

**MODBUS TABLE ORGANIZATION**

| Starting Address of the Group Registers (Dec) | Starting Address of the Group Registers (Hex) | System Version (Release) | System Version (Build) | Group Name (Text)                | Group Code (Hex) | Group Complexity (Hex) | Group Version (Hex) |
|---|---|--------------------------|------------------------|----------------------------------|------------------|------------------------|---------------------|
| 0   | 0   | 01                       | 19                     | Modbus settings                  | 00 01            | 10                     | 01 00               |
| 4096  | 1000  | 01                       | 19                     | External input                   | 10 00            | 10                     | 01 00               |
| 20480   | 5000  | 01                       | 19                     | Three-phase Electric Measurement | 71 03            | 40                     | 01 00               |
| 20480   | 5000  | 01                       | 19                     | Measure configuration            | 71 03            | 40                     | 01 00               |

**MODBUS PROTOCOL DETAILS**

| Function Code (Dec)                           | Exception Codes (Dec) | Data Encoding                              |
|---|-----------------------|--|
| 2 (Read Discrete Inputs)                      | 1, 2, 3               | "Big Endian" (most significant byte first) |
| 1 (Read Coils)                                | 1, 2, 3               | "Big Endian" (most significant byte first) |
| 5/15 (Write Single/Multiple Coils)            | 1, 2, 3               | "Big Endian" (most significant byte first) |
| 4 (Read Input Registers)                      | 1, 2, 3               | "Big Endian" (most significant byte first) |
| 3 (Read Holding register)                     | 1, 2, 3               | "Big Endian" (most significant byte first) |
| 6/16 (Write Single/Multiple Holding register) | 1, 2, 3, 4            | "Big Endian" (most significant byte first) |

**MODBUS OVER SERIAL DETAILS**

| Physical Layer                                       | Transmission Modes | Device Addressing | Baud Rates (bit/s)                      | Data Bits | Data bits trasmission sequence | Parity                         | Stop Bits |
|--|--------------------|-------------------|---|-----------|--------------------------------|--------------------------------|-----------|
| standard EIA/TIA 485 (RS-485) two-wire configuration | RTU                | 1÷255             | programmable (4800, 9600, 19200, 38400) | 8         | Least significant bit first    | programmable (NONE, EVEN, ODD) | 1         |

**MASTER/SLAVE COMMUNICATION TIMING**

| Timer Description                            | Timer Value (msec)         |
|--|----------------------------|
| Inter-character time-out                     | < 1,5 character times      |
| Response delay (from master request)         | programmable ( 0 ÷ 99 ms ) |
| Delay Time (between two master trasmissions) | -                          |

REFER ALSO TO: [www.modbus.org](http://www.modbus.org) - MODBUS over serial line specification and implementation guide V1.02  
- MODBUS APPLICATION PROTOCOL SPECIFICATION V1.1b

NOTE: File and printed copies of this document are not subject to document change control.



| Register Number | Register Address (Dec) | Register Address (Hex) | Dimension [bit] | Description           | Note       | Read Function Codes (Dec) | Data Storing |
|-----------------|------------------------|------------------------|-----------------|-----------------------|------------|---------------------------|--------------|
| 4097            | 4096                   | 1000                   | 1               | External input        |            |                           |              |
| 4097            | 4096                   | 1000                   | 1               | Current active tariff | See Note 1 | 2                         |              |

| Note 1                     |
|----------------------------|
| 0: Tariff 1<br>1: Tariff 2 |

COMMUNICATION PROTOCOL

| Register Number      | Register Address (Dec) | Register Address (Hex) | Dimension [bit] | Description | Note | Read Function Codes (Dec) | Write Function Codes (Dec) | Data Storing |
|----------------------|------------------------|------------------------|-----------------|-------------|------|---------------------------|----------------------------|--------------|
| (no COILS available) |                        |                        |                 |             |      |                           |                            |              |



| Register Number | Register Address (Dec) | Register Address (Hex) | Dimension [word] | Bit Position | Description                                     | Type             | Scale | Unit | Range | Note                 | Read Function Code (Dec) | Data Storing |
|-----------------|------------------------|------------------------|------------------|--------------|---|------------------|-------|------|-------|----------------------|--------------------------|--------------|
| <b>20481</b>    | <b>20480</b>           | <b>5000</b>            | <b>257</b>       |              | <b>Three-phase Electric Measurement</b>         |                  |       |      |       |                      |                          |              |
| 20481           | 20480                  | 5000                   | 2                |              | Phase 1 Current Value (R)                       | unsigned integer | 1     | mA   |       | See Note 1           | 4                        |              |
| 20483           | 20482                  | 5002                   | 2                |              | Phase 2 Current Value (S)                       | unsigned integer | 1     | mA   |       | See Note 1           | 4                        |              |
| 20485           | 20484                  | 5004                   | 2                |              | Phase 3 Current Value (T)                       | unsigned integer | 1     | mA   |       | See Note 1           | 4                        |              |
| 20487           | 20486                  | 5006                   | 23               |              | RESERVED (all return "8000h")                   |                  |       |      |       |                      |                          |              |
| 20510           | 20509                  | 501D                   | 2                |              | 1-N Voltage                                     | unsigned integer | 1     | mV   |       | See Note 1           | 4                        |              |
| 20512           | 20511                  | 501F                   | 2                |              | 2-N Voltage                                     | unsigned integer | 1     | mV   |       | See Note 1           | 4                        |              |
| 20514           | 20513                  | 5021                   | 2                |              | 3-N Voltage                                     | unsigned integer | 1     | mV   |       | See Note 1           | 4                        |              |
| 20516           | 20515                  | 5023                   | 2                |              | 1-2 Voltage                                     | unsigned integer | 1     | mV   |       | See Note 1           | 4                        |              |
| 20518           | 20517                  | 5025                   | 2                |              | 2-3 Voltage                                     | unsigned integer | 1     | mV   |       | See Note 1           | 4                        |              |
| 20520           | 20519                  | 5027                   | 2                |              | 3-1 Voltage                                     | unsigned integer | 1     | mV   |       | See Note 1           | 4                        |              |
| 20522           | 20521                  | 5029                   | 16               |              | RESERVED (all return "8000h")                   |                  |       |      |       |                      |                          |              |
| 20538           | 20537                  | 5039                   | 1                |              | Three-phase frequency                           | unsigned integer | 0,01  | Hz   |       | See Note 1           | 4                        |              |
| 20539           | 20538                  | 503A                   | 2                |              | Three-phase Active Power                        | signed integer   |       |      |       | See Notes 2 and 5    | 4                        |              |
| 20541           | 20540                  | 503C                   | 2                |              | Three-phase reactive power                      | signed integer   |       |      |       | See Notes 2 and 5    | 4                        |              |
| 20543           | 20542                  | 503E                   | 2                |              | RESERVED (all return "8000h")                   |                  |       |      |       |                      |                          |              |
| 20545           | 20544                  | 5040                   | 2                |              | Three-Phase Apparent Power                      | signed integer   |       |      |       | See Notes 2 and 5    | 4                        |              |
| 20547           | 20546                  | 5042                   | 2                |              | RESERVED (all return "8000h")                   |                  |       |      |       |                      |                          |              |
| 20549           | 20548                  | 5044                   | 1                |              | Three-phase Power Factor (PF)                   | signed integer   | 0,01  |      |       | See Note 2           | 4                        |              |
| 20550           | 20549                  | 5045                   | 1                |              | RESERVED (returns "8000h")                      |                  |       |      |       |                      |                          |              |
| 20551           | 20550                  | 5046                   | 1                |              | Power Factor (PF) sector                        | unsigned integer |       |      |       | See Note 5           | 4                        |              |
| 20552           | 20551                  | 5047                   | 2                |              | Phase 1 Active Power                            | signed integer   |       |      |       | See Notes 2 and 6    | 4                        |              |
| 20554           | 20553                  | 5049                   | 2                |              | Phase 2 Active Power                            | signed integer   |       |      |       | See Notes 2 and 6    | 4                        |              |
| 20556           | 20555                  | 504B                   | 2                |              | Phase 3 Active Power                            | signed integer   |       |      |       | See Notes 2 and 6    | 4                        |              |
| 20558           | 20557                  | 504D                   | 2                |              | Phase 1 Reactive power                          | signed integer   |       |      |       | See Notes 2 and 6    | 4                        |              |
| 20560           | 20559                  | 504F                   | 2                |              | Phase 2 Reactive power                          | signed integer   |       |      |       | See Notes 2 and 6    | 4                        |              |
| 20562           | 20561                  | 5051                   | 2                |              | Phase 3 Reactive power                          | signed integer   |       |      |       | See Notes 2 and 6    | 4                        |              |
| 20564           | 20563                  | 5053                   | 6                |              | RESERVED (returns "8000h")                      |                  |       |      |       |                      |                          |              |
| 20570           | 20569                  | 5059                   | 2                |              | Phase 1 Apparent Power                          | unsigned integer |       |      |       | See Notes 1 and 6    | 4                        |              |
| 20572           | 20571                  | 505B                   | 2                |              | Phase 2 Apparent Power                          | unsigned integer |       |      |       | See Notes 1 and 6    | 4                        |              |
| 20574           | 20573                  | 505D                   | 2                |              | Phase 3 Apparent Power                          | unsigned integer |       |      |       | See Notes 1 and 6    | 4                        |              |
| 20576           | 20575                  | 505F                   | 17               |              | RESERVED (returns "8000h")                      |                  |       |      |       |                      |                          |              |
| 20593           | 20592                  | 5070                   | 2                |              | Positive Three-phase Active Energy              | unsigned integer |       |      |       | See Notes 1 and 7    | 4                        | Y            |
| 20595           | 20594                  | 5072                   | 2                |              | Negative Three-phase Active Energy              | unsigned integer |       |      |       | See Notes 1 and 7    | 4                        | Y            |
| 20597           | 20596                  | 5074                   | 2                |              | RESERVED (returns "8000000h")                   |                  |       |      |       |                      |                          |              |
| 20599           | 20598                  | 5076                   | 2                |              | Positive Three-phase Reactive Energy            | unsigned integer |       |      |       | See Notes 1 and 7    | 4                        | Y            |
| 20601           | 20600                  | 5078                   | 2                |              | Negative Three-phase Reactive Energy            | unsigned integer |       |      |       | See Notes 1 and 7    | 4                        | Y            |
| 20603           | 20602                  | 507A                   | 2                |              | RESERVED (returns "8000000h")                   |                  |       |      |       |                      |                          |              |
| 20605           | 20604                  | 507C                   | 2                |              | Positive Three-phase Active Energy (Tariff 1)   | unsigned integer |       |      |       | See Notes 1, 7 and 9 | 4                        | Y            |
| 20607           | 20606                  | 507E                   | 2                |              | Negative Three-phase Active Energy (Tariff 1)   | unsigned integer |       |      |       | See Notes 1, 7 and 9 | 4                        | Y            |
| 20609           | 20608                  | 5080                   | 2                |              | Positive Three-phase Reactive Energy (Tariff 1) | unsigned integer |       |      |       | See Notes 1, 7 and 9 | 4                        | Y            |
| 20611           | 20610                  | 5082                   | 2                |              | Negative Three-phase Reactive Energy (Tariff 1) | unsigned integer |       |      |       | See Notes 1, 7 and 9 | 4                        | Y            |
| 20613           | 20612                  | 5084                   | 2                |              | Positive Three-phase Active Energy (Tariff 2)   | unsigned integer |       |      |       | See Notes 1, 7 and 9 | 4                        | Y            |
| 20615           | 20614                  | 5086                   | 2                |              | Negative Three-phase Active Energy (Tariff 2)   | unsigned integer |       |      |       | See Notes 1, 7 and 9 | 4                        | Y            |
| 20617           | 20616                  | 5088                   | 2                |              | Positive Three-phase Reactive Energy (Tariff 2) | unsigned integer |       |      |       | See Notes 1, 7 and 9 | 4                        | Y            |



|       |       |      |    |  |   |                  |      |       |  |                      |   |   |
|-------|-------|------|----|--|---|------------------|------|-------|--|----------------------|---|---|
| 20619 | 20618 | 508A | 2  |  | Negative Three-phase Reactive Energy (Tariff 2)             | unsigned integer |      |       |  | See Notes 1, 7 and 9 | 4 | Y |
| 20621 | 20620 | 508C | 18 |  | RESERVED (returns "8000h")                                  |                  |      |       |  |                      |   |   |
| 20639 | 20638 | 509E | 2  |  | Positive Three-phase Active Energy (secondary)              | unsigned integer | 0,01 | kWh   |  | See Note 1           | 4 | Y |
| 20641 | 20640 | 50A0 | 2  |  | Negative Three-phase Active Energy (secondary)              | unsigned integer | 0,01 | kWh   |  | See Note 1           | 4 | Y |
| 20643 | 20642 | 50A2 | 2  |  | RESERVED (returns "80000000h")                              |                  |      |       |  |                      |   |   |
| 20645 | 20644 | 50A4 | 2  |  | Positive Three-phase Reactive Energy (secondary)            | unsigned integer | 0,01 | kVarh |  | See Note 1           | 4 | Y |
| 20647 | 20646 | 50A6 | 2  |  | Negative Three-phase Reactive Energy (secondary)            | unsigned integer | 0,01 | kVarh |  | See Note 1           | 4 | Y |
| 20649 | 20648 | 50A8 | 2  |  | RESERVED (returns "80000000h")                              |                  |      |       |  |                      |   |   |
| 20651 | 20650 | 50AA | 2  |  | Positive Three-phase Active Energy (Tariff 1) (secondary)   | unsigned integer | 0,01 | kWh   |  | See Notes 1 and 9    | 4 | Y |
| 20653 | 20652 | 50AC | 2  |  | Negative Three-phase Active Energy (Tariff 1) (secondary)   | unsigned integer | 0,01 | kWh   |  | See Notes 1 and 9    | 4 | Y |
| 20655 | 20654 | 50AE | 2  |  | Positive Three-phase Reactive Energy (Tariff 1) (secondary) | unsigned integer | 0,01 | kVarh |  | See Notes 1 and 9    | 4 | Y |
| 20657 | 20656 | 50B0 | 2  |  | Negative Three-phase Reactive Energy (Tariff 1) (secondary) | unsigned integer | 0,01 | kVarh |  | See Notes 1 and 9    | 4 | Y |
| 20659 | 20658 | 50B2 | 2  |  | Positive Three-phase Active Energy (Tariff 2) (secondary)   | unsigned integer | 0,01 | kWh   |  | See Notes 1 and 9    | 4 | Y |
| 20661 | 20660 | 50B4 | 2  |  | Negative Three-phase Active Energy (Tariff 2) (secondary)   | unsigned integer | 0,01 | kWh   |  | See Notes 1 and 9    | 4 | Y |
| 20663 | 20662 | 50B6 | 2  |  | Positive Three-phase Reactive Energy (Tariff 2) (secondary) | unsigned integer | 0,01 | kVarh |  | See Notes 1 and 9    | 4 | Y |
| 20665 | 20664 | 50B8 | 2  |  | Negative Three-phase Reactive Energy (Tariff 2) (secondary) | unsigned integer | 0,01 | kVarh |  | See Notes 1 and 9    | 4 | Y |
| 20667 | 20666 | 50BA | 59 |  | RESERVED (returns "8000h")                                  |                  |      |       |  |                      |   |   |
| 20726 | 20725 | 50F5 | 1  |  | Phase shift between V1 - V2                                 | unsigned integer | 0,1  | °     |  | See Note 3           | 4 |   |
| 20727 | 20726 | 50F6 | 1  |  | Phase shift between V2 - V3                                 | unsigned integer | 0,1  | °     |  | See Note 3           | 4 |   |
| 20728 | 20727 | 50F7 | 1  |  | Phase shift between V3 - V1                                 | unsigned integer | 0,1  | °     |  | See Note 3           | 4 |   |
| 20729 | 20728 | 50F8 | 1  |  | Phase shift between U12 - U23                               | unsigned integer | 0,1  | °     |  | See Note 4           | 4 |   |
| 20730 | 20729 | 50F9 | 1  |  | Phase shift between U23 - U31                               | unsigned integer | 0,1  | °     |  | See Note 4           | 4 |   |
| 20731 | 20730 | 50FA | 1  |  | Phase shift between U31 - U12                               | unsigned integer | 0,1  | °     |  | See Note 4           | 4 |   |
| 20732 | 20731 | 50FB | 1  |  | Phase shift between I1 - I2                                 | unsigned integer | 0,1  | °     |  | See Note 8           | 4 |   |
| 20733 | 20732 | 50FC | 1  |  | Phase shift between I2 - I3                                 | unsigned integer | 0,1  | °     |  | See Note 8           | 4 |   |
| 20734 | 20733 | 50FD | 1  |  | Phase shift between I3 - I1                                 | unsigned integer | 0,1  | °     |  | See Note 8           | 4 |   |
| 20735 | 20734 | 50FE | 1  |  | Phase shift between V1 - I1                                 | unsigned integer | 0,1  | °     |  | See Note 1           | 4 |   |
| 20736 | 20735 | 50FF | 1  |  | Phase shift between V2 - I2                                 | unsigned integer | 0,1  | °     |  | See Note 8           | 4 |   |
| 20737 | 20736 | 5100 | 1  |  | Phase shift between V3 - I3                                 | unsigned integer | 0,1  | °     |  | See Note 8           | 4 |   |

|  |                         |              |
|--|-------------------------|--------------|
| <b>Note 1</b>  |                         |              |
| Expressed on "numeric coding"; without mark (fixed more significant bit = 0);                                  |                         |              |
| <b>Note 2</b>  |                         |              |
| Expressed in "numeric coding"; with mark (more significant bit = mark);  |                         |              |
| <b>Note 3</b>  |                         |              |
| Expressed on "numeric coding"; without mark (fixed more significant bit = 0);<br>Only with 3N-3E               |                         |              |
| <b>Note 4</b>  |                         |              |
| Expressed on "numeric coding"; without mark (fixed more significant bit = 0);<br>Only with 3-3E or 3-2E        |                         |              |
| <b>Note 5</b>  |                         |              |
| 0: power factor = 1<br>1: inductive<br>2: capacitive   |                         |              |
| <b>Note 6</b>  |                         |              |
| <b>Transformer ratio</b>   | <b>Measurement unit</b> | <b>Scale</b> |
| $KTA \cdot KTV < 5000$   | W/var/VA                | 0,01         |
| $KTA \cdot KTV \geq 5000$  | kW/kvar/kVA             | 0,01         |
| <b>Note 7</b>  |                         |              |
| <b>Transformer ratio</b>   | <b>Measurement unit</b> | <b>Scale</b> |
| $1 \leq KTA \cdot KTV < 10$  | kWh/kvarh               | 0,01         |
| $10 \leq KTA \cdot KTV < 100$  | kWh/kvarh               | 0,1          |
| $100 \leq KTA \cdot KTV < 1000$  | kWh/kvarh               | 1            |
| $1000 \leq KTA \cdot KTV < 10000$  | MWh/Mvarh               | 0,01         |
| $10000 \leq KTA \cdot KTV < 100000$  | MWh/Mvarh               | 0,1          |
| $100000 \leq KTA \cdot KTV$  | MWh/Mvarh               | 1            |
| <b>Note 8</b>  |                         |              |
| Expressed on "numeric coding"; without mark (fixed more significant bit = 0);<br>Only with 3N-3E, 3-3E or 3-2E |                         |              |
| <b>Note 9</b>  |                         |              |
| Only if the input acts as "Tariff selector"  |                         |              |
| <b>Note 10</b>   |                         |              |
| Only if the input acts as "Pulse measurement"  |                         |              |

| Register Number | Register Address (Dec) | Register Address (Hex) | Dimension [word] | Bit Position | Description  | Type             | Scale | Unit  | Range       | Note               | Read Function Codes (Dec) | Write Function Codes (Dec) | Data Storing |
|-----------------|------------------------|------------------------|------------------|--------------|--|------------------|-------|-------|-------------|--------------------|---------------------------|----------------------------|--------------|
| <b>1</b>        | <b>0</b>               | <b>0</b>               | <b>1</b>         |              | <b>Modbus settings</b>                                   |                  |       |       |             |                    |                           |                            |              |
| 1               | 0                      | 0                      | 1                |              | Protocol type  | unsigned integer |       |       |             | See Note 1         | 3                         | 16                         | Y            |
| <b>20481</b>    | <b>20480</b>           | <b>5000</b>            | <b>223</b>       |              | <b>Measure configuration</b>                             |                  |       |       |             |                    |                           |                            |              |
| 20481           | 20480                  | 5000                   | 1                |              | Measurement System Features                              | unsigned integer |       |       |             | See Note 3         | 3                         | 16                         | Y            |
| 20482           | 20481                  | 5001                   | 1                |              | Phase Currents Transformation Ratio (KTA)                | unsigned integer | 1     |       | 1 ÷ 9999    |                    | 3                         | 16                         | Y            |
| 20483           | 20482                  | 5002                   | 2                |              | RESERVED (all return "8000h")                            |                  |       |       |             |                    |                           |                            |              |
| 20485           | 20484                  | 5004                   | 1                |              | Voltage Transformation Ratio (KTV)                       | unsigned integer | 0,01  |       | 100 ÷ 30000 |                    | 3                         | 16                         | Y            |
| 20486           | 20485                  | 5005                   | 2                |              | Calculation Settings Requirement                         | unsigned integer |       |       |             | See Note 4         | 3                         | 16                         | Y            |
| 20488           | 20487                  | 5007                   | 71               |              | RESERVED (all return "8000h")                            |                  |       |       |             |                    |                           |                            |              |
| 20559           | 20558                  | 504E                   | 2                |              | Partial Positive Three-phase Active Energy               | unsigned integer |       |       |             | See Notes 5 and 10 | 3                         | 16                         | Y            |
| 20561           | 20560                  | 5050                   | 2                |              | Partial Negative Three-phase Active Energy               | unsigned integer |       |       |             | See Notes 5 and 10 | 3                         | 16                         | Y            |
| 20563           | 20562                  | 5052                   | 2                |              | RESERVED (all return "8000h")                            |                  |       |       |             |                    |                           |                            |              |
| 20565           | 20564                  | 5054                   | 2                |              | Partial Positive Three-phase Reactive Energy             | unsigned integer |       |       |             | See Notes 5 and 10 | 3                         | 16                         | Y            |
| 20567           | 20566                  | 5056                   | 2                |              | Partial Negative Three-phase Reactive Energy             | unsigned integer |       |       |             | See Notes 5 and 10 | 3                         | 16                         | Y            |
| 20569           | 20568                  | 5058                   | 4                |              | RESERVED (all return "8000h")                            |                  |       |       |             |                    |                           |                            |              |
| 20573           | 20572                  | 505C                   | 2                |              | Partial Positive Three-phase Active Energy (secondary)   | unsigned integer | 0,01  | kWh   |             | See Note 5         | 3                         | 16                         | Y            |
| 20575           | 20574                  | 505E                   | 2                |              | Partial Negative Three-phase Active Energy (secondary)   | unsigned integer | 0,01  | kWh   |             | See Note 5         | 3                         | 16                         | Y            |
| 20577           | 20576                  | 5060                   | 2                |              | RESERVED (all return "8000h")                            |                  |       |       |             |                    |                           |                            |              |
| 20579           | 20578                  | 5062                   | 2                |              | Partial Positive Three-phase Reactive Energy (secondary) | unsigned integer | 0,01  | kvarh |             | See Note 5         | 3                         | 16                         | Y            |
| 20581           | 20580                  | 5064                   | 2                |              | Partial Negative Three-phase Reactive Energy (secondary) | unsigned integer | 0,01  | kvarh |             | See Note 5         | 3                         | 16                         | Y            |
| 20583           | 20582                  | 5066                   | 54               |              | RESERVED (all return "8000h")                            |                  |       |       |             |                    |                           |                            |              |
| 20637           | 20636                  | 509C                   | 2                |              | Total Active Power Requirement (MD)                      | unsigned integer |       |       |             | See Notes 7 and 9  | 3                         | 16                         |              |
| 20639           | 20638                  | 509E                   | 2                |              | Maximum Total Active Power Requirement (PMD)             | unsigned integer |       |       |             | See Notes 7 and 9  | 3                         | 16                         | Y            |
| 20641           | 20640                  | 50A0                   | 32               |              | RESERVED (all return "8000h")                            |                  |       |       |             |                    |                           |                            |              |
| 20673           | 20672                  | 50C0                   | 2                |              | Maximum Total Active Power Requirement Tariff 1 (PMD T1) | unsigned integer |       |       |             | See Notes 5 and 9  | 3                         | 16                         | Y            |
| 20675           | 20674                  | 50C2                   | 4                |              | RESERVED (all return "8000h")                            |                  |       |       |             |                    |                           |                            |              |
| 20679           | 20678                  | 50C6                   | 2                |              | Maximum Total Active Power Requirement Tariff 2 (PMD T2) | unsigned integer |       |       |             | See Notes 5 and 9  | 3                         | 16                         | Y            |
| 20681           | 20680                  | 50C8                   | 16               |              | RESERVED (all return "8000h")                            |                  |       |       |             |                    |                           |                            |              |
| 20697           | 20696                  | 50D8                   | 1                |              | Run hour meter threshold                                 | unsigned integer | 1/100 | %     | 0 ÷ 5000    |                    | 3                         | 16                         | Y            |
| 20698           | 20697                  | 50D9                   | 2                |              | Run hour meter (TOT)                                     | unsigned integer |       | s     |             | See Note 6         | 3                         | 16                         | Y            |
| 20700           | 20699                  | 50DB                   | 2                |              | Run hour meter (Tariff 1)                                | unsigned integer |       | s     |             | See Note 7         | 3                         | 16                         | Y            |
| 20702           | 20701                  | 50DD                   | 2                |              | Run hour meter (Tariff 2)                                | unsigned integer |       | s     |             | See Note 7         | 3                         | 16                         | Y            |

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| <b>Note 1</b>  |
| 0: Standard MAP;<br>1: Basic MAP.<br><br>This register is shared between the two maps. It's always possible to read and write this register.   |
| <b>Note 3</b>  |
| BYTE1 (MSB):<br>"32": Three-phase system without neutral 3-2E;<br>"33": Three-phase system without neutral 3-3E;<br>"34": Three-phase system with neutral 3N-3E.<br><br>BYTE0 (LSB):<br>"00" <b>[default]</b> : if the active power flows in the normal/indicated direction ("upstream to downstream" or depending on the polarity indicated for the connection ); |
| <b>Note 4</b>  |



|   |                         |              |
|---|-------------------------|--------------|
| WORD0 (LSW): calculation method<br>1: "sliding block interval"  |                         |              |
| WORD1 (MSW): calculation window (value in [min] (5, 8, 10, 15, 20, 30, 60), "default"=15)                         |                         |              |
| <b>Note 5</b>   |                         |              |
| This register is writable, but only with zero   |                         |              |
| <b>Note 6</b>   |                         |              |
| This register is writable, but only with zero. Writing this register you will delete also the two tariffs values. |                         |              |
| <b>Note 7</b>   |                         |              |
| Writing this register has no effect.  |                         |              |
| <b>Note 9</b>   |                         |              |
| <b>Transformer ratio</b>  | <b>Measurement unit</b> | <b>Scale</b> |
| KTA*KTV < 5000  | W/var/VA                | 0,01         |
| KTA*KTV ≥ 5000  | kW/kvar/kVA             | 0,01         |
| <b>Note 10</b>  |                         |              |
| <b>Transformer ratio</b>  | <b>Measurement unit</b> | <b>Scale</b> |
| 1 ≤ KTA*KTV < 10  | kWh/kvarh               | 0,01         |
| 10 ≤ KTA*KTV < 100  | kWh/kvarh               | 0,1          |
| 100 ≤ KTA*KTV < 1000  | kWh/kvarh               | 1            |
| 1000 ≤ KTA*KTV < 10000  | MWh/Mvarh               | 0,01         |
| 10000 ≤ KTA*KTV < 100000  | MWh/Mvarh               | 0,1          |
| 100000 ≤ KTA*KTV  | MWh/Mvarh               | 1            |
| <b>Note 11</b>  |                         |              |
| Only if the input acts as "Tariff selector"   |                         |              |