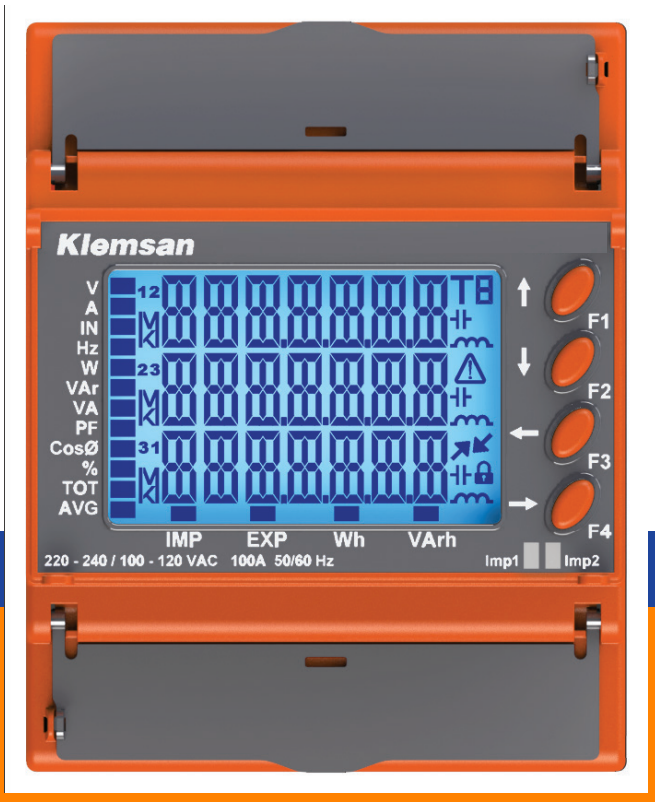
Klemsan

# EMD 4
## User Manual

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EMD 4

SECTION 1

# GENERAL INFORMATION

## 1.1 Device Features and Model Selection

Klemsan EMD 4 series devices are MID-approved energy meters that measure and record the basic electrical parameters necessary for monitoring a three-phase electrical system. Optionally, the devices offer:

- RS485 (Modbus RTU) communication
- Direct connection up to 100x3 Amps and CT connection
- Measurement of multiple electrical parameters in addition to kWh
- 4-quadrant energy measurement addresses
- 3 Main Tariffs
- Ability to store minimum, maximum, and demand values
- Operating time counter, on-time counter, and power interruption counter
- Digital Input
- Pulse Output
- THDV, THDI

| Stock Code | | | 606808 | 606809 | 606817 |
|---|---|---|---|---|---|
| Product Name | | | 5100-1M-V1CT | 5100-1M-V2CT | 5100-1Q-V2CT |
| Supply Type | | | 85-300V AC | 85-300V AC | 85-300V AC |
| Current Connection | | | CT Conn (10mA .. 6A AC) | CT Conn (10mA .. 6A AC) | CT Conn (10mA .. 6A AC) |
| Mounting Type | | | Rail Mount | Rail Mount | Rail Mount |
| Connection Type | | | 3P4W | 3P4W | 3P4W |
| MEASUREMENT | CLASS (62053-21) | | Class 0,5 | Class 0,5 | Class 0,5 |
| | Power Parameters | Active Power | √ | √ | √ |
| | | Reactive Power | √ | √ | √ |
| | | Apparent Power | √ | √ | √ |
| | Electrical Parameters | Current | √ | √ | √ |
| | | Voltage | √ | √ | √ |
| | | Frequency | √ | √ | √ |
| | Quality Parameters | Harmonics | up to 31st | up to 31st | up to 31st |
| | Demand Calculation | | √ | √ | √ |
| Alarm | | | √ | √ | √ |
| Communication | | Modbus RTU (RS485) | √ | √ | √ |
| Digital Inputs | | | - | 2 | 2 |
| Pulse Output | | | - | 2 | 2 |
| LED (Impulse) | | | - | 2 | 2 |
| Energy | | | Imp & Exp | Imp & Exp | Imp & Exp |
| 4Q Reactive Energy Measurement | | | - | - | √ |
| Partial Counter | | | - | - | - |
| Energy Balance | | | - | - | - |
| RTC | | | - | - | - |
| Tariffs | | | 1 | 3 | 3 |
| Protection Class | | | IP51 | IP51 | IP51 |

| Stock Code | | | 606810 | 606811 |
|---|---|---|---|---|
| Product Name | | | 5100-10-V1 | 5100-10-V2 |
| Supply Type | | | 85-300 V AC | 85-300 V AC |
| Current Connection | | | Direct Conn up to 100Amps | Direct Conn up to 100Amps |
| Mounting Type | | | Rail Mount | Rail Mount |
| Connection Type | | | 3P4W | 3P4W |
| MEASUREMENT | CLASS (62053-21) | | Class 0,5 | Class 0,5 |
| | Power Parameters | Active Power | √ | √ |
| | | Reactive Power | √ | √ |
| | | Apparent Power | √ | √ |
| | Electrical Parameters | Current | √ | √ |
| | | Voltage | √ | √ |
| | | Frequency | √ | √ |
| | Quality Parameters | Harmonics | up to 31st | up to 31st |
| | Demand Calculation | | √ | √ |
| Alarm | | | √ | √ |
| Communication | | Modbus RTU (RS485) | √ | √ |
| Digital Inputs | | | - | 2 |
| Pulse Output | | | - | 2 |
| LED (Impulse) | | | - | 2 |
| Energy | | | Imp & Exp | Imp & Exp |
| 4Q Reactive Energy Measurement | | | √ | √ |
| Partial Counter | | | - | - |
| Energy Balance | | | - | - |
| RTC | | | - | - |
| Tariffs | | | 1 | 3 |
| Protection Class | | | IP51 | IP51 |

SECTION 2

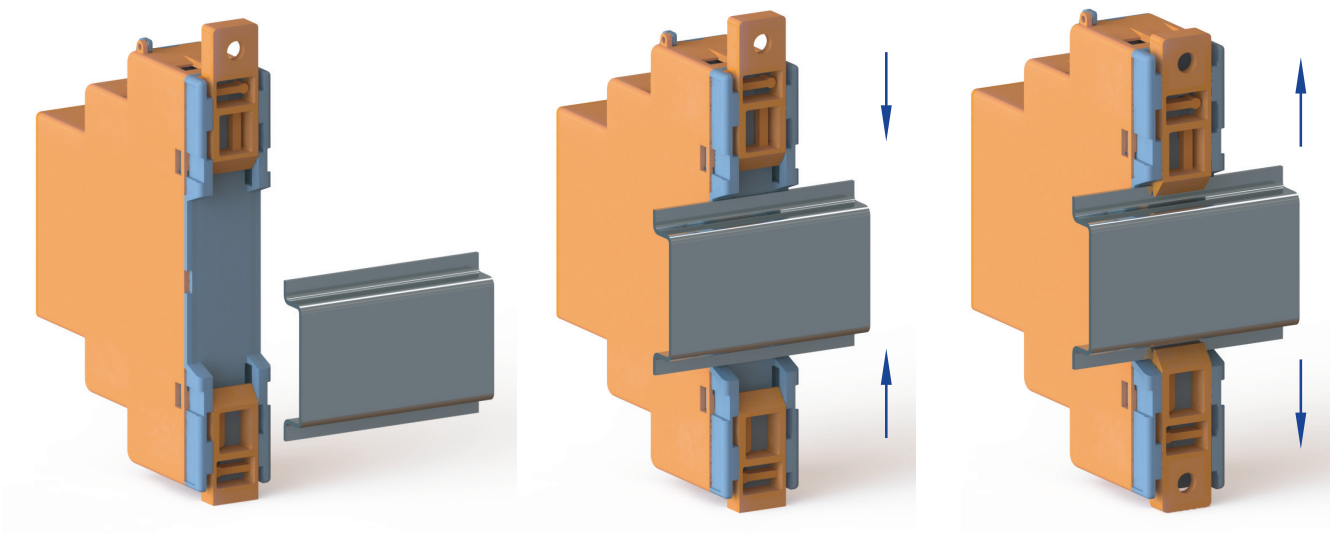
# INSTALLATION

## 2.1 Preparation for Installation

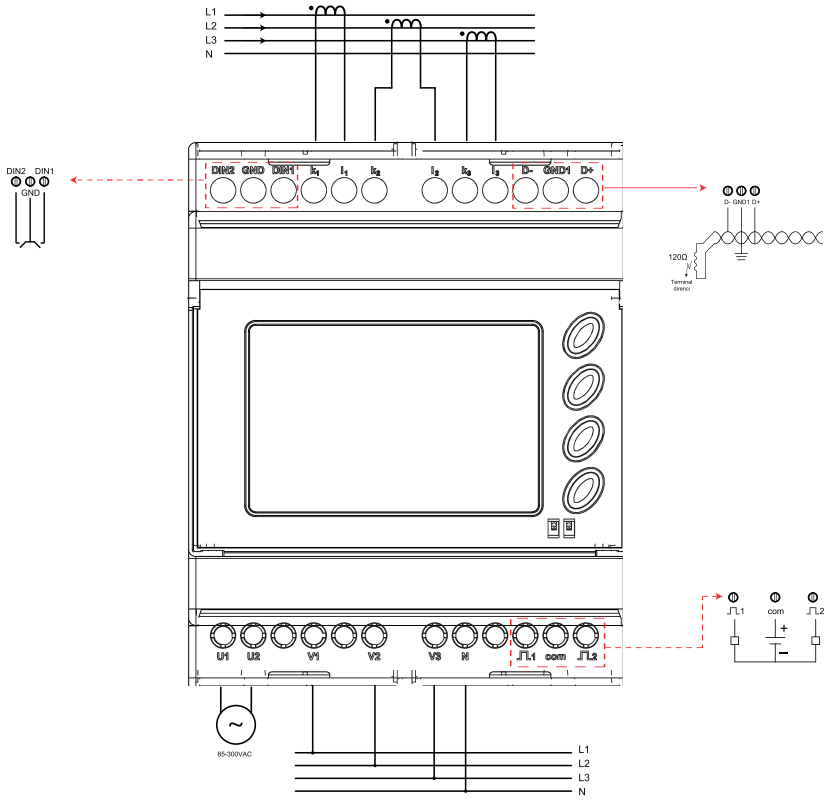
- Installation and connections of MED 4 series devices must be done under the instructions provided in the user manual by authorized personnel. The device should not be operated before connections are made correctly.
- Before connecting the device to the grid, ensure that the power is disconnected.
- Use a dry cloth to clean the device and remove dust. Do not use alcohol, thinner, or abrasive substances.
- The device should only be powered on after all connections have been made.
- Do not open the device. There are no parts inside that users can manipulate.
- Keep the device away from humid, wet, vibrating, and dusty environments.

**The manufacturer is not responsible for any unwanted situations arising from failure to implement the above precautions.**

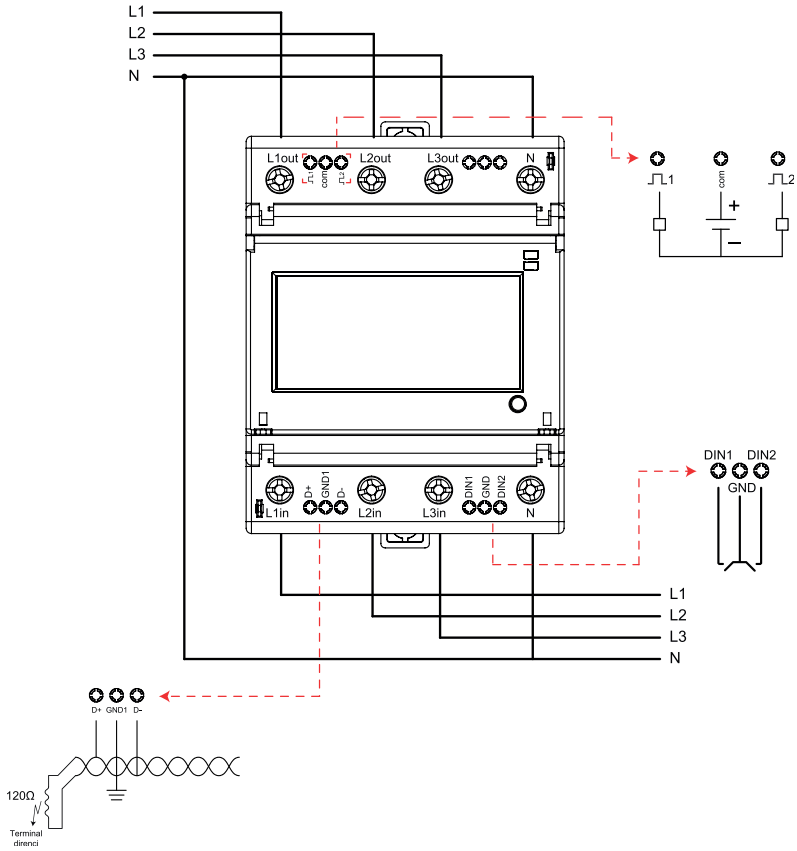
## 2.2 Mounting



## 2.3 Terminals and Wiring




The connection diagram above is general for transformer connection devices and may vary depending on the model.




The connection diagram above is general for direct connection devices and may vary depending on the model.

### 2.3.1 Devices with Current Transformer Connection

**L1 – L2 – L3 Inputs:** These are the phase inputs of the three-phase alternating voltage being measured.
**N Input:** This is the neutral input of the three-phase alternating voltage being measured.
**k1 – k2 – k3 Inputs:** These are the inputs for the three-phase alternating current being measured.
**l1 – l2 – l3 Inputs:** These are the outputs of the three-phase alternating current being measured.
**U1-U2 Inputs:** These terminals are used for supplying power to the device.

### 2.3.2 Devices with Direkt Bağlantılı Cihazlar

**L1in – L2in – L3in Inputs:** These are the inputs for the three phases being measured. The connection can be made for up to 100A for each phase.
**L1out – L2out – L3out Inputs:** These are the inputs for the three phases being measured.
**N Input:** This is the input for the neutral connection of the line.

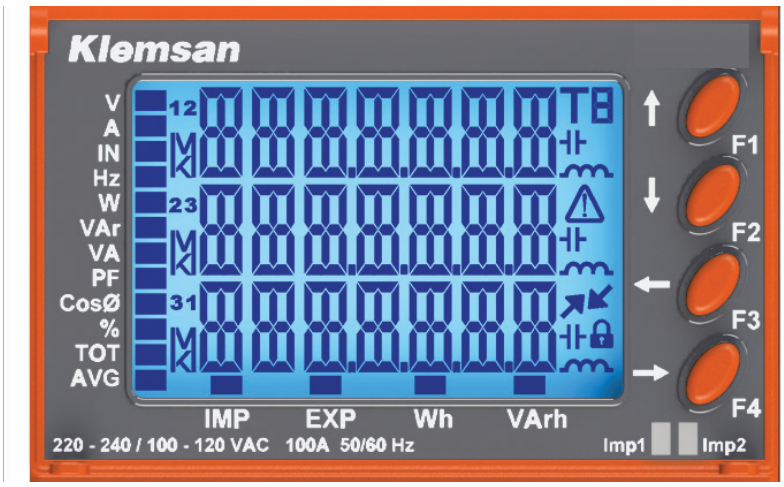
### 2.3.3 Common Connections

**Pulse 1 Out (⎍1):** This is the output terminal for the DC voltage applied to the"com" terminal when digital output 1 is active. Pulse 1 output is adjustable and provides 500 impulses (500 imp/kWh) for each kWh measured by default. Pulse duration is 60 ms.

**Pulse 2 Out (⎍2):** This is the output terminal for the DC voltage applied to the "com" terminal when digital output 2 is active. Pulse 2 output is adjustable and provides 500 impulses (500 imp/kVArh) for each kVArh measured by default. Pulse duration is 60 ms.

**com:** This is the terminal where the positive end of the DC voltage for digital switching will be connected (common).
**D+:** This is the data+ input of the RS-485 interface.
**GND1:** This is the input where the ground connection of the RS-485 interface is made
**D-:** This is the data- input of the RS-485 interface.
**DIN1 – GND – DIN2:** Desired digital input will be active when making short-circuited with GND.

## 2.4 Icons and LED Indications




An icon indicating a screen where adjustments are not allowed.

Communication status indicator. A downward arrow indicates that the query has been sent to the device, while an upward arrow indicates data transmission from the device.

Indicates an error condition of the device.
Only exclamation mark: Current direction is reversed.
Only triangle frame: Phase sequence.
Exclamation mark + Frame: Pulse Error.

SECTION 3

# RS485 COMMUNICATION

The devices optionally feature an RS485 interface, which communicates using the Modbus RTU protocol. The following functions are supported:

**03H function:** This function is used to read the readable addresses in the Modbus table.
**10H function:** This function is used to write to the writable addresses in the Modbus table.

**Definitions:**
**R / W:** The value at this address can be read and written.
**RO:** The value at this address can only be read.
**WO:** Writing can only be done to this address.
**float:** 32 bit float.
**double:** 64 bit double.

| 3 Phase Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 0 | Average Phase Neutral | float | RO | 03H | V | |
| 2 | Total Current | float | RO | 03H | A | |
| 4 | Total Active Power | float | RO | 03H | W | |
| 6 | Total Reactive Power | float | RO | 03H | VAr | |
| 8 | Total Apparent Power | float | RO | 03H | VA | |
| 10 | System Power Factor | float | RO | 03H | - | |
| 12 | Frequency | float | RO | 03H | Hz | |
| 14 | Neutral Current | float | RO | 03H | A | |
| 16 | Phase-to-Phase Voltage V12 | float | RO | 03H | V | |
| 18 | Phase-to-Phase Voltage V23 | float | RO | 03H | V | |
| 20 | Phase-to-Phase Voltage V31 | float | RO | 03H | V | |
| 22 | Average Phase to Phase Voltage | float | RO | 03H | V | |
| 24 | Phase Sequence | int32t | RO | 03H | - | |

| Phase Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 100 | Phase 1 Voltage | float | RO | 03H | V | |
| 102 | Phase 2 Voltage | float | RO | 03H | V | |
| 104 | Phase 3 Voltage | float | RO | 03H | V | |
| 106 | Phase 1 Current | float | RO | 03H | A | |
| 108 | Phase 2 Current | float | RO | 03H | A | |
| 110 | Phase 3 Current | float | RO | 03H | A | |
| 112 | Phase 1 Active Power | float | RO | 03H | W | |
| 114 | Phase 2 Active Power | float | RO | 03H | W | |
| 116 | Phase 3 Active Power | float | RO | 03H | W | |
| 118 | Phase 1 Reactive Power | float | RO | 03H | VAr | |
| 120 | Phase 2 Reactive Power | float | RO | 03H | VAr | |
| 122 | Phase 3 Reactive Power | float | RO | 03H | VAr | |
| 124 | Phase 1 Apparent Power | float | RO | 03H | VA | |
| 126 | Phase 2 Apparent Power | float | RO | 03H | VA | |
| 128 | Phase 3 Apparent Power | float | RO | 03H | VA | |
| 130 | Phase 1 Power Factor | float | RO | 03H | - | |
| 132 | Phase 2 Power Factor | float | RO | 03H | - | |
| 134 | Phase 3 Power Factor | float | RO | 03H | - | |
| 136 | Phase 1 Cos Ø | float | RO | 03H | - | |
| 138 | Phase 2 Cos Ø | float | RO | 03H | - | |
| 140 | Phase 3 Cos Ø | float | RO | 03H | - | |

| THD Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 500 | Phase 1 THDV | float | RO | 03H | % | |
| 502 | Phase 2 THDV | float | RO | 03H | % | |
| 504 | Phase 3 THDV | float | RO | 03H | % | |
| 506 | Phase 1 THDI | float | RO | 03H | % | |
| 508 | Phase 2 THDI | float | RO | 03H | % | |
| 510 | Phase 3 THDI | float | RO | 03H | % | |

| Harmonic Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 600 | V Harmonic 1 Ph 1 | float | RO | 03H | % | |
| 602 | V Harmonic 3 Ph 1 | float | RO | 03H | % | |
| 604 | V Harmonic 5 Ph 1 | float | RO | 03H | % | |
| 606 | V Harmonic 7 Ph 1 | float | RO | 03H | % | |
| 608 | V Harmonic 9 Ph 1 | float | RO | 03H | % | |
| 610 | V Harmonic 11 Ph 1 | float | RO | 03H | % | |
| 612 | V Harmonic 13 Ph 1 | float | RO | 03H | % | |
| 614 | V Harmonic 15 Ph 1 | float | RO | 03H | % | |
| 616 | V Harmonic 17 Ph 1 | float | RO | 03H | % | |
| 618 | V Harmonic 19 Ph 1 | float | RO | 03H | % | |
| 620 | V Harmonic 21 Ph 1 | float | RO | 03H | % | |
| 622 | V Harmonic 23 Ph 1 | float | RO | 03H | % | |
| 624 | V Harmonic 25 Ph 1 | float | RO | 03H | % | |
| 626 | V Harmonic 27 Ph 1 | float | RO | 03H | % | |
| 628 | V Harmonic 29 Ph 1 | float | RO | 03H | % | |
| 630 | V Harmonic 31 Ph 1 | float | RO | 03H | % | |
| 632 | V Harmonic 1 Ph 2 | float | RO | 03H | % | |
| 634 | V Harmonic 3 Ph 2 | float | RO | 03H | % | |
| 636 | V Harmonic 5 Ph 2 | float | RO | 03H | % | |
| 638 | V Harmonic 7 Ph 2 | float | RO | 03H | % | |
| 640 | V Harmonic 9 Ph 2 | float | RO | 03H | % | |
| 642 | V Harmonic 11 Ph 2 | float | RO | 03H | % | |
| 644 | V Harmonic 13 Ph 2 | float | RO | 03H | % | |
| 646 | V Harmonic 15 Ph 2 | float | RO | 03H | % | |
| 648 | V Harmonic 17 Ph 2 | float | RO | 03H | % | |
| 650 | V Harmonic 19 Ph 2 | float | RO | 03H | % | |
| 652 | V Harmonic 21 Ph 2 | float | RO | 03H | % | |
| 654 | V Harmonic 23 Ph 2 | float | RO | 03H | % | |
| 656 | V Harmonic 25 Ph 2 | float | RO | 03H | % | |
| 658 | V Harmonic 27 Ph 2 | float | RO | 03H | % | |
| 660 | V Harmonic 29 Ph 2 | float | RO | 03H | % | |
| 662 | V Harmonic 31 Ph 2 | float | RO | 03H | % | |
| 664 | V Harmonic 1 Ph 3 | float | RO | 03H | % | |
| 666 | V Harmonic 3 Ph 3 | float | RO | 03H | % | |
| 668 | V Harmonic 5 Ph 3 | float | RO | 03H | % | |
| 670 | V Harmonic 7 Ph 3 | float | RO | 03H | % | |
| 672 | V Harmonic 9 Ph 3 | float | RO | 03H | % | |
| 674 | V Harmonic 11 Ph 3 | float | RO | 03H | % | |

| Harmonic Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Data Type | Description | Default |
| 676 | V Harmonic 13 Ph 3 | float | RO | 03H | % | |
| 678 | V Harmonic 15 Ph 3 | float | RO | 03H | % | |
| 680 | V Harmonic 17 Ph 3 | float | RO | 03H | % | |
| 682 | V Harmonic 19 Ph 3 | float | RO | 03H | % | |
| 684 | V Harmonic 21 Ph 3 | float | RO | 03H | % | |
| 686 | V Harmonic 23 Ph 3 | float | RO | 03H | % | |
| 688 | V Harmonic 25 Ph 3 | float | RO | 03H | % | |
| 690 | V Harmonic 27 Ph 3 | float | RO | 03H | % | |
| 692 | V Harmonic 29 Ph 3 | float | RO | 03H | % | |
| 694 | V Harmonic 31 Ph 3 | float | RO | 03H | % | |
| 696 | I Harmonic 1 Ph 1 | float | RO | 03H | % | |
| 698 | I Harmonic 3 Ph 1 | float | RO | 03H | % | |
| 700 | I Harmonic 5 Ph 1 | float | RO | 03H | % | |
| 702 | I Harmonic 7 Ph 1 | float | RO | 03H | % | |
| 704 | I Harmonic 9 Ph 1 | float | RO | 03H | % | |
| 706 | I Harmonic 11 Ph 1 | float | RO | 03H | % | |
| 708 | I Harmonic 13 Ph 1 | float | RO | 03H | % | |
| 710 | I Harmonic 15 Ph 1 | float | RO | 03H | % | |
| 712 | I Harmonic 17 Ph 1 | float | RO | 03H | % | |
| 714 | I Harmonic 19 Ph 1 | float | RO | 03H | % | |
| 716 | I Harmonic 21 Ph 1 | float | RO | 03H | % | |
| 718 | I Harmonic 23 Ph 1 | float | RO | 03H | % | |
| 720 | I Harmonic 25 Ph 1 | float | RO | 03H | % | |
| 722 | I Harmonic 27 Ph 1 | float | RO | 03H | % | |
| 724 | I Harmonic 29 Ph 1 | float | RO | 03H | % | |
| 726 | I Harmonic 31 Ph 1 | float | RO | 03H | % | |
| 728 | I Harmonic 1 Ph 2 | float | RO | 03H | % | |
| 730 | I Harmonic 3 Ph 2 | float | RO | 03H | % | |
| 732 | I Harmonic 5 Ph 2 | float | RO | 03H | % | |
| 734 | I Harmonic 7 Ph 2 | float | RO | 03H | % | |
| 736 | I Harmonic 9 Ph 2 | float | RO | 03H | % | |
| 738 | I Harmonic 11 Ph 2 | float | RO | 03H | % | |
| 740 | I Harmonic 13 Ph 2 | float | RO | 03H | % | |
| 742 | I Harmonic 15 Ph 2 | float | RO | 03H | % | |
| 744 | I Harmonic 17 Ph 2 | float | RO | 03H | % | |
| 746 | I Harmonic 19 Ph 2 | float | RO | 03H | % | |
| 748 | I Harmonic 21 Ph 2 | float | RO | 03H | % | |
| 750 | I Harmonic 23 Ph 2 | float | RO | 03H | % | |
| 752 | I Harmonic 25 Ph 2 | float | RO | 03H | % | |
| 754 | I Harmonic 27 Ph 2 | float | RO | 03H | % | |
| 756 | I Harmonic 29 Ph 2 | float | RO | 03H | % | |
| 758 | I Harmonic 31 Ph 2 | float | RO | 03H | % | |
| 760 | I Harmonic 1 Ph 3 | float | RO | 03H | % | |
| 762 | I Harmonic 3 Ph 3 | float | RO | 03H | % | |
| 764 | I Harmonic 5 Ph 3 | float | RO | 03H | % | |
| 766 | I Harmonic 7 Ph 3 | float | RO | 03H | % | |

| Harmonic Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 768 | I Harmonic 9 Ph 3 | float | RO | 03H | % | |
| 770 | I Harmonic 11 Ph 3 | float | RO | 03H | % | |
| 772 | I Harmonic 13 Ph 3 | float | RO | 03H | % | |
| 774 | I Harmonic 15 Ph 3 | float | RO | 03H | % | |
| 776 | I Harmonic 17 Ph 3 | float | RO | 03H | % | |
| 778 | I Harmonic 19 Ph 3 | float | RO | 03H | % | |
| 780 | I Harmonic 21 Ph 3 | float | RO | 03H | % | |
| 782 | I Harmonic 23 Ph 3 | float | RO | 03H | % | |
| 784 | I Harmonic 25 Ph 3 | float | RO | 03H | % | |
| 786 | I Harmonic 27 Ph 3 | float | RO | 03H | % | |
| 788 | I Harmonic 29 Ph 3 | float | RO | 03H | % | |
| 790 | I Harmonic 31 Ph 3 | float | RO | 03H | % | |

| Energy Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 1000 | Total Import Active Energy | double | RO | 03H | Wh | |
| 1004 | Total Ph. 1 Import Active Energy | double | RO | 03H | Wh | |
| 1008 | Total Ph. 2 Import Active Energy | double | RO | 03H | Wh | |
| 1012 | Total Ph. 3 Import Active Energy | double | RO | 03H | Wh | |
| 1016 | Total Export Active Energy | double | RO | 03H | Wh | |
| 1020 | Total Ph. 1 Export Active Energy | double | RO | 03H | Wh | |
| 1024 | Total Ph. 2 Export Active Energy | double | RO | 03H | Wh | |
| 1028 | Total Ph. 3 Export Active Energy | double | RO | 03H | Wh | |
| 1032 | Total Import Reactive Energy | double | RO | 03H | VArh | |
| 1036 | Total Ph. 1 Import Reactive Energy | double | RO | 03H | VArh | |
| 1040 | Total Ph. 2 Import Reactive Energy | double | RO | 03H | VArh | |
| 1044 | Total Ph. 3 Import Reactive Energy | double | RO | 03H | VArh | |
| 1048 | Total Export Reactive Energy | double | RO | 03H | VArh | |
| 1052 | Total Ph. 1 Export Reactive Energy | double | RO | 03H | VArh | |
| 1056 | Total Ph. 2 Export Reactive Energy | double | RO | 03H | VArh | |
| 1060 | Total Ph. 3 Export Reactive Energy | double | RO | 03H | VArh | |
| 1064 | Total T1 Import Active Energy | double | RO | 03H | Wh | |
| 1068 | Ph. 1 T1 Import Active Energy | double | RO | 03H | Wh | |
| 1072 | Ph. 2 T1 Import Active Energy | double | RO | 03H | Wh | |
| 1076 | Ph. 3 T1 Import Active Energy | double | RO | 03H | Wh | |
| 1080 | Total T1 Export Active Energy | double | RO | 03H | Wh | |
| 1084 | Ph. 1 T1 Export Active Energy | double | RO | 03H | Wh | |
| 1088 | Ph. 2 T1 Export Active Energy | double | RO | 03H | Wh | |
| 1092 | Ph. 3 T1 Export Active Energy | double | RO | 03H | Wh | |
| 1096 | Total T1 Import Reactive Energy | double | RO | 03H | VArh | |
| 1100 | Ph. 1 T1 Import Reactive Energy | double | RO | 03H | VArh | |
| 1104 | Ph. 2 T1 Import Reactive Energy | double | RO | 03H | VArh | |
| 1108 | Ph. 3 T1 Import Reactive Energy | double | RO | 03H | VArh | |
| 1112 | Total T1 Export Reactive Energy | double | RO | 03H | VArh | |
| 1116 | Ph. 1 T1 Export Reactive Energy | double | RO | 03H | VArh | |
| 1120 | Ph. 2 T1 Export Reactive Energy | double | RO | 03H | VArh | |
| 1124 | Ph. 3 T1 Export Reactive Energy | double | RO | 03H | VArh | |
| 1128 | Total T2 Import Active Energy | double | RO | 03H | Wh | |
| 1132 | Ph. 1 T2 Import Active Energy | double | RO | 03H | Wh | |
| 1136 | Ph. 2 T2 Import Active Energy | double | RO | 03H | Wh | |
| 1140 | Ph. 3 T2 Import Active Energy | double | RO | 03H | Wh | |
| 1144 | Total T2 Export Active Energy | double | RO | 03H | Wh | |
| 1148 | Ph. 1 T2 Export Active Energy | double | RO | 03H | Wh | |

| Energy Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 1152 | Ph. 2 T2 Export Active Energy | double | RO | 03H | Wh | |
| 1156 | Ph. 3 T2 Export Active Energy | double | RO | 03H | Wh | |
| 1160 | Total T2 Import Reactive Energy | double | RO | 03H | VArh | |
| 1164 | Ph. 1 T2 Import Reactive Energy | double | RO | 03H | VArh | |
| 1168 | Ph. 2 T2 Import Reactive Energy | double | RO | 03H | VArh | |
| 1172 | Ph. 3 T2 Import Reactive Energy | double | RO | 03H | VArh | |
| 1176 | Total T2 Export Reactive Energy | double | RO | 03H | VArh | |
| 1180 | Ph. 1 T2 Export Reactive Energy | double | RO | 03H | VArh | |
| 1184 | Ph. 2 T2 Export Reactive Energy | double | RO | 03H | VArh | |
| 1188 | Ph. 3 T2 Export Reactive Energy | double | RO | 03H | VArh | |
| 1192 | Total T3 Import Active Energy | double | RO | 03H | Wh | |
| 1196 | Ph. 1 T3 Import Active Energy | double | RO | 03H | Wh | |
| 1200 | Ph. 2 T3 Import Active Energy | double | RO | 03H | Wh | |
| 1204 | Ph. 3 T3 Import Active Energy | double | RO | 03H | Wh | |
| 1208 | Total T3 Export Active Energy | double | RO | 03H | Wh | |
| 1212 | Ph. 1 T3 Export Active Energy | double | RO | 03H | Wh | |
| 1216 | Ph. 2 T3 Export Active Energy | double | RO | 03H | Wh | |
| 1220 | Ph. 3 T3 Export Active Energy | double | RO | 03H | Wh | |
| 1224 | Total T3 Import Reactive Energy | double | RO | 03H | VArh | |
| 1228 | Ph. 1 T3 Import Reactive Energy | double | RO | 03H | VArh | |
| 1232 | Ph. 2 T3 Import Reactive Energy | double | RO | 03H | VArh | |
| 1236 | Ph. 3 T3 Import Reactive Energy | double | RO | 03H | VArh | |
| 1240 | Total T3 Export Reactive Energy | double | RO | 03H | VArh | |
| 1244 | Ph. 1 T3 Export Reactive Energy | double | RO | 03H | VArh | |
| 1248 | Ph. 2 T3 Export Reactive Energy | double | RO | 03H | VArh | |
| 1252 | Ph. 3 T3 Export Reactive Energy | double | RO | 03H | VArh | |

| Demand Values | | | | | | |
|---|---|---|---|---|---|---|
| **Address** | **Parameters** | **Data Type** | **W/R** | **Function** | **Description** | **Default** |
| 3000 | PD* Phase 1 Current | float | RO | 03H | A | |
| 3002 | PD* Phase 2 Current | float | RO | 03H | A | |
| 3004 | PD* Phase 3 Current | float | RO | 03H | A | |
| 3006 | PD* Total Current | float | RO | 03H | - | |
| 3008 | PD* Total Import Active Power | float | RO | 03H | W | |
| 3010 | PD* Total Export Active Power | float | RO | 03H | W | |
| 3012 | PD* Total Import Reactive Power | float | RO | 03H | VAr | |
| 3014 | PD* Total Export Reactive Power | float | RO | 03H | VAr | |
| 3016 | PD* Total Apparent Power | float | RO | 03H | VA | |
| 3018 | MD** Phase 1 Current | float | RO | 03H | A | |
| 3020 | MD** Phase 2 Current | float | RO | 03H | A | |
| 3022 | MD** Phase 3 Current | float | RO | 03H | A | |
| 3024 | MD** Total Current | float | RO | 03H | - | |
| 3026 | MD** Total Import Active Power | float | RO | 03H | W | |
| 3028 | MD** Total Export Active Power | float | RO | 03H | W | |
| 3030 | MD** Total Import Reactive Power | float | RO | 03H | VAr | |
| 3032 | MD** Total Export Reactive Power | float | RO | 03H | VAr | |
| 3034 | MD** Total Apparent Power | float | RO | 03H | VA | |

| Min - Max Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Data Type | Description | Default |
| 4000 | Min Ph. 1 Voltage | float | RO | 03H | V | |
| 4002 | Min Ph. 2 Voltage | float | RO | 03H | V | |
| 4004 | Min Ph. 3 Voltage | float | RO | 03H | V | |
| 4006 | Min Ph. 1-2 Voltage | float | RO | 03H | V | |
| 4008 | Min Ph. 2-3 Voltage | float | RO | 03H | V | |
| 4010 | Min Ph. 3-1 Voltage | float | RO | 03H | V | |
| 4012 | Min Ph. 1 Current | float | RO | 03H | A | |
| 4014 | Min Ph. 2 Current | float | RO | 03H | % | |
| 4016 | Min Ph. 3 Current | float | RO | 03H | % | |
| 4018 | Min Ph. 1 Import Active Power | float | RO | 03H | W | |
| 4020 | Min Ph. 2 Import Active Power | float | RO | 03H | W | |
| 4022 | Min Ph. 3 Import Active Power | float | RO | 03H | W | |
| 4024 | Min Ph. 1 Export Active Power | float | RO | 03H | W | |
| 4026 | Min Ph. 2 Export Active Power | float | RO | 03H | W | |
| 4028 | Min Ph. 3 Export Active Power | float | RO | 03H | W | |
| 4030 | Min Ph. 1 Import Reactive Power | float | RO | 03H | VAr | |
| 4032 | Min Ph. 2 Import Reactive Power | float | RO | 03H | VAr | |
| 4034 | Min Ph. 3 Import Reactive Power | float | RO | 03H | VAr | |
| 4036 | Min Ph. 1 Export Reactive Power | float | RO | 03H | VAr | |
| 4038 | Min Ph. 2 Export Reactive Power | float | RO | 03H | VAr | |
| 4040 | Min Ph. 3 Export Reactive Power | float | RO | 03H | VAr | |
| 4042 | Min Ph. 1 Apparent Power | float | RO | 03H | VA | |
| 4044 | Min Ph. 2 Apparent Power | float | RO | 03H | VA | |
| 4046 | Min Ph. 3 Apparent Power | float | RO | 03H | VA | |
| 4048 | Min Ph. 1 Inductive Power Factor | float | RO | 03H | | |
| 4050 | Min Ph. 2 Inductive Power Factor | float | RO | 03H | | |
| 4052 | Min Ph. 3 Inductive Power Factor | float | RO | 03H | | |
| 4054 | Min Ph. 1 Capasitive Power Factor | float | RO | 03H | | |
| 4056 | Min Ph. 2 Capasitive Power Factor | float | RO | 03H | | |
| 4058 | Min Ph. 3 Capasitive Power Factor | float | RO | 03H | | |
| 4060 | Min Ortalama Ph.-Neutral Voltage | float | RO | 03H | V | |
| 4062 | Min Ortalama Ph.-Ph. Voltage | float | RO | 03H | V | |
| 4064 | Min Total Current | float | RO | 03H | A | |
| 4066 | Min Total Import Active Power | float | RO | 03H | W | |
| 4068 | Min Total Export Active Power | float | RO | 03H | W | |
| 4070 | Min Total Import Reactive Power | float | RO | 03H | VAr | |
| 4072 | Min Total Export Reactive Power | float | RO | 03H | VAr | |
| 4074 | Min Total Apparent Power | float | RO | 03H | VA | |
| 4076 | Min Total Inductive Power Factor | float | RO | 03H | | |
| 4078 | Min Total Capasitive Power Factor | float | RO | 03H | | |
| 4080 | Min Frequency | float | RO | 03H | Hz | |
| 4082 | Max Ph. 1 Voltage | float | RO | 03H | V | |
| 4084 | Max Ph. 2 Voltage | float | RO | 03H | V | |
| 4086 | Max Ph. 3 Voltage | float | RO | 03H | V | |
| 4088 | Max Ph. 1-2 Voltage | float | RO | 03H | V | |
| 4090 | Max Ph. 2-3 Voltage | float | RO | 03H | V | |

| Min - Max Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Data Type | Description | Default |
| 4092 | Max Ph. 3-1 Voltage | float | RO | 03H | V | |
| 4094 | Max Ph. 1 Current | float | RO | 03H | A | |
| 4096 | Max Ph. 2 Current | float | RO | 03H | A | |
| 4098 | Max Ph. 3 Current | float | RO | 03H | A | |
| 4100 | Max Ph. 1 Import Active Power | float | RO | 03H | W | |
| 4102 | Max Ph. 2 Import Active Power | float | RO | 03H | W | |
| 4104 | Max Ph. 3 Import Active Power | float | RO | 03H | W | |
| 4106 | Max Ph. 1 Export Active Power | float | RO | 03H | W | |
| 4108 | Max Ph. 2 Export Active Power | float | RO | 03H | W | |
| 4110 | Max Ph. 3 Export Active Power | float | RO | 03H | W | |
| 4112 | Max Ph. 1 Import Reactive Power | float | RO | 03H | VAr | |
| 4114 | Max Ph. 2 Import Reactive Power | float | RO | 03H | VAr | |
| 4116 | Max Ph. 3 Import Reactive Power | float | RO | 03H | VAr | |
| 4118 | Max Ph. 1 Export Reactive Power | float | RO | 03H | VAr | |
| 4120 | Max Ph. 2 Export Reactive Power | float | RO | 03H | VAr | |
| 4122 | Max Ph. 3 Export Reactive Power | float | RO | 03H | VAr | |
| 4124 | Max Ph. 1 Apparent Power | float | RO | 03H | VA | |
| 4126 | Max Ph. 2 Apparent Power | float | RO | 03H | VA | |
| 4128 | Max Ph. 3 Apparent Power | float | RO | 03H | VA | |
| 4130 | Max Ph. 1 Inductive Power Factor | float | RO | 03H | | |
| 4132 | Max Ph. 2 Inductive Power Factor | float | RO | 03H | | |
| 4134 | Max Ph. 3 Inductive Power Factor | float | RO | 03H | | |
| 4136 | Max Ph. 1 Capasitive Power Factor | float | RO | 03H | | |
| 4138 | Max Ph. 2 Capasitive Power Factor | float | RO | 03H | | |
| 4140 | Max Ph. 3 Capasitive Power Factor | float | RO | 03H | | |
| 4142 | Max Ph.-Neutral Voltage | float | RO | 03H | V | |
| 4144 | Max Ph.-Ph. Voltage | float | RO | 03H | V | |
| 4146 | Max Total Current | float | RO | 03H | A | |
| 4148 | Max Total Import Active Power | float | RO | 03H | W | |
| 4150 | Max Total Export Active Power | float | RO | 03H | W | |
| 4152 | Max Total Import Reactive Power | float | RO | 03H | VAr | |
| 4154 | Max Total Export Reactive Power | float | RO | 03H | VAr | |
| 4156 | Max Total Apparent Power | float | RO | 03H | VA | |
| 4158 | Max Total Inductive Power Factor | float | RO | 03H | | |
| 4160 | Max Total Capasitive Power Factor | float | RO | 03H | | |
| 4162 | Max Frequency | float | RO | 03H | Hz | |

| Digital Input Counters | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 5000 | Digital Input 1 Counter | uint32_t | RO | 03H | - | |
| 5002 | Digital Input 1 On Time | uint32_t | RO | 03H | hour | |
| 5004 | Digital Input 2 Counter | uint32_t | RO | 03H | - | |
| 5006 | Digital Input 2 On Time | uint32_t | RO | 03H | hour | |

| General Counters | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 6000 | On Hour Counter | uint32_t | RO | 03H | hour | |
| 6002 | Run Hour Counter | uint32_t | RO | 03H | hour | |
| 6004 | Power Interruption Counter | uint32_t | RO | 03H | - | |

| Unbalance Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 7000 | Voltage Unbalance | float | RO | 03H | % | |
| 7002 | Current Unbalance | float | RO | 03H | % | |

| 4Q Reactive Energy Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 8000 | Total Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8004 | Total Ph. 1 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8008 | Total Ph. 2 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8012 | Total Ph. 3 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8016 | Total Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8020 | Total Ph. 1 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8024 | Total Ph. 2 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8028 | Total Ph. 2 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8032 | Total Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8036 | Total Ph. 1 Q3 Reactive Energy | double | RO | 03H | VArh | |

| 4Q Reactive Energy Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 8040 | Total Ph. 2 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8044 | Total Ph. 2 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8048 | Total Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8052 | Total Ph. 1 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8056 | Total Ph. 2 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8060 | Total Ph. 3 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8064 | T1 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8068 | T1 Ph. 1 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8072 | T1 Ph. 2 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8076 | T1 Ph. 3 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8080 | T1 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8084 | T1 Ph. 1 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8088 | T1 Ph. 2 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8092 | T1 Ph. 3 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8096 | T1 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8100 | T1 Ph. 1 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8104 | T1 Ph. 2 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8108 | T1 Ph. 3 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8112 | T1 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8116 | T1 Ph. 1 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8120 | T1 Ph. 2 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8124 | T1 Ph. 3 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8128 | T2 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8132 | T2 Ph. 1 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8136 | T2 Ph. 2 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8140 | T2 Ph. 3 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8144 | T2 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8148 | T2 Ph. 1 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8152 | T2 Ph. 2 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8156 | T2 Ph. 3 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8160 | T2 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8164 | T2 Ph. 1 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8168 | T2 Ph. 2 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8172 | T2 Ph. 3 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8176 | T2 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8180 | T2 Ph. 1 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8184 | T2 Ph. 2 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8188 | T2 Ph. 3 Q4 Reactive Energy | double | RO | 03H | VArh | |

| 4Q Reactive Energy Values | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 8192 | T3 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8196 | T3 Ph. 1 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8200 | T3 Ph. 2 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8204 | T3 Ph. 3 Q1 Reactive Energy | double | RO | 03H | VArh | |
| 8208 | T3 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8212 | T3 Ph. 1 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8216 | T3 Ph. 2 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8220 | T3 Ph. 3 Q2 Reactive Energy | double | RO | 03H | VArh | |
| 8224 | T3 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8228 | T3 Ph. 1 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8232 | T3 Ph. 2 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8236 | T3 Ph. 3 Q3 Reactive Energy | double | RO | 03H | VArh | |
| 8240 | T3 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8244 | T3 Ph. 1 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8248 | T3 Ph. 2 Q4 Reactive Energy | double | RO | 03H | VArh | |
| 8252 | T3 Ph. 2 Q4 Reactive Energy | double | RO | 03H | VArh | |

| Configuration Activation | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 15000 | Device Password | uint32_t | W | 10H | 1 - 999999 | 1 - 999999 |

**To configure settings via communication, the device password must be entered first. Subsequently, other parameter settings can be adjusted**

| Serial Communication Configuration | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 10000 | Slave ID | uint32_t | R/W | 03H/10H | 01/01/47 | 1 |
| 10002 | Baudrate | uint32_t | R/W | 03H/10H | 0 - 1200<br>01/01/00<br>01/02/00<br>01/03/00<br>4 - 19200<br>5 - 38400<br>6 - 57600 | 5 |
| 10004 | Parity | uint32_t | R/W | 03H/10H | 0 - None<br>1 - Odd<br>2 - Even | 0 |
| 10006 | Stop Bit | uint32_t | R/W | 03H/10H | 0 - STOP 1<br>1 - STOP 2 | 0 |
| 10008 | Data Type | uint32_t | R/W | 03H/10H | 0 - BE<br>1 - LE<br>2 - BE SWAP<br>3 - LE SWAP | 0 |

| Pulse Output 1 Configuration | | | | | | |
|---|---|---|---|---|---|---|
| **Address** | **Parameters** | **Data Type** | **W/R** | **Function** | **Description** | **Default** |
| 10100 | Output 1 Source | uint32_t | R/W | 03H/10H | 0 - Imp. Active Energy<br>1 - Exp. Active Energy<br>2 - Imp. Reactive Energy<br>3 - Exp. Reactive Energy | 0 |
| 10102 | Output 1 Value | uint32_t | R/W | 03H/10H | 1 - 9 (Wh/VArh) | 2 |
| 10104 | Output 1 Multiplier | uint32_t | R/W | 03H/10H | 0 - x 0,001 (B1000)<br>1 - x 0,01 (B100)<br>2 - x 0,1 (B10)<br>3 - x 1<br>4 - x 10 (C10)<br>5 - x 100 (C100)<br>6 - x 1000 (C1000) | 3 |
| 10106 | Output 1 Duration | uint32_t | R/W | 03H/10H | 30-2500(msec) | 60 |

| Pulse Output 2 Configuration | | | | | | |
|---|---|---|---|---|---|---|
| **Address** | **Parameters** | **Data Type** | **W/R** | **Function** | **Description** | **Default** |
| 10200 | Output 2 Source | uint32_t | R/W | 03H/10H | 0 - Imp. Aktif Enerji<br>1 - Exp. Aktif Enerji<br>2 - Imp. Reaktif Enerji<br>3 - Exp. Reaktif Enerji | 2 |
| 10202 | Output 2 Value | uint32_t | R/W | 03H/10H | 1 - 9 (Wh/VArh) | 2 |
| 10204 | Output 2 Multiplier | uint32_t | R/W | 03H/10H | 0 - x 0,001 (B1000)<br>1 - x 0,01 (B100)<br>2 - x 0,1 (B10)<br>3 - x 1<br>4 - x 10 (C10)<br>5 - x 100 (C100)<br>6 - x 1000 (C1000) | 3 |
| 10206 | Output 2 Duration | uint32_t | R/W | 03H/10H | 30-2500(msec) | 60 |

| Digital Input Configuration | | | | | | |
|---|---|---|---|---|---|---|
| **Address** | **Parameters** | **Data Type** | **W/R** | **Function** | **Description** | **Default** |
| 10300 | Input 1 Source | uint32_t | R/W | 03H/10H | 0 - Input Counter<br>1 - Tariff | 0 |
| 10302 | Input 1 Delay | uint32_t | R/W | 03H/10H | 100-2000(msec) | 500 |
| 10304 | Input 1 Edge | uint32_t | R/W | 03H/10H | 0 - Rising<br>1 - Falling<br>2 - Both | 0 |
| 10306 | Input 2 Source | uint32_t | R/W | 03H/10H | 0 - Input Counter<br>1 - Tariff | 0 |
| 10308 | Input 2 Delay | uint32_t | R/W | 03H/10H | 100-2000(msec) | 500 |
| 10310 | Input 2 Edge | uint32_t | R/W | 03H/10H | 0 - Rising<br>1 - Falling<br>2 - Both | 0 |

| Network Configuration | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 10400 | CT Primary | float | R/W | 03H/10H | 5-9999(A) | 5 |
| 10402 | CT Secondary | uint32_t | R/W | 03H/10H | 0 - CT / 5<br>1 - CT / 1 | 0 |
| 10404 | VT Primary | float | R/W | 03H/10H | 100-1000000(V) | 230 |
| 10406 | VT Secondary | float | R/W | 03H/10H | 100-500(V) | 230 |
| 10408 | System Frequency | uint32_t | R/W | 03H/10H | 0 - 50Hz<br>1 - 60Hz | 0 |
| 10410 | Connection Type | uint32_t | R/W | 03H/10H | 0 - 3P4W<br>1 - 3P3W | 0 |
| 10412 | Transformer Option | uint32_t | R/W | 03H/10H | 0 - Without Ratio<br>1 - With Ratio | 1 - 999999 |

| Demand Configuration | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 10500 | Demand Method | uint32_t | R/W | 03H/10H | 0 - Fixed<br>1 - Sliding<br>2 - Rolling | 1 |
| 10502 | Demand Period | uint32_t | R/W | 03H/10H | 1-60 (Mins) | 15 |
| 10504 | Sub Interval | uint32_t | R/W | 03H/10H | 1-60 (Mins) | 1 |

| Voltage Alarm Configuration | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 10700 | Voltage Low Limit | float | R/W | 03H/10H | 1-500 (V) | 0 |
| 10702 | Voltage High Limit | float | R/W | 03H/10H | 1-500 (V) | 0 |
| 10704 | Voltage Alarm Delay | uint32_t | R/W | 03H/10H | 1-600 (sec) | 5 |
| 10706 | Voltage Alarm Hysteresis | float | R/W | 03H/10H | 0-20 (%) | 5 |
| 10708 | Voltage Alarm Output | uint32_t | R/W | 03H/10H | 0 - Off<br>1 - R1<br>2 - R2 | 0 |

| Current Alarm Configuration | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 10710 | Current Low Limit | float | R/W | 03H/10H | 0.01-6 (A) | 0 |
| 10712 | Current High Limit | float | R/W | 03H/10H | 0.01-6 (A) | 0 |
| 10714 | Current Alarm Delay | uint32_t | R/W | 03H/10H | 1-600 (sec) | 5 |
| 10716 | Current Alarm Hysteresis | float | R/W | 03H/10H | 0-20(%) | 5 |
| 10718 | Current Alarm Output | uint32_t | R/W | 03H/10H | 0 - Off<br>1 - R1<br>2 - R2 | 0 |

| Active Power Alarm C ation | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 10720 | Active Power Low Limit | float | R/W | 03H/10H | 1-1800 (W) | 0 |
| 10722 | Active Power High Limit | float | R/W | 03H/10H | 1-1800 (W) | 0 |
| 10724 | Active Power Alarm Delay | uint32_t | R/W | 03H/10H | 1-600 (sec) | 5 |
| 10726 | Active Power Alarm Hysteresis | float | R/W | 03H/10H | 0-20(%) | 5 |
| 10728 | Active Power Alarm Output | uint32_t | R/W | 03H/10H | 0 - Off<br>1 - R1<br>2 - R2 | 0 |

| Reactive Power Alarm C ation | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameter | Data Type | W/R | Function | Description | Default |
| 10730 | Reactive Power Low Limit | float | R/W | 03H/10H | 1-1800 (VAr) | 0 |
| 10732 | Reactive Power High Limit | float | R/W | 03H/10H | 1-1800 (VAr) | 0 |
| 10734 | Reactive Power Alarm Delay | uint32_t | R/W | 03H/10H | 1-600 (sec) | 5 |
| 10736 | Reactive Power Alarm Hysteresis | float | R/W | 03H/10H | 0-20(%) | 5 |
| 10738 | Reactive Power Alarm Output | uint32_t | R/W | 03H/10H | 0 - Off<br>1 - R1<br>2 - R2 | 0 |

| Apparent Power Alarm Configuration | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 10740 | Görünür Güç Alt Limit | float | R/W | 03H/10H | 1-1800 (VA) | 0 |
| 10742 | Görünür Güç Üst Limit | float | R/W | 03H/10H | 1-1800 (VA) | 0 |
| 10744 | Görünür Güç Alarm Gecikmesi | uint32_t | R/W | 03H/10H | 1-600 (sn) | 5 |
| 10746 | Görünür Güç Alarm Histerezis | float | R/W | 03H/10H | 0-20(%) | 5 |
| 10748 | Görünür Güç Alarm Çıkışı | uint32_t | R/W | 03H/10H | 0 - Kapalı<br>1 - R1<br>2 - R2 | 0 |

| Power Factor Alarm Configuration | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 10750 | Power Factor Low Limit | float | R/W | 03H/10H | 0.00-1.00 | 0 |
| 10752 | Power Factor High Limit | float | R/W | 03H/10H | 0.00-1.00 | 0 |
| 10754 | Power Factor Alarm Delay | uint32_t | R/W | 03H/10H | 1-600 (sec) | 5 |
| 10756 | Power Factor Alarm Hysteresis | float | R/W | 03H/10H | 0-20(%) | 5 |
| 10758 | Power Factor Alarm Output | uint32_t | R/W | 03H/10H | 0 - Off<br>1 - R1<br>2 - R2 | 0 |

| Frequency Alarm C ation | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameters | Data Type | W/R | Function | Description | Default |
| 10760 | Frequency Low Limit | float | R/W | 03H/10H | 45-65 (Hz) | 0 |
| 10762 | Frequency High Limit | float | R/W | 03H/10H | 45-65 (Hz) | 0 |
| 10764 | Frequency Alarm Delay | uint32_t | R/W | 03H/10H | 1-600 (sec) | 5 |
| 10766 | Frequency Alarm Hysteresis | float | R/W | 03H/10H | 0-20(%) | 5 |
| 10768 | Frequency Alarm Output | uint32_t | R/W | 03H/10H | 0 - Off<br>1 - R1<br>2 - R2 | 0 |

| Device Flags | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameter | Data Type | W/R | Function | Description | Default |
| 45000 | Error Flags | uint32_t | R | 10H | 0x00000001 – Pulse 1 Error<br>0x00000002 – Pulse 2 Error<br>0x00000004 – Rotation Error<br>0x00000008 – Current Error | |
| 45100 | Alarm Flags | uint32_t | R | 10H | 0x00000001 – V Min Alarm<br>0x00000002 – I Min Alarm<br>0x00000004 – P Min Alarm<br>0x00000008 – Q Min Alarm<br>0x00000010 – S Min Alarm<br>0x00000020 – PF Min Alarm<br>0x00000040 – F Min Alarm<br>0x00010000 – V Max Alarm<br>0x00020000 – I Max Alarm<br>0x00040000 – P Max Alarm<br>0x00080000 – Q Max Alarm<br>0x00100000 – S Max Alarm<br>0x00200000 – PF Max Alarm<br>0x00400000 – F Max Alarm | |
| 30000 | Digital Input Flags | uint32_t | R | 10H | 0x00000001 – Input 1<br>0x00000002 – Input 2 | |

| Command List | | | | | | |
|---|---|---|---|---|---|---|
| Address | Parameter | Data Type | W/R | Function | Description | Default |
| 31000 | General Commands | uint16_t | W | 06H | 1000- Save Settings<br>1100- Return to Default<br>1200- Restart<br>1300- Clear Demand Data<br>1400- Clear Min/Max Data<br>1500- Clear Energy Data<br>1600- Clear Input Counter Data<br>1700- Activate 1st Tariff<br>1800- Activate 1st Tariff<br>1900- Activate 3rd Tariff<br>2000- Clear Run Hour Counter | |

BÖLÜM 4

# FACTORY DEFAULT SETTINGS

| Network Settings | | | |
|---|---|---|---|
| **Parameter** | **Factory Default** | **Unit** | **Setting Range / Values** |
| CT Primary | 5 | - | 5-9999 |
| CT Secondary | 5 | - | 1/5 |
| VT Primary | 230 | - | 100-999 |
| VT Secondary | 230 | - | 100-500 |
| System Frequency | 50 | Hz | 50/60 |
| Connection Type | 3P4W | - | 3P4W / 3P3W |
| Transformer Option | With | - | With / Without |

**In directly connected devices, there are no "Network Settings". Only the "3P4W" connection type is supported.**

| Communication Settings | | | |
|---|---|---|---|
| **Parameter** | **Factory Default** | **Unit** | **Setting Range / Values** |
| Slave ID | 1 | - | 1-247 |
| Baudrate | 38400 | - | 1200 / 4800 / 9600 / 19200 / 38400 / 57600 |
| Parity | None | - | None / Odd /Even |
| Stop Bit | 1 | - | 1-2 |
| Data Type | BE | - | BE / LE / BESP / LESP |

| Alarm Settings | | | |
|---|---|---|---|
| **Parameter** | **Factory Default** | **Unit** | **Setting Range / Values** |
| **Voltage (V)** | | | |
| **Low Limit** | 0 | V | 0-500 |
| **High Limit** | 0 | V | 0-500 |
| **Delay** | 5 | sec | 1-600 |
| **Hysteresis** | 5 | % | 5-20 |
| **Relay Assignment** | Off | - | Off / On |
| **Current (I)** | | | |
| **Low Limit** | 0.00 | A | 0.00 - 6.00 |
| **High Limit** | 0.00 | A | 0.00 - 6.00 |
| **Delay** | 5 | sec | 1-600 |
| **Hysteresis** | 5 | % | 5-20 |
| **Relay Assignment** | Off | - | Off / On |
| **Frequency (F)** | | | |
| **Low Limit** | 0 | Hz | 45-65 |
| **High Limit** | 0 | Hz | 45-65 |
| **Delay** | 5 | sec | 1-600 |
| **Hysteresis** | 5 | % | 5-20 |
| **Relay Assignment** | Off | - | Off / On |
| **Active Power (P)** | | | |
| **Low Limit** | 0 | W | 0-1800 |
| **High Limit** | 0 | W | 0-1800 |
| **Delay** | 5 | sec | 1-600 |
| **Hysteresis** | 5 | % | 5-20 |
| **Relay Assignment** | Off | - | Off / On |

| Alarm Settings | | | |
|---|---|---|---|
| **Parameter** | **Factory Default** | **Unit** | **Setting Range / Values** |
| **Reactive Power (Q)** | | | |
| **Low Limit** | 0 | VAr | 0-1800 |
| **High Limit** | 0 | VAr | 0-1800 |
| **Delay** | 5 | sec | 1-600 |
| **Hysteresis** | 5 | % | 5-20 |
| **Relay Assignment** | Off | - | Off / On |
| **Apparent Power (S)** | | | |
| **Low Limit** | 0 | VA | 0-1800 |
| **High Limit** | 0 | VA | 0-1800 |
| **Delay** | 5 | sec | 1-600 |
| **Hysteresis** | 5 | % | 5-20 |
| **Relay Assignment** | Off | - | Off / On |
| **Power Factor (PF)** | | | |
| **Low Limit** | 0.00 | - | 0.00-1.00 |
| **High Limit** | 0.00 | - | 0.00-1.00 |
| **Delay** | 5 | sec | 1-600 |
| **Hysteresis** | 5 | % | 5-20 |
| **Relay Assignment** | Off | - | Off / On |

| Digital Input Settings | | | |
|---|---|---|---|
| **Parameter** | **Factory Default** | **Unit** | **Setting Range / Values** |
| **Digital Input 1** | | | |
| **Source** | Tariff | - | Tariff / Input Counter |
| **Delay** | 500 | msec | 100-2000 |
| **Edge** | Rise | - | Rise / Fall / Both |
| **Digital Input 2** | | | |
| **Source** | Tariff | - | Tariff / Input Counter |
| **Delay** | 500 | ms | 100-2000 |
| **Edge** | Rise | - | Rise / Fall / Both |

| Pulse Output Settings | | | |
|---|---|---|---|
| **Parameter** | **Factory Default** | **Unit** | **Setting Range / Values** |
| **Digital Output 1** | | | |
| **Source** | Import Active Energy | - | I. Active / I. Reactive / E. Active / E. Reactive |
| **Value** | 2 | - | 1-9 |
| **Multiplier** | 1 | - | 1 - 10 (M10) - 100 (M100) / 1000 (M1E3) - 1/1000 (D1E3) - 1/100 (D100) - 1/10 (D10) |
| **Duration** | 60 | msec | 30-2500 |
| **Digital Output 2** | | | |
| **Source** | Import Reactive Energy | - | I. Active / I. Reactive / E. Active / E. Reactive |
| **Value** | 2 | - | 1-9 |
| **Multiplier** | 1 | - | 1 - 10 (M10) - 100 (M100) / 1000 (M1E3) - 1/1000 (D1E3) - 1/100 (D100) - 1/10 (D10) |
| **Duration** | 60 | msec | 30-2500 |

| Security Settings | | | |
|---|---|---|---|
| **Parameter** | **Factory Default** | **Unit** | **Setting Range / Values** |
| **Activation** | Off | - | Off / On |
| **Password** | 0000001 | - | 0000001-9999999 |

Klemsan

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