MANUAL

SMART 7KT

Multifunction meter 7KT0311 (LCD Class 0.5s)

SMART 7KT power monitoring devices

SIEMENS

Index

SMART 7KT
Multifunction meter
7KT0311 (LCD Class 0.5s)

Manual

09/2022
SME7KT031100

Introduction

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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

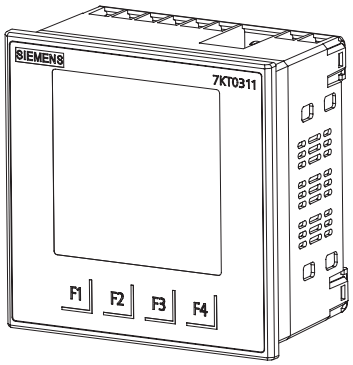
The carton for the products contain

1 SMART 7KT meter

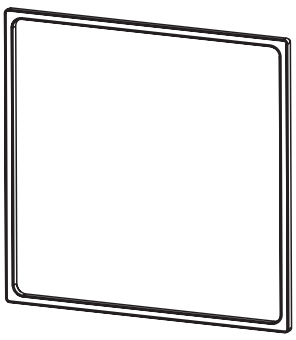
1 set of clamps (4 clamps) for mounting the meter on the panel door

1 Gasket

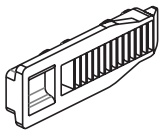
1 Operating instruction



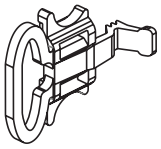
Unit 1x nos.



Gasket 1x nos.



Sliding clamp 4x nos.



Base clamp 4x nos.

2 Safety precautions

<table>
<tr><td rowspan="3">  </td><td colspan="3">DANGER</td></tr>
<tr><td colspan="3">Hazardous voltage will cause death or serious injury. Turn off and lock out all power supply before working on this device.</td></tr>
<tr><td>  </td><td>NOTICE
Installation and maintenance must be carried out by qualified personnel.
This product has been designed for environment A. Use of this product in environment B may cause unwanted electromagnetic disturbances in which case the user may require to take adequate mitigation measures.
Risk of damage: Please ensure the proper isolation of meter during the IR (Meggering) test.</td><td>  </td></tr>
</table>

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

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	7KT0311 (LCD Class 0.5s)
	Power Monitoring Device panel instrument for standard electrical values; Protocol: Modbus RTU; LCD display Vaux: 95V to 240V AC x/1 or 5 A; Class 0.5s
Measurements	
measuring procedure	
• for voltage measurement	True RMS
• for current measurement	True RMS
type of measured value detection	complete
voltage curve	sinusoidal or distorted
measurable line frequency	
• initial value	45 Hz
• full-scale value	65 Hz
operating mode for measured value detection automatic line frequency detection	Yes
Supply voltage	
design of the power supply	SMPS power supply
type of voltage of the supply voltage	AC
Degree of protection class	
protection class IP on the front	IP65
protection class IP of the terminal	IP20
Suitability	
suitability for operation	Installation in stationary panels in closed rooms
Product Functions	
product function	
• voltage measurement	Yes
• current measurement	Yes
• active power measurement	Yes
• reactive power measurement	Yes
• Apparent power measurement	Yes
• power factor measurement	Yes
• frequency measurement	Yes
• apparent energy/active energy/reactive energy	Yes
• % Total Harmonics Distortion (THD) measurement for voltage and current	Yes
• power demand measurement	Yes
Display and operation	
design of the display	LCD with graphical display of current loading
height of the display	60 mm
width of the display	60 mm
color of the background of the display	White
time-controlled reduction of the illuminance of display backlight possible	Yes. up to 2 Hrs. (7200 sec)
language on the display screen is supported	EN
number of keys	4
Accuracy	
reference condition for metering accuracy	In accordance with IEC61557-12, IEC62053-22, IEC 62053-23
formula for relative total measurement inaccuracy	
• for measured variable voltage	Class 0.5 as per IEC 61557-12
• for measured variable current	Class 0.5 as per IEC 61557-12
• for measured variable apparent power	Class 1 as per IEC 61557-12
• for measured variable active power	Class 1 as per IEC 61557-12
• for measured variable reactive power	Class 2 as per IEC 61557-12
• for measured variable power factor	Class 1 as per IEC 61557-12
• for measured variable active energy	Class 0.5 as per IEC 61557-12 and Class 0.5s as per IEC 62053-22
• for measured variable reactive energy	Class 2 as per IEC 61557-12 and IEC 62053-23

	7KT0311 (LCD Class 0.5s)
Inputs Outputs	
number of digital inputs	1
type of electrical connection at the digital inputs	screw-type terminals
operating conditions for digital inputs external voltage supply	Yes
input voltage at digital input at DC maximum	30 V
input current at digital input initial value for signal<1>- recognition	10 mA
number of digital outputs	1
type of switching output	Unidirectional
digital output version	switching or pulse output function
operating voltage as output voltage at DC maximum permissible	30 V
type of electrical connection at the digital outputs	screw-type terminals
output current at the digital outputs at DC limited to 100 ms maximum	130 mA
internal resistance at the digital outputs	55 Ω
standard for pulse emitter	according to IEC62053-31
pulse duration	
• initial value	100 ms
• full-scale value	2 s
adjustable time period minimum	100 ms
switching frequency at digital output maximum	17 Hz
Measuring inputs	
measurable supply voltage between L and N at AC maximum rated value	240 V
measurable supply voltage between L and N at AC	
• minimum	11 V
• maximum	300 V
measurable supply voltage between the line conductors at AC maximum rated value	415 V
measurable supply voltage between the line conductors at AC	
• minimum	19 V
• maximum	519 V
voltage measuring range extension with external voltage transformers	up to 500kV
line conductors and neutral conductors internal resistance for voltage measurement	1.12 MΩ
measuring category for voltage measurement	CAT III
measurable current	1A / 5A
relative measurable current at AC	
• minimum	1 %
• maximum	120 %
current measuring range extension with external current transformers	up to 10kA
measuring category for current measurement	CAT III
Connections	
type of electrical connection	
• at the measurement inputs for voltage	screw-type terminals
• at the measurement inputs for current	screw-type terminals
Mechanical Design	
mounting	flush panel-door mounted
size of Power Monitoring Device	size 96
height	96 mm
width	96 mm
Cut-out	91.5 mm x 91.5 mm
depth	55 mm
installation depth	51 mm
net weight	325 g
Environmental conditions	
ambient temperature during operation	
• minimum	-10 °C
• maximum	55 °C
ambient temperature during storage	
• minimum	-20 °C
• maximum	75 °C
relative humidity at 25 °C without condensation during operation maximum	85 %
installation altitude at height above sea level maximum	2 000 m
degree of pollution	2

Measured variables

Measured variable	On display	On communication
Voltage V_{L-N}, V_{L-L}	Yes	Yes
Current	Yes	Yes
Neutral Current	Yes	Yes
Frequency	Yes	Yes
Power Factor	Yes	Yes
Active Power	Yes	Yes
Reactive Power	Yes	Yes
Apparent Power	Yes	Yes
Active Energy (Import, Export, Total)	Yes	Yes
Reactive Energy (Import, Export, Total)	Yes	Yes
Apparent Energy	Yes	Yes
Max Demand (Current) over set demand period	Yes	Yes
Max Demand (Active, Reactive, Apparent Power) over set demand period	Yes	Yes
Min Demand (Active, Reactive Power)	Yes	Yes
Phase Angle of 3 phases	Yes	No
THD% voltage	Yes	Yes
THD% current	Yes	Yes
Individual harmonics (current)	No	Yes
Individual harmonics (voltage)	No	Yes
Total Active Energy (DI)	Yes	Yes
Total Reactive Energy (DI)	Yes	Yes
Total Apparent Energy (DI)	Yes	Yes
Old Active Energy	Yes	Yes
Old Reactive Energy	Yes	Yes
Old Apparent Energy	Yes	Yes
On Hours	Yes	Yes
Phase sequence indication	No	Yes

IEC Standards

Description	Standard
Accuracy	IEC 61557-12, IEC 62053-21 | Active energy
EMC requirements	IEC 61326-1
Degree of protection test (IP)	IEC 60529
Safety requirements	IEC 61010-1 and IEC 61010-2-030
Vibration and mechanical shock	IEC 62052-11

Certifications

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

Assembly

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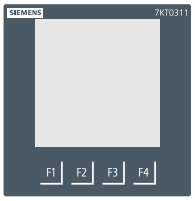
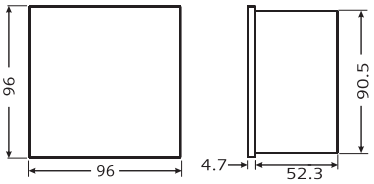
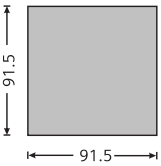
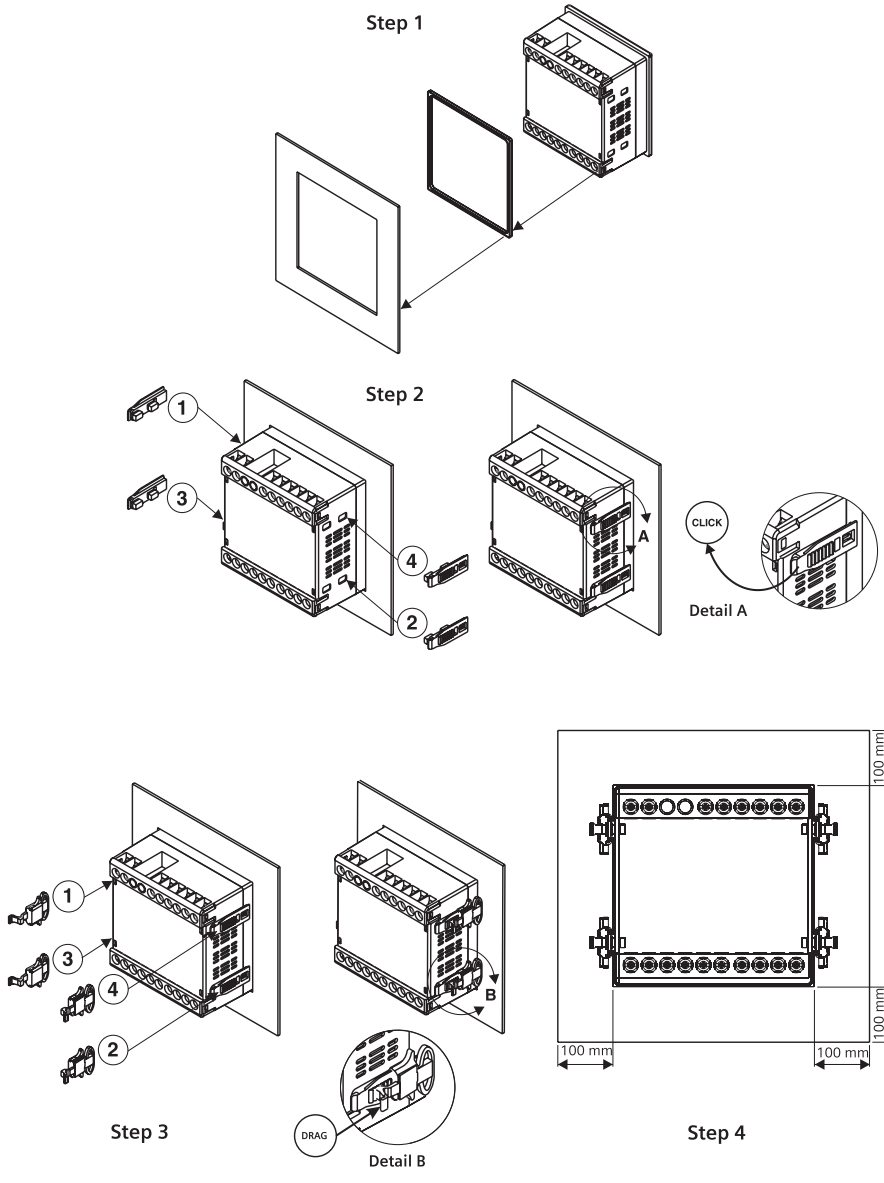
Installation

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)
		



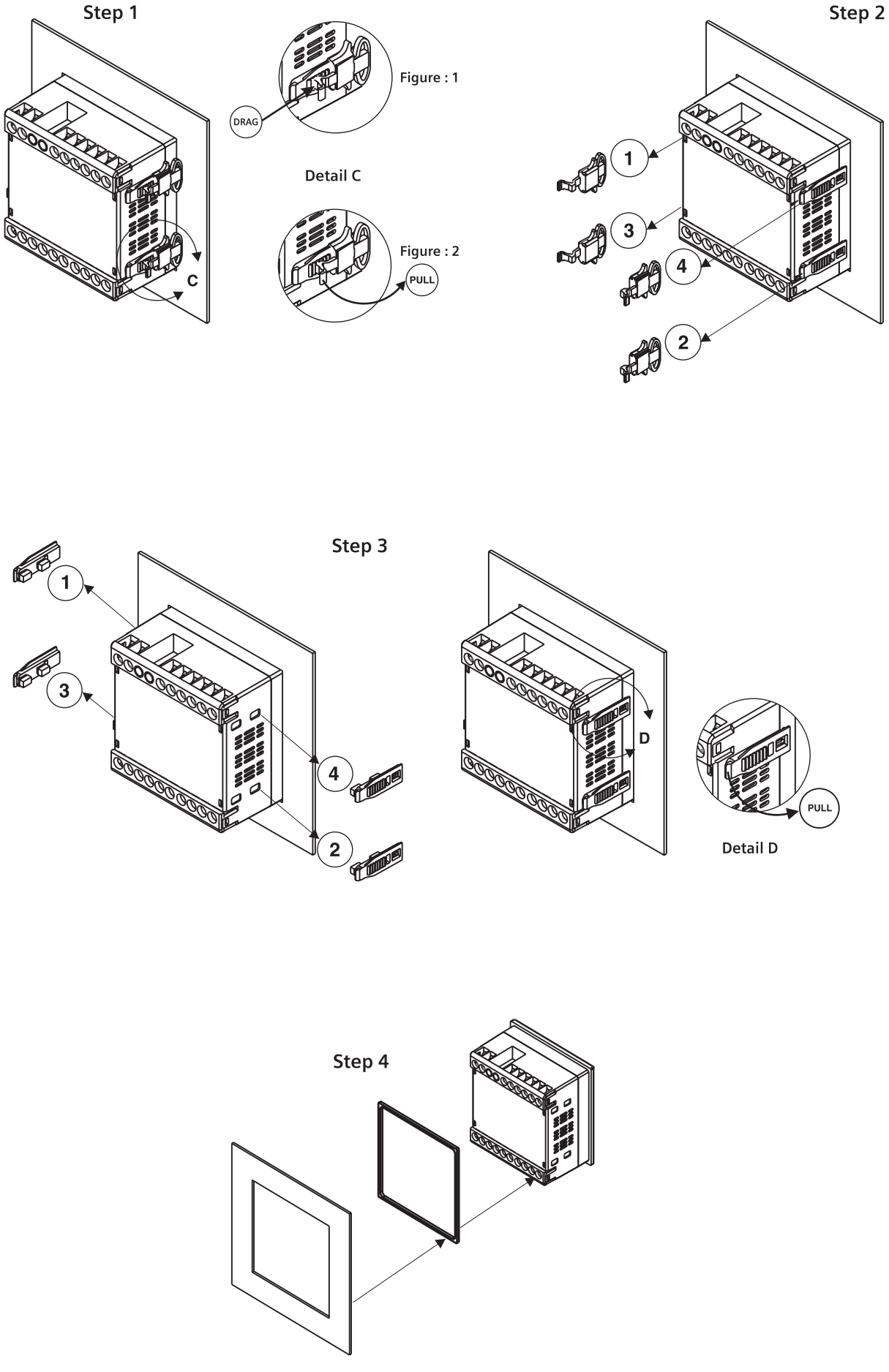
Installation Guidelines

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 0.5 A, Class gG type 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 1mm^2 to 2.5mm^2.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

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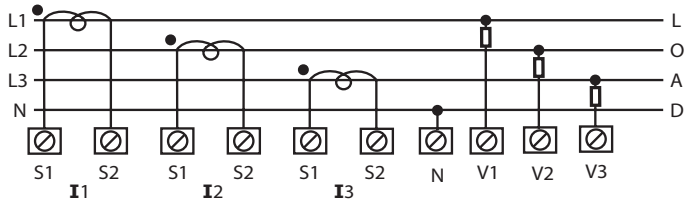
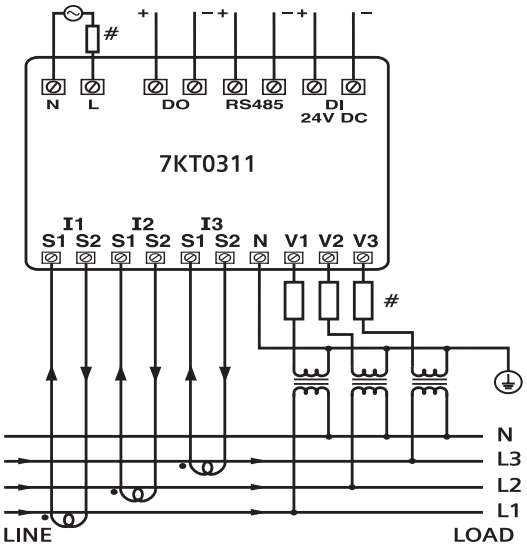
CONNECTIONS DIAGRAM



Circuit Diagram

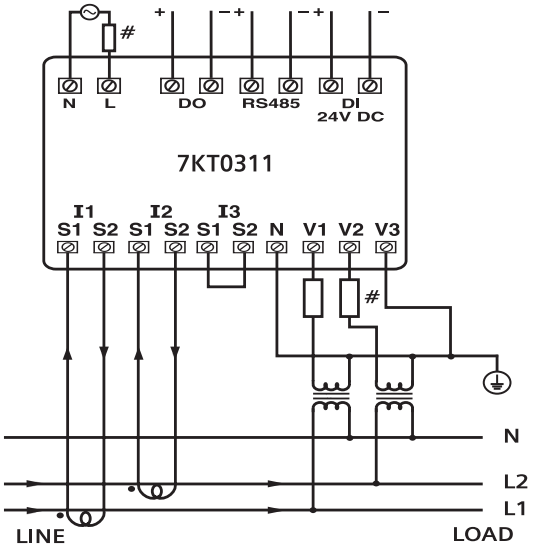
3 Phase 4-Wire

3 Ø - 4 Wire, 3 CT'S and 3 PT'S



2 Phase 3-Wire

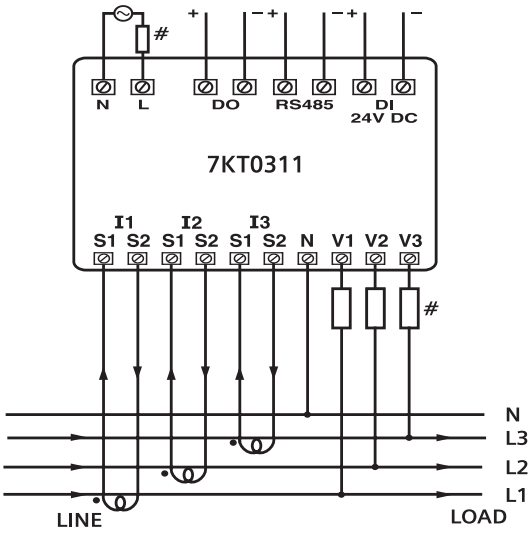
2 Ø - 3 Wire, 2 CT'S and 2 PT'S



Circuit Diagram

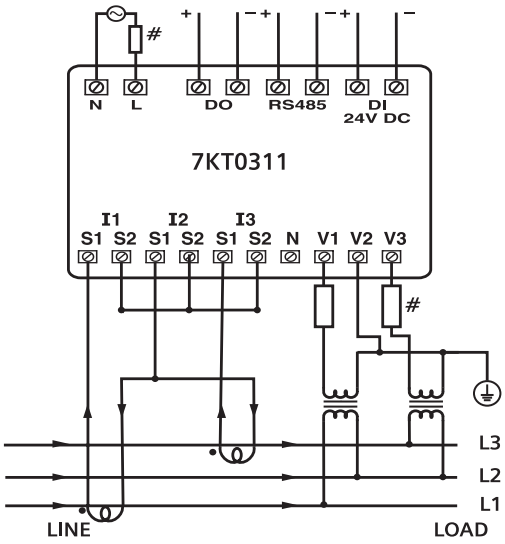
3 Phase 4-Wire (Commonly used)

3 Ø - 4 Wire, 3 CT's



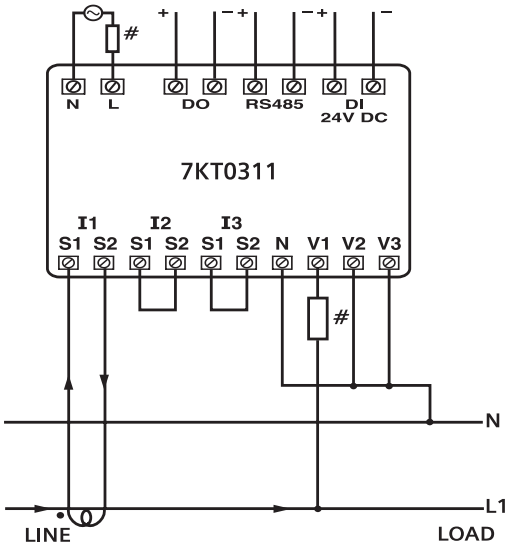
3 Phase 3-Wire

3 Ø - 3 Wire, 2 CT and 2 PT's



1 Phase 2-Wire

1 Ø - 2 Wire, 1 CT



Configuration

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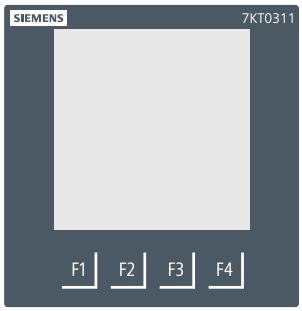


There are 4 dedicated soft-touch labelled as F1, F2, F3, F4. Use these 4 keys to read meter parameters.

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

A short touch on the key triggers the function once. A longer touch on the function keys switches on the auto repeat function after approximately 1 s.

Auto repeat is useful, for example, for fast incrementing of values when parameterizing the device.

For reading serial number

Touch & hold F3 key for 10 sec. to display 8-digit serial number only for 5 sec. at 5th line of display

Automatic / manual mode

Use F3 and F4 key together to enter in configuration mode. Then change the page mode as automatic or manual as per requirement.

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

Password to start configuration

When the meter is brought into the configuration mode by using 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 factory-set password by using 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

Touch and hold F3 + F4 keys for 3 seconds to enter or exit from the configuration menu

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

Use F2 or F3 keys for increasing or decreasing parameter values

Use F2+F4 key to go back to previous page

Parameterization with function keys

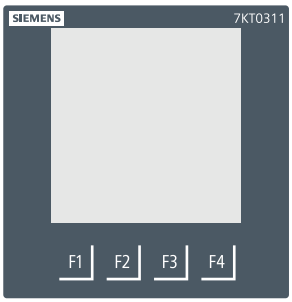
Config. page	Function	Range or Selection	Factory Setting
	Password	0000 to 9998	1000
1	Change Password	No / Yes	No
1.1	New Password	0000 to 9998	1000
2	Network Selection	3P4W 3P3W 1P2W-P1 1P2W-P2 1P2W-P3	3P4W
3	CT Secondary	1A or 5A	5
4	CT Primary	1A/5A to 10000A	5
5	PT Secondary	100V to 500V	350
6	PT Primary	100V to 500000V	350
7	Slave ID	1 to 255	1
8	Baud Rate (bps)	300, 600, 1200, 2400, 4800, 9600 & 19200	9600
9	Parity	None, Even, Odd	None
10	Stop Bit	1 or 2	1
11	Back Light	0 to 7200 Sec.	0
12	Page mode	Auto,Manual	Auto
13	Demand Interval Method	Sliding / Fixed	Sliding
14	Demand Interval Duration	1 to 30	15
15	Demand Interval Length	1 to 30 min	1
16	Max Page Auto	1 to 23	23
17	Change Page Sequence	Yes / No	No
17.1	Page Sequence 1	1 to 23	1
17.2	Page Sequence 2	1 to 23	2
17.3	Page Sequence 3	1 to 23	3
17.4	Page Sequence 4	1 to 23	4
17.5	Page Sequence 5	1 to 23	5
17.6	Page Sequence 6	1 to 23	6
17.7	Page Sequence 7	1 to 23	7
17.8	Page Sequence 8	1 to 23	8
17.9	Page Sequence 9	1 to 23	9
17.10	Page Sequence 10	1 to 23	10
17.11	Page Sequence 11	1 to 23	11
17.12	Page Sequence 12	1 to 23	12
17.13	Page Sequence 13	1 to 23	13
17.14	Page Sequence 14	1 to 23	14
17.15	Page Sequence 15	1 to 23	15
17.16	Page Sequence 16	1 to 23	16
17.17	Page Sequence 17	1 to 23	17
17.18	Page Sequence 18	1 to 23	18
17.19	Page Sequence 19	1 to 23	19
17.20	Page Sequence 20	1 to 23	20
17.21	Page Sequence 21	1 to 23	21
17.22	Page Sequence 22	1 to 23	22
17.23	Page Sequence 23	1 to 23	23
18	Pulse Weight (kWh)	0.01 to 99.99	00.01
19	Pulse Duration (Sec)	0.1 to 2.0	0.1
20	Factory Default	Yes / No	No
21	Reset Energy and MAX Demand	Yes / No	No
21.1	Password	0001 to 9999	1001
21.01	Reset Active Energy	Yes / No	No
21.02	Reset DI Active Energy	Yes / No	No
21.03	Reset Reactive Energy	Yes / No	No
21.04	Reset DI Reactive Energy	Yes / No	No
21.05	Reset Apparent Energy	Yes / No	No
21.06	Reset DI Apparent Energy	Yes / No	No
21.05	Reset MAX current and power	Yes / No	No
21.05	Reset ON hour	Yes / No	No

NETWORK SELECTION and WIRING INPUT	
Network selection Configuration mode	**Wiring Input**
3P4W	3P4W,2P3W
3P3W	3P3W
1P2W (P1/P2/P3)	1P2W (P1/P2/P3)

Note: P1, P2 and P3 are three phase.

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



Manual Mode - DG

Network Selection	Online Pages (Manual Mode)		
	Keys	Screen	Function
3P4W	F1	1st Screen	L-N voltages of 3 phases and average L-N voltages
		2nd Screen	L-L voltages of 3 phases and average L-L voltages
		3rd Screen	% THD of L-N voltages of 3 phases and average L-N voltages
		4th Screen	% THD L-L voltages of 3 phases and average L-L voltages
		5th Screen	Phase Current of 3 phase and neutral current
		6th Screen	MAX DMD Current of 3 Phases and average Phase current
		7th Screen	% THD of 3 phase current and average Phase current
		8th Screen	% unbalance voltage & Current
	F2	1st Screen	Voltage, Current Power Factor, Frequency of 1st phase
		2nd Screen	Voltage, Current Power Factor, Frequency of 2nd phase
		3rd Screen	Voltage, Current Power Factor, Frequency of 3rd phase
		4th Screen	Average Voltage, Current Power Factor, Frequency of all three phase
	F3	1st Screen	PF of all phase and average PF of 3 phase
		2nd Screen	phase angle of all 3 phase and average angle
		3rd Screen	Active power of all three phases and Total Active Power
		4th Screen	Reactive power of all three phases and Total Reactive Power
		5th Screen	Apparent power of all three phases and Total Apparent Power
		6th Screen	Active, Reactive, Apparent power & PF of 1st Phase
		7th Screen	Active, Reactive, Apparent power & PF of 2nd Phase
		8th Screen	Active, Reactive, Apparent power & PF of 3rd Phase
		9th Screen	Total Active, Reactive, Apparent power and Avg Power factor of all three phases
		10th Screen	Max active power demand,Max reactive power demand, Max Apparent power demand
		11th Screen	Min Active power demand, reactive power demand
	F4	1st Screen	Total net DG active energy
		2nd Screen	Total net DG Reactive energy
		3rd Screen	Total net DG apparent energy
		4th Screen	ON Hr.

Reading of parameters (Continued)

Network Selection	Online Pages		
	Keys	Screen	Function
3P3W	F1	1st Screen	Average L-L voltages of 3 phases
		2nd Screen	% THD of L-L voltages of 3 phases and Average line to line voltage
		3rd Screen	Line to Line Current of all 3 phases and Average current
		4th Screen	MAX Current of 3 Phases
		5th Screen	% THD of 3 phase current
		6th Screen	% unbalance voltage & Current
	F2	1st Screen	Voltage, Current, Power factor, Frequency of 1-2 Phase
		2nd Screen	Voltage, Current, Power factor, Frequency of 2-3 phase
		3rd Screen	Voltage, Current, Power factor, Frequency of 3-1 phase
		4th Screen	Average Voltage, Current, Power factor, Frequency
	F3	1st Screen	Avg PF of all phase
		2nd Screen	Avg phase angle of all phase
		3rd Screen	Total Active, Reactive, Apparent power and Avg Power factor of all three phases
		4th Screen	Max active power demand,Max reactive power demand, Max Apparent power demand
		5th Screen	Min Active power demand, reactive power demand
	F4	1st Screen	Total net DG active energy
		2nd Screen	Total net DG Reactive energy
		3rd Screen	Total net DG apparent energy
		4th Screen	ON Hr.

Network Selection	Online Pages		
	Keys	Screen	Function
1P2W-P1	F1	1st Screen	Voltage of 1st phase
		2nd Screen	% THD voltage of 1st phase
		3rd Screen	Current of 1st phase
		4th Screen	MAX DMD current of 1st phase
		5th Screen	% THD current of 1nd phase
	F2	1st Screen	Voltage, Current, Power factor, Frequency of 1st phase
	F3	1st Screen	PF of 1st phase
		2nd Screen	Phase angle of 1st phase
		3rd Screen	Active power of 1st phase
		4th Screen	Reactive power of 1st pfase
		5th Screen	Apparent power of 1st phase
		6th Screen	Active, reactive, Apparent power, power factor of 1st phase
		7th Screen	Total Active, Reactive, Apparent power and Avg Power factor of 1st phases
		8th Screen	Max Active power demand, reactive power demand, Apparent power demand of 1st phase
		9th Screen	Min Active power demand, reactive power demand of 1st phase
	F4	1st Screen	Total net DG active energy
		2nd Screen	Total net DG Reactive energy
		3rd Screen	Total net DG apparent energy
		4th Screen	ON Hr.

Reading of parameters (Continued)

Network Selection	Online Pages		
	Keys	Screen	Function
1P2W-P2	F1	1st Screen	Voltage of 2nd phase
		2nd Screen	% THD voltage of 2nd phase
		3rd Screen	Current of 2nd phase
		4th Screen	MAX DMD current of 2nd phase
		5th Screen	% THD of 2nd phase
	F2	1st Screen	Voltage, Current, Power factor, Frequency of 2nd phase
	F3	1st Screen	PF of 2nd phase
		2nd Screen	Phase angle of 2nd phase
		3rd Screen	Active power of 2nd phase
		4th Screen	Reactive power of 2nd phase
		5th Screen	Apparent power of 2nd phase
		6th Screen	active, reactive, Apparent power, power factor of 2nd phase
		7th Screen	Total Active, Reactive, Apparent power and Avg Power factor 2nd phase
		8th Screen	Max Active power demand, reactive power demand, Apparent power demand of 2nd phase
		9th Screen	Min Active power demand, reactive power demand of 2nd phase
	F4	1st Screen	Total net DG active energy
		2nd Screen	Total net DG Reactive energy
		3rd Screen	Total net DG apparent energy
		4th Screen	ON Hr.

Network Selection	Online Pages		
	Keys	Screen	Function
1P2W-P3	F1	1st Screen	Voltage of 3rd phase
		2nd Screen	% THD voltage of 3rd phase
		3rd Screen	Current of 3rd phase
		4th Screen	MAX current of 3rd phase
		5th Screen	% THD current of 3rd phase
	F2	1st Screen	Voltage, Current, Power factor, Frequency of 3rd phase
	F3	1st Screen	PF of 3rd phase
		2nd Screen	Phase angle of 3rd phase
		3rd Screen	Active power of 3rd phase
		4th Screen	Reactive power of 3rd phase
		5th Screen	Apparent power of 3rd phase
		6th Screen	active, reactive, Apparent power, power factor of 3rd phase
		7th Screen	Total Active, Reactive, Apparent power and Avg Power factor of 3rd phase
		8th Screen	Max Active power demand, reactive power demand, Apparent power demand of 3rd phase
		9th Screen	Min Active power demand, reactive power demand of 3rd phase
	F4	1st Screen	Total net DG active energy
		2nd Screen	Total net DG Reactive energy
		3rd Screen	Total net DG apparent energy
		4th Screen	ON Hr.

Reading of parameters (Continued)

Auto Mode - DG

Network Selection	Screen	Function
3P4W	1st Screen	L-N voltages of 3 phases and average L-N voltages
	2nd Screen	L-L voltages of 3 phases and average L-L voltages
	3rd Screen	% THD of L-N voltages of 3 phases and average L-N voltages
	4th Screen	% THD L-L voltages of 3 phases and average L-L voltages
	5th Screen	Phase Current of 3 phase and neutral current
	6th Screen	MAX DMD Current of 3 Phases and average Phase current
	7th Screen	% THD of 3 phase current and average Phase current
	8th Screen	% unbalance voltage & Current
	9th Screen	Voltage, Current Power Factor, Frequency of 1st phase
	10th Screen	Voltage, Current Power Factor, Frequency of 2nd phase
	11th Screen	Voltage, Current Power Factor, Frequency of 3rd phase
	12th Screen	Average Voltage, Current Power Factor, Frequency of all three phase
	13th Screen	PF of all phase and average PF of 3 phase
	14th Screen	phase angle of all 3 phase and average angle
	15th Screen	Active power of all three phases and Total Active Power
	16th Screen	Reactive power of all three phases and Total Reactive Power
	17th Screen	Apparent power of all three phases and Total Apparent Power
	18th Screen	Active, Reactive, Apparent power & PF of 1st Phase
	19th Screen	Active, Reactive, Apparent power & PF of 2nd Phase
	20th Screen	Active, Reactive, Apparent power & PF of 3rd Phase
	21st Screen	Total Active, Reactive, Apparent power and Avg Power factor of all three phases
	22nd Screen	Max active power demand,Max reactive power demand, Max Apparent power demand
	23rd Screen	Min Active power demand, reactive power demand

Network Selection	Screen	Function
3P3W	1st Screen	Average L-L voltages of 3 phases
	2nd Screen	% THD of L-L voltages of 3 phases and Average line to line voltage
	3rd Screen	Line to Line Current of all 3 phases and Average current
	4th Screen	MAX DMD Current of 3 Phases
	5th Screen	% THD of 3 phase current
	6th Screen	% unbalance voltage & Current
	1st Screen	Voltage, Current, Power factor, Frequency of 1-2 Phase
	2nd Screen	Voltage, Current, Power factor, Frequency of 2-3 phase
	3rd Screen	Voltage, Current, Power factor, Frequency of 3-1 phase
	4th Screen	Average Voltage, Current, Power factor, Frequency
	1st Screen	Avg PF of all phase
	2nd Screen	Avg phase angle of all phase
	3rd Screen	Total Active, Reactive, Apparent power and Avg Power factor of all three phases
	4th Screen	Max active power demand,Max reactive power demand, Max Apparent power demand
	5th Screen	Min Active power demand, reactive power demand

Reading of parameters (Continued)

Network Selection	Screen	Function
1P2W-P1	1st Screen	Voltage of 1st phase
	2nd Screen	% THD voltage of 1st phase
	3rd Screen	Current of 1st phase
	4th Screen	MAX DMD current of 1st phase
	5th Screen	% THD current of 1nd phase
	6th Screen	Voltage, Current, Power factor, Frequency of 1st phase
	7th Screen	PF of 1st phase
	8th Screen	Phase angle of 1st phase
	9th Screen	Active power of 1st phase
	10th Screen	Reactive power of 1st pfase
	11th Screen	Apparent power of 1st phase
	12th Screen	Active, reactive, Apparent power, power factor of 1st phase
	13th Screen	Max Active power demand, reactive power demand, Apparent power demand of 1st phase
	14th Screen	Min Active power demand, reactive power demand of 1st phase

Network Selection	Screen	Function
1P2W-P2	1st Screen	Voltage of 2nd phase
	2nd Screen	% THD voltage of 2nd phase
	3rd Screen	Current of 2nd phase
	4th Screen	MAX DMD current of 2nd phase
	5th Screen	% THD of 2nd phase
	6th Screen	Voltage, Current, Power factor, Frequency of 2nd phase
	7th Screen	PF of 2nd phase
	8th Screen	Phase angle of 2nd phase
	9th Screen	Active power of 2nd phase
	10th Screen	Reactive power of 2nd phase
	11th Screen	Apparent power of 2nd phase
	12th Screen	active, reactive, Apparent power, power factor of 2nd phase
	13th Screen	Max Active power demand, reactive power demand, Apparent power demand of 2nd phase
	14th Screen	Min Active power demand, reactive power demand of 2nd phase

Reading of parameters (Continued)

Network Selection		
	Screen	Function
1P2W-P3	1st Screen	Voltage of 3rd phase
	2nd Screen	% THD voltage of 3rd phase
	3rd Screen	Current of 3rd phase
	4th Screen	MAX current of 3rd phase
	5th Screen	% THD current of 3rd phase
	1st Screen	Voltage, Current, Power factor, Frequency of 3rd phase
	1st Screen	PF of 3rd phase
	2nd Screen	Phase angle of 3rd phase
	3rd Screen	Active power of 3rd phase
	4th Screen	Reactive power of 3rd phase
	5th Screen	Apparent power of 3rd phase
	6th Screen	active, reactive, Apparent power, power factor of 3rd phase
	7th Screen	Total Active, Reactive, Apparent power and Avg Power factor of 3rd phase
	8th Screen	Max Active power demand, reactive power demand, Apparent power demand of 3rd phase
	9th Screen	Min Active power demand, reactive power demand of 3rd phase

Manual Mode without DG

Network Selection	Online Pages (Manual Mode)		
	Keys	Screen	Function
3P4W	F1	1st Screen	L-N voltages of 3 phases and average L-N voltages
		2nd Screen	L-L voltages of 3 phases and average L-L voltages
		3rd Screen	% THD of L-N voltages of 3 phases and average L-N voltages
		4th Screen	% THD L-L voltages of 3 phases and average L-L voltages
		5th Screen	Phase Current of 3 phase and neutral current
		6th Screen	MAX DMD Current of 3 Phases and average Phase current
		7th Screen	% THD of 3 phase current and average Phase current
		8th Screen	% unbalance voltage & Current.
	F2	1st Screen	Voltage, Current Power Factor, Frequency of 1st phase
		2nd Screen	Voltage, Current Power Factor, Frequency of 2nd phase
		3rd Screen	Voltage, Current Power Factor, Frequency of 3rd phase
		4th Screen	Average Voltage, Current Power Factor, Frequency of all three phase
	F3	1st Screen	PF of all phase and average PF of 3 phase
		2nd Screen	phase angle of all 3 phase and average angle
		3rd Screen	Active power of all three phases and Total Active Power
		4th Screen	Reactive power of all three phases and Total Reactive Power
		5th Screen	Apparent power of all three phases and Total Apparent Power
		6th Screen	Active, Reactive, Apparent power & PF of 1st Phase
		7th Screen	Active, Reactive, Apparent power & PF of 2nd Phase
		8th Screen	Active, Reactive, Apparent power & PF of 3rd Phase
		9th Screen	Total Active, Reactive, Apparent power and Avg Power factor of all three phases
		10th Screen	Max active power demand,Max reactive power demand, Max Apparent power demand
		11th Screen	Min Active power demand, reactive power demand

Reading of parameters (Continued)

Network Selection	Online Pages (Manual Mode)		
	Keys	Screen	Function
3P4W	F4	1st Screen	Import active energy of 1st phase
		2nd Screen	Import active energy of 2nd phase
		3rd Screen	Import active energy of 3rd phase
		4th Screen	Export active energy of 1st phase
		5th Screen	Export active energy of 2nd phase
		6th Screen	Export active energy of 3rd phase
		7th Screen	Total import active energy of 3 phase
		8th Screen	Total export active energy of 3 phase
		9th Screen	Total net active energy of 3 phase
		10th Screen	Import reactive energy of 1st phase
		11th Screen	Import reactive energy of 2nd phase
		12th Screen	Import reactive energy of 3rd phase
		13th Screen	Export reactive energy of 1st phase
		14th Screen	Export reactive energy of 2nd phase
		15th Screen	Export reactive energy of 3rd phase
		16th Screen	Total import reactive energy
		17th Screen	Total export reactive energy
		18th Screen	Total net reactive energy
		19th Screen	Apparent energy of 1st phase
		20th Screen	Apparent energy of 2nd phase
		21st Screen	Apparent energy of 3rd phase
		22nd Screen	Total net Apparent energy
		23nd Screen	ON Hr.
		24nd Screen	Total net Old active energy
		25nd Screen	Total net Old Reactive energy
		26nd Screen	Total net Old apparent energy

Reading of parameters (Continued)

Network Selection	Online Pages		
	Keys	Screen	Function
3P3W	F1	1st Screen	Average L-L voltages of 3 phases
		2nd Screen	% THD of L-L voltages of 3 phases and Average line to line voltage
		3rd Screen	Line to Line Current of all 3 phases and Average current
		4th Screen	MAX Current of 3 Phases
		5th Screen	% THD of 3 phase current
		6th Screen	% unbalance voltage & Current
	F2	1st Screen	Voltage, Current, Power factor, Frequency of 1-2 Phase
		2nd Screen	Voltage, Current, Power factor, Frequency of 2-3 phase
		3rd Screen	Voltage, Current, Power factor, Frequency of 3-1 phase
		4th Screen	Average Voltage, Current, Power factor, Frequency
	F3	1st Screen	Avg PF of all phase
		2nd Screen	Avg phase angle of all phase
		3rd Screen	Total Active, Reactive, Apparent power and Avg Power factor of all three phases
		4th Screen	Max active power demand,Max reactive power demand, Max Apparent power demand
		5th Screen	Min Active power demand, reactive power demand
	F4	1st Screen	Total import active energy
		2nd Screen	Total export active energy
		3rd Screen	Total net active energy
		4th Screen	Total import reactive energy
		5th Screen	Total export reactive energy
		6th Screen	Total net reactive energy
		7th Screen	Total net Apparent energy
		8th Screen	ON Hr.
		9th Screen	Total Old active energy
		10th Screen	Total Old Reactive energy
		11th Screen	Total Old apparent energy

Reading of parameters (Continued)

Network Selection	Online Pages		
	Keys	Screen	Function
1P2W-P1	F1	1st Screen	Voltage of 1st phase
		2nd Screen	% THD voltage of 1st phase
		3rd Screen	Current of 1st phase
		4th Screen	MAX DMD current of 1st phase
		5th Screen	% THD current of 1nd phase
	F2	1st Screen	Voltage, Current, Power factor, Frequency of 1st phase
	F3	1st Screen	PF of 1st phase
		2nd Screen	Phase angle of 1st phase
		3rd Screen	Active power of 1st phase
		4th Screen	Reactive power of 1st pfase
		5th Screen	Apparent power of 1st phase
		6th Screen	Active, reactive, Apparent power, power factor of 1st phase
		7th Screen	Total Active, Reactive, Apparent power and Avg Power factor of 1st phases
		8th Screen	Max Active power demand, reactive power demand, Apparent power demand of 1st phase
		9th Screen	Min Active power demand, reactive power demand of 1st phase
	F4	1st Screen	Import Active energy of 1st phase
		2nd Screen	Export Active energy of 1st phase
		3rd Screen	Total import energy of 1st phase
		4th Screen	Total export energy of 1st phase
		5th Screen	Total net active energy of 1st phase
		6th Screen	Import rective energy of 1st phase
		7th Screen	Export rective energy of 1st phase
		8th Screen	Total import reactive energy of 1st phase
		9th Screen	Total export reactive energy of 1st phase
		10th Screen	Total net reactive energy of 1st phase
		11th Screen	Apparent energy of 1st phase
		12th Screen	Total net Apparent energy of 1st phase
		13th Screen	ON Hr.
		14th Screen	Total Old active energy of 1st phase
		15th Screen	Total Old Reactive energy of 1st phase
		16th Screen	Total Old apparent energy of 1st phase

Reading of parameters (Continued)

Network Selection	Online Pages		
	Keys	Screen	Function
1P2W-P2	F1	1st Screen	Voltage of 2nd phase
		2nd Screen	% THD voltage of 2nd phase
		3rd Screen	Current of 2nd phase
		4th Screen	MAX DMD current of 2nd phase
		5th Screen	% THD of 2nd phase
	F2	1st Screen	Voltage, Current, Power factor, Frequency of 2nd phase
	F3	1st Screen	PF of 2nd phase
		2nd Screen	Phase angle of 2nd phase
		3rd Screen	Active power of 2nd phase
		4th Screen	Reactive power of 2nd phase
		5th Screen	Apparent power of 2nd phase
		6th Screen	active, reactive, Apparent power, power factor of 2nd phase
		7th Screen	Total Active, Reactive, Apparent power and Avg Power factor 2nd phase
		8th Screen	Max Active power demand, reactive power demand, Apparent power demand of 2nd phase
		9th Screen	Min Active power demand, reactive power demand of 2nd phase
	F4	1st Screen	Import Active energy of 2nd phase
		2nd Screen	Export Active energy of 2nd phase
		3rd Screen	Total import active energy of 2nd phase
		4th Screen	Total export active energy of 2nd phase
		5th Screen	Total net active energy of 2nd phase
		6th Screen	Import reactive energy of 2nd phase
		7th Screen	Export rective energy of 2nd phase
		8th Screen	Total import reactive energy of 2nd phase
		9th Screen	Total export reactive energy of 2nd phase
		10th Screen	Total net reactive energy of 2nd phase
		11th Screen	Apparent energy of 2nd phase
		12th Screen	Total net Apparent energy of 2nd phase
		13th Screen	ON Hr.
		14th Screen	Total Old active energy of 2nd phase
		15th Screen	Total Old Reactive energy of 2nd phase
		16th Screen	Total Old apparent energy of 2nd phase

Reading of parameters (Continued)

Network Selection	Online Pages		
	Keys	Screen	Function
1P2W-P3	F1	1st Screen	Voltage of 3rd phase
		2nd Screen	% THD voltage of 3rd phase
		3rd Screen	Current of 3rd phase
		4th Screen	MAX current of 3rd phase
		5th Screen	% THD current of 3rd phase
	F2	1st Screen	Voltage, Current, Power factor, Frequency of 3rd phase
	F3	1st Screen	PF of 3rd phase
		2nd Screen	Phase angle of 3rd phase
		3rd Screen	Active power of 3rd phase
		4th Screen	Reactive power of 3rd phase
		5th Screen	Apparent power of 3rd phase
		6th Screen	active, reactive, Apparent power, power factor of 3rd phase
		7th Screen	Total Active, Reactive, Apparent power and Avg Power factor of 3rd phase
		8th Screen	Max Active power demand, reactive power demand, Apparent power demand of 3rd phase
		9th Screen	Min Active power demand, reactive power demand of 3rd phase
	F4	1st Screen	Import Active energy of 3rd phase
		2nd Screen	Export Active energy of 3rd phase
		3rd Screen	Total import active energy of 3rd phase
		4th Screen	Total export active energy of 3rd phase
		5th Screen	Total net active energy 3rd phase
		6th Screen	Import reactive energy of 3rd phase
		7th Screen	Export reactive energy of 3rd phase
		8th Screen	Total import reactive energy of 3rd phase
		9th Screen	Total export reactive energy of 3rd phase
		10th Screen	Total net reactive energy 3rd phase
		11th Screen	Apparent energy of 3rd phase
		12th Screen	Total net Apparent energy 3rd phase
		13th Screen	ON Hr.
		14th Screen	Total Old active energy 3rd phase
		15th Screen	Total Old Reactive energy 3rd phase
		16th Screen	Total Old apparent energy 3rd phase

Reading of parameters (Continued)

Auto Mode without DG

Network Selection		
	Screen	**Function**
3P4W	1st Screen	L-N voltages of 3 phases and average L-N voltages
	2nd Screen	L-L voltages of 3 phases and average L-L voltages
	3rd Screen	% THD of L-N voltages of 3 phases and average L-N voltages
	4th Screen	% THD L-L voltages of 3 phases and average L-L voltages
	5th Screen	Phase Current of 3 phase and neutral current
	6th Screen	MAX DMD Current of 3 Phases and average Phase current
	7th Screen	% THD of 3 phase current and average Phase current
	8th Screen	% unbalance voltage & Current
	9th Screen	Voltage, Current Power Factor, Frequency of 1st phase
	10th Screen	Voltage, Current Power Factor, Frequency of 2nd phase
	11th Screen	Voltage, Current Power Factor, Frequency of 3rd phase
	12th Screen	Average Voltage, Current Power Factor, Frequency of all three phase
	13th Screen	PF of all phase and average PF of 3 phase
	14th Screen	phase angle of all 3 phase and average angle
	15th Screen	Active power of all three phases and Total Active Power
	16th Screen	Reactive power of all three phases and Total Reactive Power
	17th Screen	Apparent power of all three phases and Total Apparent Power
	18th Screen	Active, Reactive, Apparent power & PF of 1st Phase
	19th Screen	Active, Reactive, Apparent power & PF of 2nd Phase
	20th Screen	Active, Reactive, Apparent power & PF of 3rd Phase
	21st Screen	Total Active, Reactive, Apparent power and Avg Power factor of all three phases
	22nd Screen	Max active power demand,Max reactive power demand, Max Apparent power demand
	23rd Screen	Min Active power demand, reactive power demand

Network Selection		
	Screen	**Function**
3P3W	1st Screen	L-L voltages of 3 phases and average L-L voltages
	2nd Screen	% THD of L-L voltages of 3 phases and Average line to line voltage
	3rd Screen	Line to Line Current of all 3 phases and Average current
	4th Screen	MAX Current of 3 Phases and Average current
	5th Screen	% THD of 3 phase current and Average current
	6th Screen	% unbalance voltage & Current
	7th Screen	Voltage, Current, Power factor, Frequency of 1-2 Phase
	8th Screen	Voltage, Current, Power factor, Frequency of 2-3 phase
	9th Screen	Voltage, Current, Power factor, Frequency of 3-1 phase
	10th Screen	Average Voltage, Current, Power factor, Frequency
	11th Screen	Avg PF of all phase
	12th Screen	Avg phase angle of all phase
	13th Screen	Total Active, Reactive, Apparent power and Avg Power factor of all three phases
	14th Screen	Max active power demand,Max reactive power demand, Max Apparent power demand
	15th Screen	Min Active power demand, reactive power demand

Reading of parameters (Continued)

Network Selection	Screen	Function
1P2W-P1	1st Screen	Voltage of 1st phase
	2nd Screen	% THD voltage of 1st phase
	3rd Screen	Current of 1st phase
	4th Screen	MAX DMD current of 1st phase
	5th Screen	% THD current of 1nd phase
	6th Screen	Voltage, Current, Power factor, Frequency of 1st phase
	7th Screen	PF of 1st phase
	8th Screen	Phase angle of 1st phase
	9th Screen	Active power of 1st phase
	10th Screen	Reactive power of 1st pfase
	11th Screen	Apparent power of 1st phase
	12th Screen	Active, reactive, Apparent power, power factor of 1st phase
	13th Screen	Max Active power demand, reactive power demand, Apparent power demand of 1st phase
	14th Screen	Min Active power demand, reactive power demand of 1st phase

Network Selection	Screen	Function
1P2W-P2	1st Screen	Voltage of 2nd phase
	2nd Screen	% THD voltage of 2nd phase
	3rd Screen	Current of 2nd phase
	4th Screen	MAX DMD current of 2nd phase
	5th Screen	% THD of 2nd phase
	6th Screen	Voltage, Current, Power factor, Frequency of 2nd phase
	7th Screen	PF of 2nd phase
	8th Screen	Phase angle of 2nd phase
	9th Screen	Active power of 2nd phase
	10th Screen	Reactive power of 2nd phase
	11th Screen	Apparent power of 2nd phase
	12th Screen	active, reactive, Apparent power, power factor of 2nd phase
	13th Screen	Max Active power demand, reactive power demand, Apparent power demand of 2nd phase
	14th Screen	Min Active power demand, reactive power demand of 2nd phase

Reading of parameters (Continued)

Network Selection		
	Screen	**Function**
1P2W-P3	1st Screen	Voltage of 3rd phase
	2nd Screen	% THD voltage of 3rd phase
	3rd Screen	Current of 3rd phase
	4th Screen	MAX current of 3rd phase
	5th Screen	% THD current of 3rd phase
	6th Screen	Voltage, Current, Power factor, Frequency of 3rd phase
	7th Screen	PF of 3rd phase
	8th Screen	Phase angle of 3rd phase
	9th Screen	Active power of 3rd phase
	10th Screen	Reactive power of 3rd phase
	11th Screen	Apparent power of 3rd phase
	12th Screen	active, reactive, Apparent power, power factor of 3rd phase
	13th Screen	Max Active power demand, reactive power demand, Apparent power demand of 3rd phase
	14th Screen	Min Active power demand, reactive power demand of 3rd phase

Communication 7

Protocol and interface

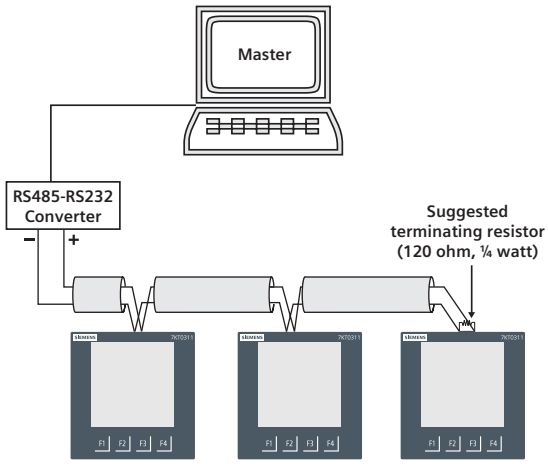
Protocol: Modbus RTU

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 L-N
30008	0x08	Voltage V12
30010	0x0A	Voltage V23
30012	0x0C	Voltage V31
30014	0x0E	Average Voltage L-L
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

Address	Hex Address	Parameter
30036	0x24	kVAr1
30038	0x26	kVAr2
30040	0x28	kVAr3
30042	0x2A	Total kW
30044	0x2C	Total kVA
30046	0x2E	Total kVAr
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 kVAh
30062	0x3E	Total net kVArh
30064	0x40	kW MAX Active Power
30066	0x42	kW Min Active Power
30068	0x44	kVAr MAX Reactive Power
30070	0x46	kVAr Min Reactive Power

Modbus register addresses list (Continued)

Address	Hex Address	Parameter
30072	0x48	kVA MAX Apparent Power
30084	0x54	kWh1 (Imp)
30086	0x56	kWh2 (Imp)
30088	0x58	kWh3 (Imp)
30090	0x5A	kWh1 (Exp)
30092	0x5C	kWh2 (Exp)
30094	0x5E	kWh3 (Exp)
30096	0x60	Total kWh (Imp)
30098	0x62	Total kWh (Exp)
30100	0x64	kVArh1 (Imp)
30102	0x66	kVArh2 (Imp)
30104	0x68	kVArh3 (Imp)
30106	0x6A	kVArh1 (Exp)
30108	0x6C	kVArh2 (Exp)
30110	0x6E	kVArh3 (Exp)
30112	0x70	Total kVArh (Imp)
30114	0x72	Total kVArh (Exp)
30122	0x7A	Neutral Current
30124	0x7C	THD of 1st Phase Voltage
30126	0x7E	THD of 2nd Phase Voltage
30128	0x80	THD of 3rd Phase Voltage
30130	0x82	THD of Voltage V12
30132	0x84	THD of Voltage V23
30134	0x86	THD of Voltage V31
30136	0x88	THD of Current I1
30138	0x8A	THD of Current I2
30140	0x8C	THD of Current I3
30684	0x2AC	Serial No (Data structure: Hex)
30692	0x2AB	MAX I1 Demand
30694	0x2B6	MAX I2 Demand
30696	0x2B8	MAX I3 Demand
30698	0x2BA	MAX Avg Demand
30700	0x2BC	Phase sequence detection
30702	0x2BE	Existing kW MAX Active Power
30704	0x2C0	Existing kW Min Active Power
30706	0x2C2	Existing kVAr MAX Reactive Power
30708	0x2C4	Existing kVAr Min Reactive Power
30710	0x2C6	Existing kVA MAX Apparent Power
30712	0x2C8	Existing MAX I1 Demand
30714	0x2CA	Existing MAX I2 Demand
30716	0x2CC	Existing MAX I3 Demand
30718	0x2CE	Existing MAX Avg Demand
30724	0x2D4	DI Status
30726	0x2D6	DI Count
30728	0x2D8	Old Total Kwh of Mains
30730	0x2DA	Old Total KVArh of Mains
30732	0x2DC	Old Total KVAh of Mains
30734	0x2DE	%I unbalanced of three phase
30736	0x2E0	%V unbalanced of three phase
30738	0x2E2	DI Total Net Kwh
30740	0x2E4	DI Total Net KVArh
30742	0x2E6	DI Total Net KVAh
30143	0x08F	2nd Harmonic of V1N
30145	0x91	3rd Harmonic of V1N
30147	0x93	4th Harmonic of V1N
30149	0x95	5th Harmonic of V1N
30151	0x97	6th Harmonic of V1N
30153	0x99	7th Harmonic of V1N
30155	0x09B	8th Harmonic of V1N
30157	0x09D	9th Harmonic of V1N
30159	0x09F	10th Harmonic of V1N
30161	0x0A1	11th Harmonic of V1N
30163	0x0A3	12th Harmonic of V1N
30165	0x0A5	13th Harmonic of V1N
30167	0x0A7	14th Harmonic of V1N
30169	0x0A9	15th Harmonic of V1N
30171	0x0AB	16th Harmonic of V1N
30173	0x0AD	17th Harmonic of V1N
30175	0x0AF	18th Harmonic of V1N
30177	0x0B1	19th Harmonic of V1N
30179	0x0B3	20th Harmonic of V1N
30181	0x0B5	21st Harmonic of V1N
30183	0x0B7	22nd Harmonic of V1N
30185	0x0B9	23rd Harmonic of V1N
30187	0x0BB	24th Harmonic of V1N
30189	0x0BD	25th Harmonic of V1N
30191	0x0BF	26th Harmonic of V1N
30193	0x0C1	27th Harmonic of V1N
30195	0x0C3	28th Harmonic of V1N
30197	0x0C5	29th Harmonic of V1N
30199	0x0C7	30th Harmonic of V1N
30201	0x0C9	31st Harmonic of V1N
30203	0x0CB	2nd Harmonic of V2N
30205	0x0CD	3rd Harmonic of V2N
30207	0x0CF	4th Harmonic of V2N
30209	0x0D1	5th Harmonic of V2N
30211	0x0D3	6th Harmonic of V2N
30213	0x0D5	7th Harmonic of V2N
30215	0x0D7	8th Harmonic of V2N
30217	0x0D9	9th Harmonic of V2N
30219	0x0DB	10th Harmonic of V2N
30221	0x0DD	11th Harmonic of V2N
30223	0x0DF	12th Harmonic of V2N
30225	0xE1	13th Harmonic of V2N
30227	0xE3	14th Harmonic of V2N
30229	0xE5	15th Harmonic of V2N
30231	0xE7	16th Harmonic of V2N
30233	0xE9	17th Harmonic of V2N

Modbus register addresses list (Continued)

Address	Hex Address	Parameter
30235	0x0EB	18th Harmonic of V2N
30237	0x0ED	19th Harmonic of V2N
30239	0x0EF	20th Harmonic of V2N
30241	0x0F1	21st Harmonic of V2N
30243	0x0F3	22nd Harmonic of V2N
30245	0x0F5	23rd Harmonic of V2N
30247	0x0F7	24th Harmonic of V2N
30249	0x0F9	25th Harmonic of V2N
30251	0x0FB	26th Harmonic of V2N
30253	0x0FD	27th Harmonic of V2N
30255	0x0FF	28th Harmonic of V2N
30257	0x101	29th Harmonic of V2N
30259	0x103	30th Harmonic of V2N
30261	0x105	31st Harmonic of V2N
30263	0x107	2nd Harmonic of V3N
30265	0x109	3rd Harmonic of V3N
30267	0x10B	4th Harmonic of V3N
30269	0x10D	5th Harmonic of V3N
30271	0x10F	6th Harmonic of V3N
30273	0x111	7th Harmonic of V3N
30275	0x113	8th Harmonic of V3N
30277	0x115	9th Harmonic of V3N
30279	0x117	10th Harmonic of V3N
30281	0x119	11th Harmonic of V3N
30283	0x11B	12th Harmonic of V3N
30285	0x11D	13th Harmonic of V3N
30287	0x11F	14th Harmonic of V3N
30289	0x121	15th Harmonic of V3N
30291	0x123	16th Harmonic of V3N
30295	0x127	17th Harmonic of V3N
30297	0x129	18th Harmonic of V3N
30299	0x12B	19th Harmonic of V3N
30301	0x12D	20th Harmonic of V3N
30303	0x12F	21st Harmonic of V3N
30305	0x131	22nd Harmonic of V3N
30307	0x133	23rd Harmonic of V3N
30309	0x135	24th Harmonic of V3N
30311	0x137	25th Harmonic of V3N
30313	0x139	26th Harmonic of V3N
30315	0x13B	27th Harmonic of V3N
30317	0x13D	28th Harmonic of V3N
30319	0x13F	29th Harmonic of V3N
30321	0x141	30th Harmonic of V3N
30323	0x143	31st Harmonic of V3N
30325	0x145	2nd Harmonic of V12
30327	0x147	3rd Harmonic of V12
30329	0x149	4th Harmonic of V12
30331	0x14B	5th Harmonic of V12
30333	0x14D	6th Harmonic of V12

Address	Hex Address	Parameter
30335	0x14F	7th Harmonic of V12
30337	0x151	8th Harmonic of V12
30339	0x153	9th Harmonic of V12
30341	0x155	10th Harmonic of V12
30343	0x157	11th Harmonic of V12
30345	0x159	12th Harmonic of V12
30347	0x15B	13th Harmonic of V12
30349	0x15D	14th Harmonic of V12
30351	0x15F	15th Harmonic of V12
30353	0x161	16th Harmonic of V12
30355	0x163	17th Harmonic of V12
30357	0x165	18th Harmonic of V12
30359	0x167	19th Harmonic of V12
30361	0x169	20th Harmonic of V12
30363	0x16B	21st Harmonic of V12
30365	0x16D	22nd Harmonic of V12
30367	0x16F	23rd Harmonic of V12
30369	0x171	24th Harmonic of V12
30371	0x173	25th Harmonic of V12
30373	0x175	26th Harmonic of V12
30375	0x177	27th Harmonic of V12
30377	0x179	28th Harmonic of V12
30379	0x17B	29th Harmonic of V12
30381	0x17D	30th Harmonic of V12
30383	0x17F	31st Harmonic of V12
30385	0x181	2nd Harmonic of V23
30387	0x183	3rd Harmonic of V23
30389	0x185	4th Harmonic of V23
30391	0x187	5th Harmonic of V23
30393	0x189	6th Harmonic of V23
30395	0x18B	7th Harmonic of V23
30397	0x18D	8th Harmonic of V23
30399	0x18F	9th Harmonic of V23
30401	0x191	10th Harmonic of V23
30403	0x193	11th Harmonic of V23
30405	0x195	12th Harmonic of V23
30407	0x197	13th Harmonic of V23
30409	0x199	14th Harmonic of V23
30411	0x19B	15th Harmonic of V23
30413	0x19D	16th Harmonic of V23
30415	0x19F	17th Harmonic of V23
30417	0x1A1	18th Harmonic of V23
30419	0x1A3	19th Harmonic of V23
30421	0x1A5	20th Harmonic of V23
30423	0x1A7	21st Harmonic of V23
30425	0x1A9	22nd Harmonic of V23
30427	0x1AB	23rd Harmonic of V23
30429	0x1AD	24th Harmonic of V23
30431	0x1AF	25th Harmonic of V23

Modbus register addresses list (Continued)

Address	Hex Address	Parameter
30433	0x1B1	26th Harmonic of V23
30435	0x1B3	27th Harmonic of V23
30437	0x1B5	28th Harmonic of V23
30439	0x1B7	29th Harmonic of V23
30441	0x1B9	30th Harmonic of V23
30443	0x1BB	31st Harmonic of V23
30505	0x1F9	3rd Harmonic of I1
30507	0x1FB	4th Harmonic of I1
30509	0x1FD	5th Harmonic of I1
30511	0x1FF	6th Harmonic of I1
30513	0x201	7th Harmonic of I1
30515	0x203	8th Harmonic of I1
30517	0x205	9th Harmonic of I1
30519	0x207	10th Harmonic of I1
30521	0x209	11th Harmonic of I1
30523	0x20B	12th Harmonic of I1
30525	0x20D	13th Harmonic of I1
30527	0x20F	14th Harmonic of I1
30529	0x211	15th Harmonic of I1
30531	0x213	16th Harmonic of I1
30533	0x215	17th Harmonic of I1
30535	0x217	18th Harmonic of I1
30537	0x219	19th Harmonic of I1
30539	0x21B	20th Harmonic of I1
30541	0x21D	21st Harmonic of I1
30543	0x21F	22nd Harmonic of I1
30545	0x221	23rd Harmonic of I1
30547	0x223	24th Harmonic of I1
30549	0x225	25th Harmonic of I1
30551	0x227	26th Harmonic of I1
30553	0x229	27th Harmonic of I1
30555	0x22B	28th Harmonic of I1
30557	0x22D	29th Harmonic of I1
30559	0x22F	30th Harmonic of I1
30561	0x231	31st Harmonic of I1
30563	0x233	2nd Harmonic of I2
30565	0x235	3rd Harmonic of I2
30567	0x237	4th Harmonic of I2
30569	0x239	5th Harmonic of I2
30571	0x23B	6th Harmonic of I2
30573	0x23D	7th Harmonic of I2
30575	0x23F	8th Harmonic of I2
30577	0x241	9th Harmonic of I2
30579	0x243	10th Harmonic of I2
30581	0x245	11th Harmonic of I2
30583	0x247	12th Harmonic of I2
30585	0x249	13th Harmonic of I2
30587	0x24B	14th Harmonic of I2
30589	0x24D	15th Harmonic of I2
30591	0x24F	16th Harmonic of I2
30593	0x251	17th Harmonic of I2
30595	0x253	18th Harmonic of I2
30597	0x255	19th Harmonic of I2
30599	0x257	20th Harmonic of I2
30601	0x259	21st Harmonic of I2
30603	0x25B	22nd Harmonic of I2
30605	0x25D	23rd Harmonic of I2
30607	0x25F	24th Harmonic of I2
30609	0x261	25th Harmonic of I2
30611	0x263	26th Harmonic of I2
30613	0x265	27th Harmonic of I2
30615	0x267	28th Harmonic of I2
30617	0x269	29th Harmonic of I2
30619	0x26B	30th Harmonic of I2
30621	0x26D	31st Harmonic of I2
30623	0x26F	2nd Harmonic of I3
30625	0x271	3rd Harmonic of I3
30627	0x273	4th Harmonic of I3
30629	0x275	5th Harmonic of I3
30631	0x277	6th Harmonic of I3
30633	0x279	7th Harmonic of I3
30635	0x27B	8th Harmonic of I3
30637	0x27D	9th Harmonic of I3
30639	0x27F	10th Harmonic of I3
30641	0x281	11th Harmonic of I3
30643	0x283	12th Harmonic of I3
30645	0x285	13th Harmonic of I3
30647	0x287	14th Harmonic of I3
30649	0x289	15th Harmonic of I3
30651	0x28B	16th Harmonic of I3
30653	0x28D	17th Harmonic of I3
30655	0x28F	18th Harmonic of I3
30657	0x291	19th Harmonic of I3
30659	0x293	20th Harmonic of I3
30661	0x295	21st Harmonic of I3
30663	0x297	22nd Harmonic of I3
30665	0x299	23rd Harmonic of I3
30667	0x29B	24th Harmonic of I3
30669	0x29D	25th Harmonic of I3
30671	0x29F	26th Harmonic of I3
30673	0x2A1	27th Harmonic of I3
30675	0x2A3	28th Harmonic of I3
30677	0x2A5	29th Harmonic of I3
30679	0x2A7	30th Harmonic of I3
30681	0x2A9	31st Harmonic of I3

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	Network 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	Min Value: 1	Max Value: 10000	1
			Min Value: 5	Max Value: 10000	
40004	0x04	PT Secondary	Min Value: 100	Max Value: 500	1
40005	0x05	PT Primary	Min Value: 100	Max Value: 500kV	2
40007	0x07	Slave ID	Min Value: 1	Max Value: 255	1
40008	0x08	Baud Rate	Min Value: 0x0000	Meaning: 300	1
			Min Value: 0x0001	Meaning: 600	1
			Min Value: 0x0002	Meaning: 1200	1
			Min Value: 0x0003	Meaning: 2400	1
			Min Value: 0x0004	Meaning: 4800	1
			Min Value: 0x0005	Meaning: 9600	1
			Min Value: 0x0006	Meaning: 19200	1
40009	0x09	Parity	Min Value: 0x0000	Meaning: None	1
			Min Value: 0x0001	Meaning: Odd	1
			Min Value: 0x0002	Meaning: Even	1
40010	0x0A	Stop bit	Min Value: 0x0000	Meaning: 1	1
			Min Value: 0x0001	Meaning: 2	1
40011	0x0B	Backlight	Min Value: 0	Max Value: 7200	1
40012	0x0C	Factory Default	Value: 1	Meaning: To set factory setting range	1
40014	0x0E	Page mode	Value: 0	0: Auto Mode	1
			Value: 1	**1: Manual**	1
40016	0x10	Max Page Auto	Min Value: 1	Max Value: 23	1
			Page No	**Meaning**	
40017	0x11	Page sequence 1	1 to 23	1: First Page: 23: Last page	1
40018	0x12	Page sequence 2	1 to 23	1: First Page: 23: Last page	1
40019	0x13	Page sequence 3	1 to 23	1: First Page: 23: Last page	1
40020	0x14	Page sequence 4	1 to 23	1: First Page: 23: Last page	1
40021	0x15	Page sequence 5	1 to 23	1: First Page: 23: Last page	1
40022	0x16	Page sequence 6	1 to 23	1: First Page: 23: Last page	1
40023	0x17	Page sequence 7	1 to 23	1: First Page: 23: Last page	1
40024	0x18	Page sequence 8	1 to 23	1: First Page: 23: Last page	1
40025	0x19	Page sequence 9	1 to 23	1: First Page: 23: Last page	1
40026	0x1A	Page sequence 10	1 to 23	1: First Page: 23: Last page	1
40027	0x1B	Page sequence 11	1 to 23	1: First Page: 23: Last page	1
40028	0x1C	Page sequence 12	1 to 23	1: First Page: 23: Last page	1
40029	0x1D	Page sequence 13	1 to 23	1: First Page: 23: Last page	1
40030	0x1E	Page sequence 14	1 to 23	1: First Page: 23: Last page	1
40031	0x1F	Page sequence 15	1 to 23	1: First Page: 23: Last page	1
40032	0x20	Page sequence 16	1 to 23	1: First Page: 23: Last page	1

Modbus register addresses list (Continued)

Address	Hex Address	Parameter	Range		Length (Register)
40033	0x21	Page sequence 17	1 to 23	1: First Page: 23: Last page	1
40054	0x36	Page sequence 18	1 to 23	1: First Page: 23: Last page	1
40055	0x37	Page sequence 19	1 to 23	1: First Page: 23: Last page	1
40059	0x3B	Page sequence 20	1 to 23	1: First Page: 23: Last page	1
40060	0x3C	Page sequence 21	1 to 23	1: First Page: 23: Last page	1
40061	0x3D	Page sequence 22	1 to 23	1: First Page: 23: Last page	1
40062	0x3E	Page sequence 23	1 to 23	1: First Page: 23: Last page	1
40034	0x22	Demand Interval Method	Min Value: 0x0000	Meaning: Sliding	1
			Min 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
40057	0x39	Pulse Duration (Sec)	Min Value: 1	Max Value: 20	1
40058	0x3A	Pulse Weight (kWh)	Min Value: 1	Max Value: 9999	1
40043	0x2B	Reset MAX current and power	Min Value: 1	Meaning: Reset all MAX Power and Current	1
40044	0x2C	Reset Energy mains	Min Value: 1	Meaning: Reset all mains energy to factory setting range	1
40046	0x2E	Reset ON hour	Min Value: 1	Meaning: Reset ON Hour	1
40047	0x2F	Reset Energy DI	Min Value: 1	Meaning: Reset all Dienergy to factory setting range	1

Maintenance

8

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 Siemens. Any statements contained herein do not create new warranties or modify the existing warranty.

Customer Care Toll free no. 1800 209 0987 Email: ics.india@siemens.com

Siemens Ltd.

S18436