# Interface Definition

## *Alpha AP1480*



# DIGITAL MULTIFUNCTION INSTRUMENT

## Installation & Operating Instructions


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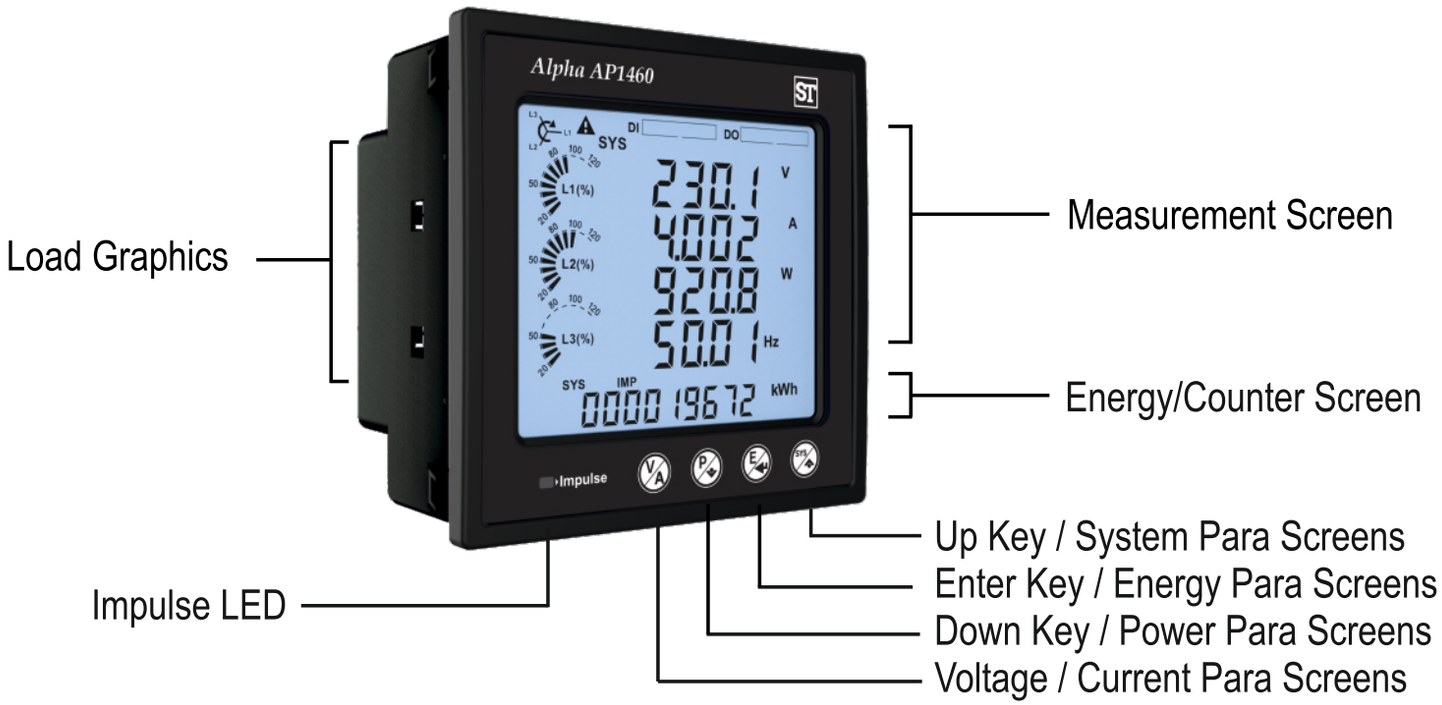

**DMAN-00IM-1754 Rev C - 03/2026**

# 1. Introduction

The Multifunction Instrument is a panel mounted 96 x 96mm DIN Quadratic Digital Panel Meter, which measures important electrical parameters in 3 ph 4 wire / 3 wire / 1 ph 2 Wire / 3 Wire and 2 Ph 2 Wire Network and replaces the multiple analog panel meters. It measures electrical parameters like AC voltage, Current, Frequency, Power, Energy (Active / Reactive / Apparent / Quadrant wise reactive energies), phase angle, power factor, individual harmonics & many more. The instrument integrates accurate measurement technology (All Voltage & Current measurements are True RMS up to 63rd Harmonic) with LCD display with backlit.

It can be configured & Programmed at site for the following : PT Primary, PT Secondary, CT Primary, CT Secondary 3 Phase 3W, 3 Phase 4W, 1 Phase 2W, 1 Phase 3 Wire and 2 Phase 2 Wire system.

The front panel has four push buttons using which the user can scroll through different screens & configure the instrument. The front panel also has Impulse red led, flashing at rate proportional to measured power.




Operation via standard RS485 is also possible. Through this optional interface all the above mentioned parameters can be configured and programmed. For modbus service, it is essential that device address, baud rate and parity should be configured properly.

This document specifies only the interface between a Master device and Meter for electrical parameter through MODBUS over RS485.

## 2. Communication Parameter Selection Screen

**While using USB port communication the Configuration must be :**

Device address: 001 Baud rate : 57600

Parity : None Stop bit: 1

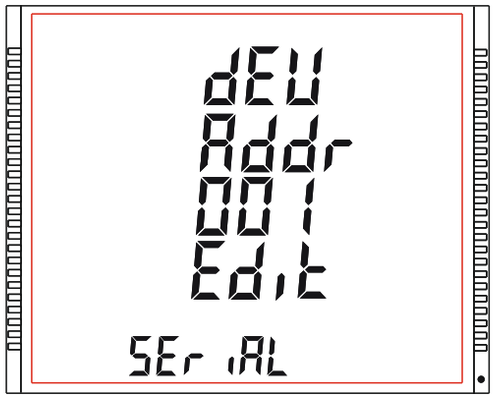
## 2.1 Address Setting




This screen applies to the RS 485 output only. This screen allows the user to set RS 485 address for the meter.

**The allowable range of addresses is 1 to 247.**

Press " ▲ " key to advance to "RS 485 Baud Rate" screen (see Section 2.2) or press the " ▼ " key to advance to the "Quit Communication Parameters" screen (see Section 2.4).




Press " ↵ " to enter into edit mode, prompt for first digit. (Flashing digit indicates cursor position).

Press the " ▲ " and " ▼ " keys to scroll the value of the first digit. Press the " ↵ " key to advance to next digit.

Similarly, enter second and third digits of address. After entering third digit, pressing " ↵ " key confirms the selection and shows "Address Setting" screen (see Section 2.1).

## 2.2 RS 485 Baud Rate




This screen allows the user to set Baud Rate of RS 485 port. The values displayed on screen are in kbaud.

Pressing " ▲ " key accepts the present value and advance to the "RS 485 Parity Selection" screen (see Section 2.3) and pressing the " ▼ " key accepts the present value and advance to the "Address Setting" screen(see Section 2.1).

Pressing the " ↵ " key advances to the "Baud Rate Edit" mode and " ▲ " & " ▼ " keys scrolls the value through **4.8, 9.6, 19.2, 38.4 and 57.6** kbaud.

Pressing the " ↵ " key sets the value and shows the "RS 485 Baud Rate" screen (see Section 2.2).

## 2.3 RS 485 Parity

This screen allows the user to set Parity & number of stop bits of RS 485 port.

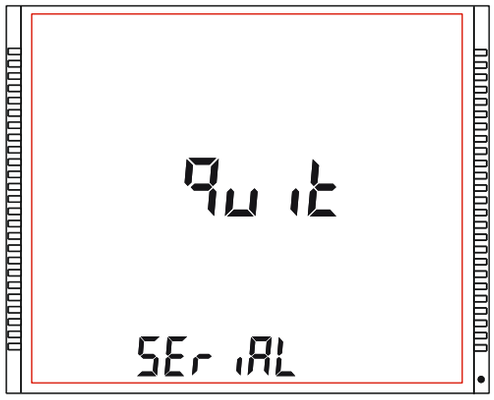



Pressing " ▲ " key accepts the present value and advances to "Quit Communication Parameters" screen (see section 2.4).
Similarly, pressing " ▼ " key accepts the present value and advances to "RS 485 Baud Rate" screen (see section 2.2).

Pressing the " ↵ " key advances to the "Parity & Stop bit Edit" mode & keys " ▲ " and " ▼ " scrolls the value through:
**non1** : no parity with one stop bit **non2** : no parity with two stop bit
**EVEn** : even parity with one stop bit **odd** : odd parity with one stop bit

Pressing "↵ " key sets the value and advances to "RS 485 Parity Selection" screen (see Section 2.3).

## 2.4 Quit Communication Parameters




This screen allows user to exit from system "Communication Parameter Selection" setup.
Pressing the " ▲ " key advances to Address Setting" screen (see Section 2.1).
Similarly, pressing the " ▼ " key advances to "RS 485 Parity" screen (see Section 2.3).
Pressing the "↵ " key advances to "Communication Parameter Selection " screen (see Section 2).

## 3. RS 485 ( ModBus ) Output :

THE MULTIFUNCTION INSTRUMENT supports MODBUS (RS485) RTU protocol (2-wire ) .

Connection should be made using twisted pair shielded cable. All "A" and "B" connections are daisy chained together. The screens should also be connected to the "Gnd" terminal. To avoid the possibility of loop currents, an Earth connection should be made at one point on the network. Loop (ring) topology does not require any termination load. Line topology may or may not require terminating loads depending on the type and length of cable used. The impedance of the termination load should match the impedance of the cable and be at both ends of the line. The cable should be terminated at each end with a 120 ohm (1/4 Watt min.) resistor.

RS 485 network supports maximum length of 1.2km. Including the Master, a maximum of 32 instruments can be connected in RS485 network. The permissible address range for The Meter is between 1 and 247 for 32 instruments. Broadcast Mode (address 0) is not allowed.

The maximum latency time of a Meter is 300 ms i.e. this is the amount of time that can pass before the first response character is output.

After sending any query through software (of the Master), it must allow 300ms of time to elapse before assuming that the Meter is not going to respond. If slave does not respond within 300 ms, Master can ignore the previous query and can issue fresh query to the slave.

Each byte in RTU mode has following format:

| | |
|---|---|
| | 8-bit binary, hexadecimal 0-9, A-F<br>2 hexadecimal characters contained in each 8-bit field of the message |
| **Format of Data Bytes** | 4 bytes (32 bits) per parameter.<br>Floating point format ( to IEEE 754)<br>Most significant byte first (Alternative least significant byte first) |
| **Error Checking Bytes** | 2 byte Cyclical Redundancy Check (CRC) |
| **Byte format** | 1 start bit,<br>8 data bits, least significant bit sent first<br>1 bit for even/odd parity<br>1 stop bit if parity is used; 1 or 2 bits if no parity |

Communication Baud Rate is user selectable from the front panel between 4800,9600,19200,38400,57600 bps.

**Function code :**

| | | |
|---|---|---|
| 03 | Read Holding Registers | Read content of read /write location ( 4X ) |
| 04 | Read input Registers | Read content of read only location ( 3X ) |
| 16 | Presets Multiple Registers | Set the content of read / write locations ( 4X ) |

**Exception Cases** : An exception code will be generated when Meter receives ModBus query with valid parity & error check but which contains some other error ( e.g. Attempt to set floating point variable to an invalid value) The response generated will be "Function Code" ORed with HEX (80H ). The exception codes are listed below

| | | |
|---|---|---|
| 01 | Illegal function | The function code is not supported by Meter |
| 02 | Illegal Data Address | Attempt to access an invalid address or an attempt to read or write part of a floating point value |
| 03 | Illegal DataValue | Attempt to set a floating point variable to an invalid value |

## 3.1 Accessing 3X and 4X register for reading measured values:

Two consecutive 16 bit registers represent one parameter. Refer **TABLE 1** for the addresses of 3X and 4X registers used for parameters measured by the instrument. Each parameter is held in the 3X as well as 4X registers. Modbus Code 04 and 03 are used to access all parameters in 3X and 4X registers respectively.

**Example** :

To read parameter,

Voltage2 from 3X: Start address= 00 02 Number of registers = 02

Watt2 from 4X: Start address= 00 0E Number of registers = 02

**Note : Number of registers = Number of parameters x 2**

Each query for reading the data must be restricted to 40 parameters or less. Exceeding the 40 parameter limit will cause a ModBus exception code to be returned.

**Query for 3X read:**

| 01 (Hex) | 04 (Hex) | 00 (Hex) | 02(Hex) | 00 (Hex) | 02(Hex) | 30 (Hex) | 0A (Hex) |
|---|---|---|---|---|---|---|---|
| Device Address | Function Code | Start Address High | Start Address Low | Number of Registers Hi | Number of Registers Lo | CRC Low | CRC High |

**3X Response: Voltage 2 (219.254V)**

| 01 (Hex) | 04 (Hex) | 04 (Hex) | 43 (Hex) | 5B (Hex) | 41 (Hex) | 21 (Hex) | 6F (Hex) | 9B (Hex) |
|---|---|---|---|---|---|---|---|---|
| Device Address | Function Code | Byte Count | Data Register1 High Byte | Data Register1 Low Byte | Data Register2 High Byte | Data Register2 Low Byte | CRC Low | CRC High |

Byte Count : Total number of data bytes received.

**Query for 4X read:**

| 01 (Hex) | 03 (Hex) | 00 (Hex) | 0E(Hex) | 00 (Hex) | 02(Hex) | E0 (Hex) | C9 (Hex) |
|---|---|---|---|---|---|---|---|
| Device Address | Function Code | Start Address High | Start Address Low | Number of Registers Hi | Number of Registers Lo | CRC Low | CRC High |

**4X Response: Watt2 (2000 W)**

| 01 (Hex) | 03 (Hex) | 04 (Hex) | 44 (Hex) | FA (Hex) | 00 (Hex) | 00 (Hex) | CE (Hex) | F2 (Hex) |
|---|---|---|---|---|---|---|---|---|
| Device Address | Function Code | Byte Count | Data Register1 High Byte | Data Register1 Low Byte | Data Register2 High Byte | Data Register2 Low Byte | CRC Low | CRC High |

Byte count : No. of Bytes Demanded by user in query.
Start Address High : Most significant 8 bits of starting address of the parameter requested.
Start Address low : Least significant 8 bits of starting address of the parameter requested.
Number of register Hi : Most significant 8 bits of Number of registers requested.
Number of register Lo : Least significant 8 bits of Number of registers requested.
Data register 1 High Byte : Most significant 8 bits of Data register 1 of the parameter requested.
Data register 1 Low Byte : Least significant 8 bits of Data register 1 of the parameter requested.
Data register 2 High Byte : Most significant 8 bits of Data register 2 of the parameter requested.
Data register 2 Low Byte : Least significant 8 bits of Data register 2 of the parameter requested.
**(Note : Two consecutive 16 bit register represent one parameter.)**

# TABLE 1 : 3 X and 4 X register addresses for measured parameters

## TABLE 1.1 : 3 X and 4 X register addresses for Regular Parameters

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 30001 | 40001 | 1 | Voltage L1 (Voltage L12 for 3P3W) | 00 | 00 | 00 | 00 |
| 30003 | 40003 | 2 | Voltage L2 (Voltage L23 for 3P3W) | 00 | 02 | 00 | 02 |
| 30005 | 40005 | 3 | Voltage L3 (Voltage L31 for 3P3W) | 00 | 04 | 00 | 04 |
| 30007 | 40007 | 4 | Current L1 | 00 | 06 | 00 | 06 |
| 30009 | 40009 | 5 | Current L2 | 00 | 08 | 00 | 08 |
| 30011 | 40011 | 6 | Current L3 | 00 | 0A | 00 | 0A |
| 30013 | 40013 | 7 | Watt L1 | 00 | 0C | 00 | 0C |
| 30015 | 40015 | 8 | Watt L2 | 00 | 0E | 00 | 0E |
| 30017 | 40017 | 9 | Watt L3 | 00 | 10 | 00 | 10 |
| 30019 | 40019 | 10 | VA L1 | 00 | 12 | 00 | 12 |
| 30021 | 40021 | 11 | VA L2 | 00 | 14 | 00 | 14 |
| 30023 | 40023 | 12 | VA L3 | 00 | 16 | 00 | 16 |
| 30025 | 40025 | 13 | VAR L1 | 00 | 18 | 00 | 18 |
| 30027 | 40027 | 14 | VAR L2 | 00 | 1A | 00 | 1A |
| 30029 | 40029 | 15 | VAR L3 | 00 | 1C | 00 | 1C |
| 30031 | 40031 | 16 | Power Factor L1 | 00 | 1E | 00 | 1E |
| 30033 | 40033 | 17 | Power Factor L2 | 00 | 20 | 00 | 20 |
| 30035 | 40035 | 18 | Power Factor L3 | 00 | 22 | 00 | 22 |
| 30037 | 40037 | 19 | Phase Angle L1 | 00 | 24 | 00 | 24 |
| 30039 | 40039 | 20 | Phase Angle L2 | 00 | 26 | 00 | 26 |
| 30041 | 40041 | 21 | Phase Angle L3 | 00 | 28 | 00 | 28 |
| 30043 | 40043 | 22 | Voltage Avg | 00 | 2A | 00 | 2A |
| 30045 | 40045 | 23 | Voltage Sum | 00 | 2C | 00 | 2C |
| 30047 | 40047 | 24 | Current Avg | 00 | 2E | 00 | 2E |
| 30049 | 40049 | 25 | Current Sum | 00 | 30 | 00 | 30 |
| 30051 | 40051 | 26 | Watt Avg | 00 | 32 | 00 | 32 |
| 30053 | 40053 | 27 | Watt Sum | 00 | 34 | 00 | 34 |
| 30055 | 40055 | 28 | VA Avg | 00 | 36 | 00 | 36 |
| 30057 | 40057 | 29 | VA Sum | 00 | 38 | 00 | 38 |

**TABLE 1.1 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 30059 | 40059 | 30 | VAR Avg | 00 | 3A | 00 | 3A |
| 30061 | 40061 | 31 | VAr Sum | 00 | 3C | 00 | 3C |
| 30063 | 40063 | 32 | PF Avg | 00 | 3E | 00 | 3E |
| 30065 | 40065 | 33 | PF Sum | 00 | 40 | 00 | 40 |
| 30067 | 40067 | 34 | Phase Angle Avg | 00 | 42 | 00 | 42 |
| 30069 | 40069 | 35 | Phase Angle Sum | 00 | 44 | 00 | 44 |
| 30071 | 40071 | 36 | Freq | 00 | 46 | 00 | 46 |
| 30073 | 40073 | 37 | Wh import | 00 | 48 | 00 | 48 |
| 30075 | 40075 | 38 | Wh export | 00 | 4A | 00 | 4A |
| 30077 | 40077 | 39 | VArh Capacitive | 00 | 4C | 00 | 4C |
| 30079 | 40079 | 40 | VArh Inductive | 00 | 4E | 00 | 4E |
| 30081 | 40081 | 41 | VAh | 00 | 50 | 00 | 50 |
| 30085 | 40085 | 43 | kW imp demand | 00 | 54 | 00 | 54 |
| 30087 | 40087 | 44 | max kW imp demand | 00 | 56 | 00 | 56 |
| 30089 | 40089 | 45 | kW exp demand | 00 | 58 | 00 | 58 |
| 30091 | 40091 | 46 | max kW exp demand | 00 | 5A | 00 | 5A |
| 30093 | 40093 | 47 | kVAr Cap. demand | 00 | 5C | 00 | 5C |
| 30095 | 40095 | 48 | max kVAr Cap. demand | 00 | 5E | 00 | 5E |
| 30097 | 40097 | 49 | kVAr Ind. demand | 00 | 60 | 00 | 60 |
| 30099 | 40099 | 50 | max kVAr Ind. demand | 00 | 62 | 00 | 62 |
| 30101 | 40101 | 51 | KVA demand | 00 | 64 | 00 | 64 |
| 30103 | 40103 | 52 | max KVA demand | 00 | 66 | 00 | 66 |
| 30105 | 40105 | 53 | current demand | 00 | 68 | 00 | 68 |
| 30107 | 40107 | 54 | max current demand | 00 | 6A | 00 | 6A |
| 30109 | 40109 | 55 | Wh import Overflow count | 00 | 6C | 00 | 6C |
| 30111 | 40111 | 56 | Wh Import | 00 | 6E | 00 | 6E |
| 30113 | 40113 | 57 | Wh export Overflow count | 00 | 70 | 00 | 70 |
| 30115 | 40115 | 58 | Wh export | 00 | 72 | 00 | 72 |
| 30117 | 40117 | 59 | VArh Cap. Overflow count | 00 | 74 | 00 | 74 |
| 30119 | 40119 | 60 | VArh Capacitive | 00 | 76 | 00 | 76 |

**TABLE 1.1 Continued...**

| Address (3X) | Address (4X) | Para. No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 30121 | 30121 | 61 | Varh Ind. Overflow count | 00 | 78 | 00 | 78 |
| 30123 | 40123 | 62 | VARh Inductive | 00 | 7A | 00 | 7A |
| 30125 | 40125 | 63 | VAh Overflow count | 00 | 7C | 00 | 7C |
| 30127 | 40127 | 64 | VAh | 00 | 7E | 00 | 7E |
| 30133 | 40133 | 67 | System Voltage Max | 00 | 84 | 00 | 84 |
| 30135 | 40135 | 68 | System Voltage Min | 00 | 86 | 00 | 86 |
| 30137 | 40137 | 69 | RPM | 00 | 88 | 00 | 88 |
| 30139 | 40139 | 70 | Impulse Rate | 00 | 8A | 00 | 8A |
| 30141 | 40141 | 71 | System Current Max | 00 | 8C | 00 | 8C |
| 30143 | 40143 | 72 | System Current Min | 00 | 8E | 00 | 8E |
| 30145 | 40145 | 73 | Wh imp. depending on update rate* | 00 | 90 | 00 | 90 |
| 30147 | 40147 | 74 | Wh exp. depending on update rate* | 00 | 92 | 00 | 92 |
| 30149 | 40149 | 75 | VArh cap. depending on update rate* | 00 | 94 | 00 | 94 |
| 30151 | 40151 | 76 | VArh ind. depending on update rate* | 00 | 96 | 00 | 96 |
| 30153 | 40153 | 77 | VAh depending on update rate* | 00 | 98 | 00 | 98 |
| 30157 | 40157 | 79 | Wh imp OFC depending on update rate* | 00 | 9C | 00 | 9C |
| 30159 | 40159 | 80 | Wh exp OFC depending on update rate* | 00 | 9E | 00 | 9E |
| 30161 | 40161 | 81 | VArh Cap. OFC depending on update rate * | 00 | A0 | 00 | A0 |
| 30163 | 40163 | 82 | VArh Ind. OFC depending on update rate * | 00 | A2 | 00 | A2 |
| 30165 | 40165 | 83 | VAh OFC depending on update rate* | 00 | A4 | 00 | A4 |
| 30167 | 40167 | 84 | System %TDD current | 00 | A6 | 00 | A6 |
| 30169 | 40169 | 85 | Re-Active Power Factor L1 | 00 | A8 | 00 | A8 |
| 30171 | 40171 | 86 | Re-Active Power Factor L2 | 00 | AA | 00 | AA |
| 30173 | 40173 | 87 | Re-Active Power Factor L3 | 00 | AC | 00 | AC |
| 30175 | 40175 | 88 | Average Re-Active Power Factor | 00 | AE | 00 | AE |
| 30177 | 40177 | 89 | Sum Re-Active Power Factor | 00 | B0 | 00 | B0 |
| 30179 | 40179 | 90 | LF Factor SgnQ(1-(P/S)) L1 | 00 | B2 | 00 | B2 |
| 30181 | 40181 | 91 | LF Factor SgnQ(1-(P/S)) L2 | 00 | B4 | 00 | B4 |
| 30183 | 40183 | 92 | LF Factor SgnQ(1-(P/S)) L3 | 00 | B6 | 00 | B6 |
| 30185 | 40185 | 93 | Average LF Factor SgnQ(1-(P/S)) | 00 | B8 | 00 | B8 |

**TABLE 1.1 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 30187 | 40187 | 94 | Sum LF Factor SgnQ (1-(P/S)) | 00 | BA | 00 | BA |
| 30189 | 40189 | 95 | Displacement Power Factor L1 | 00 | BC | 00 | BC |
| 30191 | 40191 | 96 | Displacement Power Factor L2 | 00 | BE | 00 | BE |
| 30193 | 40193 | 97 | Displacement Power Factor L3 | 00 | C0 | 00 | C0 |
| 30195 | 40195 | 98 | Average Displacement Power Factor | 00 | C2 | 00 | C2 |
| 30197 | 40197 | 99 | Sum Displacement Power Factor | 00 | C4 | 00 | C4 |
| 30201 | 40201 | 101 | V12 | 00 | C8 | 00 | C8 |
| 30203 | 40203 | 102 | V23 | 00 | CA | 00 | CA |
| 30205 | 40205 | 103 | V31 | 00 | CC | 00 | CC |
| 30207 | 40207 | 104 | VTHD-R | 00 | CE | 00 | CE |
| 30209 | 40209 | 105 | VTHD-Y | 00 | D0 | 00 | D0 |
| 30211 | 40211 | 106 | VTHD-B | 00 | D2 | 00 | D2 |
| 30213 | 40213 | 107 | ITHD-R | 00 | D4 | 00 | D4 |
| 30215 | 40215 | 108 | ITHD-Y | 00 | D6 | 00 | D6 |
| 30217 | 40217 | 109 | ITHD-B | 00 | D8 | 00 | D8 |
| 30219 | 40219 | 110 | System V-THD | 00 | DA | 00 | DA |
| 30221 | 40221 | 111 | System I-THD | 00 | DE | 00 | DE |
| 30225 | 40225 | 113 | Neutral Current (3P4W only) | 00 | E0 | 00 | E0 |
| 30227 | 40227 | 114 | Run hour | 00 | E2 | 00 | E2 |
| 30229 | 40229 | 115 | On Hour | 00 | E4 | 00 | E4 |
| 30231 | 40231 | 116 | No. of interrupts | 00 | E6 | 00 | E6 |
| 30237 | 40237 | 119 | Phase indicate** | 00 | EC | 00 | EC |
| 30241 | 40241 | 121 | VLN Unbalance (3P4W only) | 00 | F0 | 00 | F0 |
| 30243 | 40243 | 122 | VLL Unbalance (3P4W and 3P3W only) | 00 | F2 | 00 | F2 |
| 30245 | 40245 | 123 | Curr. Unbalance (3P4W and 3P3W only) | 00 | F4 | 00 | F4 |
| 30247 | 40247 | 124 | Distortion VAr L1 | 00 | F6 | 00 | F6 |
| 30249 | 40249 | 125 | Distortion VAr L2 | 00 | F8 | 00 | F8 |
| 30251 | 40251 | 126 | Distortion VAr L3 | 00 | FA | 00 | FA |
| 30253 | 40253 | 127 | Distortion VAr AVG | 00 | FC | 00 | FC |
| 40255 | 40255 | 128 | Distortion VAr SUM | 01 | FE | 00 | FE |

**TABLE 1.1 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 30257 | 40257 | 129 | Fundamental VAr L1 | 01 | 00 | 01 | 00 |
| 30259 | 40259 | 130 | Fundamental VAr L2 | 01 | 02 | 01 | 02 |
| 30261 | 40261 | 131 | Fundamental VAr L3 | 01 | 04 | 01 | 04 |
| 30263 | 40263 | 132 | Fundamental VAr AVG | 01 | 06 | 01 | 06 |
| 30265 | 40265 | 133 | Fundamental VAr SUM | 01 | 08 | 01 | 08 |
| 30267 | 40267 | 134 | RTC Complete Date (DDMMYY) | 01 | 0A | 01 | 0A |
| 30269 | 40269 | 135 | RTC Complete Time (HH:MM 24 Hour format) | 01 | 0C | 01 | 0C |

**Note:** *1. The values are updated depending on "Energy update rate" which is settable by user. For example, if user set update rate 15 min, then the values on these registers (marked with *) will get updated every 15 min.
**2. Phase Indicate - 0 : Normal, 1 : Reverse, 2 : Absent, 3 : Error
3. For 3P3W, 2P2W phase-wise parameters and for 1P2W, Phase L2 and Phase L3 parameters, VLL are not available.

**TABLE 1.2 : 3 X and 4 X register addresses for Min & Max Values**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 31601 | 41601 | 1 | Max Voltage L1 (L12 for 3P3W) | 06 | 40 | 06 | 40 |
| 31603 | 41603 | 2 | Max Voltage L2 (L23 for 3P3W) | 06 | 42 | 06 | 42 |
| 31605 | 41605 | 3 | Max Voltage L3 (L31 for 3P3W) | 06 | 44 | 06 | 44 |
| 31607 | 41607 | 4 | Min Voltage L1 (L12 for 3P3W) | 06 | 46 | 06 | 46 |
| 31609 | 41609 | 5 | Min Voltage L2 (L23 for 3P3W) | 06 | 48 | 06 | 48 |
| 31611 | 41611 | 6 | Min Voltage L3 (L31 for 3P3W) | 06 | 4A | 06 | 4A |
| 31613 | 41613 | 7 | Max Voltage L12 | 06 | 4C | 06 | 4C |
| 31615 | 41615 | 8 | Max Voltage L23 | 06 | 4E | 06 | 4E |
| 31617 | 41617 | 9 | Max Voltage L31 | 06 | 50 | 06 | 50 |
| 31619 | 41619 | 10 | Min Voltage L12 | 06 | 52 | 06 | 52 |
| 31621 | 41621 | 11 | Min Voltage L23 | 06 | 54 | 06 | 54 |
| 31623 | 41623 | 12 | Min Voltage L31 | 06 | 56 | 06 | 56 |
| 31625 | 41625 | 13 | System Max Voltage LN (VLL for 3P3W) | 06 | 58 | 06 | 58 |
| 31627 | 41627 | 14 | System Min Voltage LN (VLL for 3P3W) | 06 | 5A | 06 | 5A |
| 31629 | 41629 | 15 | Max Current L1 | 06 | 5C | 06 | 5C |
| 31631 | 41631 | 16 | Max Current L2 | 06 | 5E | 06 | 5E |
| 31633 | 41633 | 17 | Max Current L3 | 06 | 60 | 06 | 60 |

**TABLE 1.2 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 31635 | 41635 | 18 | Min Current L1 | 06 | 62 | 06 | 62 |
| 31637 | 41637 | 19 | Min Current L2 | 06 | 64 | 06 | 64 |
| 31639 | 41639 | 20 | Min Current L3 | 06 | 66 | 06 | 66 |
| 31641 | 41641 | 21 | System Max Current | 06 | 68 | 06 | 68 |
| 31643 | 41643 | 22 | System Min Current | 06 | 6A | 06 | 6A |
| 31645 | 41645 | 23 | Max W1 | 06 | 6C | 06 | 6C |
| 31647 | 41647 | 24 | Max W2 | 06 | 6E | 06 | 6E |
| 31649 | 41649 | 25 | Max W3 | 06 | 70 | 06 | 70 |
| 31651 | 41651 | 26 | Min W1 | 06 | 72 | 06 | 72 |
| 31653 | 41653 | 27 | Min W2 | 06 | 74 | 06 | 74 |
| 31655 | 41655 | 28 | Min W3 | 06 | 76 | 06 | 76 |
| 31657 | 41657 | 29 | Max Sys W | 06 | 78 | 06 | 78 |
| 31659 | 41659 | 30 | Min Sys W | 06 | 7A | 06 | 7A |
| 31661 | 41661 | 31 | Max VAr1 | 06 | 7C | 06 | 7C |
| 31663 | 41663 | 32 | Max VAr2 | 06 | 7E | 06 | 7E |
| 31665 | 41665 | 33 | Max VAr3 | 06 | 80 | 06 | 80 |
| 31667 | 41667 | 34 | Min VAr1 | 06 | 82 | 06 | 82 |
| 31669 | 41669 | 35 | Min VAr2 | 06 | 84 | 06 | 84 |
| 31671 | 41671 | 36 | Min VAr3 | 06 | 86 | 06 | 86 |
| 31673 | 41673 | 37 | Max SysVAr | 06 | 88 | 06 | 88 |
| 31675 | 41675 | 38 | Min Sys VAr | 06 | 8A | 06 | 8A |
| 31677 | 41677 | 39 | Max VA1 | 06 | 8C | 06 | 8C |
| 31679 | 41679 | 40 | Max VA2 | 06 | 8E | 06 | 8E |
| 31681 | 41681 | 41 | Max VA3 | 06 | 90 | 06 | 90 |
| 31683 | 41683 | 42 | Min VA1 | 06 | 92 | 06 | 92 |
| 31685 | 41685 | 43 | Min VA2 | 06 | 94 | 06 | 94 |
| 31687 | 41687 | 44 | Min VA3 | 06 | 96 | 06 | 96 |
| 31689 | 41689 | 45 | Max Sys VA | 06 | 98 | 06 | 98 |
| 31691 | 41691 | 46 | Min Sys VA | 06 | 9A | 06 | 9A |
| 31693 | 41693 | 47 | Max PF1 | 06 | 9C | 06 | 9C |

**TABLE 1.2 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 31695 | 41695 | 48 | Max PF2 | 06 | 9E | 06 | 9E |
| 31697 | 41697 | 49 | Max PF3 | 06 | A0 | 06 | A0 |
| 31699 | 41699 | 50 | Min PF1 | 06 | A2 | 06 | A2 |
| 31701 | 41701 | 51 | Min PF2 | 06 | A4 | 06 | A4 |
| 31702 | 41703 | 52 | Min PF3 | 06 | A6 | 06 | A6 |
| 31705 | 41705 | 53 | Max SysPF | 06 | A8 | 06 | A8 |
| 31707 | 41707 | 54 | Min Sys PF | 06 | AA | 06 | AA |
| 31709 | 41709 | 55 | Max Reactive PF L1 | 06 | AC | 06 | AC |
| 31711 | 41711 | 56 | Max Reactive PF L2 | 06 | AE | 06 | AE |
| 31713 | 41713 | 57 | Max Reactive PF L3 | 06 | B0 | 06 | B0 |
| 31715 | 41715 | 58 | Min Reactive PF L1 | 06 | B2 | 06 | B2 |
| 31717 | 41717 | 59 | Min Reactive PF L2 | 06 | B4 | 06 | B4 |
| 31719 | 41719 | 60 | Min Reactive PF L3 | 06 | B6 | 06 | B6 |
| 31721 | 41721 | 61 | Max Sys Reactive PF | 06 | B8 | 06 | B8 |
| 31723 | 41723 | 62 | Min Sys Reactive PF | 06 | BA | 06 | BA |
| 31725 | 41725 | 63 | Max PA1 | 06 | BC | 06 | BC |
| 31727 | 41727 | 64 | Max PA2 | 06 | BE | 06 | BE |
| 31729 | 41729 | 65 | Max PA3 | 06 | C0 | 06 | C0 |
| 31731 | 41731 | 66 | Min PA1 | 06 | C2 | 06 | C2 |
| 31733 | 41733 | 67 | Min PA2 | 06 | C4 | 06 | C4 |
| 31735 | 41735 | 68 | Min PA3 | 06 | C6 | 06 | C6 |
| 31737 | 41737 | 69 | Max SysPA | 06 | C8 | 06 | C8 |
| 31739 | 41739 | 70 | Min Sys PA | 06 | CA | 06 | CA |
| 31741 | 41741 | 71 | Max LF SgnQ L1 | 06 | CC | 06 | CC |
| 31743 | 41743 | 72 | Max LF SgnQ L2 | 06 | CE | 06 | CE |
| 31745 | 41745 | 73 | Max LF SgnQ L3 | 06 | D0 | 06 | D0 |
| 31747 | 41747 | 74 | Min LF SgnQ L1 | 06 | D2 | 06 | D2 |
| 31749 | 41749 | 75 | Min LF SgnQ L2 | 06 | D4 | 06 | D4 |
| 31751 | 41751 | 76 | Min LF SgnQ L3 | 06 | D6 | 06 | D6 |
| 31753 | 41753 | 77 | Max Sys LF SgnQ | 06 | D8 | 06 | D8 |

**TABLE 1.2 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 31755 | 41755 | 78 | Min Sys LF SgnQ | 06 | DA | 06 | DA |
| 31757 | 41757 | 79 | Max Sys Freq | 06 | DC | 06 | DC |
| 31759 | 41759 | 80 | Min Sys Freq | 06 | DE | 06 | DE |

**Note :** 1. For 3P3W, phase-wise parameters (except Voltage, Current) are not available.
2. For 1P2W, phase-wise parameters are not available. For 1P3W, L3 parameters are not available.

**TABLE 1.3 : 3 X and 4 X register addresses for Energies**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 31801 | 41801 | 1 | Sys Active Energy Import | 07 | 08 | 07 | 08 |
| 31803 | 41803 | 2 | Sys Active Energy Export | 07 | 0A | 07 | 0A |
| 31805 | 41805 | 3 | Sys Reactive Energy Capacitive | 07 | 0C | 07 | 0C |
| 31807 | 41807 | 4 | Sys Reactive Energy Inductive | 07 | 0E | 07 | 0E |
| 31809 | 41809 | 5 | Sys Apparent Energy | 07 | 10 | 07 | 10 |
| 31813 | 41813 | 7 | Sys Active Energy Import OVF Count | 07 | 14 | 07 | 14 |
| 31815 | 41815 | 8 | Sys Active Energy Export OVF Count | 07 | 16 | 07 | 16 |
| 31817 | 41817 | 9 | Sys Reactive Energy Capacitive OVF Count | 07 | 18 | 07 | 18 |
| 31819 | 41819 | 10 | Sys Reactive Energy Inductive OVF Count | 07 | 1A | 07 | 1A |
| 31821 | 41821 | 11 | Sys Apparent Energy OVF Count | 07 | 1C | 07 | 1C |
| 31825 | 41825 | 13 | Sys Active Energy Import on update rate | 07 | 20 | 07 | 20 |
| 31827 | 41827 | 14 | Sys Active Energy Export on update rate | 07 | 22 | 07 | 22 |
| 31829 | 41829 | 15 | Sys Reactive Energy Capacitive on update rate | 07 | 24 | 07 | 24 |
| 31831 | 41831 | 16 | Sys Reactive Energy Inductive on update rate | 07 | 26 | 07 | 26 |
| 31833 | 41833 | 17 | Sys Apparent Energy on time | 07 | 28 | 07 | 28 |
| 31837 | 41837 | 19 | Sys Active Energy Imp OVF Count on update Rate* | 07 | 2C | 07 | 2C |
| 31839 | 41839 | 20 | Sys Active Energy Exp OVF Count on update Rate* | 07 | 2E | 07 | 2E |
| 31841 | 41841 | 21 | Sys Reactive Energy Cap OVF Count on update Rate* | 07 | 30 | 07 | 30 |
| 31843 | 41843 | 22 | Sys Reactive Energy Ind OVF Count on update Rate* | 07 | 32 | 07 | 32 |
| 31845 | 41845 | 23 | Sys Apparent Energy OVF Count on update Rate* | 07 | 34 | 07 | 34 |
| 31849 | 41849 | 25 | Sys Total Active Energy | 07 | 38 | 07 | 38 |
| 31851 | 41851 | 26 | Sys Total Reactive Energy | 07 | 3A | 07 | 3A |

**TABLE 1.3 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex3X | | Start Address Hex4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 31853 | 41853 | 27 | Sys Total Apparent Energy | 07 | 3C | 07 | 3C |
| 31855 | 41855 | 28 | Sys Total Active Energy OFL Count | 07 | 3E | 07 | 3E |
| 31857 | 41857 | 29 | Sys Total Reactive Energy OFL Count | 07 | 40 | 07 | 40 |
| 31859 | 41859 | 30 | Sys Total Apparent Energy OFL Count | 07 | 42 | 07 | 42 |
| 31861 | 41861 | 31 | Sys Total Active Energy on update Rate* | 07 | 44 | 07 | 44 |
| 31863 | 41863 | 32 | Sys Total Reactive Energy on update Rate* | 07 | 46 | 07 | 46 |
| 31865 | 41865 | 33 | Sys Total Apparent Energy on update Rate* | 07 | 48 | 07 | 48 |
| 31867 | 41867 | 34 | Sys Total Active Energy OFL Count on update Rate* | 07 | 4A | 07 | 4A |
| 31869 | 41869 | 35 | Sys Total Reactive Energy OFL Count on update Rate* | 07 | 4C | 07 | 4C |
| 31871 | 41871 | 36 | Sys Total Apparent Energy OFL Count on update Rate* | 07 | 4E | 07 | 4E |
| 31873 | 41873 | 37 | Active Energy Import L1 | 07 | 50 | 07 | 50 |
| 31875 | 41875 | 38 | Active Energy Import L2 | 07 | 52 | 07 | 52 |
| 31877 | 41877 | 39 | Active Energy Import L3 | 07 | 54 | 07 | 54 |
| 31879 | 41879 | 40 | Active Energy Export L1 | 07 | 56 | 07 | 56 |
| 31881 | 41881 | 41 | Active Energy Export L2 | 07 | 58 | 07 | 58 |
| 31883 | 41883 | 42 | Active Energy Export L3 | 07 | 5A | 07 | 5A |
| 31885 | 41885 | 43 | Reactive Energy Capacitive L1 | 07 | 5C | 07 | 5C |
| 31887 | 41887 | 44 | Reactive Energy Capacitive L2 | 07 | 5E | 07 | 5E |
| 31889 | 41889 | 45 | Reactive Energy Capacitive L3 | 07 | 60 | 07 | 60 |
| 31891 | 41891 | 46 | Reactive Energy Inductive L1 | 07 | 62 | 07 | 62 |
| 31893 | 41893 | 47 | Reactive Energy Inductive L2 | 07 | 64 | 07 | 64 |
| 31895 | 41895 | 48 | Reactive Energy Inductive L3 | 07 | 66 | 07 | 66 |
| 31897 | 41897 | 49 | Apparent Energy L1 | 07 | 68 | 07 | 68 |
| 31899 | 41899 | 50 | Apparent Energy L2 | 07 | 6A | 07 | 6A |
| 31901 | 41901 | 51 | Apparent Energy L3 | 07 | 6C | 07 | 6C |
| 31909 | 41909 | 55 | Total Active Energy L1 | 07 | 74 | 07 | 74 |
| 31911 | 41911 | 56 | Total Active Energy L2 | 07 | 76 | 07 | 76 |
| 31913 | 41913 | 57 | Total Active Energy L3 | 07 | 78 | 07 | 78 |
| 31915 | 41915 | 58 | Total Reactive Energy L1 | 07 | 7A | 07 | 7A |
| 31917 | 41917 | 59 | Total Reactive Energy L2 | 07 | 7C | 07 | 7C |

**TABLE 1.3 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 31919 | 41919 | 60 | Total Reactive Energy L3 | 07 | 7E | 07 | 7E |
| 31921 | 41921 | 61 | Total Apparent Energy L1 | 07 | 80 | 07 | 80 |
| 31923 | 41923 | 62 | Total Apparent Energy L2 | 07 | 82 | 07 | 82 |
| 31925 | 41925 | 63 | Total Apparent Energy L3 | 07 | 84 | 07 | 84 |
| 31927 | 41927 | 64 | OVF Count Active Energy Import L1 | 07 | 86 | 07 | 86 |
| 31929 | 41929 | 65 | OVF Count Active Energy Import L2 | 07 | 88 | 07 | 88 |
| 31931 | 41931 | 66 | OVF Count Active Energy Import L3 | 07 | 8A | 07 | 8A |
| 31933 | 41933 | 67 | OVF Count Active Energy Export L1 | 07 | 8C | 07 | 8C |
| 31935 | 41935 | 68 | OVF Count Active Energy Export L2 | 07 | 8E | 07 | 8E |
| 31937 | 41937 | 69 | OVF Count Active Energy Export L3 | 07 | 90 | 07 | 90 |
| 31939 | 41939 | 70 | OVF Count Reactive Energy Capacitive L1 | 07 | 92 | 07 | 92 |
| 31941 | 41941 | 71 | OVF Count Reactive Energy Capacitive L2 | 07 | 94 | 07 | 94 |
| 31943 | 41943 | 72 | OVF Count Reactive Energy Capacitive L3 | 07 | 96 | 07 | 96 |
| 31945 | 41945 | 73 | OVF Count Reactive Energy Inductive L1 | 07 | 98 | 07 | 98 |
| 31947 | 41947 | 74 | OVF Count Reactive Energy Inductive L2 | 07 | 9A | 07 | 9A |
| 31949 | 41949 | 75 | OVF Count Reactive Energy Inductive L3 | 07 | 9C | 07 | 9C |
| 31951 | 41951 | 76 | OVF Count Apparent Energy L1 | 07 | 9E | 07 | 9E |
| 31953 | 41953 | 77 | OVF Count Apparent Energy L2 | 07 | A0 | 07 | A0 |
| 31955 | 41955 | 78 | OVF Count Apparent Energy L3 | 07 | A2 | 07 | A2 |
| 31963 | 41963 | 82 | Total Active Energy OVF Count L1 | 07 | AA | 07 | AA |
| 31965 | 41965 | 83 | Total Active Energy OVF Count L2 | 07 | AC | 07 | AC |
| 31967 | 41967 | 84 | Total Active Energy OVF Count L3 | 07 | AE | 07 | AE |
| 31969 | 41969 | 85 | Total Reactive Energy OVF Count L1 | 07 | B0 | 07 | B0 |
| 31971 | 41971 | 86 | Total Reactive Energy OVF Count L2 | 07 | B2 | 07 | B2 |
| 31973 | 41973 | 87 | Total Reactive Energy OVF Count L3 | 07 | B4 | 07 | B4 |
| 31975 | 41975 | 88 | Total Apparent Energy OVF Count L1 | 07 | B6 | 07 | B6 |
| 31977 | 41977 | 89 | Total Apparent Energy OVF Count L2 | 07 | B8 | 07 | B8 |
| 31979 | 41979 | 90 | Total Apparent Energy OVF Count L3 | 07 | BA | 07 | BA |
| 31981 | 41981 | 91 | Active Energy Import L1 On Update Rate* | 07 | BC | 07 | BC |
| 31983 | 41983 | 92 | Active Energy Import L2 On Update Rate* | 07 | BE | 07 | BE |

**TABLE 1.3 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 31985 | 41985 | 93 | Active Energy Import L3 On Update Rate* | 07 | C0 | 07 | C0 |
| 31987 | 41987 | 94 | Active Energy Export L1 On Update Rate* | 07 | C2 | 07 | C2 |
| 31989 | 41989 | 95 | Active Energy Export L2 On Update Rate* | 07 | C4 | 07 | C4 |
| 31991 | 41991 | 96 | Active Energy Export L3 On Update Rate* | 07 | C6 | 07 | C6 |
| 31993 | 41993 | 97 | Reactive Energy Capacitive L1 On Update Rate* | 07 | C8 | 07 | C8 |
| 31995 | 41995 | 98 | Reactive Energy Capacitive L2 On Update Rate* | 07 | CA | 07 | CA |
| 31997 | 41997 | 99 | Reactive Energy Capacitive L3 On Update Rate* | 07 | CC | 07 | CC |
| 31999 | 41999 | 100 | Reactive Energy Inductive L1 On Update Rate* | 07 | CE | 07 | CE |
| 32001 | 42001 | 101 | Reactive Energy Inductive L2 On Update Rate* | 07 | D0 | 07 | D0 |
| 32003 | 42003 | 102 | Reactive Energy Inductive L3 On Update Rate* | 07 | D2 | 07 | D2 |
| 32005 | 42005 | 103 | Apparent Energy L1 On Update Rate* | 07 | D4 | 07 | D4 |
| 32007 | 42007 | 104 | Apparent Energy L2 On Update Rate* | 07 | D6 | 07 | D6 |
| 32009 | 42009 | 105 | Apparent Energy L3 On Update Rate* | 07 | D8 | 07 | D8 |
| 32017 | 42017 | 109 | Total Active Energy L1 On Update Rate* | 07 | E0 | 07 | E0 |
| 32019 | 42019 | 110 | Total Active Energy L2 On Update Rate* | 07 | E2 | 07 | E2 |
| 32021 | 42021 | 111 | Total Active Energy L3 On Update Rate* | 07 | E4 | 07 | E4 |
| 32023 | 42023 | 112 | Total Reactive Energy L1 On Update Rate* | 07 | E6 | 07 | E6 |
| 32025 | 42025 | 113 | Total Reactive Energy L2 On Update Rate* | 07 | E8 | 07 | E8 |
| 32027 | 42027 | 114 | Total Reactive Energy L3 On Update Rate* | 07 | EA | 07 | EA |
| 32029 | 42029 | 115 | Total Apparent Energy L1 On Update Rate* | 07 | EC | 07 | EC |
| 32031 | 42031 | 116 | Total Apparent Energy L2 On Update Rate* | 07 | EE | 07 | EE |
| 32033 | 42033 | 117 | Total Apparent Energy L3 On Update Rate* | 07 | F0 | 07 | F0 |
| 32035 | 42035 | 118 | OVF Active Energy Import L1 On Update Rate* | 07 | F2 | 07 | F2 |
| 32037 | 42037 | 119 | OVF Active Energy Import L2 On Update Rate* | 07 | F4 | 07 | F4 |
| 32039 | 42039 | 120 | OVF Active Energy Import L3 On Update Rate* | 07 | F6 | 07 | F6 |
| 32041 | 42041 | 121 | OVF Active Energy Export L1 On Update Rate* | 07 | F8 | 07 | F8 |
| 32043 | 42043 | 122 | OVF Active Energy Export L2 On Update Rate* | 07 | FA | 07 | FA |
| 32045 | 42045 | 123 | OVF Active Energy Export L3 On Update Rate* | 07 | FC | 07 | FC |
| 32047 | 42047 | 124 | OVF Reactive Energy Capacitive L1 On Update Rate* | 07 | FE | 07 | FE |
| 32049 | 42049 | 125 | OVF Reactive Energy Capacitive L2 On Update Rate* | 08 | 00 | 08 | 00 |

**TABLE 1.3 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32051 | 42051 | 126 | OVF Reactive Energy Capacitive L3 On Update Rate* | 08 | 02 | 08 | 02 |
| 32053 | 42053 | 127 | OVF Reactive Energy Inductive L1 On Update Rate* | 08 | 04 | 08 | 04 |
| 32055 | 42055 | 128 | OVF Reactive Energy Inductive L2 On Update Rate* | 08 | 06 | 08 | 06 |
| 32057 | 42057 | 129 | OVF Reactive Energy Inductive L3 On Update Rate* | 08 | 08 | 08 | 08 |
| 32059 | 42059 | 130 | OVF Apparent Energy L1 On Update Rate* | 08 | 0A | 08 | 0A |
| 32061 | 42061 | 131 | OVF Apparent Energy L2 On Update Rate* | 08 | 0C | 08 | 0C |
| 32063 | 42063 | 132 | OVF Apparent Energy L3 On Update Rate* | 08 | 0E | 08 | 0E |
| 32071 | 42071 | 136 | Total Active Energy OVF Count L1 On Update Rate* | 08 | 16 | 08 | 16 |
| 32073 | 42073 | 137 | Total Active Energy OVF Count L2 On Update Rate* | 08 | 18 | 08 | 18 |
| 32075 | 42075 | 138 | Total Active Energy OVF Count L3 On Update Rate* | 08 | 1A | 08 | 1A |
| 32077 | 42077 | 139 | Total Reactive Energy OVF Count L1 On Update Rate* | 08 | 1C | 08 | 1C |
| 32079 | 42079 | 140 | Total Reactive Energy OVF Count L2 On Update Rate* | 08 | 1E | 08 | 1E |
| 32081 | 42081 | 141 | Total Reactive Energy OVF Count L3 On Update Rate* | 08 | 20 | 08 | 20 |
| 32083 | 42083 | 142 | Total Apparent Energy OVF Count L1 On Update Rate* | 08 | 22 | 08 | 22 |
| 32085 | 42085 | 143 | Total Apparent Energy OVF Count L2 On Update Rate* | 08 | 24 | 08 | 24 |
| 32087 | 42087 | 144 | Total Apparent Energy OVF Count L3 On Update Rate* | 08 | 26 | 08 | 26 |
| 32089 | 42089 | 145 | Digital Input Pulse Counter 1 Value | 08 | 28 | 08 | 28 |
| 32091 | 42091 | 146 | Digital Input Pulse Counter 2 Value | 08 | 2A | 08 | 2A |
| 32093 | 42093 | 147 | Digital Input Pulse Counter 3 Value | 08 | 2C | 08 | 2C |
| 32095 | 42095 | 148 | Digital Input Pulse Counter 4 Value | 08 | 2E | 08 | 2E |
| 32097 | 42097 | 149 | Digital Input Pulse Counter 1 Overflow | 08 | 30 | 08 | 30 |
| 32099 | 42099 | 150 | Digital Input Pulse Counter 2 Overflow | 08 | 32 | 08 | 32 |
| 32101 | 42101 | 151 | Digital Input Pulse Counter 3 Overflow | 08 | 34 | 08 | 34 |
| 32103 | 42103 | 152 | Digital Input Pulse Counter 4 Overflow | 08 | 36 | 08 | 36 |
| 32105 | 42105 | 153 | Run Hour Utility | 08 | 38 | 08 | 38 |
| 32107 | 42107 | 154 | On Hour Utility | 08 | 3A | 08 | 3A |
| 32113 | 42113 | 157 | No of Interruption | 08 | 40 | 08 | 40 |
| 32117 | 42117 | 159 | System Inductive Import (Q1) Energy KVArh | 08 | 44 | 08 | 40 |
| 32119 | 42119 | 160 | System Inductive Export (Q3) Energy KVArh | 08 | 46 | 08 | 44 |
| 32121 | 42121 | 161 | System Capacitive Import (Q2) Energy KVArh | 08 | 48 | 08 | 46 |

**TABLE 1.3 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32123 | 42123 | 162 | System Capacitive Export (Q4) Energy KVArh | 08 | 4A | 08 | 4A |
| 32125 | 42125 | 163 | Sys Total Lag Reactive (Q1 + Q3) Energy KVArh | 08 | 4C | 08 | 4C |
| 32127 | 42127 | 164 | Sys Total Lead Reactive (Q2 + Q4) Energy KVArh | 08 | 4E | 08 | 4E |
| 32129 | 42129 | 165 | Sys Total Import Reactive (Q1 + Q2) Energy KVArh | 08 | 50 | 08 | 50 |
| 32131 | 42131 | 166 | Sys Total Export Reactive (Q3 + Q4) Energy KVArh | 08 | 52 | 08 | 52 |
| 32133 | 42133 | 167 | L1 Inductive Import (Q1) KVArh | 08 | 54 | 08 | 54 |
| 32135 | 42135 | 168 | L2 Inductive Import (Q1) KVArh | 08 | 56 | 08 | 56 |
| 32137 | 42137 | 169 | L3 Inductive Import (Q1) KVArh | 08 | 58 | 08 | 58 |
| 32139 | 42139 | 170 | L1 Inductive Export (Q3) KVArh | 08 | 5A | 08 | 5A |
| 32141 | 42141 | 171 | L2 Inductive Export (Q3) KVArh | 08 | 5C | 08 | 5C |
| 32143 | 42143 | 172 | L3 Inductive Export (Q3) KVArh | 08 | 5E | 08 | 5E |
| 32145 | 42145 | 173 | L1 Capacitive Import (Q2) KVArh | 08 | 60 | 08 | 60 |
| 32147 | 42147 | 174 | L2 Capacitive Import (Q2) KVArh | 08 | 62 | 08 | 62 |
| 32149 | 42149 | 175 | L3 Capacitive Import (Q2) KVArh | 08 | 64 | 08 | 64 |
| 32151 | 42151 | 176 | L1 Capacitive Export (Q4) KVArh | 08 | 66 | 08 | 66 |
| 32153 | 42153 | 177 | L2 Capacitive Export (Q4) KVArh | 08 | 68 | 08 | 68 |
| 32155 | 42155 | 178 | L3 Capacitive Export (Q4) KVArh | 08 | 6A | 08 | 6A |
| 32157 | 42157 | 179 | L1 Total Lag Reactive (Q1 + Q3) Energy KVArh | 08 | 6C | 08 | 6C |
| 32159 | 42159 | 180 | L2 Total Lag Reactive (Q1 + Q3) Energy KVArh | 08 | 6E | 08 | 6E |
| 32161 | 42161 | 181 | L3 Total Lag Reactive (Q1 + Q3) Energy KVArh | 08 | 70 | 08 | 70 |
| 32163 | 42163 | 182 | L1 Total Lead Reactive (Q2 + Q4) Energy KVArh | 08 | 72 | 08 | 72 |
| 32165 | 42165 | 183 | L2 Total Lead Reactive (Q2 + Q4) Energy KVArh | 08 | 74 | 08 | 74 |
| 32167 | 42167 | 184 | L3 Total Lead Reactive (Q2 + Q4) Energy KVArh | 08 | 76 | 08 | 76 |
| 32169 | 42169 | 185 | L1 Total Import Reactive (Q1 + Q2) Energy KVArh | 08 | 78 | 08 | 78 |
| 32171 | 42171 | 186 | L2 Total Import Reactive (Q1 + Q2) Energy KVArh | 08 | 7A | 08 | 7A |
| 32173 | 42173 | 187 | L3 Total Import Reactive (Q1 + Q2) Energy KVArh | 08 | 7C | 08 | 7C |
| 32175 | 42175 | 188 | L1 Total Export Reactive (Q3 + Q4) Energy KVArh | 08 | 7E | 08 | 7E |
| 32177 | 42177 | 189 | L2 Total Export Reactive (Q3 + Q4) Energy KVArh | 08 | 80 | 08 | 80 |
| 32179 | 42179 | 190 | L3 Total Export Reactive (Q3 + Q4) Energy KVArh | 08 | 82 | .08 | 82 |
| 32181 | 42181 | 191 | System Net active total energy | 08 | 84 | 08 | 84 |

**TABLE 1.3 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32183 | 42183 | 192 | Apparent while Active Import | 08 | 86 | 08 | 86 |
| 32185 | 42185 | 193 | Apparent while Active Export | 08 | 88 | 08 | 88 |
| 32187 | 42187 | 194 | System Inductive Import (Q1) Energy KVArh OF | 08 | 8A | 08 | 8A |
| 32189 | 42189 | 195 | System Inductive Export (Q3) Energy KVArh OF | 08 | 8C | 08 | 8C |
| 32191 | 42191 | 196 | System Capacitive Import (Q2) Energy KVArh OF | 08 | 8E | 08 | 8E |
| 32193 | 42193 | 197 | System Capacitive Export (Q4) Export Energy KVArh OF | 08 | 90 | 08 | 90 |
| 32195 | 42195 | 198 | Sys Total Lag Reactive (Q1 + Q3) Energy KVArh OF | 08 | 92 | 08 | 92 |
| 32197 | 42197 | 199 | Sys Total Lead Reactive (Q2 + Q4) Energy KVArh OF | 08 | 94 | 08 | 94 |
| 32199 | 42199 | 200 | Sys Total Import Reactive (Q1 + Q2) Energy KVArh OF | 08 | 96 | 08 | 96 |
| 32201 | 42201 | 201 | Sys Total Export Reactive (Q3 + Q4) Energy KVArh OF | 08 | 98 | 08 | 98 |
| 32203 | 42203 | 202 | L1 Inductive Import (Q1) KVArh OF | 08 | 9A | 08 | 9A |
| 32205 | 42205 | 203 | L2 Inductive Import (Q1) KVArh OF | 08 | 9C | 08 | 9C |
| 32207 | 42207 | 204 | L3 Inductive Import (Q1) KVArh OF | 08 | 9E | 08 | 9E |
| 32209 | 42209 | 205 | L1 Inductive Export (Q3) KVArh OF | 08 | A0 | 08 | A0 |
| 32211 | 42211 | 206 | L2 Inductive Export (Q3) KVArh OF | 08 | A2 | 08 | A2 |
| 32213 | 42213 | 207 | L3 Inductive Export (Q3) KVArh OF | 08 | A4 | 08 | A4 |
| 32215 | 42215 | 208 | L1 Capacitive Import (Q2) KVArh OF | 08 | A6 | 08 | A6 |
| 32217 | 42217 | 209 | L2 Capacitive Import (Q2) KVArh OF | 08 | A8 | 08 | A8 |
| 32219 | 42219 | 210 | L3 Capacitive Import (Q2) KVArh OF | 08 | AA | 08 | AA |
| 32221 | 42221 | 211 | L1 Capacitive Export (Q4) KVArh OF | 08 | AC | 08 | AC |
| 32223 | 42223 | 212 | L2 Capacitive Export (Q4) KVArh OF | 08 | AE | 08 | AE |
| 32225 | 42225 | 213 | L3 Capacitive Export (Q4) KVArh OF | 08 | B0 | 08 | B0 |
| 32227 | 42227 | 214 | L1 Total Lag Reactive (Q1 + Q3) Energy KVArh OF | 08 | B2 | 08 | B2 |
| 32229 | 42229 | 215 | L2 Total Lag Reactive (Q1 + Q3) Energy KVArh OF | 08 | B4 | 08 | B4 |
| 32231 | 42231 | 216 | L3 Total Lag Reactive (Q1 + Q3) Energy KVArh OF | 08 | B6 | 08 | B6 |
| 32233 | 42233 | 217 | L1 Total Lead Reactive (Q2 + Q4) Energy KVArh OF | 08 | B8 | 08 | B8 |
| 32235 | 42235 | 218 | L2 Total Lead Reactive (Q2 + Q4) Energy KVArh OF | 08 | BA | 08 | BA |

**TABLE 1.3 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32237 | 42237 | 219 | L3 Total Lead Reactive (Q2 + Q4) Energy KVArh OF | 08 | BC | 08 | BC |
| 32239 | 42239 | 220 | L1 Total Import Reactive (Q1 + Q2) Energy KVArh OF | 08 | BE | 08 | BE |
| 32241 | 42241 | 221 | L2 Total Import Reactive (Q1 + Q2) Energy KVArh OF | 08 | C0 | 08 | C0 |
| 32243 | 42243 | 222 | L3 Total Import Reactive (Q1 + Q2) Energy KVArh OF | 08 | C2 | 08 | C2 |
| 32245 | 42245 | 223 | L1 Total Export Reactive (Q3 + Q4) Energy KVArh OF | 08 | C4 | 08 | C4 |
| 32247 | 42247 | 224 | L2 Total Export Reactive (Q3 + Q4) Energy KVArh OF | 08 | C6 | 08 | C6 |
| 32249 | 42249 | 225 | L3 Total Export Reactive (Q3 + Q4) Energy KVArh OF | 08 | C8 | 08 | C8 |
| 32251 | 42251 | 226 | System net active total energy OF | 08 | CA | 08 | CA |
| 32253 | 42253 | 227 | Apparent while active import OF | 08 | CC | 08 | CC |
| 32255 | 42255 | 228 | Apparent while active export OF | 08 | CE | 08 | CE |

**Note:**

*1. The values are updated depending on update rate which is settable by user.
For example, if user set update rate 15 min, then the values on these registers (marked with *) will get updated every 15 min.

2. OVF stands for Overflow Count.

3. For 3P3W, 1P2W and 2P2W, phase-wise parameters are not available.

4. For 1P3W, L3 parameters are not available.

## TABLE 1.4 : 3 X and 4 X register addresses for Individual Harmonics

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32311 | 42311 | 1 | VR Harmonic-1 | 09 | 06 | 09 | 06 |
| 32313 | 42313 | 2 | IR Harmonic-1 | 09 | 08 | 09 | 08 |
| 32315 | 42315 | 3 | VR Harmonic-2 | 09 | 0A | 09 | 0A |
| 32317 | 42317 | 4 | IR Harmonic-2 | 09 | 0C | 09 | 0C |
| 32319 | 42319 | 5 | VR Harmonic-3 | 09 | 0E | 09 | 0E |
| 32321 | 42321 | 6 | IR Harmonic-3 | 09 | 10 | 09 | 10 |
| 32323 | 42323 | 7 | VR Harmonic-4 | 09 | 12 | 09 | 12 |
| 32325 | 42325 | 8 | IR Harmonic-4 | 09 | 14 | 09 | 14 |
| 32327 | 42327 | 9 | VR Harmonic-5 | 09 | 16 | 09 | 16 |
| 32329 | 42329 | 10 | IR Harmonic-5 | 09 | 18 | 09 | 18 |
| 32331 | 42331 | 11 | VR Harmonic-6 | 09 | 1A | 09 | 1A |
| 32333 | 42333 | 12 | IR Harmonic-6 | 09 | 1C | 09 | 1C |
| 32335 | 42335 | 13 | VR Harmonic-7 | 09 | 1E | 09 | 1E |
| 32337 | 42337 | 14 | IR Harmonic-7 | 09 | 20 | 09 | 20 |
| 32339 | 42339 | 15 | VR Harmonic-8 | 09 | 22 | 09 | 22 |
| 32341 | 42341 | 16 | IR Harmonic-8 | 09 | 24 | 09 | 24 |
| 32343 | 42343 | 17 | VR Harmonic-9 | 09 | 26 | 09 | 26 |
| 32345 | 42345 | 18 | IR Harmonic-9 | 09 | 28 | 09 | 28 |
| 32347 | 42347 | 19 | VR Harmonic-10 | 09 | 2A | 09 | 2A |
| 32349 | 42349 | 20 | IR Harmonic-10 | 09 | 2C | 09 | 2C |
| 32351 | 42351 | 21 | VR Harmonic-11 | 09 | 2E | 09 | 2E |
| 32353 | 42353 | 22 | IR Harmonic-11 | 09 | 30 | 09 | 30 |
| 32355 | 42355 | 23 | VR Harmonic-12 | 09 | 32 | 09 | 32 |
| 32357 | 42357 | 24 | IR Harmonic-12 | 09 | 34 | 09 | 34 |
| 32359 | 42359 | 25 | VR Harmonic-13 | 09 | 36 | 09 | 36 |
| 32361 | 42361 | 26 | IR Harmonic-13 | 09 | 38 | 09 | 38 |
| 32363 | 42363 | 27 | VR Harmonic-14 | 09 | 3A | 09 | 3A |
| 32365 | 42365 | 28 | IR Harmonic-14 | 09 | 3C | 09 | 3C |
| 32367 | 42367 | 29 | VR Harmonic-15 | 09 | 3E | 09 | 3E |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32369 | 42369 | 30 | IR Harmonic-15 | 09 | 40 | 09 | 40 |
| 32371 | 42371 | 31 | VR Harmonic-16 | 09 | 42 | 09 | 42 |
| 32373 | 42373 | 32 | IR Harmonic-16 | 09 | 44 | 09 | 44 |
| 32375 | 42375 | 33 | VR Harmonic-17 | 09 | 46 | 09 | 46 |
| 32377 | 42377 | 34 | IR Harmonic-17 | 09 | 48 | 09 | 48 |
| 32379 | 42379 | 35 | VR Harmonic-18 | 09 | 4A | 09 | 4A |
| 32381 | 42381 | 36 | IR Harmonic-18 | 09 | 4C | 09 | 4C |
| 32383 | 42383 | 37 | VR Harmonic-19 | 09 | 4E | 09 | 4E |
| 32385 | 42385 | 38 | IR Harmonic-19 | 09 | 50 | 09 | 50 |
| 32387 | 42387 | 39 | VR Harmonic-20 | 09 | 52 | 09 | 52 |
| 32389 | 42389 | 40 | IR Harmonic-20 | 09 | 54 | 09 | 54 |
| 32391 | 42391 | 41 | VR Harmonic-21 | 09 | 56 | 09 | 56 |
| 32393 | 42393 | 42 | IR Harmonic-21 | 09 | 58 | 09 | 58 |
| 32395 | 42395 | 43 | VR Harmonic-22 | 09 | 5A | 09 | 5A |
| 32397 | 42397 | 44 | IR Harmonic-22 | 09 | 5C | 09 | 5C |
| 32399 | 42399 | 45 | VR Harmonic-23 | 09 | 5E | 09 | 5E |
| 32401 | 42401 | 46 | IR Harmonic-23 | 09 | 60 | 09 | 60 |
| 32403 | 42403 | 47 | VR Harmonic-24 | 09 | 62 | 09 | 62 |
| 32405 | 42405 | 48 | IR Harmonic-24 | 09 | 64 | 09 | 64 |
| 32407 | 42407 | 49 | VR Harmonic-25 | 09 | 66 | 09 | 66 |
| 32409 | 42409 | 50 | IR Harmonic-25 | 09 | 68 | 09 | 68 |
| 32411 | 42411 | 51 | VR Harmonic-26 | 09 | 6A | 09 | 6A |
| 32413 | 42413 | 52 | IR Harmonic-26 | 09 | 6C | 09 | 6C |
| 32415 | 42415 | 53 | VR Harmonic-27 | 09 | 6E | 09 | 6E |
| 32417 | 42417 | 54 | IR Harmonic-27 | 09 | 70 | 09 | 70 |
| 32419 | 42419 | 55 | VR Harmonic-28 | 09 | 72 | 09 | 72 |
| 32421 | 42421 | 56 | IR Harmonic-28 | 09 | 74 | 09 | 74 |
| 32423 | 42423 | 57 | VR Harmonic-29 | 09 | 76 | 09 | 76 |
| 32425 | 42425 | 58 | IR Harmonic-29 | 09 | 78 | 09 | 78 |
| 32427 | 42427 | 59 | VR Harmonic-30 | 09 | 7A | 09 | 7A |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32429 | 42429 | 60 | IR Harmonic-30 | 09 | 7C | 09 | 7C |
| 32431 | 42431 | 61 | VR Harmonic-31 | 09 | 7E | 09 | 7E |
| 32433 | 42433 | 62 | IR Harmonic-31 | 09 | 80 | 09 | 80 |
| 32435 | 42435 | 63 | VR Harmonic-32 | 09 | 82 | 09 | 82 |
| 32437 | 42437 | 64 | IR Harmonic-32 | 09 | 84 | 09 | 84 |
| 32439 | 42439 | 65 | VR Harmonic-33 | 09 | 86 | 09 | 86 |
| 32441 | 42441 | 66 | IR Harmonic-33 | 09 | 88 | 09 | 88 |
| 32443 | 42443 | 67 | VR Harmonic-34 | 09 | 8A | 09 | 8A |
| 32445 | 42445 | 68 | IR Harmonic-34 | 09 | 8C | 09 | 8C |
| 32447 | 42447 | 69 | VR Harmonic-35 | 09 | 8E | 09 | 8E |
| 32449 | 42449 | 70 | IR Harmonic-35 | 09 | 90 | 09 | 90 |
| 32451 | 42451 | 71 | VR Harmonic-36 | 09 | 92 | 09 | 92 |
| 32453 | 42453 | 72 | IR Harmonic-36 | 09 | 94 | 09 | 94 |
| 32455 | 42455 | 73 | VR Harmonic-37 | 09 | 96 | 09 | 96 |
| 32457 | 42457 | 74 | IR Harmonic-37 | 09 | 98 | 09 | 98 |
| 32459 | 42459 | 75 | VR Harmonic-38 | 09 | 9A | 09 | 9A |
| 32461 | 42461 | 76 | IR Harmonic-38 | 09 | 9C | 09 | 9C |
| 32463 | 42463 | 77 | VR Harmonic-39 | 09 | 9E | 09 | 9E |
| 32465 | 42465 | 78 | IR Harmonic-39 | 09 | A0 | 09 | A0 |
| 32467 | 42467 | 79 | VR Harmonic-40 | 09 | A2 | 09 | A2 |
| 32469 | 42469 | 80 | IR Harmonic-40 | 09 | A4 | 09 | A4 |
| 32471 | 42471 | 81 | VR Harmonic-41 | 09 | A6 | 09 | A6 |
| 32473 | 42473 | 82 | IR Harmonic-41 | 09 | A8 | 09 | A8 |
| 32475 | 42475 | 83 | VR Harmonic-42 | 09 | AA | 09 | AA |
| 32477 | 42477 | 84 | IR Harmonic-42 | 09 | AC | 09 | AC |
| 32479 | 42479 | 85 | VR Harmonic-43 | 09 | AE | 09 | AE |
| 32481 | 42481 | 86 | IR Harmonic-43 | 09 | B0 | 09 | B0 |
| 32483 | 42483 | 87 | VR Harmonic-44 | 09 | B2 | 09 | B2 |
| 32485 | 42485 | 88 | IR Harmonic-44 | 09 | B4 | 09 | B4 |
| 32487 | 42487 | 89 | VR Harmonic-45 | 09 | B6 | 09 | B6 |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32489 | 42489 | 90 | IR Harmonic-45 | 09 | B8 | 09 | B8 |
| 32491 | 42491 | 91 | VR Harmonic-46 | 09 | BA | 09 | BA |
| 32493 | 42493 | 92 | IR Harmonic-46 | 09 | BC | 09 | BC |
| 32495 | 42495 | 93 | VR Harmonic-47 | 09 | BE | 09 | BE |
| 32497 | 42497 | 94 | IR Harmonic-47 | 09 | C0 | 09 | C0 |
| 32499 | 42499 | 95 | VR Harmonic-48 | 09 | C2 | 09 | C2 |
| 32501 | 42501 | 96 | IR Harmonic-48 | 09 | C4 | 09 | C4 |
| 32503 | 42503 | 97 | VR Harmonic-49 | 09 | C6 | 09 | C6 |
| 32505 | 42505 | 98 | IR Harmonic-49 | 09 | C8 | 09 | C8 |
| 32507 | 42507 | 99 | VR Harmonic-50 | 09 | CA | 09 | CA |
| 32509 | 42509 | 100 | IR Harmonic-50 | 09 | CC | 09 | CC |
| 32511 | 42511 | 101 | VR Harmonic-51 | 09 | CE | 09 | CE |
| 32513 | 42513 | 102 | IR Harmonic-51 | 09 | D0 | 09 | D0 |
| 32515 | 42515 | 103 | VR Harmonic-52 | 09 | D2 | 09 | D2 |
| 32517 | 42517 | 104 | IR Harmonic-52 | 09 | D4 | 09 | D4 |
| 32519 | 42519 | 105 | VR Harmonic-53 | 09 | D6 | 09 | D6 |
| 32521 | 42521 | 106 | IR Harmonic-53 | 09 | D8 | 09 | D8 |
| 32523 | 42523 | 107 | VR Harmonic-54 | 09 | DA | 09 | DA |
| 32525 | 42525 | 108 | IR Harmonic-54 | 09 | DC | 09 | DC |
| 32527 | 42527 | 109 | VR Harmonic-55 | 09 | DE | 09 | DE |
| 32529 | 42529 | 110 | IR Harmonic-55 | 09 | E0 | 09 | E0 |
| 32531 | 42531 | 111 | VR Harmonic-56 | 09 | E2 | 09 | E2 |
| 32533 | 42533 | 112 | IR Harmonic-56 | 09 | E4 | 09 | E4 |
| 32535 | 42535 | 113 | VR Harmonic-57 | 09 | E6 | 09 | E6 |
| 32537 | 42537 | 114 | IR Harmonic-57 | 09 | E8 | 09 | E8 |
| 32539 | 42539 | 115 | VR Harmonic-58 | 09 | EA | 09 | EA |
| 32541 | 42541 | 116 | IR Harmonic-58 | 09 | EC | 09 | EC |
| 32543 | 42543 | 117 | VR Harmonic-59 | 09 | EE | 09 | EE |
| 32545 | 42545 | 118 | IR Harmonic-59 | 09 | F0 | 09 | F0 |
| 32547 | 42547 | 119 | VR Harmonic-60 | 09 | F2 | 09 | F2 |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32549 | 42549 | 120 | IR Harmonic-60 | 09 | F4 | 09 | F4 |
| 32551 | 42551 | 121 | VR Harmonic-61 | 09 | F6 | 09 | F6 |
| 32553 | 42553 | 122 | IR Harmonic-61 | 09 | F8 | 09 | F8 |
| 32555 | 42555 | 123 | VR Harmonic-62 | 09 | FA | 09 | FA |
| 32557 | 42557 | 124 | IR Harmonic-62 | 09 | FC | 09 | FC |
| 32559 | 42559 | 125 | VR Harmonic-63 | 09 | FE | 09 | FE |
| 32561 | 42561 | 126 | IR Harmonic-63 | 0A | 00 | 0A | 00 |
| 32563 | 42563 | 127 | VY Harmonic-1 | 0A | 02 | 0A | 02 |
| 32565 | 42565 | 128 | IY Harmonic-1 | 0A | 04 | 0A | 04 |
| 32567 | 42567 | 129 | VY Harmonic-2 | 0A | 06 | 0A | 06 |
| 32569 | 42569 | 130 | IY Harmonic-2 | 0A | 08 | 0A | 08 |
| 32571 | 42571 | 131 | VY Harmonic-3 | 0A | 0A | 0A | 0A |
| 32573 | 42573 | 132 | IY Harmonic-3 | 0A | 0C | 0A | 0C |
| 32575 | 42575 | 133 | VY Harmonic-4 | 0A | 0E | 0A | 0E |
| 32577 | 42577 | 134 | IY Harmonic-4 | 0A | 10 | 0A | 10 |
| 32579 | 42579 | 135 | VY Harmonic-5 | 0A | 12 | 0A | 12 |
| 32581 | 42581 | 136 | IY Harmonic-5 | 0A | 14 | 0A | 14 |
| 32583 | 42583 | 137 | VY Harmonic-6 | 0A | 16 | 0A | 16 |
| 32585 | 42585 | 138 | IY Harmonic-6 | 0A | 18 | 0A | 18 |
| 32587 | 42587 | 139 | VY Harmonic-7 | 0A | 1A | 0A | 1A |
| 32589 | 42589 | 140 | IY Harmonic-7 | 0A | 1C | 0A | 1C |
| 32591 | 42591 | 141 | VY Harmonic-8 | 0A | 1E | 0A | 1E |
| 32593 | 42593 | 142 | IY Harmonic-8 | 0A | 20 | 0A | 20 |
| 32595 | 42595 | 143 | VY Harmonic-9 | 0A | 22 | 0A | 22 |
| 32597 | 42597 | 144 | IY Harmonic-9 | 0A | 24 | 0A | 24 |
| 32599 | 42599 | 145 | VY Harmonic-10 | 0A | 26 | 0A | 26 |
| 32601 | 42601 | 146 | IY Harmonic-10 | 0A | 28 | 0A | 28 |
| 32603 | 42603 | 147 | VY Harmonic-11 | 0A | 2A | 0A | 2A |
| 32605 | 42605 | 148 | IY Harmonic-11 | 0A | 2C | 0A | 2C |
| 32607 | 42607 | 149 | VY Harmonic-12 | 0A | 2E | 0A | 2E |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32609 | 42609 | 150 | IY Harmonic-12 | 0A | 30 | 0A | 30 |
| 32611 | 42611 | 151 | VY Harmonic-13 | 0A | 32 | 0A | 32 |
| 32613 | 42613 | 152 | IY Harmonic-13 | 0A | 34 | 0A | 34 |
| 32615 | 42615 | 153 | VY Harmonic-14 | 0A | 36 | 0A | 36 |
| 32617 | 42617 | 154 | IY Harmonic-14 | 0A | 38 | 0A | 38 |
| 32619 | 42619 | 155 | VY Harmonic-15 | 0A | 3A | 0A | 3A |
| 32621 | 42621 | 156 | IY Harmonic-15 | 0A | 3C | 0A | 3C |
| 32623 | 42623 | 157 | VY Harmonic-16 | 0A | 3E | 0A | 3E |
| 32625 | 42625 | 158 | IY Harmonic-16 | 0A | 40 | 0A | 40 |
| 32627 | 42627 | 159 | VY Harmonic-17 | 0A | 42 | 0A | 42 |
| 32629 | 42629 | 160 | IY Harmonic-17 | 0A | 44 | 0A | 44 |
| 32631 | 42631 | 161 | VY Harmonic-18 | 0A | 46 | 0A | 46 |
| 32633 | 42633 | 162 | IY Harmonic-18 | 0A | 48 | 0A | 48 |
| 32635 | 42635 | 163 | VY Harmonic-19 | 0A | 4A | 0A | 4A |
| 32637 | 42637 | 164 | IY Harmonic-19 | 0A | 4C | 0A | 4C |
| 32639 | 42639 | 165 | VY Harmonic-20 | 0A | 4E | 0A | 4E |
| 32641 | 42641 | 166 | IY Harmonic-20 | 0A | 50 | 0A | 50 |
| 32643 | 42643 | 167 | VY Harmonic-21 | 0A | 52 | 0A | 52 |
| 32645 | 42645 | 168 | IY Harmonic-21 | 0A | 54 | 0A | 54 |
| 32647 | 42647 | 169 | VY Harmonic-22 | 0A | 56 | 0A | 56 |
| 32649 | 42649 | 170 | IY Harmonic-22 | 0A | 58 | 0A | 58 |
| 32651 | 42651 | 171 | VY Harmonic-23 | 0A | 5A | 0A | 5A |
| 32653 | 42653 | 172 | IY Harmonic-23 | 0A | 5C | 0A | 5C |
| 32655 | 42655 | 173 | VY Harmonic-24 | 0A | 5E | 0A | 5E |
| 32657 | 42657 | 174 | IY Harmonic-24 | 0A | 60 | 0A | 60 |
| 32659 | 42659 | 175 | VY Harmonic-25 | 0A | 62 | 0A | 62 |
| 32661 | 42661 | 176 | IY Harmonic-25 | 0A | 64 | 0A | 64 |
| 32663 | 42663 | 177 | VY Harmonic-26 | 0A | 66 | 0A | 66 |
| 32665 | 42665 | 178 | IY Harmonic-26 | 0A | 68 | 0A | 68 |
| 32667 | 42667 | 179 | VY Harmonic-27 | 0A | 6A | 0A | 6A |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32669 | 42669 | 180 | IY Harmonic-27 | 0A | 6C | 0A | 6C |
| 32671 | 42671 | 181 | VY Harmonic-28 | 0A | 6E | 0A | 6E |
| 32673 | 42673 | 182 | IY Harmonic-28 | 0A | 70 | 0A | 70 |
| 32675 | 42675 | 183 | VY Harmonic-29 | 0A | 72 | 0A | 72 |
| 32677 | 42677 | 184 | IY Harmonic-29 | 0A | 74 | 0A | 74 |
| 32679 | 42679 | 185 | VY Harmonic-30 | 0A | 76 | 0A | 76 |
| 32681 | 42681 | 186 | IY Harmonic-30 | 0A | 78 | 0A | 78 |
| 32683 | 42683 | 187 | VY Harmonic-31 | 0A | 7A | 0A | 7A |
| 32685 | 42685 | 188 | IY Harmonic-31 | 0A | 7C | 0A | 7C |
| 32687 | 42687 | 189 | VY Harmonic-32 | 0A | 7E | 0A | 7E |
| 32689 | 42689 | 190 | IY Harmonic-32 | 0A | 80 | 0A | 80 |
| 32691 | 42691 | 191 | VY Harmonic-33 | 0A | 82 | 0A | 82 |
| 32693 | 42693 | 192 | IY Harmonic-33 | 0A | 84 | 0A | 84 |
| 32695 | 42695 | 193 | VY Harmonic-34 | 0A | 86 | 0A | 86 |
| 32697 | 42697 | 194 | IY Harmonic-34 | 0A | 88 | 0A | 88 |
| 32699 | 42699 | 195 | VY Harmonic-35 | 0A | 8A | 0A | 8A |
| 32701 | 42701 | 196 | IY Harmonic-35 | 0A | 8C | 0A | 8C |
| 32703 | 42703 | 197 | VY Harmonic-36 | 0A | 8E | 0A | 8E |
| 32705 | 42705 | 198 | IY Harmonic-36 | 0A | 90 | 0A | 90 |
| 32707 | 42707 | 199 | VY Harmonic-37 | 0A | 92 | 0A | 92 |
| 32709 | 42709 | 200 | IY Harmonic-37 | 0A | 94 | 0A | 94 |
| 32711 | 42711 | 201 | VY Harmonic-38 | 0A | 96 | 0A | 96 |
| 32713 | 42713 | 202 | IY Harmonic-38 | 0A | 98 | 0A | 98 |
| 32715 | 42715 | 203 | VY Harmonic-39 | 0A | 9A | 0A | 9A |
| 32717 | 42717 | 204 | IY Harmonic-39 | 0A | 9C | 0A | 9C |
| 32719 | 42719 | 205 | VY Harmonic-40 | 0A | 9E | 0A | 9E |
| 32721 | 42721 | 206 | IY Harmonic-40 | 0A | A0 | 0A | A0 |
| 32723 | 42723 | 207 | VY Harmonic-41 | 0A | A2 | 0A | A2 |
| 32725 | 42725 | 208 | IY Harmonic-41 | 0A | A4 | 0A | A4 |
| 32727 | 42727 | 209 | VY Harmonic-42 | 0A | A6 | 0A | A6 |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32729 | 42729 | 210 | IY Harmonic-42 | 0A | A8 | 0A | A8 |
| 32731 | 42731 | 211 | VY Harmonic-43 | 0A | AA | 0A | AA |
| 32733 | 42733 | 212 | IY Harmonic-43 | 0A | AC | 0A | AC |
| 32735 | 42735 | 213 | VY Harmonic-44 | 0A | AE | 0A | AE |
| 32737 | 42737 | 214 | IY Harmonic-44 | 0A | B0 | 0A | B0 |
| 32739 | 42739 | 215 | VY Harmonic-45 | 0A | B2 | 0A | B2 |
| 32741 | 42741 | 216 | IY Harmonic-45 | 0A | B4 | 0A | B4 |
| 32743 | 42743 | 217 | VY Harmonic-46 | 0A | B6 | 0A | B6 |
| 32745 | 42745 | 218 | IY Harmonic-46 | 0A | B8 | 0A | B8 |
| 32747 | 42747 | 219 | VY Harmonic-47 | 0A | BA | 0A | BA |
| 32749 | 42749 | 220 | IY Harmonic-47 | 0A | BC | 0A | BC |
| 32751 | 42751 | 221 | VY Harmonic-48 | 0A | BE | 0A | BE |
| 32753 | 42753 | 222 | IY Harmonic-48 | 0A | C0 | 0A | C0 |
| 32755 | 42755 | 223 | VY Harmonic-49 | 0A | C2 | 0A | C2 |
| 32757 | 42757 | 224 | IY Harmonic-49 | 0A | C4 | 0A | C4 |
| 32759 | 42759 | 225 | VY Harmonic-50 | 0A | C6 | 0A | C6 |
| 32761 | 42761 | 226 | IY Harmonic-50 | 0A | C8 | 0A | C8 |
| 32763 | 42763 | 227 | VY Harmonic-51 | 0A | CA | 0A | CA |
| 32765 | 42765 | 228 | IY Harmonic-51 | 0A | CC | 0A | CC |
| 32767 | 42767 | 229 | VY Harmonic-52 | 0A | CE | 0A | CE |
| 32769 | 42769 | 230 | IY Harmonic-52 | 0A | D0 | 0A | D0 |
| 32771 | 42771 | 231 | VY Harmonic-53 | 0A | D2 | 0A | D2 |
| 32773 | 42773 | 232 | IY Harmonic-53 | 0A | D4 | 0A | D4 |
| 32775 | 42775 | 233 | VY Harmonic-54 | 0A | D6 | 0A | D6 |
| 32777 | 42777 | 234 | IY Harmonic-54 | 0A | D8 | 0A | D8 |
| 32779 | 42779 | 235 | VY Harmonic-55 | 0A | DA | 0A | DA |
| 32781 | 42781 | 236 | IY Harmonic-55 | 0A | DC | 0A | DC |
| 32783 | 42783 | 237 | VY Harmonic-56 | 0A | DE | 0A | DE |
| 32785 | 42785 | 238 | IY Harmonic-56 | 0A | E0 | 0A | E0 |
| 32787 | 42787 | 239 | VY Harmonic-57 | 0A | E2 | 0A | E2 |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32789 | 42789 | 240 | IY Harmonic-57 | 0A | E4 | 0A | E4 |
| 32791 | 42791 | 241 | VY Harmonic-58 | 0A | E6 | 0A | E6 |
| 32793 | 42793 | 242 | IY Harmonic-58 | 0A | E8 | 0A | E8 |
| 32795 | 42795 | 243 | VY Harmonic-59 | 0A | EA | 0A | EA |
| 32797 | 42797 | 244 | IY Harmonic-59 | 0A | EC | 0A | EC |
| 32799 | 42799 | 245 | VY Harmonic-60 | 0A | EE | 0A | EE |
| 32801 | 42801 | 246 | IY Harmonic-60 | 0A | F0 | 0A | F0 |
| 32803 | 42803 | 247 | VY Harmonic-61 | 0A | F2 | 0A | F2 |
| 32805 | 42805 | 248 | IY Harmonic-61 | 0A | F4 | 0A | F4 |
| 32807 | 42807 | 249 | VY Harmonic-62 | 0A | F6 | 0A | F6 |
| 32809 | 42809 | 250 | IY Harmonic-62 | 0A | F8 | 0A | F8 |
| 32811 | 42811 | 251 | VY Harmonic-63 | 0A | FA | 0A | FA |
| 32813 | 42813 | 252 | IY Harmonic-63 | 0A | FC | 0A | FC |
| 32815 | 42815 | 253 | VB Harmonic-1 | 0A | FE | 0A | FE |
| 32817 | 42817 | 254 | IB Harmonic-1 | 0B | 00 | 0B | 00 |
| 32819 | 42819 | 255 | VB Harmonic-2 | 0B | 02 | 0B | 02 |
| 32821 | 42821 | 256 | IB Harmonic-2 | 0B | 04 | 0B | 04 |
| 32823 | 42823 | 257 | VB Harmonic-3 | 0B | 06 | 0B | 06 |
| 32825 | 42825 | 258 | IB Harmonic-3 | 0B | 08 | 0B | 08 |
| 32827 | 42827 | 259 | VB Harmonic-4 | 0B | 0A | 0B | 0A |
| 32829 | 42829 | 260 | IB Harmonic-4 | 0B | 0C | 0B | 0C |
| 32831 | 42831 | 261 | VB Harmonic-5 | 0B | 0E | 0B | 0E |
| 32833 | 42833 | 262 | IB Harmonic-5 | 0B | 10 | 0B | 10 |
| 32835 | 42835 | 263 | VB Harmonic-6 | 0B | 12 | 0B | 12 |
| 32837 | 42837 | 264 | IB Harmonic-6 | 0B | 14 | 0B | 14 |
| 32839 | 42839 | 265 | VB Harmonic-7 | 0B | 16 | 0B | 16 |
| 32841 | 42841 | 266 | IB Harmonic-7 | 0B | 18 | 0B | 18 |
| 32843 | 42843 | 267 | VB Harmonic-8 | 0B | 1A | 0B | 1A |
| 32845 | 42845 | 268 | IB Harmonic-8 | 0B | 1C | 0B | 1C |
| 32847 | 42847 | 269 | VB Harmonic-9 | 0B | 1E | 0B | 1E |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32849 | 42849 | 270 | IB Harmonic-9 | 0B | 20 | 0B | 20 |
| 32851 | 42851 | 271 | VB Harmonic-10 | 0B | 22 | 0B | 22 |
| 32853 | 42853 | 272 | IB Harmonic-10 | 0B | 24 | 0B | 24 |
| 32855 | 42855 | 273 | VB Harmonic-11 | 0B | 26 | 0B | 26 |
| 32857 | 42857 | 274 | IB Harmonic-11 | 0B | 28 | 0B | 28 |
| 32859 | 42859 | 275 | VB Harmonic-12 | 0B | 2A | 0B | 2A |
| 32861 | 42861 | 276 | IB Harmonic-12 | 0B | 2C | 0B | 2C |
| 32863 | 42863 | 277 | VB Harmonic-13 | 0B | 2E | 0B | 2E |
| 32865 | 42865 | 278 | IB Harmonic-13 | 0B | 30 | 0B | 30 |
| 32867 | 42867 | 279 | VB Harmonic-14 | 0B | 32 | 0B | 32 |
| 32869 | 42869 | 280 | IB Harmonic-14 | 0B | 34 | 0B | 34 |
| 32871 | 42871 | 281 | VB Harmonic-15 | 0B | 36 | 0B | 36 |
| 32873 | 42873 | 282 | IB Harmonic-15 | 0B | 38 | 0B | 38 |
| 32875 | 42875 | 283 | VB Harmonic-16 | 0B | 3A | 0B | 3A |
| 32877 | 42877 | 284 | IB Harmonic-16 | 0B | 3C | 0B | 3C |
| 32879 | 42879 | 285 | VB Harmonic-17 | 0B | 3E | 0B | 3E |
| 32881 | 42881 | 286 | IB Harmonic-17 | 0B | 40 | 0B | 40 |
| 32883 | 42883 | 287 | VB Harmonic-18 | 0B | 42 | 0B | 42 |
| 32885 | 42885 | 288 | IB Harmonic-18 | 0B | 44 | 0B | 44 |
| 32887 | 42887 | 289 | VB Harmonic-19 | 0B | 46 | 0B | 46 |
| 32889 | 42889 | 290 | IB Harmonic-19 | 0B | 48 | 0B | 48 |
| 32891 | 42891 | 291 | VB Harmonic-20 | 0B | 4A | 0B | 4A |
| 32893 | 42893 | 292 | IB Harmonic-20 | 0B | 4C | 0B | 4C |
| 32895 | 42895 | 293 | VB Harmonic-21 | 0B | 4E | 0B | 4E |
| 32897 | 42897 | 294 | IB Harmonic-21 | 0B | 50 | 0B | 50 |
| 32899 | 42899 | 295 | VB Harmonic-22 | 0B | 52 | 0B | 52 |
| 32901 | 42901 | 296 | IB Harmonic-22 | 0B | 54 | 0B | 54 |
| 32903 | 42903 | 297 | VB Harmonic-23 | 0B | 56 | 0B | 56 |
| 32905 | 42905 | 298 | IB Harmonic-23 | 0B | 58 | 0B | 58 |
| 32907 | 42907 | 299 | VB Harmonic-24 | 0B | 5A | 0B | 5A |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32909 | 42909 | 300 | IB Harmonic-24 | 0B | 5C | 0B | 5C |
| 32911 | 42911 | 301 | VB Harmonic-25 | 0B | 5E | 0B | 5E |
| 32913 | 42913 | 302 | IB Harmonic-25 | 0B | 60 | 0B | 60 |
| 32915 | 42915 | 303 | VB Harmonic-26 | 0B | 62 | 0B | 62 |
| 32917 | 42917 | 304 | IB Harmonic-26 | 0B | 64 | 0B | 64 |
| 32919 | 42919 | 305 | VB Harmonic-27 | 0B | 66 | 0B | 66 |
| 32921 | 42921 | 306 | IB Harmonic-27 | 0B | 68 | 0B | 68 |
| 32923 | 42923 | 307 | VB Harmonic-28 | 0B | 6A | 0B | 6A |
| 32925 | 42925 | 308 | IB Harmonic-28 | 0B | 6C | 0B | 6C |
| 32927 | 42927 | 309 | VB Harmonic-29 | 0B | 6E | 0B | 6E |
| 32929 | 42929 | 310 | IB Harmonic-29 | 0B | 70 | 0B | 70 |
| 32931 | 42931 | 311 | VB Harmonic-30 | 0B | 72 | 0B | 72 |
| 32933 | 42933 | 312 | IB Harmonic-30 | 0B | 74 | 0B | 74 |
| 32935 | 42935 | 313 | VB Harmonic-31 | 0B | 76 | 0B | 76 |
| 32937 | 42937 | 314 | IB Harmonic-31 | 0B | 78 | 0B | 78 |
| 32939 | 42939 | 315 | VB Harmonic-32 | 0B | 7A | 0B | 7A |
| 32941 | 42941 | 316 | IB Harmonic-32 | 0B | 7C | 0B | 7C |
| 32943 | 42943 | 317 | VB Harmonic-33 | 0B | 7E | 0B | 7E |
| 32945 | 42945 | 318 | IB Harmonic-33 | 0B | 80 | 0B | 80 |
| 32947 | 42947 | 319 | VB Harmonic-34 | 0B | 82 | 0B | 82 |
| 32949 | 42949 | 320 | IB Harmonic-34 | 0B | 84 | 0B | 84 |
| 32951 | 42951 | 321 | VB Harmonic-35 | 0B | 86 | 0B | 86 |
| 32953 | 42953 | 322 | IB Harmonic-35 | 0B | 88 | 0B | 88 |
| 32955 | 42955 | 323 | VB Harmonic-36 | 0B | 8A | 0B | 8A |
| 32957 | 42957 | 324 | IB Harmonic-36 | 0B | 8C | 0B | 8C |
| 32959 | 42959 | 325 | VB Harmonic-37 | 0B | 8E | 0B | 8E |
| 32961 | 42961 | 326 | IB Harmonic-37 | 0B | 90 | 0B | 90 |
| 32963 | 42963 | 327 | VB Harmonic-38 | 0B | 92 | 0B | 92 |
| 32965 | 42965 | 328 | IB Harmonic-38 | 0B | 94 | 0B | 94 |
| 32967 | 42967 | 329 | VB Harmonic-39 | 0B | 96 | 0B | 96 |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 32969 | 42969 | 330 | IB Harmonic-39 | 0B | 98 | 0B | 98 |
| 32971 | 42971 | 331 | VB Harmonic-40 | 0B | 9A | 0B | 9A |
| 32973 | 42973 | 332 | IB Harmonic-40 | 0B | 9C | 0B | 9C |
| 32975 | 42975 | 333 | VB Harmonic-41 | 0B | 9E | 0B | 9E |
| 32977 | 42977 | 334 | IB Harmonic-41 | 0B | A0 | 0B | A0 |
| 32979 | 42979 | 335 | VB Harmonic-42 | 0B | A2 | 0B | A2 |
| 32981 | 42981 | 336 | IB Harmonic-42 | 0B | A4 | 0B | A4 |
| 32983 | 42983 | 337 | VB Harmonic-43 | 0B | A6 | 0B | A6 |
| 32985 | 42985 | 338 | IB Harmonic-43 | 0B | A8 | 0B | A8 |
| 32987 | 42987 | 339 | VB Harmonic-44 | 0B | AA | 0B | AA |
| 32989 | 42989 | 340 | IB Harmonic-44 | 0B | AC | 0B | AC |
| 32991 | 42991 | 341 | VB Harmonic-45 | 0B | AE | 0B | AE |
| 32993 | 42993 | 342 | IB Harmonic-45 | 0B | B0 | 0B | B0 |
| 32995 | 42995 | 343 | VB Harmonic-46 | 0B | B2 | 0B | B2 |
| 32997 | 42997 | 344 | IB Harmonic-46 | 0B | B4 | 0B | B4 |
| 32999 | 42999 | 345 | VB Harmonic-47 | 0B | B6 | 0B | B6 |
| 33001 | 43001 | 346 | IB Harmonic-47 | 0B | B8 | 0B | B8 |
| 33003 | 43003 | 347 | VB Harmonic-48 | 0B | BA | 0B | BA |
| 33005 | 43005 | 348 | IB Harmonic-48 | 0B | BC | 0B | BC |
| 33007 | 43007 | 349 | VB Harmonic-49 | 0B | BE | 0B | BE |
| 33009 | 43009 | 350 | IB Harmonic-49 | 0B | C0 | 0B | C0 |
| 33011 | 43011 | 351 | VB Harmonic-50 | 0B | C2 | 0B | C2 |
| 33013 | 43013 | 352 | IB Harmonic-50 | 0B | C4 | 0B | C4 |
| 33015 | 43015 | 353 | VB Harmonic-51 | 0B | C6 | 0B | C6 |
| 33017 | 43017 | 354 | IB Harmonic-51 | 0B | C8 | 0B | C8 |
| 33019 | 43019 | 355 | VB Harmonic-52 | 0B | CA | 0B | CA |
| 33021 | 43021 | 356 | IB Harmonic-52 | 0B | CC | 0B | CC |
| 33023 | 43023 | 357 | VB Harmonic-53 | 0B | CE | 0B | CE |
| 33025 | 43025 | 358 | IB Harmonic-53 | 0B | D0 | 0B | D0 |
| 33027 | 43027 | 359 | VB Harmonic-54 | 0B | D2 | 0B | D2 |

**TABLE 1.4 Continued...**

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 33029 | 43029 | 360 | IB Harmonic-54 | 0B | D4 | 0B | D4 |
| 33031 | 43031 | 361 | VB Harmonic-55 | 0B | D6 | 0B | D6 |
| 33033 | 43033 | 362 | IB Harmonic-55 | 0B | D8 | 0B | D8 |
| 33035 | 43035 | 363 | VB Harmonic-56 | 0B | DA | 0B | DA |
| 33037 | 43037 | 364 | IB Harmonic-56 | 0B | DC | 0B | DC |
| 33039 | 43039 | 365 | VB Harmonic-57 | 0B | DE | 0B | DE |
| 33041 | 43041 | 366 | IB Harmonic-57 | 0B | E0 | 0B | E0 |
| 33043 | 43043 | 367 | VB Harmonic-58 | 0B | E2 | 0B | E2 |
| 33045 | 43045 | 368 | IB Harmonic-58 | 0B | E4 | 0B | E4 |
| 33047 | 43047 | 369 | VB Harmonic-59 | 0B | E6 | 0B | E6 |
| 33049 | 43049 | 370 | IB Harmonic-59 | 0B | E8 | 0B | E8 |
| 33051 | 43051 | 371 | VB Harmonic-60 | 0B | EA | 0B | EA |
| 33053 | 43053 | 372 | IB Harmonic-60 | 0B | EC | 0B | EC |
| 33055 | 43055 | 373 | VB Harmonic-61 | 0B | EE | 0B | EE |
| 33057 | 43057 | 374 | IB Harmonic-61 | 0B | F0 | 0B | F0 |
| 33059 | 43059 | 375 | VB Harmonic-62 | 0B | F2 | 0B | F2 |
| 33061 | 43061 | 376 | IB Harmonic-62 | 0B | F4 | 0B | F4 |
| 33063 | 43063 | 377 | VB Harmonic-63 | 0B | F6 | 0B | F6 |
| 33065 | 43065 | 378 | IB Harmonic-63 | 0B | F8 | 0B | F8 |

## TABLE 1.5 : 3 X and 4 X register addresses for Old Parameters

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 33301 | 43301 | 1 | Old Energy Unit | 0C | E4 | 0C | E4 |
| 33303 | 43303 | 2 | Old Active Energy Import | 0C | E6 | 0C | E6 |
| 33305 | 43305 | 3 | Old Active Energy Export | 0C | E8 | 0C | E8 |
| 33307 | 43307 | 4 | Old Reactive Energy Capacitive | 0C | EA | 0C | EA |
| 33309 | 43309 | 5 | Old Reactive Energy Inductive | 0C | EC | 0C | EC |
| 33311 | 43311 | 6 | Old Apparent Energy | 0C | EE | 0C | EE |
| 33313 | 43313 | 7 | Old Active Energy Import Overflow Count | 0C | F0 | 0C | F0 |
| 33315 | 43315 | 8 | Old Active Energy Export Overflow Count | 0C | F2 | 0C | F2 |
| 33317 | 43317 | 9 | Old Reactive Energy Capacitive Overflow Count | 0C | F4 | 0C | F4 |
| 33319 | 43319 | 10 | Old Reactive Energy Inductive Overflow Count | 0C | F6 | 0C | F6 |
| 33321 | 43321 | 11 | Old Apparent Energy Overflow Count | 0C | F8 | 0C | F8 |
| 33323 | 43323 | 12 | Old Total Active Energy | 0C | FA | 0C | FA |
| 33325 | 43325 | 13 | Old Total Reactive Energy | 0D | FC | 0D | FC |
| 33327 | 43327 | 14 | Old Total Apparent Energy | 0D | FE | 0D | FE |
| 33329 | 43329 | 15 | Old Total Active Energy Overflow Count | 0D | 00 | 0D | 00 |
| 33331 | 43331 | 16 | Old Total Reactive Energy Overflow Count | 0D | 02 | 0D | 02 |
| 33333 | 43333 | 17 | Old Total Apparent Energy Overflow Count | 0D | 04 | 0D | 04 |
| 33335 | 43335 | 18 | Old Active Energy Import L1 | 0D | 06 | 0D | 06 |
| | | | | | | | 08 |
| | | | | | | | 0A |

**TABLE 1.5 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 33337 | 43337 | 19 | Old Active Energy Import L2 | 0D | 08 | 0D | 08 |
| 33339 | 43339 | 20 | Old Active Energy Import L3 | 0D | 0A | 0D | 0A |
| 33341 | 43341 | 21 | Old Active Energy Export L1 | 0D | 0C | 0D | 0C |
| 33343 | 43343 | 22 | Old Active Energy Export L2 | 0D | 0E | 0D | 0E |
| 33345 | 43345 | 23 | Old Active Energy Export L3 | 0D | 10 | 0D | 10 |
| 33347 | 43347 | 24 | Old Reactive Energy Capacitive L1 | 0D | 12 | 0D | 12 |
| 33349 | 43349 | 25 | Old Reactive Energy Capacitive L2 | 0D | 14 | 0D | 14 |
| 33351 | 43351 | 26 | Old Reactive Energy Capacitive L3 | 0D | 16 | 0D | 16 |
| 33353 | 43353 | 27 | Old Reactive Energy Inductive L1 | 0D | 18 | 0D | 18 |
| 33355 | 43355 | 28 | Old Reactive Energy Inductive L2 | 0D | 1A | 0D | 1A |
| 33357 | 43357 | 29 | Old Reactive Energy Inductive L3 | 0D | 1C | 0D | 1C |
| 33359 | 43359 | 30 | Old Apparent Energy L1 | 0D | 1E | 0D | 1E |
| 33361 | 43361 | 31 | Old Apparent Energy L2 | 0D | 20 | 0D | 20 |
| 33363 | 43363 | 32 | Old Apparent Energy L3 | 0D | 22 | 0D | 22 |
| 33365 | 43365 | 33 | Old Total Active Energy L1 | 0D | 24 | 0D | 24 |
| 33367 | 43367 | 34 | Old Total Active Energy L2 | 0D | 26 | 0D | 26 |
| 33369 | 43369 | 35 | Old Total Active Energy L3 | 0D | 28 | 0D | 28 |
| 33371 | 43371 | 36 | Old Total Reactive Energy L1 | 0D | 2A | 0D | 2A |
| 33373 | 43373 | 37 | Old Total Reactive Energy L2 | 0D | 2C | 0D | 2C |
| 33375 | 43375 | 38 | Old Total Reactive Energy L3 | 0D | 2E | 0D | 2E |
| 33377 | 43377 | 39 | Old Total Apparent Energy L1 | 0D | 30 | 0D | 30 |
| 33379 | 43379 | 40 | Old Total Apparent Energy L2 | 0D | 32 | 0D | 32 |
| 33381 | 43381 | 41 | Old Total Apparent Energy L3 | 0D | 34 | 0D | 34 |
| 33383 | 43383 | 42 | Old Overflow Active Energy Import L1 | 0D | 36 | 0D | 36 |
| 33385 | 43385 | 43 | Old Overflow Active Energy Import L2 | 0D | 38 | 0D | 38 |
| 33387 | 43387 | 44 | Old Overflow Active Energy Import L3 | 0D | 3A | 0D | 3A |
| 33389 | 43389 | 45 | Old Overflow Active Energy Export L1 | 0D | 3C | 0D | 3C |
| 33391 | 43391 | 46 | Old Overflow Active Energy Export L2 | 0D | 3E | 0D | 3E |
| 33393 | 43393 | 47 | Old Overflow Active Energy Export L3 | 0D | 40 | 0D | 40 |
| 33395 | 43395 | 48 | Old Overflow Reactive Energy Capacitive L1 | 0D | 42 | 0D | 42 |

**TABLE 1.5 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 33397 | 43397 | 49 | Old Overflow Reactive Energy Capacitive L2 | 0D | 44 | 0D | 44 |
| 33399 | 43399 | 50 | Old Overflow Reactive Energy Capacitive L3 | 0D | 46 | 0D | 46 |
| 33401 | 43401 | 51 | Old Overflow Reactive Energy Inductive L1 | 0D | 48 | 0D | 48 |
| 33403 | 43403 | 52 | Old Overflow Reactive Energy Inductive L2 | 0D | 4A | 0D | 4A |
| 33405 | 43405 | 53 | Old Overflow Reactive Energy Inductive L3 | 0D | 4C | 0D | 4C |
| 33407 | 43407 | 54 | Old Overflow Apparent Energy L1 | 0D | 4E | 0D | 4E |
| 33409 | 43409 | 55 | Old Overflow Apparent Energy L2 | 0D | 50 | 0D | 50 |
| 33411 | 43411 | 56 | Old Overflow Apparent Energy L3 | 0D | 52 | 0D | 52 |
| 33413 | 43413 | 57 | Old Total Active Energy Overflow Count L1 | 0D | 54 | 0D | 54 |
| 33415 | 43415 | 58 | Old Total Active Energy Overflow Count L2 | 0D | 56 | 0D | 56 |
| 33417 | 43417 | 59 | Old Total Active Energy Overflow Count L3 | 0D | 58 | 0D | 58 |
| 33419 | 43419 | 60 | Old Total Reactive Energy Overflow Count L1 | 0D | 5A | 0D | 5A |
| 33421 | 43421 | 61 | Old Total Reactive Energy Overflow Count L2 | 0D | 5C | 0D | 5C |
| 33423 | 43423 | 62 | Old Total Reactive Energy Overflow Count L3 | 0D | 64 | 0D | 64 |
| 33425 | 43425 | 63 | Old Total Apparent Energy Overflow Count L1 | 0D | 66 | 0D | 66 |
| 33429 | 43429 | 64 | Old Total Apparent Energy Overflow Count L2 | 0D | 68 | 0D | 68 |
| 33431 | 43431 | 65 | Old Total Apparent Energy Overflow Count L3 | 0D | 6A | 0D | 6A |
| 33433 | 43433 | 66 | Old Run hour | 0D | 6C | 0D | 6C |
| 33435 | 43435 | 67 | Old On Hour | 0D | 6E | 0D | 6E |
| 33437 | 43437 | 68 | Old No. of interrupts | 0D | 70 | 0D | 70 |
| 33439 | 43439 | 69 | Old Sys kw imp Max Demand | 0D | 72 | 0D | 72 |
| 33441 | 43441 | 70 | Old Sys kw exp Max Demand | 0D | 74 | 0D | 74 |
| 33443 | 43443 | 71 | Old Sys kVAr Cap. Max Demand | 0D | 76 | 0D | 76 |
| 33445 | 43445 | 72 | Old Sys kVAr Ind. Max Demand | 0D | 78 | 0D | 78 |
| 33447 | 43447 | 73 | Old Sys kVA Max Demand | 0D | 7A | 0D | 7A |
| 33449 | 43449 | 74 | Old Sys current Max demand | 0D | 7C | 0D | 7C |

**Note:** For 3P3W, 2P2W and 1P2W, phase-wise parameters are not available.
For 1P3W, L3 parameters are not available.

## TABLE 1.6 : 3 X and 4 X register addresses for Digital Input & Output Parameters

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 33701 | 43701 | 1 | Relay1 Output Status* | 0E | 74 | 0E | 74 |
| 33703 | 43703 | 2 | Relay2 Output Status* | 0E | 76 | 0E | 76 |
| 33705 | 43705 | 3 | Timer 1 On delay | 0E | 78 | 0E | 7C |
| 33707 | 43707 | 4 | Timer 2 On delay | 0E | 7A | 0E | 7E |
| 33709 | 43709 | 5 | Timer 1 Off delay | 0E | 7C | 0E | 84 |
| 33711 | 43711 | 6 | Timer 2 Off delay | 0E | 7E | 0E | 86 |
| 33713 | 43713 | 7 | Timer 1 No. of Cycles | 0E | 80 | 0E | 8C |
| 33715 | 43715 | 8 | Timer 2 No. of Cycles | 0E | 82 | 0E | 8E |
| 33717 | 43717 | 9 | Health Status of 3Ph Sys (Refer Table 11) | 0E | 84 | 0E | 94 |
| 33719 | 43719 | 10 | Prepaid Balance Energy for Relay 1 | 0E | 86 | 0E | 96 |
| 33721 | 43721 | 11 | Prepaid Balance Energy for Relay 2 | 0E | 88 | 0E | 98 |
| 33723 | 43723 | 12 | Prepaid Balance Cost for Relay 1 | 0E | 8A | 0E | 9E |
| 33725 | 43725 | 13 | Prepaid Balance Cost for Relay 2 | 0E | 8C | 0E | A0 |
| 33727 | 43727 | 14 | Digital Input 1 Status** | 0E | 8E | 0E | AE |
| 33729 | 43729 | 15 | Digital Input 2 Status** | 0E | 90 | 0E | B0 |
| 33731 | 43731 | 16 | Digital Input 3 Status** | 0E | 92 | 0E | B2 |
| 33733 | 43733 | 17 | Digital Input 4 Status** | 0E | 94 | 0E | B4 |

**Note** : *1. Relay Output 1/ 2 Status shows whether relay is Energized (shows 1) or De-energized (shows 0).
**2. Digital Input status gets updated only when corresponding Digital Input is configured in Status Mode.

## TABLE 1.7 : 3 X and 4 X register addresses for Tariff Energies

| Address (3X) | Address (4X) | Parameter Number | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 34001 | 44001 | 1 | Tariff1 Source1 Energy Count | 0F | A0 | 0F | A0 |
| 34003 | 44003 | 2 | Tariff1 Source2 Energy Count | 0F | A2 | 0F | A2 |
| 34005 | 44005 | 3 | Tariff1 Source3 Energy Count | 0F | A4 | 0F | A4 |
| 34007 | 44007 | 4 | Tariff1 Source4 Energy Count | 0F | A6 | 0F | A6 |
| 34009 | 44009 | 5 | Tariff1 Source5 Energy Count | 0F | A8 | 0F | A8 |
| 34011 | 44011 | 6 | Tariff1 Source6 Energy Count | 0F | AA | 0F | AA |
| 34013 | 44013 | 7 | Tariff1 Source1 Energy OVF Count | 0F | AC | 0F | AC |
| 34015 | 44015 | 8 | Tariff1 Source2 Energy OVF Count | 0F | AE | 0F | AE |

**TABLE 1.7 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 34017 | 44017 | 9 | Tariff1 Source3 Energy OVF Count | 0F | B0 | 0F | B0 |
| 34019 | 44019 | 10 | Tariff1 Source4 Energy OVF Count | 0F | B2 | 0F | B2 |
| 34021 | 44021 | 11 | Tariff1 Source5 Energy OVF Count | 0F | B4 | 0F | B4 |
| 34023 | 44023 | 12 | Tariff1 Source6 Energy OVF Count | 0F | B6 | 0F | B6 |
| 34025 | 44025 | 13 | Tariff2 Source1 Energy Count | 0F | B8 | 0F | B8 |
| 34027 | 44027 | 14 | Tariff2 Source2 Energy Count | 0F | BA | 0F | BA |
| 34029 | 44029 | 15 | Tariff2 Source3 Energy Count | 0F | BC | 0F | BC |
| 34031 | 44031 | 16 | Tariff2 Source4 Energy Count | 0F | BE | 0F | BE |
| 34033 | 44033 | 17 | Tariff2 Source5 Energy Count | 0F | C0 | 0F | C0 |
| 34035 | 44035 | 18 | Tariff2 Source6 Energy Count | 0F | C2 | 0F | C2 |
| 34037 | 44037 | 19 | Tariff2 Source1 Energy OVF Count | 0F | C4 | 0F | C4 |
| 34039 | 44039 | 20 | Tariff2 Source2 Energy OVF Count | 0F | C6 | 0F | C6 |
| 34041 | 44041 | 21 | Tariff2 Source3 Energy OVF Count | 0F | C8 | 0F | C8 |
| 34043 | 44043 | 22 | Tariff2 Source4 Energy OVF Count | 0F | CA | 0F | CA |
| 34045 | 44045 | 23 | Tariff2 Source5 Energy OVF Count | 0F | CC | 0F | CC |
| 34047 | 44047 | 24 | Tariff2 Source6 Energy OVF Count | 0F | CE | 0F | CE |
| 34049 | 44049 | 25 | Tariff3 Source1 Energy Count | 0F | D0 | 0F | D0 |
| 34051 | 44051 | 26 | Tariff3 Source2 Energy Count | 0F | D2 | 0F | D2 |
| 34053 | 44053 | 27 | Tariff3 Source3 Energy Count | 0F | D4 | 0F | D4 |
| 34055 | 44055 | 28 | Tariff3 Source4 Energy Count | 0F | D6 | 0F | D6 |
| 34057 | 44057 | 29 | Tariff3 Source5 Energy Count | 0F | D8 | 0F | D8 |
| 34059 | 44059 | 30 | Tariff3 Source6 Energy Count | 0F | DA | 0F | DA |
| 34061 | 44061 | 31 | Tariff3 Source1 Energy OVF Count | 0F | DC | 0F | DC |
| 34063 | 44063 | 32 | Tariff3 Source2 Energy OVF Count | 0F | DE | 0F | DE |
| 34065 | 44065 | 33 | Tariff3 Source3 Energy OVF Count | 0F | E0 | 0F | E0 |
| 34067 | 44067 | 34 | Tariff3 Source4 Energy OVF Count | 0F | E2 | 0F | E2 |
| 34069 | 44069 | 35 | Tariff3 Source5 Energy OVF Count | 0F | E4 | 0F | E4 |
| 34071 | 44071 | 36 | Tariff3 Source6 Energy OVF Count | 0F | E6 | 0F | E6 |
| 34073 | 44073 | 37 | Tariff4 Source1 Energy Count | 0F | E8 | 0F | E8 |
| 34075 | 44075 | 38 | Tariff4 Source2 Energy Count | 0F | EA | 0F | EA |

**TABLE 1.7 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 34077 | 44077 | 39 | Tariff4 Source3 Energy Count | 0F | EC | 0F | EC |
| 34079 | 44079 | 40 | Tariff4 Source4 Energy Count | 0F | EE | 0F | EE |
| 34081 | 44081 | 41 | Tariff4 Source5 Energy Count | 0F | F0 | 0F | F0 |
| 34083 | 44083 | 42 | Tariff4 Source6 Energy Count | 0F | F2 | 0F | F2 |
| 34085 | 44085 | 43 | Tariff4 Source1 Energy OVF Count | 0F | F4 | 0F | F4 |
| 34087 | 44087 | 44 | Tariff4 Source2 Energy OVF Count | 0F | F6 | 0F | F6 |
| 34089 | 44089 | 45 | Tariff4 Source3 Energy OVF Count | 0F | F8 | 0F | F8 |
| 34091 | 44091 | 46 | Tariff4 Source4 Energy OVF Count | 0F | FA | 0F | FA |
| 34093 | 44093 | 47 | Tariff4 Source5 Energy OVF Count | 0F | FC | 0F | FC |
| 34095 | 44095 | 48 | Tariff4 Source6 Energy OVF Count | 0F | FE | 0F | FE |
| 34097 | 44097 | 49 | Tariff5 Source1 Energy Count | 10 | 00 | 0F | 00 |
| 34099 | 44099 | 50 | Tariff5 Source2 Energy Count | 10 | 02 | 0F | 02 |
| 34101 | 44101 | 51 | Tariff5 Source3 Energy Count | 10 | 04 | 0F | 04 |
| 34103 | 44103 | 52 | Tariff5 Source4 Energy Count | 10 | 06 | 0F | 06 |
| 34105 | 44105 | 53 | Tariff5 Source5 Energy Count | 10 | 08 | 0F | 08 |
| 34107 | 44107 | 54 | Tariff5 Source6 Energy Count | 10 | 0A | 0F | 0A |
| 34109 | 44109 | 55 | Tariff5 Source1 Energy OVF Count | 10 | 0C | 0F | 0C |
| 34111 | 44111 | 56 | Tariff5 Source2 Energy OVF Count | 10 | 0E | 0F | 0E |
| 34113 | 44113 | 57 | Tariff5 Source3 Energy OVF Count | 10 | 10 | 0F | 10 |
| 34115 | 44115 | 58 | Tariff5 Source4 Energy OVF Count | 10 | 12 | 0F | 12 |
| 34117 | 44117 | 59 | Tariff5 Source5 Energy OVF Count | 10 | 14 | 0F | 14 |
| 34119 | 44119 | 60 | Tariff5 Source6 Energy OVF Count | 10 | 16 | 0F | 16 |
| 34121 | 44121 | 61 | Tariff6 Source1 Energy Count | 10 | 18 | 0F | 18 |
| 34123 | 44123 | 62 | Tariff6 Source2 Energy Count | 10 | 1A | 0F | 1A |
| 34125 | 44125 | 63 | Tariff6 Source3 Energy Count | 10 | 1C | 0F | 1C |
| 34127 | 44127 | 64 | Tariff6 Source4 Energy Count | 10 | 1E | 0F | 1E |
| 34129 | 44129 | 65 | Tariff6 Source5 Energy Count | 10 | 20 | 0F | 20 |
| 34131 | 44131 | 66 | Tariff6 Source6 Energy Count | 10 | 22 | 0F | 22 |
| 34133 | 44133 | 67 | Tariff6 Source1 Energy OVF Count | 10 | 24 | 0F | 24 |
| 34135 | 44135 | 68 | Tariff6 Source2 Energy OVF Count | 10 | 26 | 0F | 26 |

**TABLE 1.7 Continued...**

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | High Byte | Low Byte |
| 34137 | 44137 | 69 | Tariff6 Source3 Energy OVF Count | 10 | 28 | 10 | 28 |
| 34139 | 44139 | 70 | Tariff6 Source4 Energy OVF Count | 10 | 2A | 10 | 2A |
| 34141 | 44141 | 71 | Tariff6 Source5 Energy OVF Count | 10 | 2C | 10 | 2C |
| 34143 | 44143 | 72 | Tariff6 Source6 Energy OVF Count | 10 | 2E | 10 | 2E |
| 34145 | 44145 | 73 | Tariff7 Source1 Energy Count | 10 | 30 | 10 | 30 |
| 34147 | 44147 | 74 | Tariff7 Source2 Energy Count | 10 | 32 | 10 | 32 |
| 34149 | 44149 | 75 | Tariff7 Source3 Energy Count | 10 | 34 | 10 | 34 |
| 34151 | 44151 | 76 | Tariff7 Source4 Energy Count | 10 | 36 | 10 | 36 |
| 34153 | 44153 | 77 | Tariff7 Source5 Energy Count | 10 | 38 | 10 | 38 |
| 34155 | 44155 | 78 | Tariff7 Source6 Energy Count | 10 | 3A | 10 | 3A |
| 34157 | 44157 | 79 | Tariff7 Source1 Energy OVF Count | 10 | 3C | 10 | 3C |
| 34159 | 44159 | 80 | Tariff7 Source2 Energy OVF Count | 10 | 3E | 10 | 3E |
| 34161 | 44161 | 81 | Tariff7 Source3 Energy OVF Count | 10 | 40 | 10 | 40 |
| 34163 | 44163 | 82 | Tariff7 Source4 Energy OVF Count | 10 | 42 | 10 | 42 |
| 34165 | 44165 | 83 | Tariff7 Source5 Energy OVF Count | 10 | 44 | 10 | 44 |
| 34167 | 44167 | 84 | Tariff7 Source6 Energy OVF Count | 10 | 46 | 10 | 46 |
| 34169 | 44169 | 85 | Tariff8 Source1 Energy Count | 10 | 48 | 10 | 48 |
| 34171 | 44171 | 86 | Tariff8 Source2 Energy Count | 10 | 4A | 10 | 4A |
| 34173 | 44173 | 87 | Tariff8 Source3 Energy Count | 10 | 4C | 10 | 4C |
| 34175 | 44175 | 88 | Tariff8 Source4 Energy Count | 10 | 4E | 10 | 4E |
| 34177 | 44177 | 89 | Tariff8 Source5 Energy Count | 10 | 50 | 10 | 50 |
| 34179 | 44179 | 90 | Tariff8 Source6 Energy Count | 10 | 52 | 10 | 52 |
| 34181 | 44181 | 91 | Tariff8 Source1 Energy OVF Count | 10 | 54 | 10 | 54 |
| 34183 | 44183 | 92 | Tariff8 Source2 Energy OVF Count | 10 | 56 | 10 | 56 |
| 34185 | 44185 | 93 | Tariff8 Source3 Energy OVF Count | 10 | 58 | 10 | 58 |
| 34187 | 44187 | 94 | Tariff8 Source4 Energy OVF Count | 10 | 5A | 10 | 5A |
| 34189 | 44189 | 95 | Tariff8 Source5 Energy OVF Count | 10 | 5C | 10 | 5C |
| 34191 | 44191 | 96 | Tariff8 Source6 Energy OVF Count | 10 | 5E | 10 | 5E |

## TABLE 2 : 3X and 4X register addresses for 32-bit Integer Energy

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 30801 | 40801 | 1 | Sys Active Energy Import | 03 | 20 | 03 | 20 |
| 30803 | 40803 | 2 | Sys Active Energy Export | 03 | 22 | 03 | 22 |
| 30805 | 40805 | 3 | Sys Reactive Energy Capacitive | 03 | 24 | 03 | 24 |
| 30807 | 40807 | 4 | Sys Reactive Energy Inductive | 03 | 26 | 03 | 26 |
| 30809 | 40809 | 5 | Sys Apparent Energy | 03 | 28 | 03 | 28 |
| 30813 | 40813 | 7 | Sys Active Energy Import OVF Count | 03 | 2C | 03 | 2C |
| 30815 | 40815 | 8 | Sys Active Energy Export OVF Count | 03 | 2E | 03 | 2E |
| 30817 | 40817 | 9 | Sys Reactive Energy Cap. OVF Count | 03 | 30 | 03 | 30 |
| 30819 | 40819 | 10 | Sys Reactive Energy Ind. OVF Count | 03 | 32 | 03 | 32 |
| 30821 | 40821 | 11 | Sys Apparent Energy OVF Count | 03 | 34 | 03 | 34 |
| 30825 | 40825 | 13 | Sys Active Energy OVF on update Rate* | 03 | 38 | 03 | 38 |
| 30827 | 40827 | 14 | Sys Active Energy Export on update Rate* | 03 | 3A | 03 | 3A |
| 30829 | 40829 | 15 | Sys Reactive Energy Cap. on update Rate* | 03 | 3C | 03 | 3C |
| 30831 | 40831 | 16 | Sys Reactive Energy Ind. on update Rate* | 03 | 3E | 03 | 3E |
| 30833 | 40833 | 17 | Sys Apparent Energy on update Rate* | 03 | 40 | 03 | 40 |
| 30837 | 40837 | 19 | Sys Active Energy Import OVF Count on update Rate* | 03 | 44 | 03 | 44 |
| 30839 | 40839 | 20 | Sys Active Energy Export OVF Count on update Rate* | 03 | 46 | 03 | 46 |
| 30841 | 40841 | 21 | Sys Reactive Energy Cap. OVF Count on update Rate* | 03 | 48 | 03 | 48 |
| 30843 | 40843 | 22 | Sys Reactive Energy Ind. OVF Count on update Rate* | 03 | 4A | 03 | 4A |
| 30845 | 40845 | 23 | Sys Apparent Energy OVF Count on update Rate* | 03 | 4C | 03 | 4C |
| 30849 | 40849 | 25 | Sys Total Active Energy | 03 | 50 | 03 | 50 |
| 30851 | 40851 | 26 | Sys Total Reactive Energy | 03 | 52 | 03 | 52 |
| 30853 | 40853 | 27 | Sys Total Apparent Energy | 03 | 54 | 03 | 54 |
| 30855 | 40855 | 28 | Sys Total Active Energy OVF Count | 03 | 56 | 03 | 56 |
| 30857 | 40857 | 29 | Sys Total Reactive Energy OVF Count | 03 | 58 | 03 | 58 |
| 30859 | 40859 | 30 | Sys Total Apparent Energy OVF Count | 03 | 5A | 03 | 5A |
| 30861 | 40861 | 31 | Sys Total Active Energy on update Rate* | 03 | 5C | 03 | 5C |
| 30863 | 40863 | 32 | Sys Total Reactive Energy on update Rate* | 03 | 5E | 03 | 5E |
| 30865 | 40865 | 33 | Sys Total Apparent Energy on update Rate* | 03 | 60 | 03 | 60 |
| 30867 | 40867 | 34 | Sys Total Active Energy OVF Count on update Rate* | 03 | 62 | 03 | 62 |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 30869 | 40869 | 35 | Sys Total Reactive Energy OVF Count on update Rate* | 03 | 64 | 03 | 64 |
| 30871 | 40871 | 36 | Sys Total Apparent Energy OVF Count on update Rate* | 03 | 66 | 03 | 66 |
| 30873 | 40873 | 37 | Active Energy Import L1 | 03 | 68 | 03 | 68 |
| 30875 | 40875 | 38 | Active Energy Import L2 | 03 | 6A | 03 | 6A |
| 30877 | 40877 | 39 | Active Energy Import L3 | 03 | 6C | 03 | 6C |
| 30879 | 40879 | 40 | Active Energy Export L1 | 03 | 6E | 03 | 6E |
| 30881 | 40881 | 41 | Active Energy Export L2 | 03 | 70 | 03 | 70 |
| 30883 | 40883 | 42 | Active Energy Export L3 | 03 | 72 | 03 | 72 |
| 30885 | 40885 | 43 | Reactive Energy Capacitive L1 | 03 | 74 | 03 | 74 |
| 30887 | 40887 | 44 | Reactive Energy Capacitive L2 | 03 | 76 | 03 | 76 |
| 30889 | 40889 | 45 | Reactive Energy Capacitive L3 | 03 | 78 | 03 | 78 |
| 30891 | 40891 | 46 | Reactive Energy Inductive L1 | 03 | 7A | 03 | 7A |
| 30893 | 40893 | 47 | Reactive Energy Inductive L2 | 03 | 7C | 03 | 7C |
| 30895 | 40895 | 48 | Reactive Energy Inductive L3 | 03 | 7E | 03 | 7E |
| 30897 | 40897 | 49 | Apparent Energy L1 | 03 | 80 | 03 | 80 |
| 30899 | 40899 | 50 | Apparent Energy L2 | 03 | 82 | 03 | 82 |
| 30901 | 40901 | 51 | Apparent Energy L3 | 03 | 84 | 03 | 84 |
| 30909 | 40909 | 55 | Total Active Energy L1 | 03 | 8C | 03 | 8C |
| 30911 | 40911 | 56 | Total Active Energy L2 | 03 | 8E | 03 | 8E |
| 30913 | 40913 | 57 | Total Active Energy L3 | 03 | 90 | 03 | 90 |
| 30915 | 40915 | 58 | Total Reactive Energy L1 | 03 | 92 | 03 | 92 |
| 30917 | 40917 | 59 | Total Reactive Energy L2 | 03 | 94 | 03 | 94 |
| 30919 | 40919 | 60 | Total Reactive Energy L3 | 03 | 96 | 03 | 96 |
| 30921 | 40921 | 61 | Total Apparent Energy L1 | 03 | 98 | 03 | 98 |
| 30923 | 40923 | 62 | Total Apparent Energy L2 | 03 | 9A | 03 | 9A |
| 30925 | 40925 | 63 | Total Apparent Energy L3 | 03 | 9C | 03 | 9C |
| 30927 | 40927 | 64 | OVF Active Energy Import L1 | 03 | 9E | 03 | 9E |
| 30929 | 40929 | 65 | OVF Active Energy Import L2 | 03 | A0 | 03 | A0 |
| 30931 | 40931 | 66 | OVF Active Energy Import L3 | 03 | A2 | 03 | A2 |
| 30933 | 40933 | 67 | OVF Active Energy Export L1 | 03 | A4 | 03 | A4 |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 30935 | 40935 | 68 | OVF Active Energy Export L2 | 03 | A6 | 03 | A6 |
| 30937 | 40937 | 69 | OVF Active Energy Export L3 | 03 | A8 | 03 | A8 |
| 30939 | 40939 | 70 | OVF Reactive Energy Capacitive L1 | 03 | AA | 03 | AA |
| 30941 | 40941 | 71 | OVF Reactive Energy Capacitive L2 | 03 | AC | 03 | AC |
| 30943 | 40943 | 72 | OVF Reactive Energy Capacitive L3 | 03 | AE | 03 | AE |
| 30945 | 40945 | 73 | OVF Reactive Energy Inductive L1 | 03 | B0 | 03 | B0 |
| 30947 | 40947 | 74 | OVF Reactive Energy Inductive L2 | 03 | B2 | 03 | B2 |
| 30949 | 40949 | 75 | OVF Reactive Energy Inductive L3 | 03 | B4 | 03 | B4 |
| 30951 | 40951 | 76 | OVF Apparent Energy L1 | 03 | B6 | 03 | B6 |
| 30953 | 40953 | 77 | OVF Apparent Energy L2 | 03 | B8 | 03 | B8 |
| 30955 | 40955 | 78 | OVF Apparent Energy L3 | 03 | BA | 03 | BA |
| 30963 | 40963 | 82 | Total Active Energy OVF Count L1 | 03 | C2 | 03 | C2 |
| 30965 | 40965 | 83 | Total Active Energy OVF Count L2 | 03 | C4 | 03 | C4 |
| 30967 | 40967 | 84 | Total Active Energy OVF Count L3 | 03 | C6 | 03 | C6 |
| 30969 | 40969 | 85 | Total Reactive Energy OVF Count L1 | 03 | C8 | 03 | C8 |
| 30971 | 40971 | 86 | Total Reactive Energy OVF Count L2 | 03 | CA | 03 | CA |
| 30973 | 40973 | 87 | Total Reactive Energy OVF Count L3 | 03 | CC | 03 | CC |
| 30975 | 40975 | 88 | Total Apparent Energy OVF Count L1 | 03 | CE | 03 | CE |
| 30977 | 40977 | 89 | Total Apparent Energy OVF Count L2 | 03 | D0 | 03 | D0 |
| 30979 | 40979 | 90 | Total Apparent Energy OVF Count L3 | 03 | D2 | 03 | D2 |
| 30981 | 40981 | 91 | Active Energy Import L1 on update Rate* | 03 | D4 | 03 | D4 |
| 30983 | 40983 | 92 | Active Energy Import L2 on update Rate* | 03 | D6 | 03 | D6 |
| 30985 | 40985 | 93 | Active Energy Import L3 on update Rate* | 03 | D8 | 03 | D8 |
| 30987 | 40987 | 94 | Active Energy Export L1 on update Rate* | 03 | DA | 03 | DA |
| 30989 | 40989 | 95 | Active Energy Export L2 on update Rate* | 03 | DC | 03 | DC |
| 30991 | 40991 | 96 | Active Energy Export L3 on update Rate* | 03 | DE | 03 | DE |
| 30993 | 40993 | 97 | Reactive Energy Capacitive L1 on update Rate* | 03 | E0 | 03 | E0 |
| 30995 | 40995 | 98 | Reactive Energy Capacitive L2 on update Rate* | 03 | E2 | 03 | E2 |
| 30997 | 40997 | 99 | Reactive Energy Capacitive L3 on update Rate* | 03 | E4 | 03 | E4 |
| 30999 | 40999 | 100 | Reactive Energy Inductive L1 on update Rate* | 03 | E6 | 03 | E6 |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 31001 | 41001 | 101 | Reactive Energy Ind. L2 on update Rate* | 03 | E8 | 03 | E8 |
| 31003 | 41003 | 102 | Reactive Energy Ind. L3 on update Rate* | 03 | EA | 03 | EA |
| 31005 | 41005 | 103 | Apparent Energy L1 on update Rate* | 03 | EC | 03 | EC |
| 31007 | 41007 | 104 | Apparent Energy L2 on update Rate* | 03 | EE | 03 | EE |
| 31009 | 41009 | 105 | Apparent Energy L3 on update Rate* | 03 | F0 | 03 | F0 |
| 31017 | 41017 | 109 | Total Active Energy L1 on update Rate* | 03 | F8 | 03 | F8 |
| 31019 | 41019 | 110 | Total Active Energy L2 on update Rate* | 03 | FA | 03 | FA |
| 31021 | 41021 | 111 | Total Active Energy L3 on update Rate* | 03 | FC | 03 | FC |
| 31023 | 41023 | 112 | Total Reactive Energy L1 on update Rate* | 03 | FE | 03 | FE |
| 31025 | 41025 | 113 | Total Reactive Energy L2 on update Rate* | 04 | 00 | 04 | 00 |
| 31027 | 41027 | 114 | Total Reactive Energy L3 on update Rate* | 04 | 02 | 04 | 02 |
| 31029 | 41029 | 115 | Total Apparent Energy L1 on update Rate* | 04 | 04 | 04 | 04 |
| 31031 | 41031 | 116 | Total Apparent Energy L2 on update Rate* | 04 | 06 | 04 | 06 |
| 31033 | 41033 | 117 | Total Apparent Energy L3 on update Rate* | 04 | 08 | 04 | 08 |
| 31035 | 41035 | 118 | OVF Active Energy Import L1 on update Rate* | 04 | 0A | 04 | 0A |
| 31037 | 41037 | 119 | OVF Active Energy Import L2 on update Rate* | 04 | 0C | 04 | 0C |
| 31039 | 41039 | 120 | OVF Active Energy Import L3 on update Rate* | 04 | 0E | 04 | 0E |
| 31041 | 41041 | 121 | OVF Active Energy Export L1 on update Rate* | 04 | 10 | 04 | 10 |
| 31043 | 41043 | 122 | OVF Active Energy Export L2 on update Rate* | 04 | 12 | 04 | 12 |
| 31045 | 41045 | 123 | OVF Active Energy Export L3 on update Rate* | 04 | 14 | 04 | 14 |
| 31047 | 41047 | 124 | OVF Reactive Energy Cap. L1 on update Rate* | 04 | 16 | 04 | 16 |
| 31049 | 41049 | 125 | OVF Reactive Energy Cap. L2 on update Rate* | 04 | 18 | 04 | 18 |
| 31051 | 41051 | 126 | OVF Reactive Energy Cap. L3 on update Rate* | 04 | 1A | 04 | 1A |
| 31053 | 41053 | 127 | OVF Reactive Energy Ind. L1 on update Rate* | 04 | 1C | 04 | 1C |
| 31055 | 41055 | 128 | OVF Reactive Energy Ind. L2 on update Rate* | 04 | 1E | 04 | 1E |
| 31057 | 41057 | 129 | OVF Reactive Energy Ind. L3 on update Rate* | 04 | 20 | 04 | 20 |
| 31059 | 41059 | 130 | OVF Apparent Energy L1 on update Rate* | 04 | 22 | 04 | 22 |
| 31061 | 41061 | 131 | OVF Apparent Energy L2 on update Rate* | 04 | 24 | 04 | 24 |
| 31063 | 41063 | 132 | OVF Apparent Energy L3 on update Rate* | 04 | 26 | 04 | 26 |
| 31071 | 41071 | 136 | Total Active Energy OVF Count L1 on update Rate* | 04 | 2E | 04 | 2E |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 31073 | 41073 | 137 | Total Active Energy OVF Count L2 on update Rate* | 04 | 30 | 04 | 30 |
| 31075 | 41075 | 138 | Total Active Energy OVF Count L3 on update Rate* | 04 | 32 | 04 | 32 |
| 31077 | 41077 | 139 | Total Reactive Energy OVF Count L1 on update Rate* | 04 | 34 | 04 | 34 |
| 31079 | 41079 | 140 | Total Reactive Energy OVF Count L2 on update Rate* | 04 | 36 | 04 | 36 |
| 31081 | 41081 | 141 | Total Reactive Energy OVF Count L3 on update Rate* | 04 | 38 | 04 | 38 |
| 31083 | 41083 | 142 | Total Apparent Energy OVF Count L1 on update Rate* | 04 | 3A | 04 | 3A |
| 31085 | 41085 | 143 | Total Apparent Energy OVF Count L2 on update Rate* | 04 | 3C | 04 | 3C |
| 31087 | 41087 | 144 | Total Apparent Energy OVF Count L3 on update Rate* | 04 | 3E | 04 | 3E |
| 31089 | 41089 | 145 | External Counter 1 Value** | 04 | 40 | 04 | 40 |
| 31091 | 41091 | 146 | External Counter 2 Value** | 04 | 42 | 04 | 42 |
| 31093 | 41097 | 147 | External Counter 3 Value** | 04 | 44 | 04 | 48 |
| 31095 | 41099 | 148 | External Counter 4 Value** | 04 | 46 | 04 | 4A |
| 31097 | 41097 | 149 | External Counter 1 OVF** | 04 | 48 | 04 | 48 |
| 31099 | 41099 | 150 | External Counter 2 OVF** | 04 | 4A | 04 | 4A |
| 31101 | 41101 | 151 | External Counter 3 OVF** | 04 | 4C | 04 | 4C |
| 31103 | 41103 | 152 | External Counter 4 OVF** | 04 | 4E | 04 | 4E |
| 31105 | 41105 | 153 | Run Hour | 04 | 50 | 04 | 50 |
| 31107 | 41107 | 154 | On Hour | 04 | 52 | 04 | 52 |
| 31113 | 41113 | 157 | No of Interruption | 04 | 58 | 04 | 58 |
| 31117 | 41117 | 159 | System Inductive Import (Q1) Energy KVArh | 04 | 5C | 04 | 5C |
| 31119 | 41119 | 160 | System Inductive Export (Q3) Energy KVArh | 04 | 5E | 04 | 5E |
| 31121 | 41121 | 161 | System Capacitive Import (Q2) Energy KVArh | 04 | 60 | 04 | 60 |
| 31123 | 41123 | 162 | System Capacitive Export (Q4) Energy KVArh | 04 | 62 | 04 | 62 |
| 31125 | 41125 | 163 | Sys Total Lag Reactive (Q1 + Q3) Energy KVArh | 04 | 64 | 04 | 64 |
| 31127 | 41127 | 164 | Sys Total Lead Reactive (Q2 + Q4) Energy KVArh | 04 | 66 | 04 | 66 |
| 31129 | 41129 | 165 | Sys Total Import Reactive (Q1 + Q2) Energy KVArh | 04 | 68 | 04 | 68 |
| 31131 | 41131 | 166 | Sys Total Export Reactive (Q3 + Q4) Energy KVArh | 04 | 6A | 04 | 6A |
| 31133 | 41133 | 167 | L1 Inductive Import (Q1) KVArh | 04 | 6C | 04 | 6C |
| 31135 | 41135 | 168 | L2 Inductive Import (Q1) KVArh | 04 | 6E | 04 | 6E |
| 31137 | 41137 | 169 | L3 Inductive Import (Q1) KVArh | 04 | 70 | 04 | 70 |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 31139 | 41139 | 170 | L1 Inductive Export (Q3) KVArh | 04 | 72 | 04 | 72 |
| 31141 | 41141 | 171 | L2 Inductive Export (Q3) KVArh | 04 | 74 | 04 | 74 |
| 31143 | 41143 | 172 | L3 Inductive Export (Q3) KVArh | 04 | 76 | 04 | 76 |
| 31145 | 41145 | 173 | L1 Capacitive Import (Q2) KVArh | 04 | 78 | 04 | 78 |
| 31147 | 41147 | 174 | L2 Capacitive Import (Q2) KVArh | 04 | 7A | 04 | 7A |
| 31149 | 41149 | 175 | L3 Capacitive Import (Q2) KVArh | 04 | 7C | 04 | 7C |
| 31151 | 41151 | 176 | L1Capacitive Export (Q4) KVArh | 04 | 7E | 04 | 7E |
| 31153 | 41153 | 177 | L2 Capacitive Export (Q4) KVArh | 04 | 80 | 04 | 80 |
| 31155 | 41155 | 178 | L3 Capacitive Export (Q4) KVArh | 04 | 82 | 04 | 82 |
| 31157 | 41157 | 179 | L1 Total Lag Reactive (Q1 + Q3) Energy KVArh | 04 | 84 | 04 | 84 |
| 31159 | 41159 | 180 | L2 Total Lag Reactive (Q1 + Q3) Energy KVArh | 04 | 86 | 04 | 86 |
| 31161 | 41161 | 181 | L3 Total Lag Reactive (Q1 + Q3) Energy KVArh | 04 | 88 | 04 | 88 |
| 31163 | 41163 | 182 | L1 Total Lead Reactive (Q2 + Q4) Energy KVArh | 04 | 8A | 04 | 8A |
| 31165 | 41165 | 183 | L2 Total Lead Reactive (Q2 + Q4) Energy KVArh | 04 | 8C | 04 | 8C |
| 31167 | 41167 | 184 | L3 Total Lead Reactive (Q2 + Q4) Energy KVArh | 04 | 8E | 04 | 8E |
| 31169 | 41169 | 185 | L1 Total Import Reactive (Q1 + Q2) Energy KVArh | 04 | 90 | 04 | 90 |
| 31171 | 41171 | 186 | L2 Total Import Reactive (Q1 + Q2) Energy KVArh | 04 | 92 | 04 | 92 |
| 31173 | 41173 | 187 | L3 Total Import Reactive (Q1 + Q2) Energy KVArh | 04 | 94 | 04 | 94 |
| 31175 | 41175 | 188 | L1 Total Export Reactive (Q3 + Q4) Energy KVArh | 04 | 96 | 04 | 96 |
| 31177 | 41177 | 189 | L2 Total Export Reactive (Q3 + Q4) Energy KVArh | 04 | 98 | 04 | 98 |
| 31179 | 41179 | 190 | L3 Total Export Reactive (Q3 + Q4) Energy KVArh | 04 | 9A | 04 | 9A |
| 31181 | 41181 | 191 | System Net active total energy | 04 | 9C | 04 | 9C |
| 31183 | 41183 | 192 | Apparent while active Import | 04 | 9E | 04 | 9E |
| 31185 | 41185 | 193 | Apparent while active export | 04 | A0 | 04 | A0 |
| 31187 | 41187 | 194 | System Inductive Import (Q1) Energy KVArh OF | 04 | A2 | 04 | A2 |
| 31189 | 41189 | 195 | System Inductive Export (Q3) Energy KVArh OF | 04 | A4 | 04 | A4 |
| 31191 | 41191 | 196 | System Capacitive Import (Q2) Energy KVArh OF | 04 | A6 | 04 | A6 |
| 31193 | 41193 | 197 | System Capacitive Export (Q4) Energy KVArh OF | 04 | A8 | 04 | A8 |
| 31195 | 41195 | 198 | Sys Total Lag Reactive (Q1 + Q3) Energy KVArh OF | 04 | AA | 04 | AA |
| 31197 | 41197 | 199 | Sys Total Lead Reactive (Q2 + Q4) Energy KVArh OF | 04 | AC | 04 | AC |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 31199 | 41199 | 200 | Sys Total Import Reactive Energy KVArh OF | 04 | AE | 04 | AE |
| 31201 | 41201 | 201 | Sys Total Export Reactive Energy KVArh OF | 04 | B0 | 04 | B0 |
| 31203 | 41203 | 202 | L1 Inductive Import KVArh of | 04 | B2 | 04 | B2 |
| 31205 | 41205 | 203 | L2 Inductive Import KVArh of | 04 | B4 | 04 | B4 |
| 31207 | 41207 | 204 | L3 Inductive Import KVArh OF | 04 | B6 | 04 | B6 |
| 31209 | 41209 | 205 | L1 Inductive Export KVArh OF | 04 | B8 | 04 | B8 |
| 31211 | 41211 | 206 | L2 Inductive Export KVArh OF | 04 | BA | 04 | BA |
| 31213 | 41213 | 207 | L3 Inductive Export KVArh OF | 04 | BC | 04 | BC |
| 31215 | 41215 | 208 | L1 Capacitive Import KVArh OF | 04 | BE | 04 | BE |
| 31217 | 41217 | 209 | L2 Capacitive Import KVArh OF | 04 | C0 | 04 | C0 |
| 31219 | 41219 | 210 | L3 Capacitive Import KVArh OF | 04 | C2 | 04 | C2 |
| 31221 | 41221 | 211 | L1 Capacitive Export KVArh OF | 04 | C4 | 04 | C4 |
| 31223 | 41223 | 212 | L2 Capacitive Export KVArh OF | 04 | C6 | 04 | C6 |
| 31225 | 41225 | 213 | L3 Capacitive Export KVArh OF | 04 | C8 | 04 | C8 |
| 31227 | 41227 | 214 | L1 Total Lag Reactive Energy KVArh OF | 04 | CA | 04 | CA |
| 31229 | 41229 | 215 | L2 Total Lag Reactive Energy KVArh OF | 04 | CC | 04 | CC |
| 31231 | 41231 | 216 | L3 Total Lag Reactive Energy KVArh OF | 04 | CE | 04 | CE |
| 31233 | 41233 | 217 | L1 Total Lead Reactive Energy KVArh OF | 04 | D0 | 04 | D0 |
| 31235 | 41235 | 218 | L2 Total Lead Reactive Energy KVArh OF | 04 | D2 | 04 | D2 |
| 31237 | 41237 | 219 | L3 Total Lead Reactive Energy KVArh OF | 04 | D4 | 04 | D4 |
| 31239 | 41239 | 220 | L1 Total Import Reactive Energy KVArh OF | 04 | D6 | 04 | D6 |
| 31241 | 41241 | 221 | L2 Total Import Reactive Energy KVArh OF | 04 | D8 | 04 | D8 |
| 31243 | 41243 | 222 | L3 Total Import Reactive Energy KVArh OF | 04 | DA | 04 | DA |
| 31245 | 41245 | 223 | L1 Total Export Reactive Energy KVArh OF | 04 | DC | 04 | DC |
| 31247 | 41247 | 224 | L2 Total Export Reactive Energy KVArh OF | 04 | DE | 04 | DE |
| 31249 | 41249 | 225 | L3 Total Export Reactive Energy KVArh OF | 04 | E0 | 04 | E0 |
| 31251 | 41251 | 226 | System net active total energy OF | 04 | E2 | 04 | E2 |
| 31253 | 41253 | 227 | Apparent while active import energy OF | 04 | E4 | 04 | E4 |
| 31255 | 41255 | 228 | Apparent while active export energy OF | 04 | E6 | 04 | E6 |
| 31257 | 41257 | 229 | Net active total energy Sign (indicates + or -) | 04 | E8 | 04 | E8 |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 31301 | 41301 | 251 | Tariff1 Source1 Energy Count | 05 | 14 | 05 | 14 |
| 31303 | 41303 | 252 | Tariff1 Source2 Energy Count | 05 | 16 | 05 | 16 |
| 31305 | 41305 | 253 | Tariff1 Source3 Energy Count | 05 | 18 | 05 | 18 |
| 31307 | 41307 | 254 | Tariff1 Source4 Energy Count | 05 | 1A | 05 | 1A |
| 31309 | 41309 | 255 | Tariff1 Source5 Energy Count | 05 | 1C | 05 | 1C |
| 31311 | 41311 | 256 | Tariff1 Source6 Energy Count | 05 | 1E | 05 | 1E |
| 31313 | 41313 | 257 | Tariff1 Source1 Energy OVF Count | 05 | 20 | 05 | 20 |
| 31315 | 41315 | 258 | Tariff1 Source2 Energy OVF Count | 05 | 22 | 05 | 22 |
| 31317 | 41317 | 259 | Tariff1 Source3 Energy OVF Count | 05 | 24 | 05 | 24 |
| 31319 | 41319 | 260 | Tariff1 Source4 Energy OVF Count | 05 | 26 | 05 | 26 |
| 31321 | 41321 | 261 | Tariff1 Source5 Energy OVF Count | 05 | 28 | 05 | 28 |
| 31323 | 41323 | 262 | Tariff1 Source6 Energy OVF Count | 05 | 2A | 05 | 2A |
| 31325 | 41325 | 263 | Tariff2 Source1 Energy Count | 05 | 2C | 05 | 2C |
| 31327 | 41327 | 264 | Tariff2 Source2 Energy Count | 05 | 2E | 05 | 2E |
| 31329 | 41329 | 265 | Tariff2 Source3 Energy Count | 05 | 30 | 05 | 30 |
| 31331 | 41331 | 266 | Tariff2 Source4 Energy Count | 05 | 32 | 05 | 32 |
| 31333 | 41333 | 267 | Tariff2 Source5 Energy Count | 05 | 34 | 05 | 34 |
| 31335 | 41335 | 268 | Tariff2 Source6 Energy Count | 05 | 36 | 05 | 36 |
| 31337 | 41337 | 269 | Tariff2 Source1 Energy OVF Count | 05 | 38 | 05 | 38 |
| 31339 | 41339 | 270 | Tariff2 Source2 Energy OVF Count | 05 | 3A | 05 | 3A |
| 31341 | 41341 | 271 | Tariff2 Source3 Energy OVF Count | 05 | 3C | 05 | 3C |
| 31343 | 41347 | 272 | Tariff2 Source4 Energy OVF Count | 05 | 3E | 05 | 3E |
| 31345 | 41349 | 273 | Tariff2 Source5 Energy OVF Count | 05 | 40 | 05 | 40 |
| 31347 | 41347 | 274 | Tariff2 Source6 Energy OVF Count | 05 | 42 | 05 | 42 |
| 31349 | 41349 | 275 | Tariff3 Source1 Energy Count | 05 | 44 | 05 | 44 |
| 31351 | 41351 | 276 | Tariff3 Source2 Energy Count | 05 | 46 | 05 | 46 |
| 31353 | 41353 | 277 | Tariff3 Source3 Energy Count | 05 | 48 | 05 | 48 |
| 31355 | 41355 | 278 | Tariff3 Source4 Energy Count | 05 | 4A | 05 | 4A |
| 31357 | 41357 | 279 | Tariff3 Source5 Energy Count | 05 | 4C | 05 | 4C |
| 31359 | 41353 | 280 | Tariff3 Source6 Energy Count | 05 | 4E | 05 | 4E |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 31361 | 41361 | 281 | Tariff3 Source1 Energy OVF Count | 05 | 50 | 05 | 50 |
| 31363 | 41363 | 282 | Tariff3 Source2 Energy OVF Count | 05 | 52 | 05 | 52 |
| 31365 | 41365 | 283 | Tariff3 Source3 Energy OVF Count | 05 | 54 | 05 | 54 |
| 31367 | 41367 | 284 | Tariff3 Source4 Energy OVF Count | 05 | 56 | 050 | 56 |
| 31369 | 41369 | 285 | Tariff3 Source5 Energy OVF Count | 05 | 58 | 05 | 58 |
| 31371 | 41371 | 286 | Tariff3 Source6 Energy OVF Count | 05 | 5A | 05 | 5A |
| 31373 | 41373 | 287 | Tariff4 Source1 Energy Count | 05 | 5C | 05 | 5C |
| 31375 | 41375 | 288 | Tariff4 Source2 Energy Count | 05 | 5E | 05 | 5E |
| 31377 | 41377 | 289 | Tariff4 Source3 Energy Count | 05 | 60 | 05 | 60 |
| 31379 | 41379 | 290 | Tariff4 Source4 Energy Count | 05 | 62 | 05 | 62 |
| 31381 | 41381 | 291 | Tariff4 Source5 Energy Count | 05 | 64 | 05 | 64 |
| 31383 | 41383 | 292 | Tariff4 Source6 Energy Count | 05 | 66 | 05 | 66 |
| 31385 | 41385 | 293 | Tariff4 Source1 Energy OVF Count | 05 | 68 | 05 | 68 |
| 31387 | 41387 | 294 | Tariff4 Source2 Energy OVF Count | 05 | 6A | 05 | 6A |
| 31389 | 41389 | 295 | Tariff4 Source3 Energy OVF Count | 05 | 6C | 05 | 6C |
| 31391 | 41391 | 296 | Tariff4 Source4 Energy OVF Count | 05 | 6E | 05 | 6E |
| 31393 | 41393 | 297 | Tariff4 Source5 Energy OVF Count | 05 | 70 | 05 | 70 |
| 31395 | 41395 | 298 | Tariff4 Source6 Energy OVF Count | 05 | 72 | 05 | 72 |
| 31397 | 41397 | 299 | Tariff5 Source1 Energy Count | 05 | 74 | 05 | 74 |
| 31399 | 41399 | 300 | Tariff5 Source2 Energy Count | 05 | 76 | 05 | 76 |
| 31401 | 41401 | 301 | Tariff5 Source3 Energy Count | 05 | 78 | 05 | 78 |
| 31403 | 41403 | 302 | Tariff5 Source4 Energy Count | 05 | 7A | 05 | 7A |
| 31405 | 41405 | 303 | Tariff5 Source5 Energy Count | 05 | 7C | 05 | 7C |
| 31407 | 41407 | 304 | Tariff5 Source6 Energy Count | 05 | 7E | 05 | 7E |
| 31409 | 41409 | 305 | Tariff5 Source1 Energy OVF Count | 05 | 80 | 05 | 80 |
| 31411 | 41411 | 306 | Tariff5 Source2 Energy OVF Count | 05 | 82 | 05 | 82 |
| 31413 | 41413 | 307 | Tariff5 Source3 Energy OVF Count | 05 | 84 | 05 | 84 |
| 31415 | 41415 | 308 | Tariff5 Source4 Energy OVF Count | 05 | 86 | 05 | 86 |
| 31417 | 41417 | 309 | Tariff5 Source5 Energy OVF Count | 05 | 88 | 05 | 88 |
| 31419 | 41419 | 310 | Tariff5 Source6 Energy OVF Countt | 05 | 8A | 05 | 8A |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 31421 | 41421 | 311 | Tariff6 Source1 Energy Count | 05 | 8C | 05 | 8C |
| 31423 | 41423 | 312 | Tariff6 Source2 Energy Count | 05 | 8E | 05 | 8E |
| 31425 | 41425 | 313 | Tariff6 Source3 Energy Count | 05 | 90 | 05 | 90 |
| 31427 | 41427 | 314 | Tariff6 Source4 Energy Count | 05 | 92 | 05 | 92 |
| 31429 | 41429 | 315 | Tariff6 Source5 Energy Count | 05 | 94 | 05 | 94 |
| 31431 | 41431 | 316 | Tariff6 Source6 Energy Count | 05 | 96 | 05 | 96 |
| 31433 | 41433 | 317 | Tariff6 Source1 Energy OVF Count | 05 | 98 | 05 | 98 |
| 31435 | 41435 | 318 | Tariff6 Source2 Energy OVF Count | 05 | 9A | 05 | 9A |
| 31437 | 41437 | 319 | Tariff6 Source3 Energy OVF Count | 05 | 9C | 05 | 9C |
| 31339 | 41339 | 320 | Tariff6 Source4 Energy OVF Count | 05 | 9E | 05 | 9E |
| 31341 | 41341 | 321 | Tariff6 Source5 Energy OVF Coun | 05 | A0 | 05 | A0 |
| 31443 | 41443 | 322 | Tariff6 Source6 Energy OVF Count | 05 | A2 | 05 | A2 |
| 31445 | 41445 | 323 | Tariff7 Source1 Energy Count | 05 | A4 | 05 | A4 |
| 31447 | 41447 | 324 | Tariff7 Source2 Energy Count | 05 | A6 | 05 | A6 |
| 31449 | 41449 | 325 | Tariff7 Source3 Energy Count | 05 | A8 | 05 | A8 |
| 31451 | 41451 | 326 | Tariff7 Source4 Energy Count | 05 | AA | 05 | AA |
| 31453 | 41453 | 327 | Tariff7 Source5 Energy Count | 05 | AC | 05 | AC |
| 31455 | 41455 | 328 | Tariff7 Source6 Energy Count | 05 | AE | 05 | AE |
| 31457 | 41457 | 329 | Tariff7 Source1 Energy OVF Count | 05 | B0 | 05 | B0 |
| 31459 | 41459 | 330 | Tariff7 Source2 Energy OVF Count | 05 | B2 | 05 | B2 |
| 31461 | 41461 | 331 | Tariff7 Source3 Energy OVF Count | 05 | B4 | 05 | B4 |
| 31463 | 41463 | 332 | Tariff7 Source4 Energy OVF Count | 05 | B6 | 05 | B6 |
| 31465 | 41465 | 333 | Tariff7 Source5 Energy OVF Count | 05 | B8 | 05 | B8 |
| 31467 | 41467 | 334 | Tariff7 Source6 Energy OVF Count | 05 | BA | 05 | BA |
| 31469 | 41469 | 335 | Tariff8 Source1 Energy Count | 05 | BC | 05 | BC |

## TABLE 2 Continued...

| Address (3X) | Address (4X) | Para No. | Parameter | Start Address Hex 3X | | Start Address Hex 4X | |
|---|---|---|---|---|---|---|---|
| | | | | Hi Byte | Lo Byte | Hi Byte | Lo Byte |
| 31471 | 41471 | 336 | Tariff8 Source2 Energy Count | 05 | BE | 05 | BE |
| 31473 | 41473 | 337 | Tariff8 Source3 Energy Count | 05 | C0 | 05 | C0 |
| 31475 | 41475 | 338 | Tariff8 Source4 Energy Count | 05 | C2 | 05 | C2 |
| 31477 | 41477 | 339 | Tariff8 Source5 Energy Count | 05 | C4 | 05 | C4 |
| 31479 | 41479 | 340 | Tariff8 Source6 Energy Count | 05 | C6 | 05 | C6 |
| 31481 | 41481 | 341 | Tariff8 Source1 Energy OVF Count | 05 | C8 | 05 | C8 |
| 31483 | 41483 | 342 | Tariff8 Source2 Energy OVF Count | 05 | CA | 05 | CA |
| 31485 | 41485 | 343 | Tariff8 Source3 Energy OVF Count | 05 | CC | 05 | CC |
| 31487 | 41487 | 344 | Tariff8 Source4 Energy OVF Count | 05 | CE | 05 | CE |
| 31489 | 41489 | 345 | Tariff8 Source5 Energy OVF Count | 05 | D0 | 05 | D0 |
| 31491 | 41491 | 346 | Tariff8 Source6 Energy OVF Count | 05 | D2 | 05 | D2 |

**Note:**

*1. The values are updated depending on update rate which is settable by user.
For example, if user set update rate 15 min, then the values on these registers (marked with *) will get updated on every 15 min.

**2. External Counter gets updated when Digital Input is configured in Pulse Mode.

3. OVF stands for OverFlow.

4. For 3P3W and 1P2W System, phase-wise parameters are not available.

5. For 1P3W System, L3 parameters are not available.

## 3.2 Accessing 4 X register for Reading & Writing Settings:

Each setting is held in the 4X registers. ModBus code 03 is used to read the current setting & code 16 is used to write/change the setting. Refer **TABLE 3** for 4X Register addresses.

**Example: Reading System type**

System type: Start address = 1772 (Hex)
Number of registers = 02
**Note: Number of registers = Number of Parameters x 2**

**Query :**

| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 03 (Hex) |
| Start Address High | 17 (Hex) |
| Start Address Low | 72 (Hex) |
| Number of Registers High | 00 (Hex) |
| Number of Registers Low | 02 (Hex) |
| CRC Low | E4 (Hex) |
| CRC High | 09 (Hex) |

**Start Address High** : Most significant 8 bits of starting address of the parameter requested.
**Start Address Low** : Least significant 8 bits of starting address of the parameter requested.
**Number of register High** : Most significant 8 bits of Number of registers requested.
**Number of register Low** : Least significant 8 bits of Number of registers requested.
**(Note : Two consecutive 16 bit register represent one parameter.**)

**Response: System Type (3phase 4 wire = 3)**

| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 03 (Hex) |
| Byte Count | 04 (Hex) |
| Data Register- 1 High Byte | 40 (Hex) |
| Data Register- 1 Low Byte | 40 (Hex) |
| Data Register- 2 High Byte | 00 (Hex) |
| Data Register- 2 Low Byte | 00 (Hex) |
| CRC Low | EE (Hex) |
| CRC High | 27 (Hex) |

**Byte Count** : Total number of data bytes received.
**Data register 1 High Byte** : Most significant 8 bits of Data register 1 of the parameter requested.
**Data register 1 Low Byte** : Least significant 8 bits of Data register 1 of the parameter requested.
**Data register 2 High Byte** : Most significant 8 bits of Data register 2 of the parameter requested.
**Data register 2 Low Byte** : Least significant 8 bits of Data register 2 of the parameter requested.
**(Note : Two consecutive 16 bit register represent one parameter.**)

**Example : Writing System type**

System type : Start address = 1772 (Hex)
Number of registers = 02
**Note: Number of registers = Number of Parameters x 2**

**Query:( Change System type to 3phase 3wire = 2 )**

| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 10 (Hex) |
| Starting Address High | 17 (Hex) |
| Starting Address Low | 72 (Hex) |
| Number of Registers High | 00 (Hex) |
| Number of Registers Low | 02 (Hex) |
| Byte Count | 04 (Hex) |
| Data Register- 1 High Byte | 40 (Hex) |
| Data Register- 1 Low Byte | 00 (Hex) |
| Data Register- 2 High Byte | 00 (Hex) |
| Data Register- 2 Low Byte | 00 (Hex) |
| CRC Low | 66 (Hex) |
| CRC High | 10 (Hex) |

**Byte Count** : Total number of data bytes received.
**Data register 1 High Byte** : Most significant 8 bits of Data register 1 of the parameter requested.
**Data register 1 Low Byte** : Least significant 8 bits of Data register 1 of the parameter requested.
**Data register 2 High Byte** : Most significant 8 bits of Data register 2 of the parameter requested.
**Data register 2 Low Byte** : Least significant 8 bits of Data register 2 of the parameter requested.
**(Note : Two consecutive 16 bit register represent one parameter**)

**Response:**

| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 10 (Hex) |
| Start Address High | 17 (Hex) |
| Start Address Low | 72 (Hex) |
| Number of Registers High | 00 (Hex) |
| Number of Registers Low | 02 (Hex) |
| CRC Low | 61 (Hex) |
| CRC High | CA (Hex) |

**Start Address High** : Most significant 8 bits of starting address of the parameter requested.
**Start Address Low** : Least significant 8 bits of starting address of the parameter requested.
**Number of register High** : Most significant 8 bits of Number of registers requested.
**Number of register Low** : Least significant 8 bits of Number of registers requested.
**(Note : Two consecutive 16 bit register represent one parameter**)

## 3.3 Accessing 4 X register for Long Energy Reading & Writing :

For setting Energy start count in long energy format following query format should be used for writing energy start count. First, send query (at address 1790) to unlock the parameter.
**Note: For parameter to be unlocked, refer TABLE 8 for energy parameter selection.**

**Query: (Query for Unlock to enter System Active Energy Import)**

| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 10 (Hex) |
| Starting Address High | 17 (Hex) |
| Starting Address Low | 90 (Hex) |
| Number of Registers High | 00 (Hex) |
| Number of Registers Low | 02 (Hex) |
| Byte Count | 04 (Hex) |
| Data Register- 1 High Byte | 3F (Hex) |
| Data Register- 1 Low Byte | 80 (Hex) |
| Data Register- 2 High Byte | 00 (Hex) |
| Data Register- 2 Low Byte | 00 (Hex) |
| CRC Low | 66 (Hex) |
| CRC High | 10 (Hex) |

**Byte Count** : Total number of data bytes transmitted.
**Data register 1 High Byte** : Most significant 8 bits of Data register 1 of the parameter requested.
**Data register 1 Low Byte** : Least significant 8 bits of Data register 1 of the parameter requested.
**Data register 2 High Byte** : Most significant 8 bits of Data register 2 of the parameter requested.
**Data register 2 Low Byte** : Least significant 8 bits of Data register 2 of the parameter requested.
**(Note : Two consecutive 16 bit register represent one parameter.**)

**Response:**

| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 10 (Hex) |
| Start Address High | 17 (Hex) |
| Start Address Low | 90 (Hex) |
| Number of Registers High | 00 (Hex) |
| Number of Registers Low | 02 (Hex) |
| CRC Low | 61 (Hex) |
| CRC High | CA (Hex) |

**Start Address High** : Most significant 8 bits of starting address of the parameter requested.
**Start Address Low** : Least significant 8 bits of starting address of the parameter requested.
**Number of register High** : Most significant 8 bits of Number of registers requested.
**Number of register Low** : Least significant 8 bits of Number of registers requested.

Once the Unlock query is sent, next send query for writing Energy start count.
For Example: Query for writing energy start count of 999999999 for System Active Import Energy
**Note:** Refer **TABLE 2** for register address of the selected parameter.

**Query: (Query enter System Active Energy Import)**

| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 10 (Hex) |
| Starting Address High | 03 (Hex) |
| Starting Address Low | 20 (Hex) |
| Number of Registers High | 00 (Hex) |
| Number of Registers Low | 02 (Hex) |
| Byte Count | 04 (Hex) |
| Data Register- 1 High Byte | 3B (Hex) |
| Data Register- 1 Low Byte | 9A (Hex) |
| Data Register- 2 High Byte | C9 (Hex) |
| Data Register- 2 Low Byte | FF (Hex) |
| CRC Low | 66 (Hex) |
| CRC High | 10 (Hex) |

**Byte Count** : Total number of data bytes received.
**Data register 1 High Byte** : Most significant 8 bits of Data register 1 of the parameter requested.
**Data register 1 Low Byte** : Least significant 8 bits of Data register 1 of the parameter requested.
**Data register 2 High Byte** : Most significant 8 bits of Data register 2 of the parameter requested.
**Data register 2 Low Byte** : Least significant 8 bits of Data register 2 of the parameter requested.
**(Note : Two consecutive 16 bit register represent one parameter.**)

**Value( 3B ,9A, C9,FF ) represents 999999999.**

**Response:**

| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 10 (Hex) |
| Start Address High | 03 (Hex) |
| Start Address Low | 20 (Hex) |
| Number of Registers High | 00 (Hex) |
| Number of Registers Low | 02 (Hex) |
| CRC Low | 61 (Hex) |
| CRC High | CA (Hex) |

**Start Address High** : Most significant 8 bits of starting address of the parameter requested.
**Start Address Low** : Least significant 8 bits of starting address of the parameter requested.
**Number of register High** : Most significant 8 bits of Number of registers requested.
**Number of register Low** : Least significant 8 bits of Number of registers requested.
**(Note : Two consecutive 16 bit register represent one parameter.**)

## TABLE 3 : 4 X register addresses

| Address (Register) | Parameter No. | Parameter | Read/ Write | Modbus Start Addr. Hex | | Default Value |
|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | |
| 46003 | 1 | System Type | R/Wp | 17 | 72 | 3 |
| 46005 | 2 | PT Primary | R/Wp | 17 | 74 | 500 |
| 46007 | 3 | CT Primary | R/Wp | 17 | 76 | 5 |
| 46009 | 4 | PT Secondary | R/Wp | 17 | 78 | 500 |
| 46011 | 5 | CT Secondary | R/Wp | 17 | 7A | 5 |
| 46013 | 6 | System Frequency Selection | R/Wp | 17 | 7C | 50 |
| 46019 | 9 | Demand Integration Time | R/Wp | 17 | 82 | 8 |
| 46021 | 10 | Energy Unit | R/Wp | 17 | 84 | 2 |
| 46023 | 11 | Energy Digit Reset Count | R/Wp | 17 | 86 | 8 |
| 46027 | 13 | Energy Update rate on MODBUS | R/Wp | 17 | 8A | 15 |
| 46029 | 14 | Impulse on Energy Selection | R/Wp | 17 | 8C | 1 |
| 46031 | 15 | Impulse Rate | R | 17 | 8E | - |
| 46033 | 16 | Energy Para Select for Start Count | R/Wp | 17 | 90 | 0 |
| 46035 | 17 | Enter Energy Start Count | R/Wp | 17 | 92 | 0 |
| 46037 | 18 | Reset Parameters | R/Wp | 17 | 94 | 0 |
| 46039 | 19 | Password | R/Wp | 17 | 96 | 0 |
| 46041 | 20 | Factory Reset Mode | R/Wp | 17 | 98 | 0 |
| 46045 | 22 | Number of Poles | R/Wp | 17 | 9C | 2 |
| 46047 | 23 | Auto Scroll | R/Wp | 17 | 9E | 0 |
| 46049 | 24 | Current Noise Cutoff (mA) | R/Wp | 17 | A0 | 0 |
| 46051 | 25 | Node Address | R/Wp | 17 | A2 | 1 |
| 46053 | 26 | RS485 Setup Code | R/Wp | 17 | A4 | 4 |
| 46055 | 27 | Register Order/Word Order | R/Wp | 17 | A6 | 0 |
| 46057 | 28 | Pulse Width | R/Wp | 17 | A8 | 100 |
| 46059 | 29 | Pulse Divisor | R/Wp | 17 | AA | 1 |
| 46061 | 30 | Relay1 Output Select | R/Wp | 17 | AC | 0 |
| 46063 | 31 | Relay1 Parameter Select | R/Wp | 17 | AE | 0 |
| 46065 | 32 | Relay1 Limit1 Alarm Setting (Hi/Lo) | R/Wp | 17 | B0 | 0 |
| 46067 | 33 | Relay1 Limit1 Trip point | R/Wp | 17 | B2 | 10 |
| 46069 | 34 | Relay1 Limit1 Hysteresis | R/Wp | 17 | B4 | 0.5 |

## TABLE 3 Continued...

| Address (Register) | Parameter No. | Parameter | Read/ Write | Modbus Start Addr. Hex | | Default Value |
|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | |
| 46071 | 35 | Relay1 Limit 2 Para select | R/Wp | 17 | B6 | 0 |
| 46073 | 36 | Relay1 Limit 2 Alarm Setting (High/Low) | R/Wp | 17 | B8 | 0 |
| 46075 | 37 | Relay1 Limit 2 Trip point | R/Wp | 17 | BA | 10 |
| 46077 | 38 | Relay1 Limit 2 Hysteresis | R/Wp | 17 | BC | 0.5 |
| 46079 | 39 | Relay1 Limit 3 Para select | R/Wp | 17 | BE | 0 |
| 46081 | 40 | Relay1 Limit 3 Alarm Setting (High/Low) | R/Wp | 17 | C0 | 0 |
| 46083 | 41 | Relay1 Limit 3 Trip point | R/Wp | 17 | C2 | 10 |
| 46085 | 42 | Relay1 Limit 3 Hysteresis | R/Wp | 17 | C4 | 0.5 |
| 46087 | 43 | Relay1 Logic Operation Setting | R/Wp | 17 | C6 | 0 |
| 46089 | 44 | Relay1 Configuration (Energize/De-Energize) | R/Wp | 17 | C8 | 1 |
| 46091 | 45 | Relay1 Delay(On) | R/Wp | 17 | CA | 1 |
| 46093 | 46 | Relay1 Delay(Off) | R/Wp | 17 | CC | 1 |
| 46095 | 47 | Relay1 Energy Selection for Prepaid | R/Wp | 17 | CE | 0 |
| 46097 | 48 | Relay1 Rate per energy unit for Prepaid | R/Wp | 17 | D0 | 1 |
| 46099 | 49 | Relay1 Topup Recharge for Prepaid | R/Wp | 17 | D2 | 100 |
| 46101 | 50 | Relay1 New Recharge for Prepaid | R/Wp | 17 | D4 | 100 |
| 46103 | 51 | Relay2 Output Select | R/Wp | 17 | D6 | 0 |
| 46105 | 52 | Relay2 Limit1 Para Select | R/Wp | 17 | D8 | 0 |
| 46107 | 53 | Relay2 Limit1 Alarm Setting (High/Low) | R/Wp | 17 | DA | 0 |
| 46109 | 54 | Relay2 Limit1 Trip point | R/Wp | 17 | DC | 10 |
| 46111 | 55 | Relay2 Limit1 Hysteresis | R/Wp | 17 | DE | 0.5 |
| 46113 | 56 | Relay2 Limit 2 Para select | R/Wp | 17 | E0 | 0 |
| 46115 | 57 | Relay2 Limit 2 Alarm Setting (High/Low) | R/Wp | 17 | E2 | 0 |
| 46117 | 58 | Relay2 Limit 2 Trip point | R/Wp | 17 | E4 | 10 |
| 46119 | 59 | Relay2 Limit 2 Hysteresis | R/Wp | 17 | E6 | 0.5 |
| 46121 | 60 | Relay2 Limit 3 Para select | R/Wp | 17 | E8 | 0 |
| 46123 | 61 | Relay2 Limit 3 Alarm Setting (High/Low) | R/Wp | 17 | EA | 0 |
| 46125 | 62 | Relay2 Limit 3 Trip point | R/Wp | 17 | EC | 10 |
| 46127 | 63 | Relay2 Limit 3 Hysteresis | R/Wp | 17 | EE | 0.5 |
| 46129 | 64 | Relay2 Logic Operation Setting | R/Wp | 17 | F0 | 0 |

## TABLE 3 Continued...

| Address (Register) | Parameter No. | Parameter | Read/ Write | Modbus Start Addr. Hex | | Default Value |
|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | |
| 46131 | 65 | Relay2 Configuration (Energize/De-Energize) | R/Wp | 17 | F2 | 1 |
| 46133 | 66 | Relay2 Delay(On) | R/Wp | 17 | F4 | 1 |
| 46135 | 67 | Relay2 Delay(Off) | R/Wp | 17 | F6 | 1 |
| 46137 | 68 | Relay2 Energy Selection for Prepaid | R/Wp | 17 | F8 | 0 |
| 46139 | 69 | Relay2 Rate per energy unit for Prepaid | R/Wp | 17 | FA | 1 |
| 46141 | 70 | Relay2 Topup Recharge for Prepaid | R/Wp | 17 | FC | 100 |
| 46143 | 71 | Relay2 New Recharge for Prepaid | R/Wp | 17 | FE | 100 |
| 46229 | 114 | Health Monitor Voltage Unbalance limit | R/Wp | 18 | 54 | 20 |
| 46231 | 115 | Health Monitor Current Unbalance limit | R/Wp | 18 | 56 | 20 |
| 46233 | 116 | Health Monitor Under Freq Limit | R/Wp | 18 | 58 | 95 |
| 46235 | 117 | Health Monitor Under Voltage Limit | R/Wp | 18 | 5A | 70 |
| 46237 | 118 | Health Monitor Over Voltage Limit | R/Wp | 18 | 5C | 120 |
| 46239 | 119 | Health Monitor Over Current Limit | R/Wp | 18 | 5E | 120 |
| 46241 | 120 | Timer 1 Start Stop | R/Wp | 18 | 60 | 0 |
| 46243 | 121 | Timer 2 Start Stop | R/Wp | 18 | 62 | 0 |
| 46337 | 168 | Digital Input Debounce Time | R/Wp | 18 | C0 | 100 |
| 46339 | 169 | Digital Input 1 Mode | R/Wp | 18 | C2 | 0 |
| 46341 | 170 | Digital Input 2 Mode | R/Wp | 18 | C4 | 0 |
| 46343 | 171 | Digital Input 3 Mode | R/Wp | 18 | C6 | 0 |
| 46345 | 172 | Digital Input 4 Mode | R/Wp | 18 | C8 | 0 |
| 46347 | 173 | Digital Input 1 Pulse Multiplier | R/Wp | 18 | CA | 1 |
| 46349 | 174 | Digital Input 2 Pulse Multiplier | R/Wp | 18 | CC | 1 |
| 46351 | 175 | Digital Input 3 Pulse Multiplier | R/Wp | 18 | CE | 1 |
| 46353 | 176 | Digital Input 4 Pulse Multiplier | R/Wp | 18 | D0 | 1 |
| 46357 | 178 | Firmware Version Number | R | 18 | D4 | - |
| 46365 | 182 | Backlite ON/OFF | R/Wp | 18 | DC | 1 |
| 46367 | 183 | Contrast for both LCD/ Touch | R/Wp | 18 | DE | 3 |
| 46369 | 184 | User screen enable | R/Wp | 18 | E0 | 0 |
| 46371 | 185 | User screen1 | R/Wp | 18 | E2 | 1 |
| 46373 | 186 | User screen2 | R/Wp | 18 | E4 | 2 |

## TABLE 3 Continued...

| Address (Register) | Parameter No. | Parameter | Read/ Write | Modbus Start Addr. Hex | | Default Value |
|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | |
| 46375 | 187 | User screen3 | R/Wp | 18 | E6 | 3 |
| 46377 | 188 | User screen4 | R/Wp | 18 | E8 | 4 |
| 46379 | 189 | User screen5 | R/Wp | 18 | EA | 5 |
| 46381 | 190 | User screen6 | R/Wp | 18 | EC | 6 |
| 46383 | 191 | User screen7 | R/Wp | 18 | EE | 7 |
| 46385 | 192 | User screen8 | R/Wp | 18 | F0 | 8 |
| 46387 | 193 | User screen9 | R/Wp | 18 | F2 | 9 |
| 46389 | 194 | User screen10 | R/Wp | 18 | F4 | 10 |
| 46391 | 195 | Tariff Selection Mode | R/Wp | 18 | F6 | 1 |
| 46393 | 196 | No of Tariff | R/Wp | 18 | F8 | 2 |
| 46395 | 197 | Tariff Energy Source 1 | R/Wp | 18 | FA | 0 |
| 46397 | 198 | Tariff Energy Source 2 | R/Wp | 18 | FC | 1 |
| 46399 | 199 | Tariff Energy Source 3 | R/Wp | 18 | FE | 2 |
| 46401 | 200 | Tariff Energy Source 4 | R/Wp | 19 | 00 | 3 |
| 46403 | 201 | Tariff Energy Source 5 | R/Wp | 19 | 02 | 4 |
| 46405 | 202 | Tariff Energy Source 6 | R/Wp | 19 | 04 | 24 |
| 46407 | 203 | Active Tariff | R/Wp | 19 | 06 | 1 |
| 46409 | 204 | Tariff 1 Start Time | R/Wp | 19 | 08 | 000000 |
| 46411 | 205 | Tariff 2 Start Time | R/Wp | 19 | 0A | 030000 |
| 46413 | 206 | Tariff 3 Start Time | R/Wp | 19 | 0C | 060000 |
| 46415 | 207 | Tariff 4 Start Time | R/Wp | 19 | 0E | 090000 |
| 46417 | 208 | Tariff 5 Start Time | R/Wp | 19 | 10 | 120000 |
| 46419 | 209 | Tariff 6 Start Time | R/Wp | 19 | 12 | 150000 |
| 46421 | 210 | Tariff 7 Start Time | R/Wp | 19 | 14 | 180000 |
| 46423 | 211 | Tariff 8 Start Time | R/Wp | 19 | 16 | 210000 |
| 46425 | 212 | RTC Complete Date | R/Wp | 19 | 18 | - |
| 46427 | 213 | RTC Complete Time | R/Wp | 19 | 1A | - |
| 46431 | 215 | Event Based Datalog Select | R/Wp | 19 | 1E | 0 |
| 46433 | 216 | Time Based Datalog Select | R/Wp | 19 | 20 | 0 |
| 46435 | 217 | Time Based Datalog Interval Selection | R/Wp | 19 | 22 | 1 |

## TABLE 3 Continued...

| Address (Register) | Parameter No. | Parameter | Read/ Write | Modbus Start Addr. Hex | | Default Value |
|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | |
| 46437 | 218 | Time Based Datalog Parameter Count | R/Wp | 19 | 24 | 1 |
| 46439 | 219 | Time Based Datalog Parameter 1 | R/Wp | 19 | 26 | 0 |
| 46441 | 220 | Time Based Datalog Parameter 2 | R/Wp | 19 | 28 | 0 |
| 46443 | 221 | Time Based Datalog Parameter 3 | R/Wp | 19 | 2A | 0 |
| 46445 | 222 | Time Based Datalog Parameter 4 | R/Wp | 19 | 2C | 0 |
| 46447 | 223 | Time Based Datalog Parameter 5 | R/Wp | 19 | 2E | 0 |
| 46449 | 224 | Time Based Datalog Parameter 6 | R/Wp | 19 | 30 | 0 |
| 46451 | 225 | Time Based Datalog Parameter 7 | R/Wp | 19 | 32 | 0 |
| 46453 | 226 | Time Based Datalog Parameter 8 | R/Wp | 19 | 34 | 0 |
| 46455 | 227 | Time Based Datalog Parameter 9 | R/Wp | 19 | 36 | 0 |
| 46457 | 228 | Time Based Datalog Parameter 10 | R/Wp | 19 | 38 | 0 |
| 46459 | 229 | Time Based Datalog Parameter 11 | R/Wp | 19 | 3A | 0 |
| 46461 | 230 | Time Based Datalog Parameter 12 | R/Wp | 19 | 3C | 0 |
| 46463 | 231 | Time Based Datalog Parameter 13 | R/Wp | 19 | 3E | 0 |
| 46465 | 232 | Time Based Datalog Parameter 14 | R/Wp | 19 | 40 | 0 |
| 46467 | 233 | Time Based Datalog Parameter 15 | R/Wp | 19 | 42 | 0 |
| 46469 | 234 | Time Based Datalog Parameter 16 | R/Wp | 19 | 44 | 0 |
| 46471 | 235 | Time Based Datalog Parameter 17 | R/Wp | 19 | 46 | 0 |
| 46473 | 236 | Time Based Datalog Parameter 18 | R/Wp | 19 | 48 | 0 |
| 46475 | 237 | Time Based Datalog Parameter 19 | R/Wp | 19 | 4A | 0 |
| 46477 | 238 | Time Based Datalog Parameter 20 | R/Wp | 19 | 4C | 0 |
| 46479 | 239 | Time Based Datalog Parameter 21 | R/Wp | 19 | 4E | 0 |
| 46481 | 240 | Time Based Datalog Parameter 22 | R/Wp | 19 | 50 | 0 |
| 46483 | 241 | Time Based Datalog Parameter 23 | R/Wp | 19 | 52 | 0 |
| 46485 | 242 | Time Based Datalog Parameter 24 | R/Wp | 19 | 54 | 0 |
| 46487 | 243 | Time Based Datalog Parameter 25 | R/Wp | 19 | 56 | 0 |
| 46489 | 244 | Time Based Datalog Parameter 26 | R/Wp | 19 | 58 | 0 |
| 46491 | 245 | Time Based Datalog Parameter 27 | R/Wp | 19 | 5A | 0 |
| 46493 | 246 | Time Based Datalog Parameter 28 | R/Wp | 19 | 5C | 0 |
| 46495 | 247 | Time Based Datalog Parameter 29 | R/Wp | 19 | 5E | 0 |

## TABLE 3 Continued...

| Address (Register) | Parameter No. | Parameter | Read/ Write | Modbus Start Addr. Hex | | Default Value |
|---|---|---|---|---|---|---|
| | | | | High Byte | Low Byte | |
| 46497 | 248 | Time Based Datalog Parameter 30 | R/Wp | 19 | 60 | 0 |
| 46499 | 249 | Load Profile Datalog Select | R/Wp | 19 | 62 | 0 |
| 46501 | 250 | Start Date of Load Profile Datalog | R | 19 | 64 | - |
| 46507 | 253 | Voltage Unit Type | R/Wp | 19 | 6A | 0 |
| 46509 | 254 | Power Unit Type | R/Wp | 19 | 6C | 0 |
| 46511 | 255 | Maximum Current Demand for TDD | R/Wp | 19 | 6E | 0 |
| 46513 | 256 | Net energy configuration | R/Wp | 19 | 70 | 0 |
| 46521 | 259 | Addon card Baud Rate | R/Wp | 19 | 78 | 19200 |
| 46701 | 260 | IP Address 1 | R | 1A | 2C | 192.168 |
| 46703 | 261 | IP Address 2 | R | 1A | 2E | 11.11 |
| 46705 | 262 | Subnet Mask 1 | R | 1A | 30 | 255.255 |
| 46707 | 263 | Subnet Mask 2 | R | 1A | 32 | 255.0 |
| 46709 | 264 | Default Gateway 1 | R | 1A | 34 | 192.168 |
| 46711 | 265 | Default Gateway 2 | R | 1A | 36 | 1.1 |
| 46713 | 266 | Server Port | R | 1A | 38 | 502 |

**NOTE:** Wp - Write protected , R - Read only , R/Wp - Read & Write protected

**Explanation for 4 X register :**

**NOTE:** Writing any invalid values (non-applicable values) to any of the following locations will result in modbus error.

| Address | Parameter | Description |
|---|---|---|
| 46003 | System Type | This address is used to set the System type.<br>Write one of the following value to this address.<br>**1** : 1 Phase 2 Wire **4 :** 1 Phase 3 Wire<br>**2** : 3 Phase 3 Wire **5** : 2 Phase 2 Wire<br>**3** : 3 Phase 4 Wire**.** |
| 46005 | PT Primary | This address allows the user to set PT Primary value (in terms of VL-L).<br>The settable range is **100 VL-L** to **1200 kVL-L** for all system types & also depends on the per phase 1800MVA Restriction of power combined with CT primary. |
| 46007 | CT Primary | This address allows the user to set CT Primary value.<br>The settable range is **1** to **9999**. It also depends on the per phase 1800 MVA Restriction of power combined with PT primary. |
| 46009 | PT Secondary | This address is used to read and write the PT secondary value.<br>The settable range is **100-600VLL**. |
| 46011 | CT Secondary | This address is used to read and write the CT secondary value. Write one of the following values to this address.<br>**1:** 1A CT secondary<br>**5:** 5A CT secondary |
| 46013 | System Frequency Selection | This address is used to set the frequency of the input.<br>Write **50:** For 50 Hz input **60:** For 60Hz input |
| 46019 | Demand Integration Time | Demand period represents demand time in minutes. The applicable values are ranging from **5** to **60**. |
| 46021 | Energy Unit | This address is used to set energy output in Wh,kWh & Mwh.<br>Write one of the following value to this address.<br>**1** : Energy in Wh. **2** : Energy in KWh.<br>**3** : Energy in MWh. |
| 46023 | Energy Digit Reset Count | This address is used to set maximum energy count after which energy on modbus will roll over to zero. Valid values are **7**, **8** and **9**. |
| 46027 | Energy Update Rate | This address is used to specify update rate of energy in corresponding 3X registers. The valid values for update rate are from **1** to **60** min. |

| Address | Parameter | Description |
|---|---|---|
| 46029 | Impulse on Energy Selection | This address is used to select the energy to which impulse is to be assigned. Writing any other value will return an error. To assign the value refer **TABLE 5.** |
| 46031 | Impulse Rate | This address allows the user to read the impulse rate which is calculated depending on the nominal system power. |
| 46033 | Energy Para Select for Start Count | This address is used to select the parameter whose start count (initial value) is to be set. Refer **TABLE 8**. |
| 46035 | Enter Energy Start Count | This address is used to set the start count of the parameter selected in address 46033. The start count of the parameter should be in the range specified in **TABLE 8**. |
| 46037 | Reset Parameters | This address is used to reset different parameters. Write specific value to this register to reset the corresponding parameter. Following are the values to reset various data.<br>**1:** Energy Reset **2:** Demand Reset<br>**3:** System Min Values Reset **4:** System Max Values Reset<br>**5:** Run hour & On hour Reset **6:** No of Interruptions Reset<br>**7:** Reset All data **8**: Tariff log Reset<br>**9**: DI External Energy Reset **10**: Time Log Reset **11**: Load Profile Log Reset |
| 46039 | Password | This address is used to set & reset the password.<br>Valid Range of Password can be set is **0000 - 9999**.<br>1) If password lock is present & if this location is read it will return **zero**.<br>2) If password lock is absent & if this location is read it will return **one.**<br>3) If password lock is present & to disable this lock first send valid password to this location then write "**0000**" to this location<br>4) If password lock is present & to modify 4X parameter first send valid password to this location so that 4X parameter will be accessible for modification.<br>5) If for in any of the above case invalid password is send then meter will return exceptional error 2. |
| 46041 | Factory Reset | This address allows the user to reset the instrument to factory settings. Refer the **Default Values** in **TABLE 3** for factory settings. Write **5555** at this address to reset the instrument. |
| 46045 | Number of Poles | This address is used to set the no. of poles of generator of which RPM is to be measured. The value must be between **2 to 40** and a multiple of 2. |

| Address | Parameter | Description |
|---|---|---|
| 46047 | Auto scroll | This address is used to activate or de-activate the auto scrolling.<br>Write **0:** Deactivate **1:** Activate |
| 46049 | Current Noise Cut-off (mA) | This address is used to set the noise current cutoff. The valid values ranges from **0 to 30** (mA). |
| 46051 | Node Address | This register address is used to set Device address between **1 to 247** . |
| 46053 | RS485 Set-up Code | This address is used to set the baud rate, Parity and Number of stop bits.<br>Refer to **TABLE 4** for details. |
| 46055 | Word Order | Word Order controls the order in which Multifunction Meter receives or sends floating - point numbers:- normal or reversed register order. In normal mode, the two registers that make up a floating point numbers are sent most significant bytes first. In reversed register mode, the two registers that make up a floating point numbers are sent least significant bytes first. To set the mode, write the value '2141.0' into this register-the instrument will detect the order used to send this value and set that order for all ModBus transaction involving floating point numbers. |
| 46057 | Pulse Width of Relay | This address is used to set pulse width of the Pulse output. Write one of the following values to this address:<br>**60** : 60 ms **100** : 100 ms **200** : 200 ms |
| 46059 | Pulse Divisor | This address is used to set pulse divisor of the Pulse output.<br>Write one of the following values to this address for energy unit **Wh**:<br>**1** : Divisor 1 **10** : Divisor 10 **100** : Divisor 100 **1000** : Divisor 1000<br>In energy unit **kWh** or **MWh**, divisor will be **1** by default. |
| 46061 | Relay 1 Output Select | This address is used to select the Relay operation as None / Pulse / Limit / Timer / Health Monitor / Pre Paid Energy.<br>Write one of the following values to this address.<br>**0** : None **1** : Pulse **2** : Limit **3** : Timer<br>**4** : Health Monitor **5** : Pre Paid Energy **6**: RTC |
| 46063 | Relay 1 Parameter Select | This address is used to assign the Parameter to Relay.<br>Pulse relay : Refer **TABLE 9.**<br>Limit - 1 relay : Refer **TABLE 10.**<br>Timer relay : Refer **TABLE 6.**<br>RTC Relay: Refer **TABLE 7** |
| 46065 | Relay 1 Limit - 1 Alarm Setting | This address is used to set the alarm for the selected Limit -1 parameter<br>**0** : High Alarm **1** : Low Alarm |

| Address | Parameter | Description |
|---|---|---|
| 46067 | Relay 1 Limit - 1 Trip Point | This address is used to set the trip point in %. Any value between **10 to 100** for Lo- alarm & **10 to120** for Hi-alarm can be written to this address. For energy parameters, the valid range is **10-9999999**. (refer **TABLE 10**). |
| 46069 | Relay 1 Limit - 1 Hysteresis | This address is used to set the hysteresis between **0.5% to 50.0%.** |
| 46071 | Relay 1 Limit - 2 Para Select | This address is used to assign the parameter for Limit 2 (refer **TABLE 10**) to Relay 1. |
| 46073 | Relay 1 Limit - 2 Alarm Setting | Same as Relay 1 Limit - 1 |
| 46075 | Relay 1 Limit - 2 Trip Point | |
| 46077 | Relay 1 Limit - 2 Hysteresis | |
| 46079 | Relay 1 Limit - 3 Para Select | Same as Relay 1 Limit - 2 Para Select. |
| 46081 | Relay 1 Limit - 3 Alarm Setting | Same as Relay 1 Limit - 1 |
| 46083 | Relay 1 Limit - 3 Trip Point | |
| 46085 | Relay 1 Limit - 3 Hysteresis | |
| 46087 | Relay 1 Logic Operation Setting | This address is used to set the logic operation between the Limit (1-2-3) output parameters. Valid values are :<br>**0** : None **1** : AND **2** : OR |
| 46089 | Relay 1 Configuration Select | This address is used to set the Configuration for Relay 1. Valid values are :<br>**0** : Energize **1** : De-Energize |
| 46091 | Relay 1 Delay (On) | This address is used to set the On delay in seconds in range of **1 to 9999** for Limit and Timer Relay |

| Address | Parameter | Description |
|---|---|---|
| 46093 | Relay 1 Delay (Off) | This address is used to set the Off delay in seconds in range of **1 to 9999** for Limit and Timer Relay |
| 46095 | Relay 1 Energy Selection for Pre Paid | This register address is used to assign the Parameter to Pre Paid Energy Relay. Refer **TABLE 9** for details. |
| 46097 | Relay 1 Rate per Energy Unit for Prepaid | This register address is used to assign unit (1 kilo) cost for the energy parameter in the range of **1 to 999**. |
| 46099 | Relay 1 Topup Recharge for Prepaid | This register address is used to assign topup recharge for the energy parameter in the range of **1 to 999999** when energy unit is set as “2” or “3” and **1 to 9999** when energy unit is set as “1”. |
| 46101 | Relay 1 New Recharge for Prepaid | This register address is used to assign new recharge for the energy parameter in the range of **1 to 999999** when energy unit is set as “2” or “3” and **1 to 9999** when energy unit is set as “1”. |
| 46103 | Relay 2 Output Select | Same as Relay - 1 |
| 46105 | Relay 2 Parameter Select | |
| 46107 | Relay 2 Limit - 1 Alarm Setting | |
| 46109 | Relay 2 Limit - 1 Trip Point | |
| 46111 | Relay 2 Limit - 1 Hysteresis | |
| 46113 | Relay 2 Limit - 2 Para Select | |
| 46115 | Relay 2 Limit - 2 Alarm Setting | |
| 46117 | Relay 2 Limit - 2 Trip Point | |

| Address | Parameter | Description |
|---|---|---|
| 46119 | Relay 2 Limit - 2 Hysteresis | Same as Relay - 1 |
| 46121 | Relay 2 Limit - 3 Para Select | |
| 46123 | Relay 2 Limit - 3 Alarm Setting | |
| 46125 | Relay 2 Limit - 3 Trip Point | |
| 46127 | Relay 2 Limit - 3 Hysteresis | |
| 46129 | Relay 2 Logic Operation Setting | |
| 46131 | Relay 2 Configuration Select | |
| 46133 | Relay 2 Delay (On) | |
| 46135 | Relay 2 Delay (Off) | |
| 46137 | Relay 2 Energy Selection for Pre Paid | |
| 46139 | Relay 2 Rate per Energy Unit for Prepaid | |
| 46141 | Relay 2 Topup Recharge for Prepaid | |
| 46143 | Relay 2 New Recharge for Prepaid | |

| Address | Parameter | Description |
|---|---|---|
| 46229 | Health Monitor Voltage Unbalance limit | This address is used to set the limit of voltage unbalance. Valid range is **5% to 20%.** |
| 46231 | Health Monitor Current Unbalance limit | This address is used to set the limit of current unbalance. Valid range is **5% to 20%** and to disable it, set **0.** |
| 46233 | Health Monitor Under Frequency Limit | This address is used to set the under frequency limit. Valid range is **95% to 99%** of system frequency and to disable it, set **0.** |
| 46235 | Health Monitor Under Voltage Limit | This address is used to set the under voltage limit. Valid range is **70% to 90%** of nominal and to disable it, set **0.** |
| 46237 | Health Monitor Over Voltage Limit | This address is used to set the over voltage limit. Valid range is **105% to 120%** of nominal and to disable it, set **0.** |
| 46239 | Health Monitor Over Current Limit | This address is used to set the over current limit. Valid range is **50% to 120%** of nominal and to disable it, set **0.** |
| 46241 | Relay Timer 1 Start / Stop | This address is used to start/stop the timer for Relay 1 in timer mode with following options: **0**: Stop **1**: Start |
| 46243 | Relay Timer 2 Start / Stop | This address is used to start/stop the timer for Relay 2 in timer mode with following options: **0**: Stop **1**: Start |
| 46337 | Digital Input De-bounce Time | This address is used to set the De-bounce time of Digital Input. Valid range is **1 to 9999.** |
| 46339 | Digital Input 1 Mode | This address is used to select mode of Digital Input 1. Write one of the following values to this address.<br>**0**: Status **1**: Tariff* **2**: Pulse<br>***Note** : Refer **TABLE 12** for relationship between Digital Input and Tariff. |
| 46341 | Digital Input 2 Mode | This address is used to select mode of Digital Input 2. Write one of the following values to this address.<br>**0**: Status **1**: Tariff* **2**: Pulse<br>***Note** : Refer **TABLE 12** for relationship between Digital Input and Tariff. |

| Address | Parameter | Description |
|---|---|---|
| 46343 | Digital Input 3 Mode | This address is used to select mode of Digital Input 3. Write one of the following values to this address.<br>**0**: Status **1**: Tariff* **2**: Pulse<br>***Note** : Refer **TABLE 12** for relationship between Digital Input and Tariff. |
| 46345 | Digital Input 4 Mode | This address is used to select mode of Digital Input 4. Write one of the following values to this address.<br>**0**: Status **2**: Pulse |
| 46347 | Digital Input 1 Pulse Multiplier | This address is used to set the pulse multiplier of Digital Input 1 between **1 to 9999**. This parameter is useful when DI is configured in Pulse Mode. The Pulse count is available as “External Counter” on modbus (refer **TABLE 2**). |
| 46349 | Digital Input 2 Pulse Multiplier | This address is used to set the pulse multiplier of Digital Input 2 between **1 to 9999**. This parameter is useful when DI is configured in Pulse Mode. The Pulse count is available as “External Counter” on modbus (refer **TABLE 2**). |
| 46351 | Digital Input 3 Pulse Multiplier | This address is used to set the pulse multiplier of Digital Input 3 between **1 to 9999**. This parameter is useful when DI is configured in Pulse Mode. The Pulse count is available as “External Counter” on modbus (refer **TABLE 2**). |
| 46353 | Digital Input 4 Pulse Multiplier | This address is used to set the pulse multiplier of Digital Input 4 between **1 to 9999**. This parameter is useful when DI is configured in Pulse Mode. The Pulse count is available as “External Counter” on modbus (refer **TABLE 2**). |
| 46357 | Firmware Version | This address is read only and displays the firmware version of the meter. |
| 46365 | Backlite ON/OFF | This address is used to Turn ON or Turn OFF the backlit. Valid values are:<br>**1**: Backlit On **0**: Backlit Off |
| 46367 | Contrast | This address is used to change the contrast of the display. The options available are **1 to 4**, in increasing order of contrast. |
| 46369 | User Assignable Screen Enable | This address is used to activate or deactivate the User Assignable Screen feature which enables the user to select the screens to be displayed over the screen. **0**: Disable **1 to 10**: Corresponding number of user assignable screens. |
| 46371 **to** 46389 | User Screens 1 to 10 | These addresses are used to assign maximum 10 selectable screen numbers in corresponding sequence. User needs to put the combination of key number and screen number to this address. Refer **TABLE 13** for screen numbers.<br>For example, to select the screen number 3 of **V/A key** (key number 1), assign 103 to the corresponding user screen. Similarly, **P key** and **Sys key** have key numbers 2 and 3, respectively. |

| Address | Parameter | Description |
|---|---|---|
| 46391 | Tariff Selection Mode | This address is used to select the mode of Tariff. Valid values are:<br>**0**: Digital Input (This value is valid only when Digital Input 1 Mode is set as Tariff)<br>**1**: Modbus Command<br>When Di1 is selected in Tariff Mode, then no input present on Di1 indicates Tariff 1 and an input present on Di1 indicates Tariff 2. |
| 46393 | Number of Tariff | This address is used to select the number of Tariff. Valid values are:<br>**1**: Single Tariff **2**: Dual Tariff **3.** 3 Tariff **4.** 4 Tariff **5.** 5 Tariff<br>**6.** 6 Tariff **7.** 7 Tariff **8.** 8 Tariff<br>Refer **TABLE 12** for relationship between Digital Input and Tariff. |
| 46395 **to** 46405 | Tariff Energy Source 1 to 6 | These addresses are used to assign the energy parameters to six tariff sources. Refer **TABLE 9** for the energy parameters numbers. |
| 46407 | Active Tariff | This address is used to select active tariff, only when Tariff selection mode is set as “Modbus Command”. Write one of the following values to this address.<br>**1**: 1st Tariff **2**: 2nd Tariff **3**: 3rd Tariff **4**: 4th Tariff **5**: 5th Tariff<br>**6**: 6th Tariff **7**: 7th Tariff **8**: 8th Tariff |
| 46409 **to** 46423 | Tariff 1 to 8 Start Time | This address is used to read and write the start time upto 8 tariff when tarfiff selection mode is RTC. The settable range is 0 to 235959, i.e. HHMMSS format. |
| 46425 | RTC Complete Date | This address is used to read and write full date in “ddmmyy” format from RTC. |
| 46427 | RTC Complete Time | This address is used to read and write complete time in “hh.mm.ss” format from RTC. |
| 46431 | Event Based Datalog Select | This register is used to enable or disable event based datalogging.<br>0: Disabled<br>1: Enabled |
| 46433 | Time Based Datalog Select | This register is used to enable or disable time based datalogging.<br>0: Disabled<br>1: Enabled |
| 46435 | Time Based Datalog Interval Selection | This address is used to read and write the interval between consecutive time log entries in minutes. Valid value range 1-60 |
| 46437 | Logging Parameter Count | This value decides the number of parameters to be logged in time based datalogging. The value ranges from **1 to 30**. |

| Address | Parameter | Description |
|---|---|---|
| 46439-46497 | Datalog Parameter 1 to 30 | These addresses are used to read and write the parameters to be logged in time based logging. For valid values, refer **TABLE 17**. |
| 46499 | Load Profile Datalog Select | The address is used to start/stop Load Profile Datalogging.<br>**1**: Start Load Profile datalogging **0**: Stop Load Profile datalogging |
| 46501 | Start Date of Load Profile Datalog | This value show the starting date for Load Profile datalog.<br>This address are read only. |
| 46507 | Voltage Unit Type | This address is used to set voltage unit type in V and KV. Write one of the following value in address **0:** V (Volt)<br>**1**: KV (Killo-Volt) |
| 46509 | Power Unit Type | This address is used to set power unit type in Wh, KWh and MWh. Write one of the following value in address **0:** Wh<br>**1**: KWh<br>**2**: MWh |
| 46511 | Max demand for TDD | This address is used to set maximum current demand value to calculate %TDD |
| 46513 | Net energy configuration | This address is used to set definition of System net active total energy.<br>Write one of the following value in address **0:** IMP kWh - EXP kWh<br>**1:** EXP kWh - IMP kWh |
| 46521 | Addon Card Baud Rate | This address is used to set Addon card Baud rate. Write one of the following value in address **: 1. 19200 2. 38400 baud.** |
| 46701 | IP Address 1 | This address is read only and represents the high 16 bits of IP address. |
| 46703 | IP Address 2 | This address is read only and represents the low 16 bits of IP address. |
| 46705 | Subnet Mask 1 | This address is read only and represents high 16 bits of subnet mask address. |
| 46707 | Subnet Mask 2 | This address is read only and represents low 16 bits of subnet mask address. |
| 46709 | Default gateway 1 | This address is read only and represents high 16 bits of default gateway address. |
| 46711 | Default gateway 2 | This address is read only and represents low16 bits of default gateway address. |
| 46713 | Server Port | This address is read only and represents server port. |

**NOTE:**
Changing system type, PT/CT ratio, Energy Output, Energy Digit Reset Count will reset the energy.

# TABLE 4 : RS 485 Set-up Code

| Baudrate | Parity | Stop Bit | Decimal Value |
|---|---|---|---|
| 4800 | None | 1 | 1 |
| 4800 | None | 2 | 2 |
| 4800 | Even | 1 | 1 |
| 4800 | Odd | 1 | 1 |
| 9600 | None | 1 | 1 |
| 9600 | None | 2 | 2 |
| 9600 | Even | 1 | 1 |
| 9600 | Odd | 1 | 1 |
| 19200 | None | 1 | 1 |
| 19200 | None | 2 | 2 |
| 19200 | Even | 1 | 1 |
| 19200 | Odd | 1 | 1 |
| 38400 | None | 1 | 1 |
| 38400 | None | 2 | 2 |
| 38400 | Even | 1 | 1 |
| 38400 | Odd | 1 | 1 |
| 57600 | None | 1 | 1 |
| 57600 | None | 2 | 2 |
| 57600 | Even | 1 | 1 |
| 57600 | Odd | 1 | 1 |

**NOTE:** Code not present in **TABLE 4** may give rise to unpredictable results including **loss of communication**. Exercise caution when attempting to change mode via **direct MODBUS writes**.

## TABLE 5 : Impulse Energy Selection

| Parameter Number | Parameter | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W |
|---|---|---|---|---|---|---|
| 0 | None | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1 | System Active Energy | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2 | System Reactive Energy | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3 | System Apparant Energy | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4 | Active Energy L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 5 | Active Energy L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 6 | Active Energy L3 | ✓ | ✗ | ✗ | ✗ | ✗ |
| 7 | Apparant Energy L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 8 | Apparant Energy L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 9 | Apparant Energy L3 | ✓ | ✗ | ✗ | ✗ | ✗ |
| 10 | Reactive Energy L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 11 | Reactive Energy L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 12 | Reactive Energy L3 | ✓ | ✗ | ✗ | ✗ | ✗ |

## TABLE 6 : Number of Cycles for Timer Relay

| Code | Description |
|---|---|
| 0 | Unlimited |
| 1 to 9999 | Fixed Cycles |

## TABLE 7: Weekly Repeat for RTC Relay

| Code | Description |
|---|---|
| 1XXXXXXX<br>E{1,2,3,4,5,6,7} | Eg 11010000 means relay will operate only on Sun & Tue.' E'bit indicate Enable/Disable |
| | 1 = Sunday, 7 = Saturday |

## TABLE 8 : Energy Parameter Selection and Start Count

| Parameter Number | Parameter | Range |
|---|---|---|
| 1 | Sys Active Energy Import | 1 to 999999999 |
| 2 | Sys Active Energy Export | 1 to 999999999 |
| 3 | Sys Reactive Energy Cap. | 1 to 999999999 |
| 4 | Sys Reactive Energy Ind. | 1 to 999999999 |
| 5 | Sys Apparent Energy | 1 to 999999999 |
| 7 | Sys Active Energy Import Overflow Count | 1 to 999999 |
| 8 | Sys Active Energy Export Overflow Count | 1 to 999999 |
| 9 | Sys Reactive Energy Capacitive Overflow Count | 1 to 999999 |
| 10 | Sys Reactive Energy Inductive Overflow Count | 1 to 999999 |
| 11 | Sys Apparent Energy Overflow Count | 1 to 999999 |
| 25 | Sys Total Active Energy | 1 to 999999999 |
| 26 | Sys Total Reactive Energy | 1 to 999999999 |
| 27 | Sys Total Apparent Energy | 1 to 999999999 |
| 28 | Sys Total Active Energy Overflow Count | 1 to 999999 |
| 29 | Sys Total Reactive Energy Overflow Count | 1 to 999999 |
| 30 | Sys Total Apparent Energy Overflow Count | 1 to 999999 |
| 37 | Active Energy Import L1 | 1 to 999999999 |
| 38 | Active Energy Import L2 | 1 to 999999999 |
| 39 | Active Energy Import L3 | 1 to 999999999 |
| 40 | Active Energy Export L1 | 1 to 999999999 |
| 41 | Active Energy Export L2 | 1 to 999999999 |
| 42 | Active Energy Export L3 | 1 to 999999999 |
| 43 | Reactive Energy Capacitive L1 | 1 to 999999999 |
| 44 | Reactive Energy Capacitive L2 | 1 to 999999999 |
| 45 | Reactive Energy Capacitive L3 | 1 to 999999999 |
| 46 | Reactive Energy Inductive L1 | 1 to 999999999 |
| 47 | Reactive Energy Inductive L2 | 1 to 999999999 |
| 48 | Reactive Energy Inductive L3 | 1 to 999999999 |
| 49 | Apparent Energy L1 | 1 to 999999999 |
| 50 | Apparent Energy L2 | 1 to 999999999 |
| 51 | Apparent Energy L3 | 1 to 999999999 |
| 55 | Total Active Energy L1 | 1 to 999999999 |

## TABLE 8 Continued...

| Parameter Number | Parameter | Range |
|---|---|---|
| 56 | Total Active Energy L2 | 1 to 999999999 |
| 57 | Total Active Energy L3 | 1 to 999999999 |
| 58 | Total Reactive Energy L1 | 1 to 999999999 |
| 59 | Total Reactive Energy L2 | 1 to 999999999 |
| 60 | Total Reactive Energy L3 | 1 to 999999999 |
| 61 | Total Apparent Energy L1 | 1 to 999999999 |
| 62 | Total Apparent Energy L2 | 1 to 999999999 |
| 63 | Total Apparent Energy L3 | 1 to 999999999 |
| 64 | Overflow Active Energy Import L1 | 1 to 999999 |
| 65 | Overflow Active Energy Import L2 | 1 to 999999 |
| 66 | Overflow Active Energy Import L3 | 1 to 999999 |
| 67 | Overflow Active Energy Export L1 | 1 to 999999 |
| 68 | Overflow Active Energy Export L2 | 1 to 999999 |
| 69 | Overflow Active Energy Export L3 | 1 to 999999 |
| 70 | Overflow Reactive Energy Capacitive L1 | 1 to 999999 |
| 71 | Overflow Reactive Energy Capacitive L2 | 1 to 999999 |
| 72 | Overflow Reactive Energy Capacitive L3 | 1 to 999999 |
| 73 | Overflow Reactive Energy Inductive L1 | 1 to 999999 |
| 74 | Overflow Reactive Energy Inductive L2 | 1 to 999999 |
| 75 | Overflow Reactive Energy Inductive L3 | 1 to 999999 |
| 76 | Overflow Apparent Energy L1 | 1 to 999999 |
| 77 | Overflow Apparent Energy L2 | 1 to 999999 |
| 78 | Overflow Apparent Energy L3 | 1 to 999999 |
| 82 | Total Active Energy Overflow Count L1 | 1 to 999999 |
| 83 | Total Active Energy Overflow Count L2 | 1 to 999999 |
| 84 | Total Active Energy Overflow Count L3 | 1 to 999999 |
| 85 | Total Reactive Energy Overflow Count L1 | 1 to 999999 |
| 86 | Total Reactive Energy Overflow Count L2 | 1 to 999999 |
| 87 | Total Reactive Energy Overflow Count L3 | 1 to 999999 |
| 88 | Total Apparent Energy Overflow Count L1 | 1 to 999999 |
| 89 | Total Apparent Energy Overflow Count L2 | 1 to 999999 |
| 90 | Total Apparent Energy Overflow Count L3 | 1 to 999999 |

## TABLE 8 Continued...

| Parameter Number | Parameter | Range |
|---|---|---|
| 159 | System Inductive Import (Q1) Energy KVArh | 1 to 999999999 |
| 160 | System Inductive Export (Q3) Energy KVArh | 1 to 999999999 |
| 161 | System Capacitive Import (Q2) Energy KVArh | 1 to 999999999 |
| 162 | System Capacitive Export (Q4) Export Energy KVArh | 1 to 999999999 |
| 163 | Sys Total Lag Reactive (Q1 + Q3) Energy KVArh | 1 to 999999999 |
| 164 | Sys Total Lead Reactive (Q2 + Q4) Energy KVArh | 1 to 999999999 |
| 165 | Sys Total Import Reactive (Q1 + Q2) Energy KVArh | 1 to 999999999 |
| 166 | Sys Total Export Reactive (Q3 + Q4) Energy KVArh | 1 to 999999999 |
| 167 | L1 Inductive Import (Q1) KVArh | 1 to 999999999 |
| 168 | L2 Inductive Import (Q1) KVArh | 1 to 999999999 |
| 169 | L3 Inductive Import (Q1) KVArh | 1 to 999999999 |
| 170 | L1 Inductive Export (Q3) KVArh | 1 to 999999999 |
| 171 | L2 Inductive Export (Q3) KVArh | 1 to 999999999 |
| 172 | L3 Inductive Export (Q3) KVArh | 1 to 999999999 |
| 173 | L1 Capacitive Import (Q2) KVArh | 1 to 999999999 |
| 174 | L2 Capacitive Import (Q2) KVArh | 1 to 999999999 |
| 175 | L3 Capacitive Import (Q2) KVArh | 1 to 999999999 |
| 176 | L1 Capacitive Export (Q4) KVArh | 1 to 999999999 |
| 177 | L2 Capacitive Export (Q4) KVArh | 1 to 999999999 |
| 178 | L3 Capacitive Export (Q4) KVArh | 1 to 999999999 |
| 179 | L1 Total Lag Reactive (Q1 + Q3) Energy KVArh | 1 to 999999999 |
| 180 | L2 Total Lag Reactive (Q1 + Q3) Energy KVArh | 1 to 999999999 |
| 181 | L3 Total Lag Reactive (Q1 + Q3) Energy KVArh | 1 to 999999999 |
| 182 | L1 Total Lead Reactive (Q2 + Q4) Energy KVArh | 1 to 999999999 |
| 183 | L2 Total Lead Reactive (Q2 + Q4) Energy KVArh | 1 to 999999999 |
| 184 | L3 Total Lead Reactive (Q2 + Q4) Energy KVArh | 1 to 999999999 |
| 185 | L1 Total Import Reactive (Q1 + Q2) Energy KVArh | 1 to 999999999 |
| 186 | L2 Total Import Reactive (Q1 + Q2) Energy KVArh | 1 to 999999999 |
| 187 | L3 Total Import Reactive (Q1 + Q2) Energy KVArh | 1 to 999999999 |
| 188 | L1 Total Export Reactive (Q3 + Q4) Energy KVArh | 1 to 999999999 |
| 189 | L2 Total Export Reactive (Q3 + Q4) Energy KVArh | 1 to 999999999 |
| 190 | L3 Total Export Reactive (Q3 + Q4) Energy KVArh | 1 to 999999999 |

## TABLE 8 Continued...

| Parameter Number | Parameter | Range |
|---|---|---|
| 192 | Apparent while active Import | 1 to 999999999 |
| 193 | Apparent while active export | 1 to 999999999 |
| 194 | System Inductive Import (Q1) Energy KVArh OF | 1 to 999999 |
| 195 | System Inductive Export (Q3) Energy KVArh OF | 1 to 999999 |
| 196 | System Capacitive Import (Q2) Energy KVArh OF | 1 to 999999 |
| 197 | System Capacitive Export (Q4) Energy KVArh OF | 1 to 999999 |
| 198 | Sys Total Lag Reactive (Q1 + Q3) Energy KVArh of | 1 to 999999 |
| 199 | Sys Total Lead Reactive (Q2 + Q4)Energy KVArh of | 1 to 999999 |
| 200 | Sys Total Import Reactive (Q1 + Q2) Energy KVArh OF | 1 to 999999 |
| 201 | Sys Total Export Reactive (Q3 + Q4)Energy KVArh OF | 1 to 999999 |
| 202 | L1 Inductive Import (Q1) KVArh of | 1 to 999999 |
| 203 | L2 Inductive Import (Q1) KVArh of | 1 to 999999 |
| 204 | L3 Inductive Import (Q1) KVArh OF | 1 to 999999 |
| 205 | L1 Inductive Export (Q3) KVArh OF | 1 to 999999 |
| 206 | L2 Inductive Export (Q3) KVArh OF | 1 to 999999 |
| 207 | L3 Inductive Export (Q3) KVArh OF | 1 to 999999 |
| 208 | L1 Capacitive Import (Q2) KVArh OF | 1 to 999999 |
| 209 | L2 Capacitive Import (Q2) KVArh OF | 1 to 999999 |
| 210 | L3 Capacitive Import (Q2) KVArh OF | 1 to 999999 |
| 211 | L1 Capacitive Export (Q4) KVArh OF | 1 to 999999 |
| 212 | L2 Capacitive Export (Q4) KVArh OF | 1 to 999999 |
| 213 | L3 Capacitive Export (Q4) KVArh OF | 1 to 999999 |
| 214 | L1 Total Lag Reactive (Q1 + Q3) Energy KVArh OF | 1 to 999999 |
| 215 | L2 Total Lag Reactive (Q1 + Q3) Energy KVArh OF | 1 to 999999 |
| 216 | L3 Total Lag Reactive (Q1 + Q3) Energy KVArh OF | 1 to 999999 |
| 217 | L1 Total Lead Reactive (Q2 + Q4) Energy KVArh OF | 1 to 999999 |
| 218 | L2 Total Lead Reactive (Q2 + Q4) Energy KVArh OF | 1 to 999999 |
| 219 | L3 Total Lead Reactive (Q2 + Q4) Energy KVArh OF | 1 to 999999 |
| 220 | L1 Total Import Reactive (Q1 + Q2) Energy KVArh OF | 1 to 999999 |
| 221 | L2 Total Import Reactive (Q1 + Q2) Energy KVArh OF | 1 to 999999 |
| 222 | L3 Total Import Reactive (Q1 + Q2) Energy KVArh OF | 1 to 999999 |
| 223 | L1 Total Export Reactive (Q3 + Q4) Energy KVArh OF | 1 to 999999 |

## TABLE 8 Continued...

| Parameter Number | Parameter | Range |
|---|---|---|
| 224 | L2 Total Export Reactive (Q3 + Q4) Energy KVArh OF | 1 to 999999 |
| 225 | L3 Total Export Reactive (Q3 + Q4) Energy KVArh OF | 1 to 999999 |
| 227 | Apparent while active import OF | 1 to 999999 |
| 228 | Apparent while active export OF | 1 to 999999 |
| 251 | Tariff1 Source1 Energy Count | 1 to 999999999 |
| 252 | Tariff1 Source2 Energy Count | 1 to 999999999 |
| 253 | Tariff1 Source3 Energy Count | 1 to 999999999 |
| 254 | Tariff1 Source4 Energy Count | 1 to 999999999 |
| 255 | Tariff1 Source5 Energy Count | 1 to 999999999 |
| 256 | Tariff1 Source6 Energy Count | 1 to 999999999 |
| 257 | Tariff1 Source1 Energy Overflow Count | 1 to 999999 |
| 258 | Tariff1 Source2 Energy Overflow Count | 1 to 999999 |
| 259 | Tariff1 Source3 Energy Overflow Count | 1 to 999999 |
| 260 | Tariff1 Source4 Energy Overflow Count | 1 to 999999 |
| 261 | Tariff1 Source5 Energy Overflow Count | 1 to 999999 |
| 262 | Tariff1 Source6 Energy Overflow Count | 1 to 999999 |
| 263 | Tariff2 Source1 Energy Count | 1 to 999999999 |
| 264 | Tariff2 Source2 Energy Count | 1 to 999999999 |
| 265 | Tariff2 Source3 Energy Count | 1 to 999999999 |
| 266 | Tariff2 Source4 Energy Count | 1 to 999999999 |
| 267 | Tariff2 Source5 Energy Count | 1 to 999999999 |
| 268 | Tariff2 Source6 Energy Count | 1 to 999999999 |
| 269 | Tariff2 Source1 Energy Overflow Count | 1 to 999999 |
| 270 | Tariff2 Source2 Energy Overflow Count | 1 to 999999 |
| 271 | Tariff2 Source3 Energy Overflow Count | 1 to 999999 |
| 272 | Tariff2 Source4 Energy Overflow Count | 1 to 999999 |
| 273 | Tariff2 Source5 Energy Overflow Count | 1 to 999999 |
| 274 | Tariff2 Source6 Energy Overflow Count | 1 to 999999 |

**NOTE :** For 3P3W and 1P2W, phase-wise parameters are not available. For 1P3W, L3 parameters are not available.

## TABLE 8 Continued...

| Parameter Number | Parameter | Range |
|---|---|---|
| 275 | Tariff3 Source1 Energy Count | 1 to 999999999 |
| 276 | Tariff3 Source2 Energy Count | 1 to 999999999 |
| 277 | Tariff3 Source3 Energy Count | 1 to 999999999 |
| 278 | Tariff3 Source4 Energy Count | 1 to 999999999 |
| 279 | Tariff3 Source5 Energy Count | 1 to 999999999 |
| 280 | Tariff3 Source6 Energy Count | 1 to 999999999 |
| 281 | Tariff3 Source1 Energy Overflow Count | 1 to 999999 |
| 282 | Tariff3 Source2 Energy Overflow Count | 1 to 999999 |
| 283 | Tariff3 Source3 Energy Overflow Count | 1 to 999999 |
| 284 | Tariff3 Source4 Energy Overflow Count | 1 to 999999 |
| 285 | Tariff3 Source5 Energy Overflow Count | 1 to 999999 |
| 286 | Tariff3 Source6 Energy Overflow Count | 1 to 999999 |
| 287 | Tariff4 Source1 Energy Count | 1 to 999999999 |
| 288 | Tariff4 Source2 Energy Count | 1 to 999999999 |
| 289 | Tariff4 Source3 Energy Count | 1 to 999999999 |
| 290 | Tariff4 Source4 Energy Count | 1 to 999999999 |
| 291 | Tariff4 Source5 Energy Count | 1 to 999999999 |
| 292 | Tariff4 Source6 Energy Count | 1 to 999999999 |
| 293 | Tariff4 Source1 Energy Overflow Count | 1 to 999999 |
| 294 | Tariff4 Source2 Energy Overflow Count | 1 to 999999 |
| 295 | Tariff4 Source3 Energy Overflow Count | 1 to 999999 |
| 296 | Tariff4 Source4 Energy Overflow Count | 1 to 999999 |
| 297 | Tariff4 Source5 Energy Overflow Count | 1 to 999999 |
| 298 | Tariff4 Source6 Energy Overflow Count | 1 to 999999 |

## TABLE 8 Continued...

| Parameter Number | Parameter | Range |
|---|---|---|
| 299 | Tariff5 Source1 Energy Count | 1 to 999999999 |
| 300 | Tariff5 Source2 Energy Count | 1 to 999999999 |
| 301 | Tariff5 Source3 Energy Count | 1 to 999999999 |
| 302 | Tariff5 Source4 Energy Count | 1 to 999999999 |
| 303 | Tariff5 Source5 Energy Count | 1 to 999999999 |
| 304 | Tariff5 Source6 Energy Count | 1 to 999999999 |
| 305 | Tariff5 Source1 Energy Overflow Count | 1 to 999999 |
| 306 | Tariff5 Source2 Energy Overflow Count | 1 to 999999 |
| 307 | Tariff5 Source3 Energy Overflow Count | 1 to 999999 |
| 308 | Tariff5 Source4 Energy Overflow Count | 1 to 999999 |
| 309 | Tariff5 Source5 Energy Overflow Count | 1 to 999999 |
| 310 | Tariff5 Source6 Energy Overflow Count | 1 to 999999 |
| 311 | Tariff6 Source1 Energy Count | 1 to 999999999 |
| 312 | Tariff6 Source2 Energy Count | 1 to 999999999 |
| 313 | Tariff6 Source3 Energy Count | 1 to 999999999 |
| 314 | Tariff6 Source4 Energy Count | 1 to 999999999 |
| 315 | Tariff6 Source5 Energy Count | 1 to 999999999 |
| 316 | Tariff6 Source6 Energy Count | 1 to 999999999 |
| 317 | Tariff6 Source1 Energy Overflow Count | 1 to 999999 |
| 318 | Tariff6 Source2 Energy Overflow Count | 1 to 999999 |
| 319 | Tariff6 Source3 Energy Overflow Count | 1 to 999999 |
| 320 | Tariff6 Source4 Energy Overflow Count | 1 to 999999 |
| 321 | Tariff6 Source5 Energy Overflow Count | 1 to 999999 |
| 322 | Tariff6 Source6 Energy Overflow Count | 1 to 999999 |

## TABLE 8 Continued...

| Parameter Number | Parameter | Range |
|---|---|---|
| 323 | Tariff7 Source1 Energy Count | 1 to 999999999 |
| 324 | Tariff7 Source2 Energy Count | 1 to 999999999 |
| 325 | Tariff7 Source3 Energy Count | 1 to 999999999 |
| 326 | Tariff7 Source4 Energy Count | 1 to 999999999 |
| 327 | Tariff7 Source5 Energy Count | 1 to 999999999 |
| 328 | Tariff7 Source6 Energy Count | 1 to 999999999 |
| 329 | Tariff7 Source1 Energy Overflow Count | 1 to 999999 |
| 330 | Tariff7 Source2 Energy Overflow Count | 1 to 999999 |
| 331 | Tariff7 Source3 Energy Overflow Count | 1 to 999999 |
| 332 | Tariff7 Source4 Energy Overflow Count | 1 to 999999 |
| 333 | Tariff7 Source5 Energy Overflow Count | 1 to 999999 |
| 334 | Tariff7 Source6 Energy Overflow Count | 1 to 999999 |
| 335 | Tariff8 Source1 Energy Count | 1 to 999999999 |
| 336 | Tariff8 Source2 Energy Count | 1 to 999999999 |
| 337 | Tariff8 Source3 Energy Count | 1 to 999999999 |
| 338 | Tariff8 Source4 Energy Count | 1 to 999999999 |
| 339 | Tariff8 Source5 Energy Count | 1 to 999999999 |
| 340 | Tariff8 Source6 Energy Count | 1 to 999999999 |
| 341 | Tariff8 Source1 Energy Overflow Count | 1 to 999999 |
| 342 | Tariff8 Source2 Energy Overflow Count | 1 to 999999 |
| 343 | Tariff8 Source3 Energy Overflow Count | 1 to 999999 |
| 344 | Tariff8 Source4 Energy Overflow Count | 1 to 999999 |
| 345 | Tariff8 Source5 Energy Overflow Count | 1 to 999999 |
| 346 | Tariff8 Source6 Energy Overflow Count | 1 to 999999 |

**NOTE :** For 3P3W and 1P2W, phase-wise parameters are not available.

## TABLE 9 : Parameters for Pulse Output / Pre Paid Energy / Tariff Energy

| Parameter Number | Parameter | 3P4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W |
|---|---|---|---|---|---|---|
| 0 | Sys Wh import | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1 | Sys Wh export | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2 | Sys VARh import | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3 | Sys VARh export | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4 | Sys VAh | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6 | Active Energy Import L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 7 | Active Energy Import L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 8 | Active Energy Import L3 | ✓ | ✗ | ✗ | ✗ | ✗ |
| 9 | Active Energy Export L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 10 | Active Energy Export L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 11 | Active Energy Export L3 | ✓ | ✗ | ✗ | ✗ | ✗ |
| 12 | Reactive Energy Capacitive L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 13 | Reactive Energy Capacitive L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 14 | Reactive Energy Capacitive L3 | ✓ | ✗ | ✗ | ✗ | ✗ |
| 15 | Reactive Energy Inductive L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 16 | Reactive Energy Inductive L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 17 | Reactive Energy Inductive L3 | ✓ | ✗ | ✗ | ✗ | ✗ |
| 18 | Apparent Energy L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 19 | Apparent Energy L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 20 | Apparent Energy L3 | ✓ | ✗ | ✗ | ✗ | ✗ |
| 24 | Total Sys Active Energy | ✓ | ✓ | ✓ | ✓ | ✓ |
| 25 | Total Sys Reactive Energy | ✓ | ✓ | ✓ | ✓ | ✓ |
| 26 | Total Sys Apparent Energy | ✓ | ✓ | ✓ | ✓ | ✓ |
| 27 | Total Active Energy L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 28 | Total Active Energy L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 29 | Total Active Energy L3 | ✓ | ✗ | ✗ | ✗ | ✗ |
| 30 | Total Reactive Energy L1 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 31 | Total Reactive Energy L2 | ✓ | ✗ | ✗ | ✓ | ✗ |
| 32 | Total Reactive Energy L3 | ✓ | ✗ | ✗ | ✗ | ✗ |

## TABLE 10 : Parameters for Limit output

| Parameter Number | Parameter | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | Trip Point Set Range | 100% Value |
|---|---|---|---|---|---|---|---|---|
| 0 | None | ✓ | ✓ | ✓ | ✓ | ✓ | - | - |
| 1 | Volts 1 | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Vnom (L-N) |
| 2 | Volts 2 | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 120 % | Vnom (L-N) |
| 3 | Volts 3 | ✓ | ✓ | ✗ | ✗ | ✗ | 10 - 120 % | Vnom (L-N) |
| 4 | IL1 | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Inom |
| 5 | IL2 | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 120 % | Inom |
| 6 | IL3 | ✓ | ✓ | ✗ | ✗ | ✗ | 10 - 120 % | Inom |
| 7 | W1 | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 8 | W2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 9 | W3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 120 % | Nom (3) |
| 10 | Va1 | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 11 | Va2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 12 | Va3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 120 % | Nom (3) |
| 13 | Var1 | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 14 | Var2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 15 | VAr3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 120 % | Nom (3) |
| 16 | PF1 # | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 90 % | 90° |
| 17 | PF2 # | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 90 % | 90° |
| 18 | PF3 # | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 90 % | 90° |
| 19 | PA1 # | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 90 % | 360° |
| 20 | PA2 # | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 90 % | 360° |
| 21 | PA3 # | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 90 % | 360° |
| 22 | Volts Ave. | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 120 % | Vnom (2) |
| 24 | Current Ave. | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 120 % | Inom |
| 27 | Watts sum | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 29 | VA sum | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 31 | VAr sum | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 32 | PF Ave. # | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 90 % | 90° |
| 34 | PA Ave. # | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 90 % | 360° |
| 36 | Freq. # | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 90 % | 66 Hz (1) |
| 37 | Wh Import | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 9999999 | Nom (3) |

## TABLE 10 : Continued...

| Parameter Number | Parameter | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | Trip Point Set Range | 100% Value |
|---|---|---|---|---|---|---|---|---|
| 38 | Wh Export | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 9999999 | Nom (3) |
| 39 | VArh Capacitive | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 9999999 | Nom (3) |
| 40 | VArh Inductive | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 9999999 | Nom (3) |
| 41 | VAh | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 9999999 | Nom (3) |
| 43 | Watt Demand Imp. | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 44 | Watt Max Demand Imp. | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 45 | Watt Demand Exp. | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 46 | Watt Demand Max Exp | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 47 | VAr Demand Cap. | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 48 | VAr Max Demand Cap. | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 49 | VAr Demand Ind. | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 50 | VAr Demand Max Ind. | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 51 | VA Demand | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 52 | VA Max Demand | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 53 | Current Demand | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Inom |
| 54 | Current Max Demand | ✓ | ✓ | ✓ | ✓ | ✓ | 10 - 120 % | Inom |
| 85 | Re-Active PF L1 | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 90 % | 90° |
| 86 | Re-Active PF L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 90 % | 90° |
| 87 | Re-Active PF L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 90 % | 90° |
| 88 | Avg Re-Active PF | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 90 % | 90° |
| 90 | LF SgnQ(1-(P/S)) L1 | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 90 % | 90° |
| 91 | LF SgnQ(1-(P/S)) L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 90 % | 90° |
| 92 | LF SgnQ(1-(P/S)) L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 90 % | 90° |
| 93 | Avg LF SgnQ(1-(P/S)) | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 90 % | 90° |
| 95 | Displacement PF L1 | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 90 % | 90° |
| 96 | Displacement PF L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 90 % | 90° |
| 97 | Displacement PF L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 90 % | 90° |
| 98 | Avg Displacement PF | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 90 % | 90° |
| 101 | V12 | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 120 % | Vnom (L-L) |
| 102 | V23 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 120 % | Vnom (L-L) |
| 103 | V31 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 120 % | Vnom (L-L) |
| 128 | Distortion VAr L1 | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |

## TABLE 10 Continued...

| Parameter Number | Parameter | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | Trip Point Set Range | 100% Value |
|---|---|---|---|---|---|---|---|---|
| 129 | Distortion VAr L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 130 | Distortion VAr L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 120 % | Nom (3) |
| 132 | SUM Distortion VAr | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 133 | Fundamental VAr L1 | ✓ | ✗ | ✓ | ✓ | ✓ | 10 - 120 % | Nom (3) |
| 134 | Fundamental VAr L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 135 | Fundamental VAr L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10 - 120 % | Nom (3) |
| 137 | SUM Fundamental VAr | ✓ | ✓ | ✗ | ✓ | ✗ | 10 - 120 % | Nom (3) |
| 198 | Relay manually off | ✓ | ✓ | ✓ | ✓ | ✓ | 1 | - |
| 199 | Relay manually on | ✓ | ✓ | ✓ | ✓ | ✓ | 1 | - |
| 200 | Wh import | ✓ | ✓ | ✓ | ✓ | ✓ | 10-9999999 | Nom (3) |
| 201 | Wh export | ✓ | ✓ | ✓ | ✓ | ✓ | 10-9999999 | Nom (3) |
| 202 | VARh Capacitive | ✓ | ✓ | ✓ | ✓ | ✓ | 10-9999999 | Nom (3) |
| 203 | VARh Inductive | ✓ | ✓ | ✓ | ✓ | ✓ | 10-9999999 | Nom (3) |
| 204 | VAh | ✓ | ✓ | ✓ | ✓ | ✓ | 10-9999999 | Nom (3) |
| 206 | Active Energy Import L1 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 207 | Active Energy Import L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 208 | Active Energy Import L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10-9999999 | Nom (3) |
| 209 | Active Energy Export L1 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 210 | Active Energy Export L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 211 | Active Energy Export L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10-9999999 | Nom (3) |
| 212 | Reactive Energy Capacitive L1 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 213 | Reactive Energy Capacitive L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 214 | Reactive Energy Capacitive L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10-9999999 | Nom (3) |
| 215 | Reactive Energy Inductive L1 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 216 | Reactive Energy Inductive L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 217 | Reactive Energy Inductive L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10-9999999 | Nom (3) |
| 218 | Apparent Energy L1 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 219 | Apparent Energy L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 220 | Apparent Energy L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10-9999999 | Nom (3) |
| 224 | Total Sys Active Energy | ✓ | ✓ | ✓ | ✓ | ✓ | 10-9999999 | Nom (3) |
| 225 | Total Sys Reactive Energy | ✓ | ✓ | ✓ | ✓ | ✓ | 10-9999999 | Nom (3) |
| 226 | Total Sys Apparent Energy | ✓ | ✓ | ✓ | ✗ | ✓ | 10-9999999 | Nom (3) |

## TABLE 10 Continued...

| Parameter Number | Parameter | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | Trip Point Set Range | 100% Value |
|---|---|---|---|---|---|---|---|---|
| 227 | Total Active Energy L1 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 228 | Total Active Energy L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 229 | Total Active Energy L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10-9999999 | Nom (3) |
| 230 | Total Reactive Energy L1 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 231 | Total Reactive Energy L2 | ✓ | ✗ | ✗ | ✓ | ✗ | 10-9999999 | Nom (3) |
| 232 | Total Reactive Energy L3 | ✓ | ✗ | ✗ | ✗ | ✗ | 10-9999999 | Nom (3) |

**Note : Parameters 1,2,3 are L-N Voltage for 3P4W & 1P3W and L-L Voltage for 3P3W & 2P2W.**
**#Note : Refer #Note of Section 5.2 for details.**

(1) For Frequency 0% corresponds to 45 Hz and 100% corresponds to 66 Hz.
(2)For 3P 4W, 1P2W and 1P3W the nominal value is VLN and that for 3P 3W and 2P2W is VLL.
(3) Nominal Value for power is calculated from Nominal Voltage and current values.

Nominal Value is to be considered with set CT/ PT Primary values.
For 3P4W, L1 phase values are to be considered as system values.
Trip point for energy parameters is a whole (non-decimal) number.

## TABLE 11 : Health Monitor Status for 3 Phase System

| bit15 | bit14 | bit13 | bit12 | bit11 | bit10 | bit9 | bit8 | bit7 | bit6 | bit5 | bit4 | bit3 | bit2 | bit1 | bit0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XX | XX | XX | XX | XX | XX | XX | XX | OC | OV | UV | UF | PF | PH-R | IUNB | VUNB |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

For e.g. :
1) Health Status is valid for Three Phase system only
2) bit15, bit14, bit13, bit12, bit11, bit10, bit9 and bit8 will always be 00000000.
3) The fault parameter bit will be 1.
4) If only over current fault is present, then OC bit will 1.
5) Binary value of OC is 0000000010000000 and decimal value is 128.
6) This value will be shown in health status indication buffer (refer **TABLE 1.6**) at corresponding address.

**OC** : Over current**; OV** : Over voltage**; UV** : Under voltage; **UF** : Under frequency**; PF** : Phase failure **PH-R** : Phase reversal; **IUNB** : Current Unbalance**; VUNB** : Voltage Unbalance

## TABLE 12 : Relationship between Digital Input and Tariff

Tariff <= 2

| Digital Input 1 | Tariff number |
|---|---|
| LOW | Tariff 1 |
| HIGH | Tariff 2 |

Tariff <= 4

| Digital Input 1 | Digital Input 2 | Tariff number |
|---|---|---|
| LOW | LOW | Tariff 1 |
| HIGH | LOW | Tariff 2 |
| LOW | HIGH | Tariff 3 |
| HIGH | HIGH | Tariff 4 |

Tariff <= 8

| Digital Input 1 | Digital Input 2 | Digital Input 3 | Tariff number |
|---|---|---|---|
| LOW | LOW | LOW | Tariff 1 |
| HIGH | LOW | LOW | Tariff 2 |
| LOW | HIGH | LOW | Tariff 3 |
| HIGH | HIGH | LOW | Tariff 4 |
| LOW | LOW | HIGH | Tariff 5 |
| HIGH | LOW | HIGH | Tariff 6 |
| LOW | HIGH | HIGH | Tariff 7 |
| HIGH | HIGH | HIGH | Tariff 8 |

# TABLE 13 : Measurement & Energy/Counter Screens

## TABLE 1.13 System Parameters Screens :

| Para -meter No. | Parameter | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W |
| 1 | System Voltage/Current/Active-Power/Frequency | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2 | System VA/VAR/Watt/Power-Factor | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3 | System VA/VAR/Degree/Power-Factor | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4 | System RPM/Frequency | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5 | System % THD Voltage/Current | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6 | System TDD% | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 7 | System VA/A Demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8 | System Capacitive/Inductive VAR Demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 9 | System Import Watt Demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 10 | System Export Watt Demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 11 | System Max VA/A Demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 12 | System Max Capacitive/Inductive VAR Demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 13 | System Max Import Watt Demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 14 | System Max Export Watt Demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 15 | System Max Voltage/Current/Watt/Frequency | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 16 | System Min Voltage/Current/Watt/Frequency | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 17 | System Max VA/VAR/Watt-Power/Power-Factor | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 18 | System Min VA/VAR/Watt-Power/Power-Factor | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 19 | System Max VA/VAR/Power-Degree/Power-Factor | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 20 | System Min VA/VAR/Power-Degree/Power-Factor | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 21 | Date/Time | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 22 | Timer 1 NO. of Cycle/ON Delay/OFF Delay | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 23 | Timer 2 No. of Cycle/ON Delay/OFF Delay | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 24 | Health Monitor Menu | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ |
| 25 | Pre-paid Energy Menu | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 26 | System Displacement Power Factor | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 27 | System Reactive Power Factor | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 28 | System LF Factor SgnQ(1-(P/S)) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 29 | Old Sys Max Import/Export Watt Demand | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 30 | Old Sys Max Capacitive/Inductive VAR Demand | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 31 | Old Sys Max VA/A Demand | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |

## TABLE 13.1 System Parameters Screens Continued...

| Para -meter No. | Parameter | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W |
| 32 | System Distortion VAR | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 33 | System Fundamental VAR | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 34 | System Max Reactive PF | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 35 | System Min Reactive PF | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 36 | System Max LF Factor SgnQ(1-(p/s)) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 37 | System Min LF Factor SgnQ(1-(p/s)) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |

**NOTE :** The Display screens of TABLE 1.1 can be scrolled through **Up Key.**

## TABLE 13.2 Energy Parameters Screens :

| Parameter No. | Parameters | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W |
| 1 | System Active Energy Import(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2 | System Active Energy Import | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3 | System Active Energy Export(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4 | System Active Energy Export | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5 | System Reactive Capacitive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6 | System Reactive Capacitive energy | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 7 | System Reactive Inductive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8 | System Reactive Inductive energy | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 9 | System Apparent energy(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 10 | System Apparent energy | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 11 | L1 Active Energy Import(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 12 | L1 Active Energy Import | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 13 | L1 Active Energy Export(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 14 | L1 Active Energy Export | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 15 | L1 Reactive Capacitive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 16 | L1 Reactive Capacitive energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 17 | L1 Reactive Inductive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 18 | L1 Reactive Inductive energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 19 | L1 Apparent energy(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 20 | L1 Apparent energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |

## TABLE 13.2 Energy Parameters Screens Continued...

| Parameter No. | Parameters | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W |
| 21 | L2 Active Energy Import(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 22 | L2 Active Energy Import | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 23 | L2 Active Energy Export(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 24 | L2 Active Energy Export | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 25 | L2 Reactive Capacitive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 26 | L2 Reactive Capacitive energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 27 | L2 Reactive Inductive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 28 | L2 Reactive Inductive energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 29 | L2 Apparent energy(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 30 | L2 Apparent energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 31 | L3 Active Energy Import(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 32 | L3 Active Energy Import | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 33 | L3 Active Energy Export(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 34 | L3 Active Energy Export | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 35 | L3 Reactive Capacitive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 36 | L3 Reactive Capacitive energy | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 37 | L3 Reactive Inductive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 38 | L3 Reactive Inductive energy | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 39 | L3 Apparent energy(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 40 | L3 Apparent energy | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 41 | L1 Total Active Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 42 | L1 Total Active Energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 43 | L1 Total Reactive Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 44 | L1 Total Reactive Energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 45 | L2 Total Active Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 46 | L2 Total Active Energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 47 | L2 Total Reactive Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 48 | L2 Total Reactive Energy | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 49 | L3 Total Active Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 50 | L3 Total Active Energy | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 51 | L3 Total Reactive Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 52 | L3 Total Reactive Energy | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 53 | Sys Total Active Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 54 | Sys Total Active Energy | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

## TABLE 13.2 Energy Parameters Screens Continued...

| Parameter No. | Parameters | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W |
| 55 | Sys Total Reactive Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 56 | Sys Total Reactive Energy | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 57 | System Import Inductive (Q1) VArh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 58 | System Import Inductive (Q1) VArh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 59 | System Export Inductive (Q3) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 60 | System Export Inductive (Q3) VArh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 61 | System Import Capacitive (Q2) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 62 | System Import Capacitive (Q2) VArh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 63 | System Export Capacitive (Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 64 | System Export Capacitive (Q4) VArh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 65 | L1 Import Inductive (Q1) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 66 | L1 Import Inductive (Q1) Varh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 67 | L1 Export Inductive (Q3) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 68 | L1 Export Inductive (Q3) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 69 | L1 Import Capacitive (Q2) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 70 | L1 Import Capacitive (Q2) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 71 | L1 Export Capacitive (Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 72 | L1 Export Capacitive (Q4) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 73 | L2 Import Inductive (Q1) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 74 | L2 Import Inductive (Q1) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 75 | L2 Export Inductive (Q3) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 76 | L2 Export Inductive (Q3) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 77 | L2 Import Capacitive (Q2) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 78 | L2 Import Capacitive (Q2) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 79 | L2 Export Capacitive (Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 80 | L2 Export Capacitive (Q4) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 81 | L3 Import Inductive (Q1) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 82 | L3 Import Inductive (Q1) VArh | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 83 | L3 Export Inductive (Q3) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 84 | L3 Export Inductive (Q3) VArh | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 85 | L3 Import Capacitive (Q2) VArh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 86 | L3 Import Capacitive (Q2) VArh | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 87 | L3 Export Capacitive (Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 88 | L3 Export Capacitive (Q4) VArh | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |

## TABLE 13.2 Energy Parameters Screens Continued...

| Parameter No. | Parameters | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W2 |
| 89 | System Total Import (Q1 + Q2) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 90 | System Total Import (Q1 + Q2) VArh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 91 | System Total Export (Q3 + Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 92 | System Total Export (Q3 + Q4) VArh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 93 | System Total Inductive (Q1 + Q3) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 94 | System Total Inductive (Q1 + Q3) VArh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 95 | System Total Inductive (Q2 + Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 96 | System Total Inductive (Q2 + Q4) VArh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 97 | L1 Total Import (Q1 + Q2) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 98 | L1 Total Import (Q1 + Q2) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 99 | L1 Total Export (Q3 + Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 100 | L1 Total Export (Q3 + Q4) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 101 | L1 Total Inductive (Q1 + Q3) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 102 | L1 Total Inductive (Q1 + Q3) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 103 | L1 Total Inductive (Q2 + Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 104 | L1 Total Inductive (Q2 + Q4) Varh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 105 | L2 Total Import (Q1 + Q2) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 106 | L2 Total Import (Q1 + Q2) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 107 | L2 Total Export (Q3 + Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 108 | L2 Total Export (Q3 + Q4) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 109 | L2 Total Inductive (Q1 + Q3) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 110 | L2 Total Inductive (Q1 + Q3) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 111 | L2 Total Inductive (Q2 + Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 112 | L2 Total Inductive (Q2 + Q4) VArh | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 113 | L3 Total Import (Q1 + Q2) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 114 | L3 Total Import (Q1 + Q2) VArh | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 115 | L3 Total Export (Q3 + Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 116 | L3 Total Export (Q3 + Q4) Varh | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 117 | L3 Total Inductive (Q1 + Q3) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 118 | L3 Total Inductive (Q1 + Q3) VArh | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 119 | L3 Total Capacitive (Q2 + Q4) Varh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 120 | L3 Total Capacitive (Q2 + Q4) Varh | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 121 | System Net Total Wh Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 122 | System Net Total Wh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

## TABLE 13.2 Energy Parameters Screens Continued...

| Parameter No. | Parameters | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W |
| 123 | System Apparent while Active Import Vah Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 124 | System Apparent while Active Import Vah | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 125 | System Apparent while Active Export Vah Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 126 | System Apparent while Active Export Vah | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 127 | Run hour | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 128 | On hour | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 129 | No. of interrupts | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 130 | Tariff 1 Energy 1,2,3,4,5,6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 131 | Tariff 2 Energy 1,2,3,4,5,6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 132 | Tariff 3 Energy 1,2,3,4,5,6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 133 | Tariff 4 Energy 1,2,3,4,5,6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 134 | Tariff 5 Energy 1,2,3,4,5,6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 135 | Tariff 6 Energy 1,2,3,4,5,6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 136 | Tariff 7 Energy 1,2,3,4,5,6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 137 | Tariff 8 Energy 1,2,3,4,5,6 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 138 | Old Energy Unit | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 139 | Old System Active Energy Import(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 140 | Old System Active Energy Import | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 151 | Old System Active Energy Export(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 152 | Old System Active Energy Export | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 153 | Old System Reactive Capacitive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 154 | Old System Reactive Capacitive energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 155 | Old System Reactive Inductive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 156 | Old System Reactive Inductive energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 157 | Old System Apparent energy(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 158 | Old System Apparent energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 159 | Old L1 Active Energy Import(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 160 | Old L1 Active Energy Import | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 161 | Old L1 Active Energy Export(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 162 | Old L1 Active Energy Export | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |

## TABLE 13.2 Energy Parameters Screens Continued...

| Parameter No. | Parameters | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W |
| 167 | Old L1 Reactive Capacitive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 168 | Old L1 Reactive Capacitive energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 169 | Old L1 Reactive Inductive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 170 | Old L1 Reactive Inductive energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 171 | Old L1 Apparent energy(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 172 | Old L1 Apparent energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 173 | Old L2 Active Energy Import(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 174 | Old L2 Active Energy Import | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 175 | Old L2 Active Energy Export(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 176 | Old L2 Active Energy Export | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 177 | Old L2 Reactive Capacitive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 178 | Old L2 Reactive Capacitive energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 179 | Old L2 Reactive Inductive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 180 | Old L2 Reactive Inductive energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 181 | Old L2 Apparent energy(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 182 | Old L2 Apparent energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 183 | Old L3 Active Energy Import(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 184 | Old L3 Active Energy Import | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 185 | Old L3 Active Energy Export(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 186 | Old L3 Active Energy Export | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 187 | Old L3 Reactive Capacitive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 188 | Old L3 Reactive Capacitive energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 189 | Old L3 Reactive Inductive energy (Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 190 | Old L3 Reactive Inductive energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 191 | Old L3 Apparent energy(Overflow) | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 192 | Old L3 Apparent energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 193 | Old Sys Total Active Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 194 | Old Sys Total Active Energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 195 | Old Sys Total Reactive Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 196 | Old Sys Total Reactive Energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 197 | Old L1 Total Active Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 198 | Old L1 Total Active Energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 199 | Old L1 Total Reactive Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 200 | Old L1 Total Reactive Energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |

## TABLE 13.2 Energy Parameters Screens Continued...

| Parameter No. | Parameters | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W | 3P 4W | 3P 3W | 1P 2W | 1P 3W | 2P 2W |
| 201 | Old L2 Total Active Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 202 | Old L2 Total Active Energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 203 | Old L2 Total Reactive Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 204 | Old L2 Total Reactive Energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 205 | Old L3 Total Active Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 206 | Old L3 Total Active Energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 207 | Old L3 Total Reactive Energy Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 208 | Old L3 Total Reactive Energy | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 209 | Old Run Hour | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 210 | Old On Hour | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 211 | Old no. of interrupts | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 212 | Digital Input 1 Pulse Counter | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 213 | Digital Input 2 Pulse Counter | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 214 | Digital Input 1 Pulse Counter Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 215 | Digital Input 2 Pulse Counter Overflow Count | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |

**NOTE :** 1) The Display screens of Table 13.2 can be scrolled through **Enter Key.**

## TABLE 13.3 Power Parameters Screens :

| Para-meter No. | Parameters | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W |
| 1 | L1 VA-VAr-Watt-Power Factor | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 2 | L2 VA-VAr-Watt-Power Factor | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 3 | L3 VA-VAr-Watt-Power Factor | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 4 | L1-L2-L3 Degree | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 5 | System VA-VAr-Watt-Power Factor | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6 | L1 Max VA-VAr-Watt-Power Factor | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 7 | L1 Min VA-VAr-Watt-Power Factor | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 8 | L2 Max VA-VAr-Watt-Power Facto | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 9 | L2 Min VA-VAr-Watt-Power Factor | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 10 | L3 Max VA-VAr-Watt-Power Factor | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 11 | L3 Min VA-VAr-Watt-Power Factor | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 12 | L1-L2-L3 Max Degree | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 13 | L1-L2-L3 Min Degree | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 14 | L1-L2-L3 Fundamental VAr* | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 15 | L1-L2-L3 Distortion Var* | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 16 | System Fundamental & Distortion VAr | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 17 | L1-L2-L3 Reactive Power Factor* | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 18 | L1-L2-L3 Displacement Power Factor* | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 19 | System Reactive & Displacement PF | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 20 | L1-L2-L3 LF Factor SgnQ(1-(P/S))* | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 21 | System LF Factor SgnQ(1-(P/S)) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 22 | L1-L2-L3 Max Reactive Power Factor* | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 23 | L1-L2-L3 Min Reactive Power Factor* | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 24 | L1-L2-L3 Max LF Factor SgnQ(1-(P/S))* | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 25 | L1-L2-L3 Min LF Factor SgnQ(1-(P/S))* | ✗ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |

**NOTE :** The Display screens of TABLE 13.3 can be scrolled through **P/Down Key.**

## TABLE 13.4 Voltage/Current Parameters Screens :

| Para -meter No. | Parameter | On Display | | | | | On Modbus | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W |
| 1 | L1-L2-L3 System Voltage* | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 2 | L12-L23-L31 Voltage** | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 3 | L1-L2-L3 Current* | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 3 | Neutral Voltage | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 4 | L1-L2-L3 Voltage % THD* | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 5 | L1-L2-L3 Current % THD* | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 6 | Current Reversal | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 7 | Phase Rotation Error | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ |
| 8 | Phase Absent Indication | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 9 | System Voltage-Current-Active Power-Frequency | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 10 | L1-L2-L3 Average Max Voltage* | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 11 | L1-L2-L3 Average Min Voltage* | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 12 | L12-L23-L31 Max Voltage** | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 13 | L12-L23-L31 Min Voltage** | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 14 | L1-L2-L3 Max Current* | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 15 | L1-L2-L3 Min Current* | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 16 | %Voltage(L-N) unbalance, %Current unbalance | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ |
| 17 | Individual Harmonics V(upto 63rd) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 18 | Individual Harmonics A(upto 63rd) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

**NOTE :** The Display screens of TABLE 13.4 can be scrolled through **V/A Key.**

## 3.4 User Assignable Modbus Registers:

The Multifunction Instrument contains 20 user assignable registers in the address range of 0x1450 (35201) to 0x1476 (35239) for 3X registers (**see TABLE 14**) and address range of 0x1450 (45201) to 0x1476 (45239) for 4X registers (**see TABLE 14**).

Any of the parameter addresses (3X register addresses and 4X register addresses of **TABLE 1**) accessible in the instrument can be mapped to these 20 user assignable registers.

Parameters (3X and 4X registers addresses) that reside in different locations may be accessed by the single request by re-mapping them to adjacent address in the user assignable registers area.

The actual address of the parameters (3X and 4X registers addresses) which are to be accessed via address 0x1450 to 0x1476 are specified in 4X Register 0x2710 to 0x2723 (**see TABLE 15**).

### TABLE 14 : User Assignable 3X Data Registers

| Address (3X) | Address (4X) | Assignable Register | Modbus Start Address (Hex) | |
|---|---|---|---|---|
| | | | High Byte | Low Byte |
| 35201 | 45201 | Assignable Register 1 | 14 | 50 |
| 35203 | 45203 | Assignable Register 2 | 14 | 52 |
| 35205 | 45205 | Assignable Register 3 | 14 | 54 |
| 35207 | 45207 | Assignable Register 4 | 14 | 56 |
| 35209 | 45209 | Assignable Register 5 | 14 | 58 |
| 35211 | 45211 | Assignable Register 6 | 14 | 5A |
| 35213 | 45213 | Assignable Register 7 | 14 | 5C |
| 35215 | 45215 | Assignable Register 8 | 14 | 5E |
| 35217 | 45217 | Assignable Register 9 | 14 | 60 |
| 35219 | 45219 | Assignable Register 10 | 14 | 62 |
| 35221 | 45221 | Assignable Register 11 | 14 | 64 |
| 35223 | 45223 | Assignable Register 12 | 14 | 66 |
| 35225 | 45225 | Assignable Register 13 | 14 | 68 |
| 35227 | 45227 | Assignable Register 14 | 14 | 6A |
| 35229 | 45229 | Assignable Register 15 | 14 | 6C |
| 35231 | 45231 | Assignable Register 16 | 14 | 6E |
| 35233 | 45233 | Assignable Register 17 | 14 | 70 |
| 35235 | 45235 | Assignable Register 18 | 14 | 72 |
| 35237 | 45237 | Assignable Register 19 | 14 | 74 |
| 35239 | 45239 | Assignable Register 20 | 14 | 76 |

## TABLE 15 : User Assignable mapping register ( 4X registers)

| Address (4X) | Assignable Register | Modbus Start Address (Hex) | |
|---|---|---|---|
| | | High Byte | Low Byte |
| 410001 | Map Address for Assignable Register 1 | 27 | 10 |
| 410002 | Map Address for Assignable Register 2 | 27 | 11 |
| 410003 | Map Address for Assignable Register 3 | 27 | 12 |
| 410004 | Map Address for Assignable Register 4 | 27 | 13 |
| 410005 | Map Address for Assignable Register 5 | 27 | 14 |
| 410006 | Map Address for Assignable Register 6 | 27 | 15 |
| 410007 | Map Address for Assignable Register 7 | 27 | 16 |
| 410008 | Map Address for Assignable Register 8 | 27 | 17 |
| 410009 | Map Address for Assignable Register 9 | 27 | 18 |
| 410010 | Map Address for Assignable Register 10 | 27 | 19 |
| 410011 | Map Address for Assignable Register 11 | 27 | 1A |
| 410012 | Map Address for Assignable Register 12 | 27 | 1B |
| 410013 | Map Address for Assignable Register 13 | 27 | 1C |
| 410014 | Map Address for Assignable Register 14 | 27 | 1D |
| 410015 | Map Address for Assignable Register 15 | 27 | 1E |
| 410016 | Map Address for Assignable Register 16 | 27 | 1F |
| 410017 | Map Address for Assignable Register 17 | 27 | 20 |
| 410018 | Map Address for Assignable Register 18 | 27 | 21 |
| 410019 | Map Address for Assignable Register 19 | 27 | 22 |
| 410020 | Map Address for Assignable Register 20 | 27 | 23 |

**Assigning parameter to User Assignable Registers:**

To access the Voltage2 (3X address 0x0002) and Power Factor1 (3X address 0x001E) through user assignable register assign these addresses to 4x register (**TABLE 15**) 0x2710 and 0x2711 respectively.

**Assigning Query:**

| | | |
|---|---|---|
| Device Address | 01 (Hex) | |
| Function Code | 10 (Hex) | |
| Start Address High | 27 (Hex) | |
| Start Address Low | 10 (Hex) | |
| Number of Registers High | 00 (Hex) | |
| Number of Registers Low | 02 (Hex) | |
| Byte Count | 04 (Hex) | |
| Data Register- 1 High Byte | 00 (Hex) | Voltage |
| Data Register- 1 Low Byte | 02 (Hex) | 2 * (3X Address 0x0002) |
| Data Register- 2 High Byte | 00 (Hex) | Power Factor |
| Data Register- 2 Low Byte | 1E (Hex) | 1 * (3X Address 0x001E) |
| CRC Low | 01 (Hex) | |
| CRC High | EC (Hex) | |

**Response:**

| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 10 (Hex) |
| Start Address High | 27 (Hex) |
| Start Address Low | 10 (Hex) |
| Number of Registers High | 00 (Hex) |
| Number of Registers Low | 02 (Hex) |
| CRC Low | 4A (Hex) |
| CRC High | B9 (Hex) |

* **Note** : Upto 6 parameters can be assigned at a time but these parameters should be assigned in Multiple of two i.e. 2, 4 or 6.

**Reading Parameter data through User Assignable Registers:**
In assigning query, Voltage 2 & Power Factor 1 parameters were assigned to 0x2710 & 0x2711 (**TABLE 15**) which will point to user assignable 3x registers 0x1450 and 0x1452 (**TABLE 1**4). So to read Voltage2 and Power Factor1 data reading query should be as below.

**Query:**

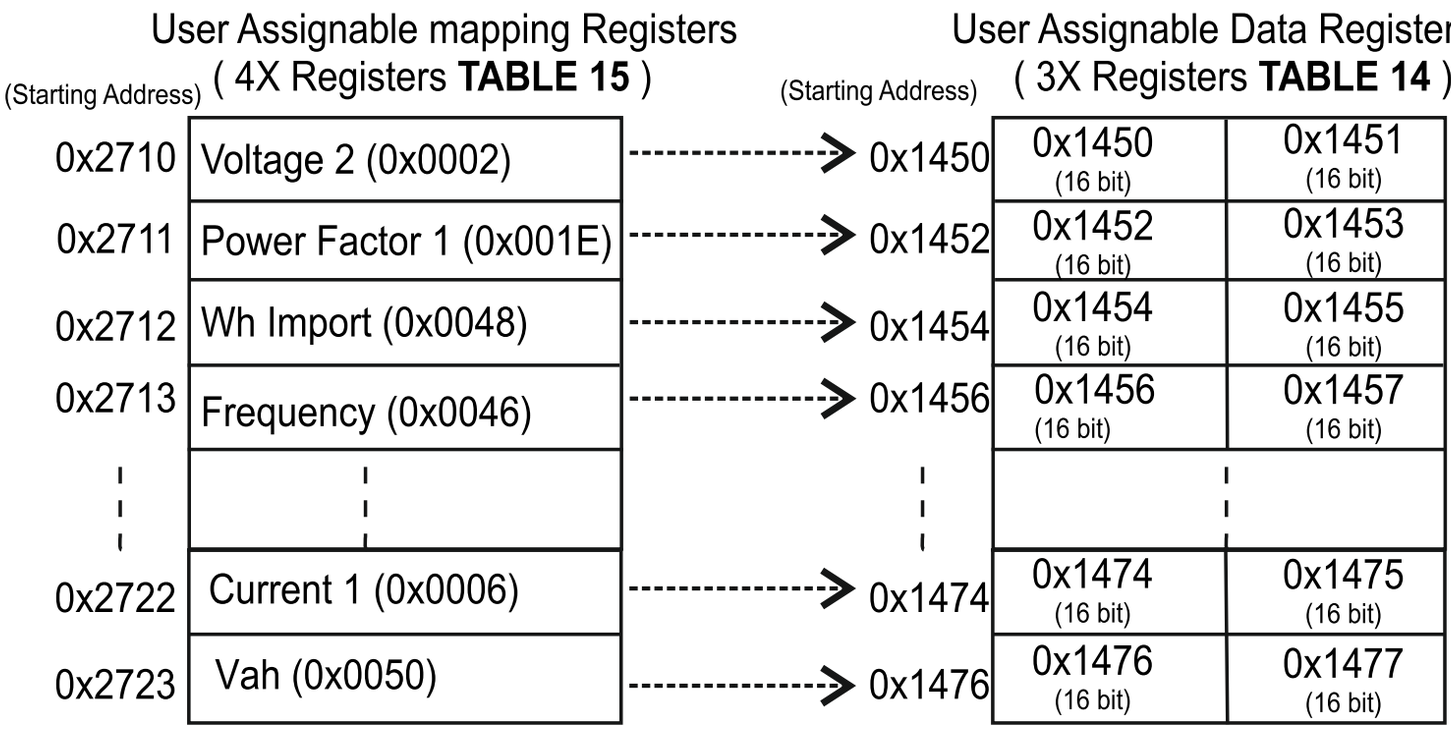
| | |
|---|---|
| Device Address | 01 (Hex) |
| Function Code | 04 (Hex) |
| Start Address High | 14 (Hex) |
| Start Address Low | 50 (Hex) |
| Number of Registers Hi | 00 (Hex) |
| Number of Registers Lo | 04 (Hex) |
| CRC Low | F0 (Hex) |
| CRC High | 71 (Hex) |

**Start Address High** : Most significant 8 bits of starting address of Userassignable register.
**Start Address low** :Least significant 8 bits of starting address of User assignable register.
**Number of register Hi** : Most significant 8 bits of Number of registers requested.
**Number of register Lo** : Least significant 8 bits of Number of registers requested.

***Note: Two consecutive 16 bit register represent one parameter. Since two parameters are requested four registers are required**

**Response:** (Volt2 = 219.30 / Power Factor1 = 1.0)

| | | |
|---|---|---|
| Device Address | 01 (Hex) | |
| Function Code | 04 (Hex) | |
| Byte Count | 08 (Hex) | |
| Data Register- 1 High Byte | 43 (Hex) | Voltage 2 Data |
| Data Register- 1 Low Byte | 5B (Hex) | |
| Data Register- 2 High Byte | 4E (Hex) | |
| Data Register- 2 Low Byte | 04 (Hex) | |
| Data Register- 3 High Byte | 3F (Hex) | Power Factor 1 Data |
| Data Register- 3 Low Byte | 80 (Hex) | |
| Data Register- 4 High Byte | 00 (Hex) | |
| Data Register- 4 Low Byte | 00 (Hex) | |
| CRC Low | 79 (Hex) | |
| CRC High | 3F (Hex) | |




**To get the data through User Assignable Register go through the following steps:**

1) Assign starting addresses (**TABLE 1**) of parameters of interest to "User assignable mapping registers" in a sequence in which they are to be accessed (see Section "**Assigning Parameter to User Assignable Registers"** of Section 3.4).

2) Once the parameters are mapped, data can be acquired by using "User assignable data register" Starting address. i.e to access data of Voltage2, Power factor1,Wh import, Frequency send query with starting address 0x1450 with number of register 8 or individually parameters can be accessed. For example, if current1 is to be accessed use starting address 0x01474. (see Section **Reading Parameter data through User Assignable Registers** of Section 3.4**).**

# 4. Datalogging

Datalogging is a feature that allows the meter to store measured parameters based on time or on occurrence of a certain event. The user can retrieve the data later for further application.

This meter offers three types of datalogging

1) Event based 2) Time based 3) Load profile

## 4.1 Event Based Datalogging

This type of datalogging stores data when certain event is observed. This data is time stamped and last five occurrences of each type of event are stored based on first in first out queue. This meter offers event based logging for 10 parameters. This data can be observed on the modbus on the address table shown below. These registers can be accessed by the query explained in section 3.1 The user can turn this logging on and off through display as well as modbus by using address 46431.

Changing any setup parameter related to the logged parameters will reset the log.

Note: Below addresses are available for 3X and for 4X.

for example 312289 for 3X and 412289 for 4X.

**TABLE 16: Addresses for event based datalog**

| Address | Logged Parameter | Log Details | Mod Start Address Hex | |
|---|---|---|---|---|
| | | | High Byte | Low Byte |
| 312289 | Max Voltage | Date 1 | 30 | 00 |
| 312291 | | Time 1 | 30 | 02 |
| 312293 | | Value 1 | 30 | 04 |
| 312295 | | Date 2 | 30 | 06 |
| 312297 | | Time 2 | 30 | 08 |
| 312299 | | Value 2 | 30 | 0A |
| 312301 | | Date 3 | 30 | 0C |
| 312303 | | Time 3 | 30 | 0E |
| 312305 | | Value 3 | 30 | 10 |
| 312307 | | Date 4 | 30 | 12 |
| 312309 | | Time 4 | 30 | 14 |
| 312311 | | Value 4 | 30 | 16 |
| 312313 | | Date 5 | 30 | 18 |
| 312315 | | Time 5 | 30 | 1A |
| 312317 | | Value 5 | 30 | 1C |

| Address | Logged Parameter | Log Details | Mod Start Address Hex | |
|---|---|---|---|---|
| | | | High Byte | Low Byte |
| 312319 | Min Voltage | Date 1 | 30 | 1E |
| 312321 | | Time 1 | 30 | 20 |
| 312323 | | Value 1 | 30 | 22 |
| 312325 | | Date 2 | 30 | 24 |
| 312327 | | Time 2 | 30 | 26 |
| 312329 | | Value 2 | 30 | 28 |
| 312331 | | Date 3 | 30 | 2A |
| 312333 | | Time 3 | 30 | 2C |
| 312335 | | Value 3 | 30 | 2E |
| 312337 | | Date 4 | 30 | 30 |
| 312339 | | Time 4 | 30 | 32 |
| 312341 | | Value 4 | 30 | 34 |
| 312343 | | Date 5 | 30 | 36 |
| 312345 | | Time 5 | 30 | 38 |
| 312347 | | Value 5 | 30 | 3A |

## TABLE 16: Continued...

| | | | | |
|---|---|---|---|---|
| 312349 | Max Current | Date 1 | 30 | 3C |
| 312351 | | Time 1 | 30 | 3E |
| 312353 | | Value 1 | 30 | 40 |
| 312355 | | Date 2 | 30 | 42 |
| 312357 | | Time 2 | 30 | 44 |
| 312359 | | Value 2 | 30 | 46 |
| 312361 | | Date 3 | 30 | 48 |
| 312363 | | Time 3 | 30 | 4A |
| 312365 | | Value 3 | 30 | 4C |
| 312367 | | Date 4 | 30 | 4E |
| 312369 | | Time 4 | 30 | 50 |
| 312371 | | Value 4 | 30 | 52 |
| 312373 | | Date 5 | 30 | 54 |
| 312375 | | Time 5 | 30 | 56 |
| 312377 | | Value 5 | 30 | 58 |
| 312379 | Min Current | Date 1 | 30 | 5A |
| 312381 | | Time 1 | 30 | 5C |
| 312383 | | Value 1 | 30 | 5E |
| 312385 | | Date 2 | 30 | 60 |
| 312387 | | Time 2 | 30 | 62 |
| 312389 | | Value 2 | 30 | 64 |
| 312391 | | Date 3 | 30 | 66 |
| 312393 | | Time 3 | 30 | 68 |
| 312395 | | Value 3 | 30 | 6A |
| 312397 | | Date 4 | 30 | 6C |
| 312399 | | Time 4 | 30 | 6E |
| 312401 | | Value 4 | 30 | 70 |
| 312403 | | Date 5 | 30 | 72 |
| 312405 | | Time 5 | 30 | 74 |
| 312407 | | Value 5 | 30 | 76 |

| | | | | |
|---|---|---|---|---|
| 312409 | Max W Import Demand | Date 1 | 30 | 78 |
| 312411 | | Time 1 | 30 | 7A |
| 312413 | | Value 1 | 30 | 7C |
| 312415 | | Date 2 | 30 | 7E |
| 312417 | | Time 2 | 30 | 80 |
| 312419 | | Value 2 | 30 | 82 |
| 312421 | | Date 3 | 30 | 84 |
| 312423 | | Time 3 | 30 | 86 |
| 312425 | | Value 3 | 30 | 88 |
| 312427 | | Date 4 | 30 | 8A |
| 312429 | | Time 4 | 30 | 8C |
| 312431 | | Value 4 | 30 | 8E |
| 312433 | | Date 5 | 30 | 90 |
| 312435 | | Time 5 | 30 | 92 |
| 312437 | | Value 5 | 30 | 94 |
| 312439 | Max W Export Demand | Date 1 | 30 | 96 |
| 312441 | | Time 1 | 30 | 98 |
| 312443 | | Value 1 | 30 | 9A |
| 312445 | | Date 2 | 30 | 9C |
| 312447 | | Time 2 | 30 | 9E |
| 312449 | | Value 2 | 30 | A0 |
| 312451 | | Date 3 | 30 | A2 |
| 312453 | | Time 3 | 30 | A4 |
| 312455 | | Value 3 | 30 | A6 |
| 312457 | | Date 4 | 30 | A8 |
| 312459 | | Time 4 | 30 | AA |
| 312461 | | Value 4 | 30 | AC |
| 312463 | | Date 5 | 30 | AE |
| 312465 | | Time 5 | 30 | B0 |
| 312467 | | Value 5 | 30 | B2 |

## TABLE 16: Continued...

| | | | | |
|---|---|---|---|---|
| 312469 | Max VAr Capacitive Demand | Date 1 | 30 | B4 |
| 312471 | | Time 1 | 30 | B6 |
| 312473 | | Value 1 | 30 | B8 |
| 312475 | | Date 2 | 30 | BA |
| 312477 | | Time 2 | 30 | BC |
| 312479 | | Value 2 | 30 | BE |
| 312481 | | Date 3 | 30 | C0 |
| 312483 | | Time 3 | 30 | C2 |
| 312485 | | Value 3 | 30 | C4 |
| 312487 | | Date 4 | 30 | C6 |
| 312489 | | Time 4 | 30 | C8 |
| 312491 | | Value 4 | 30 | CA |
| 312493 | | Date 5 | 30 | CC |
| 312495 | | Time 5 | 30 | CE |
| 312497 | | Value 5 | 30 | D0 |
| 312499 | Max VAr Inductive Demand | Date 1 | 30 | D2 |
| 312501 | | Time 1 | 30 | D4 |
| 312503 | | Value 1 | 30 | D6 |
| 312505 | | Date 2 | 30 | D8 |
| 312507 | | Time 2 | 30 | DA |
| 312509 | | Value 2 | 30 | DC |
| 312511 | | Date 3 | 30 | DE |
| 312513 | | Time 3 | 30 | E0 |
| 312515 | | Value 3 | 30 | E2 |
| 312517 | | Date 4 | 30 | E4 |
| 312519 | | Time 4 | 30 | E6 |
| 312521 | | Value 4 | 30 | E8 |
| 312523 | | Date 5 | 30 | EA |
| 312525 | | Time 5 | 30 | EC |
| 312527 | | Value 5 | 30 | EE |

| | | | | |
|---|---|---|---|---|
| 312529 | Max VA Demand | Date 1 | 30 | F0 |
| 312531 | | Time 1 | 30 | F2 |
| 312533 | | Value 1 | 30 | F4 |
| 312535 | | Date 2 | 30 | F6 |
| 312537 | | Time 2 | 30 | F8 |
| 312539 | | Value 2 | 30 | FA |
| 312541 | | Date 3 | 30 | FC |
| 312543 | | Time 3 | 30 | FE |
| 312545 | | Value 3 | 31 | 0 |
| 312547 | | Date 4 | 31 | 2 |
| 312549 | | Time 4 | 31 | 4 |
| 312551 | | Value 4 | 31 | 6 |
| 312553 | | Date 5 | 31 | 8 |
| 312555 | | Time 5 | 31 | 0A |
| 312557 | | Value 5 | 31 | 0C |
| 312559 | Max A Demand | Date 1 | 31 | 0E |
| 312561 | | Time 1 | 31 | 10 |
| 312563 | | Value 1 | 31 | 12 |
| 312565 | | Date 2 | 31 | 14 |
| 312567 | | Time 2 | 31 | 16 |
| 312569 | | Value 2 | 31 | 18 |
| 312571 | | Date 3 | 31 | 1A |
| 312573 | | Time 3 | 31 | 1C |
| 312575 | | Value 3 | 31 | 1E |
| 312577 | | Date 4 | 31 | 20 |
| 312579 | | Time 4 | 31 | 22 |
| 312581 | | Value 4 | 31 | 24 |
| 312583 | | Date 5 | 31 | 26 |
| 312585 | | Time 5 | 31 | 28 |
| 312587 | | Value 5 | 31 | 2A |

## 4.2 Time Based Datalogging

This type of datalogging stores data with a timestamp at a preset time interval. This can be used to take a snapshot of the system at regular time intervals. This data can be used to do in-depth analysis of the system. The number of parameters to be logged and which parameters to store can also be configured by the user through display as well as modbus. Various configuration registers can be found on addresses 46433 to 46497.
The number of entries stored varies according to the number of parameters logged i.e. more entries can be stored if less number of parameters are being logged. User can configure the meter to store 1 to 30 parameters. And the time interval can vary from 1 to 60 minutes. Editing of these parameters is not allowed while the logging is on.

Each entry consists of number of parameters selected by the user in addition to date and time of the entry log.
Max Memory Locations = 273030
Actual parameter stored in Each log = Date +time+Number of parameter selected by user

for ex. Number of parameter selected by user = 1.

Actual parameter stored in Each log = 1(Date) +1(time)+ 1 = 3

Maximum log that can be stored = Max Memory Location/Actual parameter stored in Each log
=273030/3= 91010

Timelog Interval setting = 15 minutes

Log in one day = (60 /Timelog Interval setting) * 24
=(60/15)*24 = 96

Max Days = Maximum log that can be stored / log in one day
= 91010 / 96 = 948.20 days

After all memory allocated locations are filled with logging data, the meter will start shifting data by first in first out queue i.e. at any time after all the locations are used once, the user will have access to the latest logged maximum number of entries.

## TABLE 17 : Datalogging Parameters List

| Para. No. | Parameter | Higher Model | | | | | Lower Model | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W |
| 0 | V1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1 | V2 | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 2 | V3 | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ |
| 3 | I1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4 | I2 | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 5 | I3 | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ |
| 6 | W1 | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ |
| 7 | W2 | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 8 | W3 | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 9 | VA1 | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ |
| 10 | VA2 | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 11 | VA3 | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 12 | VAR1 | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✓ | ✓ |
| 13 | VAR2 | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 14 | VAR3 | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 15 | PF1 | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |
| 16 | PF2 | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ |
| 17 | PF3 | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 18 | Angle1 | ✓ | ✗ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |
| 19 | Angle2 | ✓ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ |
| 20 | Angle3 | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 21 | Volt Avg | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 22 | Volt Sum | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 23 | Current Avg | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 24 | Current Sum | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 25 | Watt Avg | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 26 | Watt Sum | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 27 | VA Avg | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 28 | VA Sum | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |

## TABLE 17 : Continued...

| Para. No. | Parameter | Higher Model | | | | | Lower Model | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W |
| 29 | VAR Avg | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 30 | VAR Sum | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 31 | PF Avg | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 32 | PF Sum | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 33 | Phase Angle Avg | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 34 | Phase Angle Sum | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 35 | Freq | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 36 | Wh import | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 37 | Wh export | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 38 | VARh Capacitive | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 39 | VARh Inductive | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 40 | VAh | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 42 | kw imp demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 43 | max kW imp demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 44 | kW exp demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 45 | max kW exp demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 46 | kVAr Cap. demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 47 | max kVAr Cap. demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 48 | kVAr Ind. demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 49 | max kVAr Ind. demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 50 | KVA demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 51 | max KVA demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 52 | current demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 53 | max current demand | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 54 | Import active energy overflow count | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 56 | Export active energy overflow count | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 58 | Capacitive reactive energy overflow count | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 60 | Inductive reactive energy overflow count | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 62 | Apparent energy overflow count | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

## TABLE 17 : Continued...

| Para. No. | Parameter | Higher Model | | | | | Lower Model | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W | 3P4W | 3P3W | 1P2W | 1P3W | 2P2W |
| 66 | system voltage max | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 67 | system voltage min | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 68 | RPM | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 70 | system current max | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 71 | system current min | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 100 | V12 | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 101 | V23 | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 102 | V31 | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 103 | V THD-L1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |
| 104 | V THD-L2 | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ |
| 105 | V THD-L3 | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 106 | I THD-L1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ |
| 107 | I THD-L2 | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ |
| 108 | I THD-L3 | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| 109 | System V-THD | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 110 | System I-THD | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 112 | Neutral Current | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 113 | Run hour | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 114 | On Hour | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 115 | No. of interrupts | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 121 | Phase indicate | ✓ | ✓ | ✗ | ✓ | ✗ | ✓ | ✓ | ✗ | ✓ | ✗ |
| 127 | Distortion VAr L1 | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 128 | Distortion VAr L2 | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 129 | Distortion VAr L3 | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 130 | Distortion VAr AVG | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 131 | Distortion VAr SUM | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 132 | Fundamental VAr L1 | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 133 | Fundamental VAr L2 | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 134 | Fundamental VAr L3 | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ | ✗ | ✗ | ✗ |
| 135 | Fundamental VAr AVG | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |
| 136 | Fundamental VAr SUM | ✓ | ✗ | ✗ | ✓ | ✗ | ✓ | ✗ | ✗ | ✓ | ✗ |

Query Format for Downloading the Time based datalog

The query format for downloading an entry of a time datalog is given below. Maximum number of register the user can access in 1 query are limited by 64 and corresponding to it maximum byte count is 128. The byte count should be logging parameter count multiplied by 4 and added to 8, where 8 is the byte count for date and time (4 bytes x 2 parameters).

(logging parameter count x 4) + (2 x 4)
e.g.
if logging parameter count is 10

byte count = (10 x 4) + 8 = 48 (4 bytes per parameter)

number of registers = (10 x 2) + (2 x 2) = 24 (2 registers per parameter)

Starting address will be 01,CA for time datalog.
The entry number of the desired log need to be converted to IEEE format and sent as 4 bytes.

**Query example:**

| Description | Decimal Value | Hex Value |
|---|---|---|
| Dev Addr | 3 | 03 |
| Func Code | 16 | 10 |
| Start Addr Hi | | 01 |
| Start Addr Lo | | CA |
| No of Reg Hi | 00 | 00 |
| No of Reg Lo | 14 | 0E |
| Log Download Bytes | 28 | 1C |
| Entry No Reg 1 Hi | 25 | 41 |
| Entry No Reg 1 Lo | | C8 |
| Entry No Reg 2 Hi | | 00 |
| Entry No Reg 2 Lo | | 00 |
| CRC Lo | | CC |
| CRC Hi | | A4 |

If a user wants to download 5 parameters logged at entry number 25, the query will be as following (Assuming device address 3). All the data in query is represented in hexadecimal float.

03,10, 01, CA,00,0E,1C,41,C8,00,00,CC,A4

03 is device address;
10 is function code;
01 CA is the address that lets the user access the time datalog;
00 0E is number of registers to be accessed (actual parameter count x 2+4);
1C is number of bytes to be accessed;
41 C8 00 00 is entry number converted to hex;
CC A4 is CRC calculated on query.

**Response:**

| Description | Hex Value | Decimal Value |
|---|---|---|
| Dev Addr | 03 | 03 |
| Func Code | 10 | 16 |
| No of bytes | 1C | 28 |
| Date | 46,24,28,00 | 010506(May 1st 2006) |
| Time | 40,CC,CC,CD | 6.40 (06:40 am) |
| Parameter 1 | 41,78,1F,68 | 15.50 |
| Parameter 2 | 46,AB,5A,12 | 21933.0 |
| Parameter 3 | 46,AC,57,6A | 22059.7 |
| Parameter 4 | 46,AB,3C,58 | 21918.2 |
| Parameter 5 | 46,A9,AD,9D | 21718.8 |
| CRC | BE,7C | |

The response to time datalog query contains data in following structure.

First two bytes are device address and function code, followed by number of bytes data of 1 byte and then date and a time data of 4 bytes each.

Then requested parameters are received in order that is specified in timelog parameters settings, each of 4 bytes.

The response ends with 2 bytes of CRC.

## 4.3 Load Profile Datalogging

This type of datalogging stores data on each day at time 00:00. The parameters stored in this log include all energies and maximum demands. This log stores data daily as well as monthly interval. Hence, daily and monthly energy consumption can be logged. Furthermore, maximum power demand and maximum current demand during each day and each month is also logged . This data can be used to study load behaviour over a period of time.

The daily data available to the user is maximum of one year interval and the monthly data for 14 years interval assuming the log requested is after the starting date (requesting data before the starting date will result in modbus exception message). 1 year after the starting date, the oldest logs of daily data are constantly replaced with latest logs. 14 years after the starting date, all the load profile logs for that channel are cleared and logging is started again.

This log can be selected or de-selected using memory location 46499, if it is selected, then energy, maximum demand will be logged. The starting date of this datalog is stored in read only memory location 46501.

The user can access different parameters in this log by sending queries using following addresses.

Note: Changing the meter date resets the load profile log.

TABLE 18: Addresses for Load Profile datalog access

| Parameter | Modbus Start Address Hex | |
|---|---|---|
| | High Byte | Low Byte |
| Daily Energy Datalog Download Addr | 01 | CC |
| Daily Maximum Demand Datalog Download Addr | 01 | CE |
| Monthly Energy Overflow count Datalog Download Addr | 01 | D0 |
| Monthly Energy Datalog Download Addr | 01 | D2 |
| Monthly Maximum Demand Datalog Download Addr | 01 | D4 |

**Note**: Total Monthly energy is combination of overflow count and main energy .

For Example: if overflow count = 2 and main energy is 345678 then total energyfor that month will be,
2x10^9 +345678= 2000345678.

TABLE 19: Parameter number for Energy datalog Load Profile

| Parameter number | Description | Energy Address (4X) |
|---|---|---|
| 01 | Tariff Energy Source 1 | 46395 |
| 02 | Tariff Energy Source 2 | 46397 |
| 03 | Tariff Energy Source 3 | 46399 |
| 04 | Tariff Energy Source 4 | 46401 |
| 05 | Tariff Energy Source 5 | 46403 |

TABLE 20: Parameter number for max. Power Demand datalog Load Profile

| Parameter number | Description |
|---|---|
| 01 | Imp watt Max demand |
| 02 | Exp watt Max demand |
| 03 | Capacitive VAr Max demand |
| 04 | Inductive VAr Max demand |
| 05 | Apparent Max demand |
| 06 | Current Max demand |

TABLE 21 : Parameter number for Energy overflow datalog Load Profile

| Parameter number | Description |
|---|---|
| 01 | Tariff Energy Source 1 Overflow Count |
| 02 | Tariff Energy Source 2 Overflow Count |
| 03 | Tariff Energy Source 3 Overflow Count |
| 04 | Tariff Energy Source 4 Overflow Count |
| 05 | Tariff Energy Source 5 Overflow Count |

## Query Format for Downloading the Load Profile Datalog

The query format for downloading an entry of a daily load profile log is given below. Maximum number of register the user can access in 1 query are limited by 40.

Query example:

| Description | Decimal Value | Hex Value |
|---|---|---|
| Dev Addr | 03 | 03 |
| Func Code | 16 | 10 |
| Start Addr Hi | | 01 |
| Start Addr Lo | | CC |
| No of Reg Hi | 00 | 00 |
| No of Reg Lo | 20 | 14 |
| Log Download Bytes | 40 | 28 |
| Parameter no | 03 | 03 |
| Date | 04 | 04 |
| Month | 11 | 0B |
| Year | 17 | 11 |
| CRC Lo | | AD |
| CRC Hi | | C3 |

Example: If a user wants to access daily energy load profile log of Capacitive VAr Energy for 10 days from 4 November 2017 to 13 November 2017, the query for this will be as following.

03,10,01,CC,00,14,28,03,04,0B,11,AD,C3

**03** is device address;
**10** is function code;
**01 CC** is the starting address for accessing the daily energy load profile log. (refer **TABLE 18**)
**00 14** is the number of registers to be accessed. This value will be double of the number of parameters requested.
**28** is the number of bytes requested in this query. This value will be 4 times the number of parameters requested.
**03** is the parameter number for Tariff Source 3 energy (see address 46399 of **TABLE 3**). (Also refer **TABLE 19**)
**04 0B 11** is the starting date of the log to be accessed.
**AD C3** is the CRC added at the end.
**Note**: **Energy is read in integer format.**

Response:

| Description | Hex | Decimal |
|---|---|---|
| Dev Addr | 03 | 03 |
| Func Code | 10 | 16 |
| Number of bytes | 28 | 40 |
| Value 1 (Nov 4) | 05,59,F1,C6 | 89780678 |
| Value 2 (Nov 5) | 05,59,F2,40 | 89780800 |
| Value 3 (Nov 6) | 05,59,F3,D0 | 89781200 |
| Value 4 (Nov 7) | 05,59,F4,98 | 89781400 |
| Value 5 (Nov 8) | 05,59,F5,60 | 89781600 |
| Value 6 (Nov 9) | 05,59,F6,28 | 89781800 |
| Value 7 (Nov 10) | 05,59,F6,F0 | 89782000 |
| Value 8 (Nov 11) | 05,59,F7,B8 | 89782200 |
| Value 9 (Nov 12) | 05,59,F8,80 | 89782400 |
| Value 10 (Nov 13) | 05,59,F9,48 | 89782600 |
| CRC | A9,2A | |

The response to the load profile query contains device address, function code and number of bytes data each of 1 byte, and then the requested parameters of 4 bytes each. Each parameter represents data over a period of a day when daily log is accessed and represents data over a period of a month when monthly log is accessed.
The response ends with 2 byte CRC.

Query example:

| Description | Decimal Value | Hex Value |
|---|---|---|
| Dev Addr | 03 | 03 |
| Func Code | 16 | 10 |
| Start Addr Hi | | 01 |
| Start Addr Lo | | CE |
| No of Reg Hi | 00 | 00 |
| No of Reg Lo | 20 | 14 |
| Log Download Bytes | 40 | 28 |
| Parameter no | 03 | 03 |
| Date | 04 | 04 |
| Month | 11 | 0B |
| Year | 17 | 11 |
| CRC Lo | | AD |
| CRC Hi | | C3 |

Example: If a user wants to access daily energy load profile log of Capacitive VAr max demand for 10 days from 4 November 2017 to 13 November 2017, the query for this will be as following.

03,10,01,CE,00,14,28,03,04,0B,11,AD,C3,00,14,28,03,04,0B,11,AD,C3

**03** is device address;
**10** is function code;
**01 CE** is the starting address for accessing the daily demand load profile log. (refer **TABLE 18**)
**00 14** is the number of registers to be accessed. This value will be double of the number of parameters requested.
**28** is the number of bytes requested in this query. This value will be 4 times the number of parameters requested.
**03** is the parameter number for Capacitive Var max demand data. (refer **TABLE 19**)
**04 0B 11** is the starting date of the log to be accessed.
**AD C3** is the CRC added at the end.

The load profile datalog access query consists of device address and function code followed by the starting address which is different for different parameters and mentioned in **TABLE 18.** Number of registers can vary in multiple of 2, but can not exceed 40 and corresponding to it, number of bytes can not exceed 80.
Parameter number decides the parameter within the log (eg. Capacitive VAr demand from the daily demand log.) Refer **TABLE 19** and **TABLE 20.**
Date, month and year decides the date from which the data is to be downloaded.
All data in the query is represented in hexadecimal format.
At the end 2 byte CRC is calculated.

**Note**: **Demand is read in float format.**

Response:

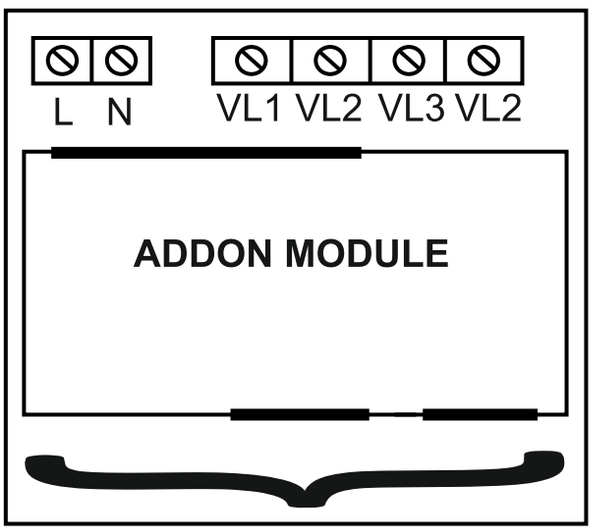
| Description | Hex | Decimal |
|---|---|---|
| Dev Addr | 03 | 03 |
| Func Code | 10 | 16 |
| Number of bytes | 28 | 40 |
| Value 1 (Nov 4) | 43,7A,99,99 | 250.6 |
| Value 2 (Nov 5) | 42,C9,66,66 | 100.7 |
| Value 3 (Nov 6) | 43,16,D4,7B | 150.38 |
| Value 4 (Nov 7) | 44,16,39,9A | 600.9 |
| Value 5 (Nov 8) | 42,97,CC,CD | 75.9 |
| Value 6 (Nov 9) | 43,1C,B3,33 | 156.7 |
| Value 7 (Nov 10) | 43,AF,19,9A | 350.2 |
| Value 8 (Nov 11) | 44,09,A6,66 | 550.6 |
| Value 9 (Nov 12) | 44,39,26,66 | 740.1 |
| Value 10 (Nov 13) | 44,07,6C,CC | 541.7 |
| CRC | A9,2A | |

The response to the load profile query contains device address, function code and number of bytes data each of 1 byte, and then the requested parameters of 4 bytes each. Each parameter represents data over a period of a day when daily log is accessed and represents data over a period of a month when monthly log is accessed.
The response ends with 2 byte CRC.

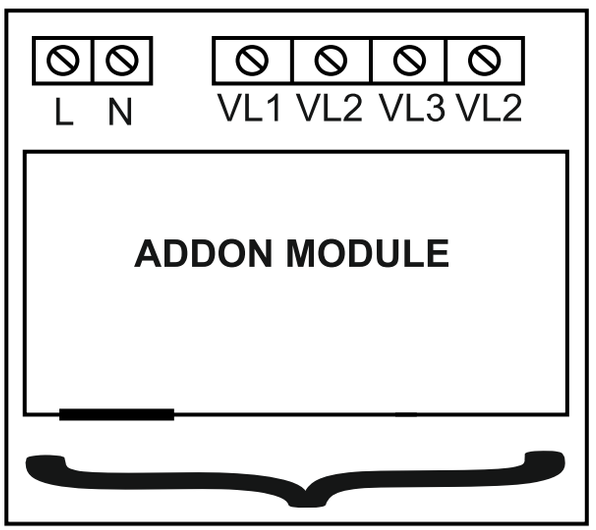
Note: Modbus exception occurs in the following cases :
1. If user tries to access the data before the datalog starting date.
2. For daily log, if user tries to access data other than that of the previous 12 months (present month included).
3. For monthly log, if user tries to access data other than the 14 years (datalog start year included) after datalog starting year.

## 5. Connection for Optional Pulse Output / Digital Input / RS 485 / Ethernet Module (rear view of Multifunction Meter):

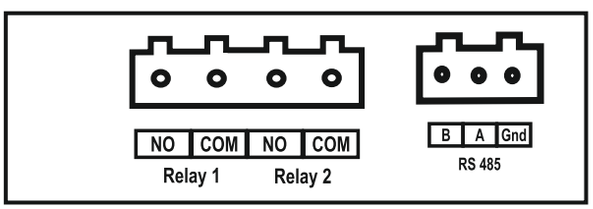
**Location of Modbus, 2 Relay & 4 Digital Inputs**




**Location of Ethernet**

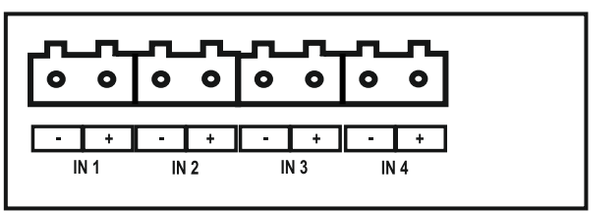



**1.Down Side**






**2.Up Side**






**NOTE**

The Information contained in these installation instructions is for use only by installers trained to make electrical power installations and is intended to describe the correct method of installation for this product. However, 'manufacturer' has no control over the field conditions which influence product installation.

It is the user's responsibility to determine the suitability of the installation method in the user's field conditions. 'manufacturer' only obligations are responsibility to determine the suitability of the installation method in the user's field conditions. 'manufacturer' only obligations are those in 'manufacturer' standard Conditions of Sale for this product and in no case will 'manufacturer' be liable for any other incidental, indirect or consequential damages arising from the use or misuse of the products.

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