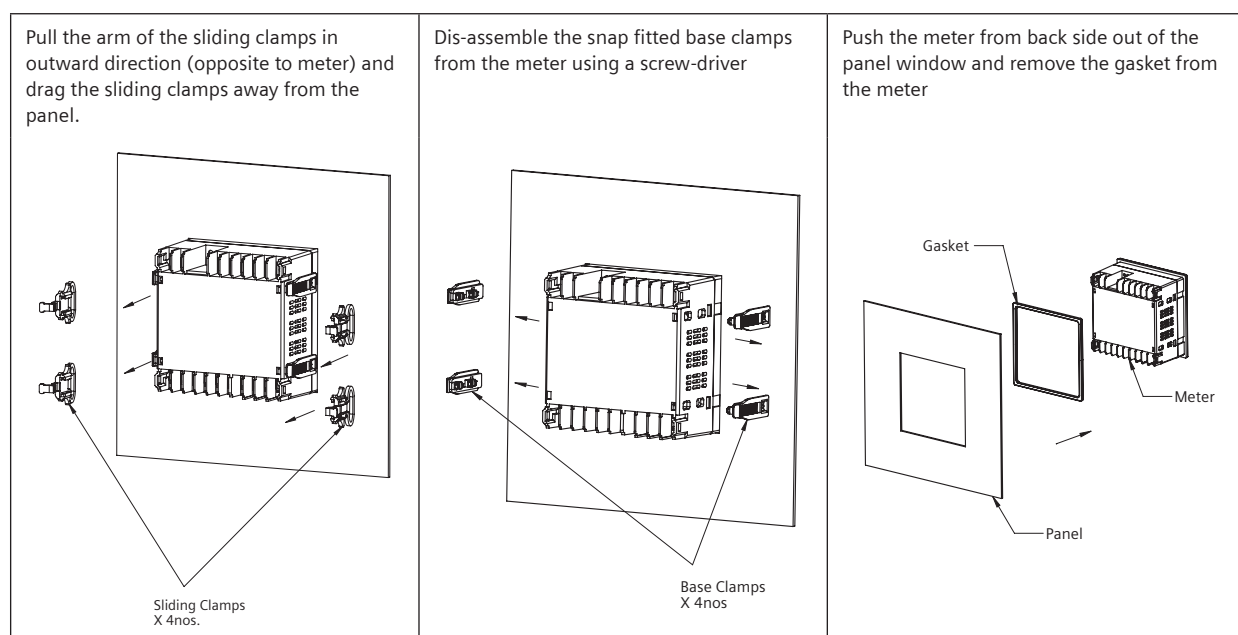
Installation Guidelines

1. This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
2. Conductors must not come in contact with the internal circuitry of the equipment or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
3. Circuit breaker or mains switch must be installed between power source and supply terminals to facilitate power 'ON' or 'OFF' function. However this switch or breaker must be installed in a convenient position normally accessible to the operator.
4. Before disconnecting the secondary of the external current transformer from the equipment, make sure that the current transformer is short circuited to avoid risk of electrical shock and injury.
5. The equipment shall not be installed in environmental conditions other than those mentioned in this manual.
6. The equipment does not have a built-in-type fuse. Installation of external fuse of rating 275V AC / 0.5Amp for electrical circuitry is highly recommended.
7. Remove the scratch-guard from the meter display during commissioning of the panel.

Wiring Guidelines

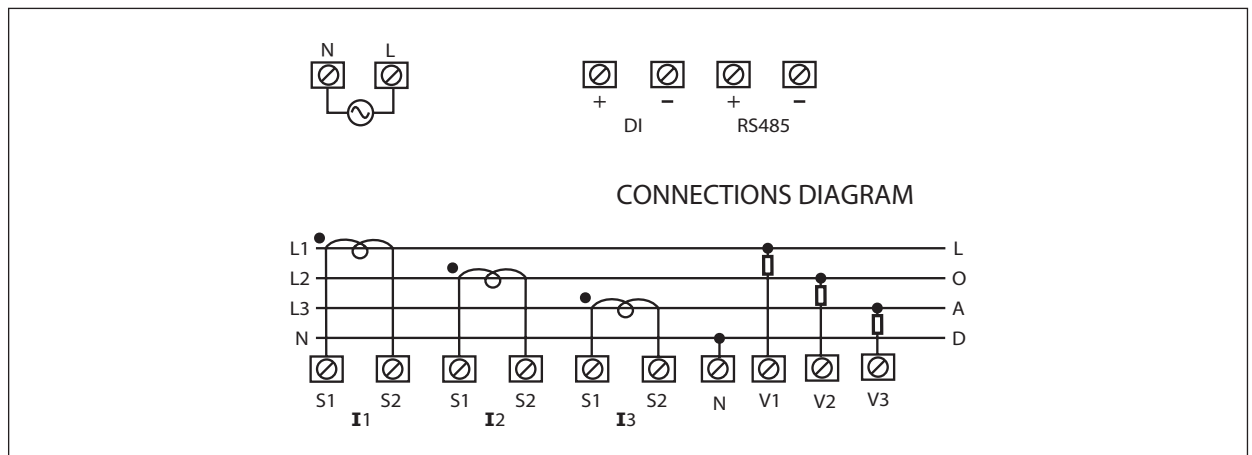
1. To prevent the risk of electric shock, power supply to the equipment must be kept OFF while doing the wiring arrangement.
2. Wiring shall be done strictly according to the terminal layout. Confirm that all connections are correct.
3. Use lugged terminals.
4. To reduce electromagnetic interference use of wires with adequate ratings and twists of the same in equal size shall be made with shortest connections.
5. Layout of connecting cables shall be away from any internal EMI source.
6. Cable used for connection to power source, must have a cross-section of 1mm² to 2.5mm². These wires shall have current carrying capacity of 6A.
7. Copper cable should be used (Stranded or Single core cable).

For demounting the meter



Connection

5

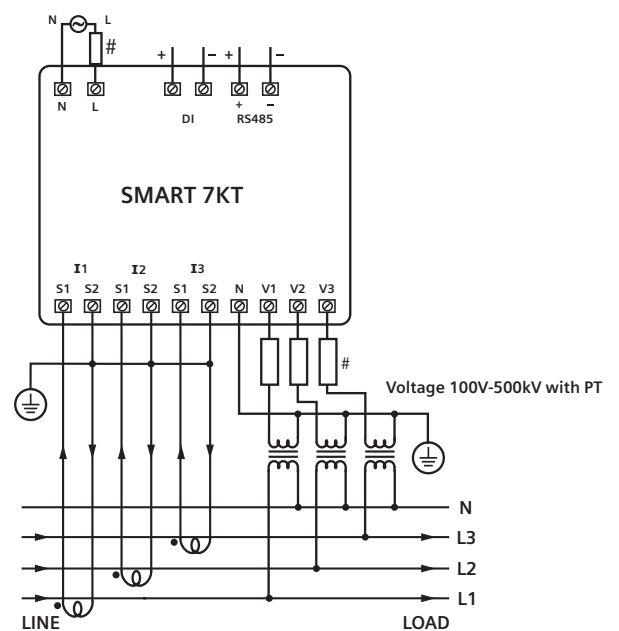
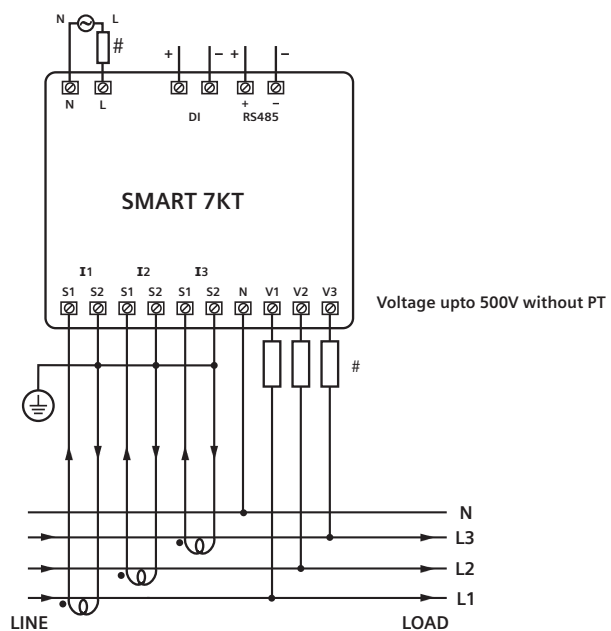


Circuit Diagram

3 Phase 4-Wire (commonly used)

3 Ø - 4 Wire, 3 CT'S

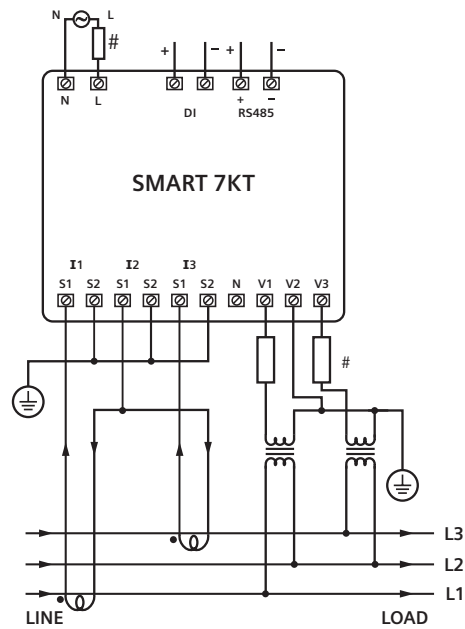
3 Ø - 4 Wire, 3 CT'S and 3 PT'S



Circuit Diagram (Continued)

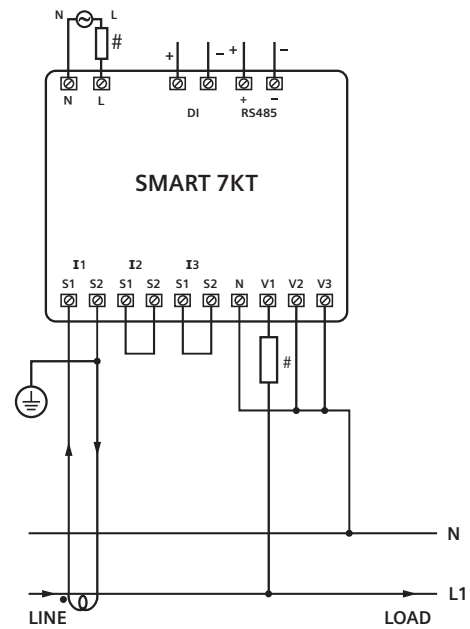
3 Phase 3-Wire

3 Ø - 3 Wire, 2CTs and 2PTs



1 Phase 2-Wire

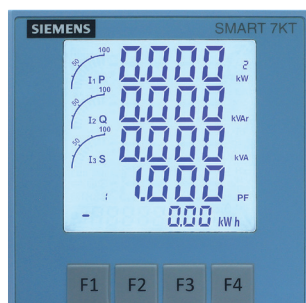
1 Ø - 2 Wire, 1 CT



All Fuse Type: 0.5A, Class gG

Configuration

6



There are 4 dedicated keys labelled as F1, F2, F3, F4. Use these 4 keys to read meter parameters. Simply press these keys to read the parameters.

The keys have multiple assignments. Function assignments and key labeling change according to the context of operator input.

A short press on the key triggers the function once. Holding the key down for longer switches on the autorepeat function after approximately 1 s. The function of the key is triggered repeatedly while the key is held down. Autorepeat is useful, for example, for fast incrementing of values when parameterizing the device.

For reading serial number

Press F3 key for 5 sec. to display 8-digit serial number only for 5 sec. at 5th line of display

Automatic / manual mode

Press F4 key for 3 seconds to toggle between Automatic and Manual mode.

Note: By default, unit operates in automatic mode.

In automatic mode online pages scroll automatically at the rate of 5 seconds per page.

In automatic mode when any key is pressed, unit temporarily switches to manual mode and the appropriate page is displayed. If any key is not pressed for 5 sec, unit resumes automatic mode.

Password to start configuration

When the meter is brought into the configuration mode by pressing keys F3+F4, the first page that is displayed is the password page which shows the password 0000. Enter the password 1000 which is the default factor-set password by pressing the F1 key to move cursor left or right by one digit at a time and F2 or F3 keys for increasing or decreasing parameter values. After you enter the password of 1000, press F4 key to go to the next page which is the password change page and continue with parameterization.

For the configuration setting mode

Press F3 + F4 keys for 3 seconds to enter or exit from the Configuration menu.

Use F1 key to move cursor left or right by one digit at a time

Use F2 or F3 keys for increasing or decreasing parameter values

Press F2+F4 key to go back to previous page

Parameterization with function keys

Config. page	Function	Range or Selection	Factory Setting
	Password	0000 to 9998	1000
1	Change Password	No / Yes	No
1.1	New Password	0000 to 9998	1000
2	Network Selection	3P4W, 3P3W, 1P2W-P1, 1P2W-P2 and 1P2W-P3	3P4W
3	CT Secondary	1A or 5A	5
4	Ct Primary	1A, 5A to 10,000A	5
5	Pt Secondary	100V to 500V	350
6	Pt primary	100V to 500kV	350
7	Slave Id	1 to 255	1
8	Baud Rate	300, 600, 1200, 2400, 4800, 9600 and 19200 (bps)	9600
9	Parity	None, Odd, Even	None
10	Stop Bit	1 or 2	1
11	Back Light	0 to 7200 sec.	0000
12	Demand interval method	Sliding / Fixed	Sliding
13	Demand interval duration	1 to 30	15
14	Demand interval length	1 to 30 min	1
15	Max Page Auto	1 to 22	22
16	Change Page Sequence	No / Yes	No
16.01	Page sequence 1	1 to 22	1
16.02	Page sequence 2	1 to 22	2
16.03	Page sequence 3	1 to 22	3
16.04	Page sequence 4	1 to 22	4
16.05	Page sequence 5	1 to 22	5
16.06	Page sequence 6	1 to 22	6
16.07	Page sequence 7	1 to 22	7
16.08	Page sequence 8	1 to 22	8
16.09	Page sequence 9	1 to 22	9
16.10	Page sequence 10	1 to 22	10

Config. page	Function	Range or Selection	Factory Setting
16.11	Page sequence 11	1 to 22	11
16.12	Page sequence 12	1 to 22	12
16.13	Page sequence 13	1 to 22	13
16.14	Page sequence 14	1 to 22	14
16.15	Page sequence 15	1 to 22	15
16.16	Page sequence 16	1 to 22	16
16.17	Page sequence 17	1 to 22	17
16.18	Page sequence 18	1 to 22	18
16.19	Page sequence 19	1 to 22	19
16.20	Page sequence 20	1 to 22	20
16.21	Page sequence 21	1 to 22	21
16.22	Page sequence 22	1 to 22	22
17	Factory default	No / Yes	No
18	Reset energy and MAX demand	No / Yes	No
18.1	Password	0001 to 9999	1001
18.01 ¹⁾	Reset active energy	No / Yes	No
18.02	Reset reactive energy	No / Yes	No
18.03	Reset apparent energy	No / Yes	No
18.04	Reset MAX	No / Yes	No
18.05	Reset ON hour	No / Yes	No

NETWORK SELECTION and WIRING INPUT

Network selection in configuration mode	Wiring
3P4W	3P4W, 2P3W
3P3W	3P3W
1P2W (P1/P2/P3)	1P2W (P1/P2/P3)

Note: P1, P2 and P3 are Three Phase.

1) For resetting energy parameters user will be prompted the password. If correct password is entered, the user will be able to reset all energy parameters. This password will be value which will be greater than the configuration password by 1.

Reading of parameters

Key Press	Screen number	Description
Press F1 to navigate to each screen	1	Displays line to neutral voltage of three phase and average line to neutral voltage.
	2	Displays line to line voltage of three phase and average line to line voltage.
	3	Displays total percentage harmonics of line to neutral voltage of three phase and average line to neutral voltage.
	4	Displays total percentage harmonics of line-to-line voltage of three phase and average line to line voltage.
	5	Displays phase current of three phase and neutral current.
	6	Displays phase maximum current demand of three phase and average current.
	7	Displays total percentage harmonic of current of three phase and average phase current.
Note: 1) For 3 Ø 3 wire system, only second, fourth, fifth, sixth and seventh screens will be available. Displays average current instead of neutral current on screen number 5. 2) For 1 Ø 2 wire system, only first, third, fifth sixth and seventh screens will be available.		
Press F2 to navigate to each screen	1	Displays voltage, current, power factor of first phase and frequency.
	2	Displays voltage, current, power factor of second phase and frequency.
	3	Displays voltage, current, power factor of third phase and frequency.
	4	Displays average value of voltage, current and power factor of three phase and frequency.
Note: 1) For 3 Ø 3 wire system, voltage, current, power factor and frequency will be line to line. 2) For 1 Ø 2 wire system, only first, third, fifth sixth and seventh screens will be available.		
Press F3 to navigate to each screen	1	Displays power factor of three phase and average power factor.
	2	Displays phase angle of three phase and average angle
	3	Displays active power of three phase and total active power.
	4	Displays reactive power of three phase and total reactive power.
	5	Displays apparent power of three phase and total apparent power.
	6	Displays active, reactive, apparent power and power factor of first phase.
	7	Displays active, reactive, apparent power and power factor of second phase.
	8	Displays active, reactive, apparent power and power factor of third phase.
	9	Displays total active, reactive, apparent power and average power factor of three phase.
	10	Displays maximum active power demand, reactive power demand and apparent power demand.
	11	Displays minimum active power demand and reactive power demand.
Note: 1) For 3 Ø 3 wire system, only average power factor and average angle will be available on screen number 2. 2) For 3 Ø 3 wire system only ninth, tenth and eleventh screen will be available. 3) In 1Ø 2 wire system only first, second, third, fourth, fifth, sixth, ninth, tenth, eleventh screen will be displayed.		

Reading of parameters (Continued)

Key Press	Screen number	Description
Press F4 to navigate to each screen. The energy values will be visible on the 5th line of the screen	1	Displays import active energy of first phase.
	2	Displays import active energy of second phase.
	3	Displays import active energy of third phase.
	4	Displays export active energy of first phase.
	5	Displays export active energy of second phase.
	6	Displays export active energy of third phase.
	7	Displays total import active energy of three phase.
	8	Displays total export active energy of three phase.
	9	Displays total net active energy of three phase.
	10	Displays import reactive energy of first phase.
	11	Displays import reactive energy of second phase.
	12	Displays import reactive energy of third phase.
	13	Displays export reactive energy of first phase.
	14	Displays export reactive energy of second phase.
	15	Displays export reactive energy of third phase.
	16	Displays total import reactive energy of three phase.
	17	Displays total export reactive energy of three phase.
	18	Displays total net reactive energy of three phase.
	19	Displays apparent energy of first phase.
	20	Displays apparent energy of second phase.
	21	Displays apparent energy of third phase.
	22	Displays total net apparent energy of three phase.
	23	Displays ON hour
Note: 1) For 3 Ø 3 wire system only seventh, eighth, ninth, sixteenth, seventeenth, eighteenth, twenty second and twenty third screens will be available. 2) In 1Ø 2 wire system first, fourth, seventh, eighth, ninth, tenth, thirteenth, sixteenth, seventeenth, eighteenth, nineteenth, twenty second and twenty third screens will be available.		

Communication

7

Protocol and interface

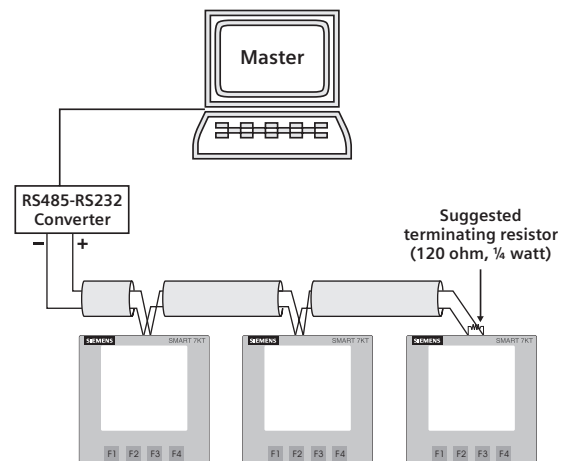
Protocol: Modbus RTU

Interface: Integrated RS485 interface

Communication parameters

Communication address	1 to 255
Transmission mode	Half duplex
Data types	Float and Integer
Transmission distance	500m maximum
Transmission Speed	300, 600, 1200, 2400, 4800, 9600, 19200 (in bps)
Parity	None, Odd, Even
Stop bits	1 or 2
Response Time	100ms Max & Independent, at Baud rate

Connection diagram for communication



Contact sales for PC based monitoring software to communicate with the meters.

Modbus register addresses list

Readable Parameters: [Length (Register): 2; Data Structure: Float]

Address	Hex Address	Parameter
30000	0x00	Voltage V1N
30002	0x02	Voltage V2N
30004	0x04	Voltage V3N
30006	0x06	Average Voltage LN
30008	0x08	Voltage V12
30010	0x0A	Voltage V23
30012	0x0C	Voltage V31
30014	0x0E	Average Voltage LL
30016	0x10	Current I1
30018	0x12	Current I2
30020	0x14	Current I3
30022	0x16	Average Current
30024	0x18	kW1
30026	0x1A	kW2
30028	0x1C	kW3
30030	0x1E	kVA1
30032	0x20	kVA2
30034	0x22	kVA3
30036	0x24	kVA1

Address	Hex Address	Parameter
30038	0x26	kVA2
30040	0x28	kVA3
30042	0x2A	Total KW
30044	0x2C	Total KVA
30046	0x2E	Total KVA1
30048	0x30	PF1
30050	0x32	PF2
30052	0x34	PF3
30054	0x36	Average PF
30056	0x38	Frequency
30058	0x3A	Total net kWh
30060	0x3C	Total net kWh
30062	0x3E	Total net kWh
30064	0x40	kW Max Active Power
30066	0x42	kW Min Active Power
30068	0x44	kVA Max Reactive Power
30070	0x46	kVA Min Reactive Power
30072	0x48	kVA Max Apparent Power
30084	0x54	kWh1 (Imp)

Modbus register addresses list (Continued)

Address	Hex Address	Parameter	Address	Hex Address	Parameter
30086	0x56	kWh2 (Imp)	30193	0C1	27th Harmonic of V1N
30088	0x58	kWh3 (Imp)	30195	0C3	28th Harmonic of V1N
30090	0x5A	kWh1 (Exp)	30197	0C5	29th Harmonic of V1N
30092	0x5C	kWh2 (Exp)	30199	0C7	30th Harmonic of V1N
30094	0x5E	kWh3 (Exp)	30201	0C9	31st Harmonic of V1N
30096	0x60	Total kWh (Imp)	30203	0CB	2nd Harmonic of V2N
30098	0x62	Total kWh (Exp)	30205	0CD	3rd Harmonic of V2N
30100	0x64	kVArh1 (Imp)	30207	0CF	4th Harmonic of V2N
30102	0x66	kVArh2 (Imp)	30209	0D1	5th Harmonic of V2N
30104	0x68	kVArh3 (Imp)	30211	0D3	6th Harmonic of V2N
30106	0x6A	kVArh1 (Exp)	30213	0D5	7th Harmonic of V2N
30108	0x6C	kVArh2 (Exp)	30215	0D7	8th Harmonic of V2N
30110	0x6E	kVArh3 (Exp)	30217	0D9	9th Harmonic of V2N
30112	0x70	Total kVArh (Imp)	30219	0DB	10th Harmonic of V2N
30114	0x72	Total kVArh (Exp)	30221	0DD	11th Harmonic of V2N
30122	0x7A	Neutral Current	30223	0DF	12th Harmonic of V2N
30124	0x7C	THD of 1st Phase Voltage	30225	0E1	13th Harmonic of V2N
30126	0x7E	THD of 2nd Phase Voltage	30227	0E3	14th Harmonic of V2N
30128	0x80	THD of 3rd Phase Voltage	30229	0E5	15th Harmonic of V2N
30130	0x82	THD of Voltage V12	30231	0E7	16th Harmonic of V2N
30132	0x84	THD of Voltage V23	30233	0E9	17th Harmonic of V2N
30134	0x86	THD of Voltage V13	30235	0EB	18th Harmonic of V2N
30136	0x88	THD of Current I1	30237	0ED	19th Harmonic of V2N
30138	0x8A	THD of Current I2	30239	0EF	20th Harmonic of V2N
30140	0x8C	THD of Current I3	30241	0F1	21st Harmonic of V2N
30143	08F	2nd Harmonic of V1N	30243	0F3	22nd Harmonic of V2N
30145	091	3rd Harmonic of V1N	30245	0F5	23rd Harmonic of V2N
30147	093	4th Harmonic of V1N	30247	0F7	24th Harmonic of V2N
30149	095	5th Harmonic of V1N	30249	0F9	25th Harmonic of V2N
30151	097	6th Harmonic of V1N	30251	0FB	26th Harmonic of V2N
30153	099	7th Harmonic of V1N	30253	0FD	27th Harmonic of V2N
30155	09B	8th Harmonic of V1N	30255	0FF	28th Harmonic of V2N
30157	09D	9th Harmonic of V1N	30257	101	29th Harmonic of V2N
30159	09F	10th Harmonic of V1N	30259	103	30th Harmonic of V2N
30161	0A1	11th Harmonic of V1N	30261	105	31st Harmonic of V2N
30163	0A3	12th Harmonic of V1N	30263	107	2nd Harmonic of V3N
30165	0A5	13th Harmonic of V1N	30265	109	3rd Harmonic of V3N
30167	0A7	14th Harmonic of V1N	30267	10B	4th Harmonic of V3N
30169	0A9	15th Harmonic of V1N	30269	10D	5th Harmonic of V3N
30171	0AB	16th Harmonic of V1N	30271	10F	6th Harmonic of V3N
30173	0AD	17th Harmonic of V1N	30273	111	7th Harmonic of V3N
30175	0AF	18th Harmonic of V1N	30275	113	8th Harmonic of V3N
30177	0B1	19th Harmonic of V1N	30277	115	9th Harmonic of V3N
30179	0B3	20th Harmonic of V1N	30279	117	10th Harmonic of V3N
30181	0B5	21st Harmonic of V1N	30281	119	11th Harmonic of V3N
30183	0B7	22nd Harmonic of V1N	30283	11B	12th Harmonic of V3N
30185	0B9	23rd Harmonic of V1N	30285	11D	13th Harmonic of V3N
30187	0BB	24th Harmonic of V1N	30287	11F	14th Harmonic of V3N
30189	0BD	25th Harmonic of V1N	30289	121	15th Harmonic of V3N
30191	0BF	26th Harmonic of V1N	30291	123	16th Harmonic of V3N

Modbus register addresses list (Continued)

Address	Hex Address	Parameter	Address	Hex Address	Parameter
30293	125	17th Harmonic of V3N	30393	189	7th Harmonic of V23
30295	127	18th Harmonic of V3N	30395	18B	8th Harmonic of V23
30297	129	19th Harmonic of V3N	30397	18D	9th Harmonic of V23
30299	12B	20th Harmonic of V3N	30399	18F	10th Harmonic of V23
30301	12D	21st Harmonic of V3N	30401	191	11th Harmonic of V23
30303	12F	22nd Harmonic of V3N	30403	193	12th Harmonic of V23
30305	131	23rd Harmonic of V3N	30405	195	13th Harmonic of V23
30307	133	24th Harmonic of V3N	30407	197	14th Harmonic of V23
30309	135	25th Harmonic of V3N	30409	199	15th Harmonic of V23
30311	137	26th Harmonic of V3N	30411	19B	16th Harmonic of V23
30313	139	27th Harmonic of V3N	30413	19D	17th Harmonic of V23
30315	13B	28th Harmonic of V3N	30415	19F	18th Harmonic of V23
30317	13D	29th Harmonic of V3N	30417	1A1	19th Harmonic of V23
30319	13F	30th Harmonic of V3N	30419	1A3	20th Harmonic of V23
30321	141	31st Harmonic of V3N	30421	1A5	21st Harmonic of V23
30323	143	2nd Harmonic of V12	30423	1A7	22nd Harmonic of V23
30325	145	3rd Harmonic of V12	30425	1A9	23rd Harmonic of V23
30327	147	4th Harmonic of V12	30427	1AB	24th Harmonic of V23
30329	149	5th Harmonic of V12	30429	1AD	25th Harmonic of V23
30331	14B	6th Harmonic of V12	30431	1AF	26th Harmonic of V23
30333	14D	7th Harmonic of V12	30433	1B1	27th Harmonic of V23
30335	14F	8th Harmonic of V12	30435	1B3	28th Harmonic of V23
30337	151	9th Harmonic of V12	30437	1B5	29th Harmonic of V23
30339	153	10th Harmonic of V12	30439	1B7	30th Harmonic of V23
30341	155	11th Harmonic of V12	30441	1B9	31st Harmonic of V23
30343	157	12th Harmonic of V12	30443	1BB	2nd Harmonic of V31
30345	159	13th Harmonic of V12	30445	1BD	3rd Harmonic of V31
30347	15B	14th Harmonic of V12	30447	1BF	4th Harmonic of V31
30349	15D	15th Harmonic of V12	30449	1C1	5th Harmonic of V31
30351	15F	16th Harmonic of V12	30451	1C3	6th Harmonic of V31
30353	161	17th Harmonic of V12	30453	1C5	7th Harmonic of V31
30355	163	18th Harmonic of V12	30455	1C7	8th Harmonic of V31
30357	165	19th Harmonic of V12	30457	1C9	9th Harmonic of V31
30359	167	20th Harmonic of V12	30459	1CB	10th Harmonic of V31
30361	169	21st Harmonic of V12	30461	1CD	11th Harmonic of V31
30363	16B	22nd Harmonic of V12	30463	1CF	12th Harmonic of V31
30365	16D	23rd Harmonic of V12	30465	1D1	13th Harmonic of V31
30367	16F	24th Harmonic of V12	30467	1D3	14th Harmonic of V31
30369	171	25th Harmonic of V12	30469	1D5	15th Harmonic of V31
30371	173	26th Harmonic of V12	30471	1D7	16th Harmonic of V31
30373	175	27th Harmonic of V12	30473	1D9	17th Harmonic of V31
30375	177	28th Harmonic of V12	30475	1DB	18th Harmonic of V31
30377	179	29th Harmonic of V12	30477	1DD	19th Harmonic of V31
30379	17B	30th Harmonic of V12	30479	1DF	20th Harmonic of V31
30381	17D	31st Harmonic of V12	30481	1E1	21st Harmonic of V31
30383	17F	2nd Harmonic of V23	30483	1E3	22nd Harmonic of V31
30385	181	3rd Harmonic of V23	30485	1E5	23rd Harmonic of V31
30387	183	4th Harmonic of V23	30487	1E7	24th Harmonic of V31
30389	185	5th Harmonic of V23	30489	1E9	25th Harmonic of V31
30391	187	6th Harmonic of V23	30491	1EB	26th Harmonic of V31

Modbus register addresses list (Continued)

Address	Hex Address	Parameter	Address	Hex Address	Parameter
30493	1ED	27th Harmonic of V31	30593	251	17th Harmonic of I2
30495	1EF	28th Harmonic of V31	30595	253	18th Harmonic of I2
30497	1F1	29th Harmonic of V31	30597	255	19th Harmonic of I2
30499	1F3	30th Harmonic of V31	30599	257	20th Harmonic of I2
30501	1F5	31st Harmonic of V31	30601	259	21st Harmonic of I2
30503	1F7	2nd Harmonic of I1	30603	25B	22nd Harmonic of I2
30505	1F9	3rd Harmonic of I1	30605	25D	23rd Harmonic of I2
30507	1FB	4th Harmonic of I1	30607	25F	24th Harmonic of I2
30509	1FD	5th Harmonic of I1	30609	261	25th Harmonic of I2
30511	1FF	6th Harmonic of I1	30611	263	26th Harmonic of I2
30513	201	7th Harmonic of I1	30613	265	27th Harmonic of I2
30515	203	8th Harmonic of I1	30615	267	28th Harmonic of I2
30517	205	9th Harmonic of I1	30617	269	29th Harmonic of I2
30519	207	10th Harmonic of I1	30619	26B	30th Harmonic of I2
30521	209	11th Harmonic of I1	30621	26D	31st Harmonic of I2
30523	20B	12th Harmonic of I1	30623	26F	2nd Harmonic of I3
30525	20D	13th Harmonic of I1	30625	271	3rd Harmonic of I3
30527	20F	14th Harmonic of I1	30627	273	4th Harmonic of I3
30529	211	15th Harmonic of I1	30629	275	5th Harmonic of I3
30531	213	16th Harmonic of I1	30631	277	6th Harmonic of I3
30533	215	17th Harmonic of I1	30633	279	7th Harmonic of I3
30535	217	18th Harmonic of I1	30635	27B	8th Harmonic of I3
30537	219	19th Harmonic of I1	30637	27D	9th Harmonic of I3
30539	21B	20th Harmonic of I1	30639	27F	10th Harmonic of I3
30541	21D	21st Harmonic of I1	30641	281	11th Harmonic of I3
30543	21F	22nd Harmonic of I1	30643	283	12th Harmonic of I3
30545	221	23rd Harmonic of I1	30645	285	13th Harmonic of I3
30547	223	24th Harmonic of I1	30647	287	14th Harmonic of I3
30549	225	25th Harmonic of I1	30649	289	15th Harmonic of I3
30551	227	26th Harmonic of I1	30651	28B	16th Harmonic of I3
30553	229	27th Harmonic of I1	30653	28D	17th Harmonic of I3
30555	22B	28th Harmonic of I1	30655	28F	18th Harmonic of I3
30557	22D	29th Harmonic of I1	30657	291	19th Harmonic of I3
30559	22F	30th Harmonic of I1	30659	293	20th Harmonic of I3
30561	231	31st Harmonic of I1	30661	295	21st Harmonic of I3
30563	233	2nd Harmonic of I2	30663	297	22nd Harmonic of I3
30565	235	3rd Harmonic of I2	30665	299	23rd Harmonic of I3
30567	237	4th Harmonic of I2	30667	29B	24th Harmonic of I3
30569	239	5th Harmonic of I2	30669	29D	25th Harmonic of I3
30571	23B	6th Harmonic of I2	30671	29F	26th Harmonic of I3
30573	23D	7th Harmonic of I2	30673	2A1	27th Harmonic of I3
30575	23F	8th Harmonic of I2	30675	2A3	28th Harmonic of I3
30577	241	9th Harmonic of I2	30677	2A5	29th Harmonic of I3
30579	243	10th Harmonic of I2	30679	2A7	30th Harmonic of I3
30581	245	11th Harmonic of I2	30681	2A9	31st Harmonic of I3
30583	247	12th Harmonic of I2			
30585	249	13th Harmonic of I2			
30587	24B	14th Harmonic of I2			
30589	24D	15th Harmonic of I2			
30591	24F	16th Harmonic of I2			

Modbus register addresses list (Continued)

Readable / writable parameters: [Data Structure: Integer]

Address	Hex Address	Parameter	Range		Length (Register)
40000	0x00	Password	Min value: 0	Max value: 9998	1
40001	0x01	N/W Selection	Value: 0	Meaning: 3P4W	1
			Value: 1	Meaning: 3P3W	1
			Value: 2	Meaning: 1P2W-P1	1
			Value: 3	Meaning: 1P2W-P2	1
			Value: 4	Meaning: 1P2W-P3	1
40002	0x02	CT Secondary	Min value: 1	Max value: 5	1
40003	0x03	CT primary (CT Secondary=5)(A)	Min value: 5	Max value: 10000	1
		CT primary (CT Secondary=1)(A)	Min value: 1	Max value: 10000	
40004	0x04	PT Secondary	Min value: 100	Max value: 500	1
40006	0x06	PT primary	Min value: 100	Max value: 500kV	2
40007	0x07	Slave id	Min value: 1	Max value: 255	1
40008	0x08	Baud rate	Value: 0x0000	Meaning: 300	1
			Value: 0x0001	Meaning: 600	
			Value: 0x0002	Meaning: 1200	
			Value: 0x0003	Meaning: 2400	
			Value: 0x0004	Meaning: 4800	
			Value: 0x0005	Meaning: 9600	
			Value: 0x0006	Meaning: 19200	
40009	0x09	Parity	Value: 0x0000	Meaning: None	1
			Value: 0x0001	Meaning: Odd	
			Value: 0x0002	Meaning: Even	
40010	0x0A	Stop bit	Value: 0x0000	Meaning: 1	1
			Value: 0x0001	Meaning: 2	1
40011	0x0B	Backlight OFF	Min Value: 0	Max Value: 7200	1
40012	0x0C	Factory Default	Value: 1	Meaning: Set to factory setting range	1
40016	0x10	Auto Mode Pages	Min Value: 1	Max Value: 22	
			Page No	Meaning	
40017	0x11	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40018	0x12	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40019	0x13	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40020	0x14	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40021	0x15	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40022	0x16	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40023	0x17	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40024	0x18	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40025	0x19	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40026	0x1A	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40027	0x1B	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40028	0x1C	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40029	0x1D	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40030	0x1E	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40031	0x1F	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40032	0x20	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40033	0x21	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40054	0x36	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40055	0x37	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40059	0x3B	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40060	0x3C	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40061	0x3D	Page Address Sequence	1-22	1-First Page; 22-Last Page	1
40034	0x22	Demand Interval Method	Value: 0x0000	Meaning: Sliding	1
			Value: 0x0001	Meaning: Fixed	1
40035	0x23	Demand Interval Duration	MIN Value: 1	MAX Value: 30	1
40036	0x24	Demand Interval Length	MIN Value: 1	MAX Value: 30	1
40043	0x2B	Reset Max	Value: 1	Meaning: Reset all Max power	1
40044	0x2C	Reset Energy	Value: 1	Meaning: Reset all energyto factory setting range	1
40046	0x2E	Reset ON Hour	Value: 1	Meaning: Reset ON hour	1

Guidelines

- The equipment should be cleaned regularly to avoid blockage of ventilating parts.
- Clean the equipment with a clean dry or damp cloth. Do not use any cleaning agent other than water.

Disposal and recycling

Dispose of or recycle the module in accordance with the applicable laws and regulations in your country.

These instructions do not purport to cover all details or variations in equipment, or to provide for every possible contingency in connection with installation, operation, or maintenance. Should additional information be desired, please contact the local Siemens sales office. The contents of this instruction manual shall not become part of or modify any prior or existing agreement, commitment, or relationship. The sales contract contains the entire obligation of Siemens. The warranty contained in the contract between the parties is the sole warranty of

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